



**PROPOSED GATE, GATEHOUSE, WASHROOMS, AND FENCING OF
BANISSA AIRSTRIp – MANDERA COUNTY**

TENDER No. KAA/OT/BANISSA/0076/2023-2024

OCTOBER 2023

**MANAGING DIRECTOR/CEO
KENYA AIRPORTS AUTHORITY
P.O. BOX 19001 – 00501
NAIROBI**

**GENERAL MANAGER (P&ES)
KENYA AIRPORTS AUTHORITY
P.O. BOX 19001 – 00501
NAIROBI**

TABLE OF CONTENTS

PREFACE.....	v
APPENDIX TOTHE PREFACE.....	vi
GUIDELINES FOR PREPARATION OFTENDER DOCUMENTS	vi
2. PART 1 - TENDERING PROCEDURES	vi
3. PART 2 - PROCUREMENT ENTITY'S REQUIREMENTS	vii
4. PART 3 - CONDITIONS OF CONTRACT AND CONTRACT FORMS	vii
INVITATION TOTENDER	ix
PART 1:TENDERING PROCEDURES	1
SECTION I - INSTRUCTIONSTOTENDERERS	1
A. GENERALPROVISIONS	1
1.0 Scope of tender	1
2.0 Fraud and corruption.....	1
3.0 Eligible tenderers	1
4.0 Eligible goods, equipment, and services.....	3
5.0 Tenderer's responsibilities.....	3
B. CONTENTS OF TENDER DOCUMENTS	3
6.0 Sections of Tender Document	3
7.0 Clarification of Tender Document, Site Visit, Pre-tender Meeting	4
8.0 Amendment of Tender Documents	5
10.0 Language of Tender.....	5
11.0 Documents Comprising the Tender.....	5
12.0 Form of Tender and Schedules.....	5
13. Alternative Tenders	6
14.0 Tender Prices and Discounts	6
15.0 Currencies of Tender and Payment	6
16.0 Documents Comprising the Technical Proposal	7
17.0 Documents Establishing the Eligibility and Qualifications of the Tenderer.....	7
18.0 Period of Validity of Tenders	8
19.0 Tender Security	8
20.0 Format and Signing of Tender	9
D. SUBMISSION AND OPENING OF TENDERS	9
21.0 Sealing and Marking of Tenders.....	9
22.0 Deadline for Submission of Tenders	10
23.0 Late Tenders.....	10
24.0 Withdrawal, Substitution, and Modification of Tenders.....	10
25. Tender Opening.....	10
E. EVALUATION AND COMPARISON OF TENDERS	11
26. Confidentiality	11
27.0 Clarification of Tenders.....	11
29.0 Determination of Responsiveness.....	12
30.0 Non-material Non-conformities.....	12
31.0 Arithmetical Errors	12
33.0 Margin of Preference and Reservations	13

34.0	Nominated Subcontractors	13
35.	Evaluation of Tenders	13
36.0	Comparison of tenders	14
37.0	Abnormally low tenders and abnormally high tenders	14
	Abnormally Low Tenders	14
	Abnormally high tenders	14
38.0	Unbalanced and/or front-loaded tenders14	
39.0	Qualifications of the tenderer	15
40.0	Lowest evaluated tender	15
41.0	Procuring entity's right to accept any tender, and to reject any or all tenders.....	15

F. AWARD OF CONTRACT15

42.0	Award criteria.....	15
43.0	Notice of intention to enter into a contract	15
44.0	Standstill Period.....	16
44.0	Standstill Period.....	16
45.0	Debriefing by The Procuring Entity 16	
46.0	Letter of Award	16
47.0	Signing of Contract.....	16
48.0	Performance Security.....	16
49.0	Publication of Procurement Contract.....	16
50.0	Procurement related Complaint	17

SECTION II – TENDER DATA SHEET(TDS)18

SECTION III - EVALUATION AND QUALIFICATION CRITERIA23

1.	General Provisions	23
2.	Preliminary examination for Determination of Responsiveness.....	23
3.	Tender Evaluation	23
4.	Multiple Contracts	23
5.	Alternative Tenders	24
6.	Margin of Preference	24
7.	Post qualification and Contract award	24

SECTION IV –TENDERING FORMS29

QUALIFICATION FORMS.....30

1.	FOREIGN TENDERERS40% RULE	30
3.	Form EQU: EQUIPMENT	31
4.	FORM PER -1	32
5.	FORM PER- 2:	33
6.	TENDERERS QUALIFICATION WITHOUT PRE-QUALIFICATION	35
6.1	FORM ELI -1.1.....	35
6.2	FORM ELI -1.2.....	36
6.3	FORM CON– 2.....	37
6.4	FORM FIN– 3.1:.....	39
6.5	FORM FIN– 3.2:.....	40
6.6	FORM FIN– 3.3:.....	41
6.7	FORM FIN– 3.4:.....	41
6.8	FORM EXP- 4.1	42

6.9	FORM EXP- 4.2 (a).....	43
6.10	FORM EXP- 4.2 (b)	44
OTHER FORMS		46
7.	FORM OF TENDER	46
a)	TENDERER'S ELIGIBILITY- CONFIDENTIAL BUSINESS QUESTIONNAIRE	49
b)	CERTIFICATE OF INDEPENDENT TENDER DETERMINATION	52
c)	SELF-DECLARATION FORM - SELF DECLARATION OF THE TENDERER	53
d)	APPENDIX 1- FRAUD AND CORRUPTION.....	55
8.	FORM OF TENDER SECURITY – DEMAND BANK GUARANTEE.....	57
9.	FORM OF TENDER SECURITY (TENDER BOND)	58
10.	FORM OF TENDER-SECURING DECLARATION.	59
11.	APPENDIX TO TENDER.....	60
TECHNICAL PROPOSAL FORMS.....		60
12.	Site Organization	60
13.	Method Statement	60
14.	Mobilization Schedule	60
15.	Construction Schedule	60
PART 2–WORKS' REQUIREMENTS.....		60
SECTION V – BILL OF QUANTITIES		61
1.	Objectives	61
2.	Content.....	61
3.	Preamble	61
4.	Rock.....	61
5.	Work Items.....	61
6.	Quantities	61
7.	Units of Measurement.....	62
8.	Ground and Excavation Levels	62
9.	Day work Schedule.....	62
10.	Provisional Quantities and Sums	62
11.	Summary	63
12.	Sample Bills of Quantities	63
A.	Preamble	63
B.	Work Items	63
C.	Schedule of Day work Rates.....	66
12.	Grand Summary	72
SECTION VI- SPECIFICATIONS		72
SECTION VII- DRAWINGS.....		73
SUPPLEMENTARY INFORMATION		74

PART 3 – CONDITIONS OF CONTRACT AND CONTRACT FORMS 75

SECTION VIII - GENERAL CONDITIONS OF CONTRACT..... 75

1.	GENERAL CONDITIONS.....	76
2.	THE PROCURING ENTITY	82
3.	THE ENGINEER.....	83
4.	THE CONTRACTOR.....	85
5.	NOMINATED SUB CONTRACTORS	93
6.	STAFFAND LABOR.....	94
7.	Plant, Materials and Workmanship	97
8.	COMMENCEMENT, DELAYS AND SUSPENSION	99
9.	TESTS ON COMPLETION	102
10.	Procuring Entity's Taking Over.....	103
11.	Defects Liability.....	104
12.	MEASUREMENT AND EVALUATION	106
13.	VARIATIONS AND ADJUSTMENTS	108
14.	Contract Price and Payment	112
15.	TERMINATION BY PROCURING ENTITY	121
16.	SUSPENSION AND TERMINATION BY CONTRACTOR	119
17.	RISKAND RESPONSIBILITY	121
18.	INSURANCE.....	123
19.	FORCE MAJEURE	126
20.	CLAIMS, DISPUTES AND ARBITRATION	128

SECTION IX - ARTICULAR CONDITIONS OF CONTRACT 131

SECTION X –CONTRACT FORMS..... 134

FORM No. 1 - NOTIFICATION OF INTENTION TO AWARD.....	135
FORM No. 2 - NOTIFICATION OF AWARD – LETTER OF ACCEPTANCE	137
FORM No. 3 -CONTRACTAGREEMENT.....	138
FORM No. 4 - PERFORMANCE SECURITY [Option 1 - Unconditional Demand Bank Guarantee].....	139
FORM No. 5 - PERFORMANCE SECURITY [Option 2–Performance Bond]	140
FORM No. 6 – ADVANCE PAYMENT SECURITY	141
FORM No. 7 – RETENTION MONEY SECURITY.....	143

INVITATION TO TENDER

CONTRACT NO; KAA/OT/BANISSA/0076/2023-2024

DATE; 17th October 2023

CONTRACT NAME: PROPOSED GATE, GATEHOUSE, WASHROOMS, AND FENCING OF BANISSA AIRSTRIP – MANDERA COUNTY

1. The *Kenya Airports Authority* invites sealed tenders for the construction of the **PROPOSED GATE, GATEHOUSE, WASHROOMS, AND FENCING OF BANISSA AIRSTRIP – MANDERA COUNTY**.
2. Tendering will be conducted under open competitive method (National) using a standardized tender document..
3. A complete set of Tender documents are downloadable from the KAA supplier login screen using the link <https://kaa.go.ke/corporate/procurement/>. Tender documents obtained electronically will be free of charge.
4. Tender documents may be viewed and downloaded for free from the website (www.kaa.go.ke). Tenderers who download the tender document must forward their particulars immediately to tenders@kaa.go.ke to facilitate any further clarification or addendum.
5. *No other communication channel shall be used except through this email address tenders@kaa.go.ke*
6. All Tenders must be accompanied by a tender security of **Kshs. 600,000.00** valid for **156 days** from the date of tender opening/closing as provided in the tender data sheet and section 3 of the tender document on evaluation.
7. The Tenderer shall chronologically serialize all pages of the tender documents submitted including any attachments.
8. The tender shall be submitted online on or before **7th November 2023 at 11:00 am** should contact KAA procurement through email: tenders@kaa.go.ke for login credentials early enough and not later than three (3) days before tender closing date. All relevant submission documents must be attached on the login submission screen (*On submission screen, click technical Rfx Response tab which will lead you to the second screen (Cfolder) where the system creates a folder specific to you for uploading your technical tender response documents. Here you click “Tech Bid” subfolder and create attachments. “Caution Do not attach your documents on the collaboration folder”*). For Financial Proposal, use the submission financial screen for inputting the Price and related financial attachments on Notes and attachments. A step by step manual/guide is available for downloading using the link <https://www.kaa.go.ke/corporate/procurement/manuals/>. Bidders should note that documents submitted for purposes of registration for login credentials do not form part of the tender document.
9. There will be a pre-bid meeting at Banissa Airstrip, Mandera on **27th October 2023 at 10.00 am**. You will need to have one of the key staff proposed in this procurement process to attend this meeting.
10. All Prices quoted should be inclusive of all costs and taxes; and must be in Kenya shillings and shall remain valid for **126 days** from the closing date of Tender.
11. Tenders will be opened online immediately on **7th November 2023 at 11:00 am** at the Conference Room, 2nd Floor, Kenya Airports Authority Headquarters complex building. A virtual link shall be provided to those tenderers who shall submit their tenders online and would wish to participate in the tender opening. Tenderers shall therefore be required to submit their email address to tenders@kaa.go.ke to enable them access this link during tender opening.
12. Bidders shall not have access to the eProcurement system after the official closing time.
13. The addresses referred to above are:
 - a. **Address for obtaining further information and for purchasing tender documents**
 - i. Name of Procuring Entity – KENYA AIRPORTS AUTHORITY
 - ii. Physical address - Kenya Airports Authority Headquarters complex building, Jomo Kenyatta International Airport, Airport North Road, 2nd Floor, Procurement & Logistics Department
 - iii. Postal Address – P.O Box 19001 – 00501 Nairobi

- iv. Officer to be contacted. – General Manager, Procurement and Logistics, Email:
tenders@kaa.go.ke

Name; General Manager (Procurement & Logistics)

PART 1 - TENDERING PROCEDURES

SECTION I-INSTRUCTIONSTOTENDERERS

A GENERALPROVISIONS

1 Scope of Tender

- 1.1 The Procuring Entity as defined in the Appendix to Conditions of Contract invites tenders for Works Contract as described in the tender documents. The name, identification, and number of lots (contracts) of this Tender Document are specified in the TDS.
- 1.2 Throughout this tendering document:
 - a) The term “in writing” means communicated in written form (e.g. by mail, e-mail, fax, including if specified in the TDS, distributed or received through the electronic-procurement system used by the Procuring Entity) with proof of receipt;
 - b) if the context so requires, “singular” means “plural” and vice versa;
 - c) “Day” means calendar day, unless otherwise specified as “Business Day”. A Business Day is any day that is an official working day of the Procuring Entity. It excludes official public holidays.

2 Fraud and Corruption

- 2.1 The Procuring Entity requires compliance with the provisions of the Public Procurement and Asset Disposal Act, 2015, Section 62 “Declaration not to engage in corruption”. The tender submitted by a person shall include a declaration that the person shall not engage in any corrupt or fraudulent practice and a declaration that the person or his or her sub-contractors are not debarred from participating in public procurement proceedings.
- 2.2 The Procuring Entity requires compliance with the provisions of the Competition Act 2010, regarding collusive practices in contracting. Any tenderer found to have engaged in collusive conduct shall be disqualified and criminal and/or civil sanctions may be imposed. To this effect, Tenders shall be required to complete and sign the “Certificate of Independent Tender Determination” annexed to the Form of Tender.
- 2.3 Tenderers shall permit and shall cause their agents (where declared or not), subcontractors, sub-consultants, service providers, suppliers, and their personnel, to permit the Procuring Entity to inspect all accounts, records and other documents relating to any initial selection process, pre-qualification process, tender submission, proposal submission, and contract performance (in the case of award), and to have them audited by auditors appointed by the Procuring Entity.
- 2.4 Unfair Competitive Advantage -Fairness and transparency in the tender process require that the firms or their Affiliates competing for a specific assignment do not derive a competitive advantage from having provided consulting services related to this tender. To that end, the Procuring Entity shall indicate in the **Data Sheet** and make available to all the firms together with this tender document all information that would in that respect give such firm any unfair competitive advantage over competing firms.

3 Eligible Tenderers

- 3.1 A Tenderer may be a firm that is a private entity, a state-owned enterprise or institution subject to ITT 3.8, or an individual or any combination of such entities in the form of a joint venture (JV) under an existing agreement or with the intent to enter into such an agreement supported by a letter of intent. In the case of a joint venture, all members shall be jointly and severally liable for the execution of the entire Contract in accordance with the Contract terms. The JV shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the members of the JV during the tendering process and, in the event the JV is awarded the Contract, during contract execution. Members of a joint venture may not also make an individual tender, be a subcontractor in a separate tender or be part of another joint venture for the purposes of the same Tender. The maximum number of JV members shall be specified in the **TDS**.
- 3.2 Public Officers of the Procuring Entity, their Spouses, Child, Parent, Brothers or Sister. Child, Parent, Brother or Sister of a Spouse, their business associates or agents and firms/organizations in which they have a substantial or controlling interest shall not be eligible to tender or be awarded a contract. Public Officers are also not allowed to participate in any procurement proceedings.
- 3.3 A Tenderer shall not have a conflict of interest. Any tenderer found to have a conflict of interest shall be disqualified. A tenderer may be considered to have a conflict of interest for the purpose of this tendering

process, if the tenderer:

- a) Directly or indirectly controls, is controlled by or is under common control with another tenderer; or
 - b) Receives or has received any direct or indirect subsidy from another tenderer; or
 - c) Has the same legal representative as another tenderer; or
 - d) Has a relationship with another tenderer, directly or through common third parties, that puts it in a position to influence the tender of another tenderer, or influence the decisions of the Procuring Entity regarding this tendering process; or
 - e) Any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the goods or works that are the subject of the tender; or
 - f) any of its affiliates has been hired (or is proposed to be hired) by the Procuring Entity as a consultant for Contract implementation; or
 - g) Would be providing goods, works, or non-consulting services resulting from or directly related to consulting services for the preparation or implementation of the contract specified in this Tender Document; or
 - h) Has a close business or personal relationship with senior management or professional staff of the Procuring Entity who has the ability to influence the bidding process and:
 - i) are directly or indirectly involved in the preparation of the Tender document or specifications of the Contract, and/or the Tender evaluation process of such contract; or
 - ii) may be involved in the implementation or supervision of such Contract unless the conflict stemming from such relationship has been resolved in a manner acceptable to the Procuring Entity throughout the tendering process and execution of the Contract.
- 34 A tenderer shall not be involved in corrupt, coercive, obstructive or fraudulent practice. A tenderer that is proven to have been involved in any of these practices shall be automatically disqualified.
- 35 A Tenderer (either individually or as a JV member) shall not participate in more than one Tender, except for permitted alternative tenders. This includes participation as a subcontractor in other Tenders. Such participation shall result in the disqualification of all Tenders in which the firm is involved. Members of a joint venture may not also make an individual tender, be a subcontractor in a separate tender or be part of another joint venture for the purposes of the same Tender. A firm that is not a tenderer or a JV member may participate as a subcontractor in more than one tender.
- 36 A Tenderer may have the nationality of any country, subject to the restrictions pursuant to ITT3.9. A Tenderer shall be deemed to have the nationality of a country if the Tenderer is constituted, incorporated or registered in and operates in conformity with the provisions of the laws of that country, as evidenced by its articles of incorporation (or equivalent documents of constitution or association) and its registration documents, as the case may be. This criterion also shall apply to the determination of the nationality of proposed subcontractors or sub-consultants for any part of the Contract including related Services.
- 37 A Tenderer that has been debarred from participating in public procurement shall be ineligible to tender or be awarded a contract. The list of debarred firms and individuals is available from the website of PPRA www.ppra.go.ke.
- 38 A Tenderer that is a state-owned enterprise or a public institution in Kenya may be eligible to tender and be awarded a Contract(s) only if it is determined by the Procuring Entity to meet the following conditions, i.e. if it is:
 - i) A legal public entity of Government and/or public administration,
 - ii) financially autonomous and not receiving any significant subsidies or budget support from any public entity or Government, and
 - iii) operating under commercial law and vested with legal rights and liabilities similar to any commercial enterprise to enable it compete with firms in the private sector on an equal basis.
- 39 Firms and individuals shall be ineligible if their countries of origin are:
 - a) as a matter of law or official regulations, Kenya prohibits commercial relations with that country, or
 - b) by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, Kenya prohibits any import of goods or contracting of works or services from that country, or any payments to any country, person, or entity in that country.

A tenderer shall provide such documentary evidence of eligibility satisfactory to the Procuring Entity, as the Procuring Entity shall reasonably request.

- 3.10 Foreign tenderers are required to source at least forty (40%) percent of their contract inputs (in supplies, local subcontracts and labor) from citizen suppliers and contractors. To this end, a foreign tenderer shall provide in its tender documentary evidence that this requirement is met. Foreign tenderers not meeting this criterion will be automatically disqualified. Information required to enable the Procuring Entity determine if this condition is met shall be provided for this purpose in “*SECTION III-EVALUATION AND QUALIFICATION CRITERIA, Item 9*”.
- 3.11 Pursuant to the eligibility requirements of ITT4.10, a tender is considered a foreign tenderer, if the tenderer is not registered in Kenya or if the tenderer is registered in Kenya and has less than 51 percent ownership by Kenyan citizens. JVs are considered as foreign tenderers if the individual member firms are not registered in Kenya or if are registered in Kenya and have less than 51 percent ownership by Kenyan citizens. The JV shall not subcontract to foreign firms more than 10 percent of the contract price, excluding provisional sums.
- 3.12 The National Construction Authority Act of Kenya requires that all local and foreign contractors be registered with the National Construction Authority and be issued with a Registration Certificate before they can undertake any construction works in Kenya. Registration shall not be a condition for tender, but it shall be a condition of contract award and signature. A selected tenderer shall be given opportunity to register before such award and signature of contract. Application for registration with National Construction Authority may be accessed from the website www.nca.go.ke.
- 3.13 The Competition Act of Kenya requires that firms wishing to tender as Joint Venture undertakings which may prevent, distort or lessen competition in provision of services are prohibited unless they are exempt in accordance with the provisions of Section 25 of the Competition Act, 2010. JVs will be required to seek for exemption from the Competition Authority. Exemption shall not be a condition for tender, but it shall be a condition of contract award and signature. A JV tenderer shall be given opportunity to seek such exemption as a condition of award and signature of contract. Application for exemption from the Competition Authority of Kenya may be accessed from the website www.cak.go.ke.
- 4.14 A Kenyan tenderer shall be eligible to tender if it provides evidence of having fulfilled his/her tax obligations by producing a valid tax compliance or valid tax certificate issued by the Kenya Revenue Authority.

4 Eligible Goods, Equipment, and Services

- 4.1 Goods, equipment and services to be supplied under the Contract may have their origin in any country that is not ineligible under ITT3.9. At the Procuring Entity's request, Tenderers may be required to provide evidence of the origin of Goods, equipment and services.
- 4.2 Any goods, works and production processes with characteristics that have been declared by the relevant national environmental protection agency or by other competent authority as harmful to human beings and to the environment shall not be eligible for procurement.

5 Tenderer's Responsibilities

- 5.1 The tenderer shall bear all costs associated with the preparation and submission of his/her tender, and the Procuring Entity will in no case be responsible or liable for those costs.
- 5.2 The tenderer, at the tenderer's own responsibility and risk, is encouraged to visit and examine and inspect the Site of the Works and its surroundings and obtain all information that may be necessary for preparing the tender and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the tenderer's own expense.
- 5.3 The Tenderer and any of its personnel or agents will be granted permission by the Procuring Entity to enter up on its premises and lands for the purpose of such visit. The Tenderer shall indemnify the Procuring Entity against all liability arising from death or personal injury, loss of or damage to property, and any other losses and expenses incurred as a result of the examination and inspection.
- 5.4 The tenderer shall provide in the Form of Tender and Qualification Information, a preliminary description of the proposed work method and schedule, including charts, as necessary or required.

B. CONTENTS OF TENDER DOCUMENTS

6 Sections of Tender Document

- 61 The tender document consists of Parts 1, 2, and 3, which includes all the sections specified below, and which should be read in conjunction with any Addenda issued in accordance with ITT10.

PART 1: Tendering Procedures

Section I: Instructions to Tenderers

Section II: Tender Data Sheet
(TDS)

Section III: Evaluation and Qualification

Criteria Section IV: Tendering Forms

PART 2: Works' Requirements

Section V: Bills of Quantities

Section VI: Specifications

Section VII: Drawings

PART3: Conditions of Contract and Contract

Forms Section VIII: General Conditions (GCC)

Section IX: Particular Conditions of Contract Section

X: Contract Forms

- 62 The Invitation to Tender Notice issued by the Procuring Entity is not part of the Contract documents.
- 63 Unless obtained directly from the Procuring Entity, the Procuring Entity is not responsible for the completeness of the Tender document, responses to requests for clarification, the minutes of a pre-arranged site visit and those of the pre-Tender meeting (if any), or Addenda to the Tender document in accordance with ITT 10. In case of any contradiction, documents obtained directly from the Procuring Entity shall prevail.
- 64 The Tenderer is expected to examine all instructions, forms, terms, and specifications in the Tender Document and to furnish with its Tender all information and documentation as is required by the Tender document.

7. Clarification of Tender Document, Site Visit, Pre-Tender Meeting

- 7.1 A Tenderer requiring any clarification of the Tender Document shall contact the Procuring Entity in writing at the Procuring Entity's address **specified in the TDS** or raise its enquiries during the pre-Tender meeting if provided for in accordance with ITT 7.2. The Procuring Entity will respond in writing to any request for clarification, provided that such request is received no later than the period specified in the **TDS** prior to the deadline for submission of tenders. The Procuring Entity shall forward copies of its response to all tenderers who have acquired the Tender documents in accordance with ITT 7.4, including a description of the inquiry but without identifying its source. If so specified **in the TDS**, the Procuring Entity shall also promptly publish its response at the web page identified in the **TDS**. Should the clarification result in changes to the essential elements of the Tender Documents, the Procuring Entity shall amend the Tender Documents following the procedure under ITT 8 and ITT 22.2.
- 72 The Tenderer, at the Tenderer's own responsibility and risk, is encouraged to visit and examine and inspect the site(s) of the required contracts and obtain all information that may be necessary for preparing a tender. The costs of visiting the Site shall be at the Tenderer's own expense. The Procuring Entity shall specify in the **TDS** if a pre- arranged Site visit and or a pre-tender meeting will be held, when and where. The Tenderer's designated representative is invited to attend a pre-arranged site visit and a pre-tender meeting, as the case may be. The purpose of the site visit and the pre-tender meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.
- 73 The Tenderer is requested to submit any questions in writing, to reach the Procuring Entity not later than the period specified in the **TDS** before the meeting.
- 74 Minutes of a pre-arranged site visit and those of the pre-tender meeting, if applicable, including the text of the questions asked by Tenderers and the responses given, together with any responses prepared after the meeting, will be transmitted promptly to all Tenderers who have acquired the Tender Documents. Minutes shall not identify the source of the questions asked.
- 75 The Procuring Entity shall also promptly publish anonymized (*no names*) Minutes of the pre-arranged site visit and those of the pre-tender meeting at the web page identified **in the TDS**. Any modification to the Tender Documents that may become necessary as a result of the pre-arranged site visit and those of the pre-tender meeting shall be made by the Procuring Entity exclusively through the issue of an Addendum pursuant

to ITT 8 and not through the minutes of the pre-Tender meeting. Non-attendance at the pre-arranged site visit and the pre-tender meeting will not be a cause for disqualification of a Tenderer.

8 Amendment of Tender Documents

- 8.1 At any time prior to the deadline for submission of Tenders, the Procuring Entity may amend the Tender Documents by issuing addenda.
- 8.2 Any addendum issued shall be part of the Tender Documents and shall be communicated in writing to all who have obtained the Tender Documents from the Procuring Entity. The Procuring Entity shall also promptly publish the addendum on the Procuring Entity's website in accordance with ITT 7.5.
- 8.3 To give Tenderers reasonable time in which to take an addendum into account in preparing their Tenders, the Procuring Entity should extend the deadline for the submission of Tenders, pursuant to ITT 22.2.

C. PREPARATION OF TENDERS

9 Cost of Tendering

The Tenderer shall meet all costs associated with the preparation and submission of its Tender, and the Procuring Entity shall not be responsible or liable for those costs, regardless of the conduct or outcome of the tendering process.

10 Language of Tender

The Tender, as well as all correspondence and documents relating to the tender exchanged by the tenderer and the Procuring Entity, shall be written in the English Language. Supporting documents and printed literature that are part of the Tender may be in another language provided they are accompanied by an accurate and notarized translation of the relevant passages into the English Language, in which case, for purposes of interpretation of the Tender, such translation shall govern.

11 Documents Comprising the Tender

- 11.1 The Tender shall comprise the following:
 - a) **Form of Tender prepared in accordance with ITT 12;**
 - b) **Schedules including priced Bill of Quantities, completed in accordance with ITT 12 and ITT 14;**
 - c) **Tender Security or Tender-Securing Declaration, in accordance with ITT 19.1;**
 - d) **Alternative Tender, if permissible, in accordance with ITT 13;**
 - e) **Authorization: written confirmation authorizing the signatory of the Tender to commit the Tenderer, in accordance with ITT 20.3;**
 - f) **Qualifications: documentary evidence in accordance with ITT 17 establishing the Tenderer's qualifications to perform the Contract if its Tender is accepted;**
 - g) **Conformity: a technical proposal in accordance with ITT 16;**
 - h) **Any other document required in the TDS.**
- 11.2 In addition to the requirements under ITT 11.1, Tenders submitted by a JV shall include a copy of the Joint Venture Agreement entered into by all members. Alternatively, a letter of intent to execute a Joint Venture Agreement in the event of a successful Tender shall be signed by all members and submitted with the Tender, together with a copy of the proposed JV Agreement. Change of membership and conditions of the JV prior to contract signature will render the tender liable for disqualification.

12 Form of Tender and Schedules

- 12.1 The Form of Tender and Schedules, including the Bill of Quantities, shall be prepared using the relevant forms furnished in Section IV, Tendering Forms. The forms must be completed without any alterations to the text, and no substitutes shall be accepted except as provided under ITT 20.3. All blank spaces shall be filled in with the information requested. The Tenderer shall chronologically serialize all pages of the tender documents submitted.
- 12.2 The Tenderer shall furnish in the Form of Tender information on commissions and gratuities, if any, paid or to be paid to agents or any other party relating to this Tender.

13. Alternative Tenders

- 13.1 Unless otherwise specified in the TDS, alternative Tenders shall not be considered.
- 13.2 When alternative times for completion are explicitly invited, a statement to that effect will be included in the **TDS**, and the method of evaluating different alternative times for completion will be described in Section III, Evaluation and Qualification Criteria.
- 13.3 Except as provided under ITT13.4 below, Tenderers wishing to offer technical alternatives to the requirements of the Tender Documents must first price the Procuring Entity's design as described in the Tender Documents and shall further provide all information necessary for a complete evaluation of the alternative by the Procuring Entity, including drawings, design calculations, technical specifications, breakdown of prices, and proposed construction methodology and other relevant details. Only the technical alternatives, if any, of the Tenderer with the Winning Tender conforming to the basic technical requirements shall be considered by the Procuring Entity.
- 13.4 When specified in the **TDS**, Tenderers are permitted to submit alternative technical solutions for specified parts of the Works, and such parts will be identified in the **TDS**, as will the method for their evaluating, and described in Section VII, Works' Requirements.

14. Tender Prices and Discounts

- 14.1 The prices and discounts (including any price reduction) quoted by the Tenderer in the Form of Tender and in the Bill of Quantities shall conform to the requirements specified below.
- 14.2 The Tenderer shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Items against which no rate or price is entered by the Tenderer shall be deemed covered by the rates for other items in the Bill of Quantities and will not be paid for separately by the Procuring Entity. An item not listed in the priced Bill of Quantities shall be assumed to be not included in the Tender, and provided that the Tender is determined substantially responsive notwithstanding this omission, the average price of the item quoted by substantially responsive Tenderers will be added to the Tender price and the equivalent total cost of the Tender so determined will be used for price comparison.
- 14.3 The price to be quoted in the Form of Tender, in accordance with ITT 12, shall be the total price of the Tender, including any discounts offered.
- 14.4 The Tenderer shall quote any discounts and the methodology for their application in the Form of Tender, in accordance with ITT 12
- 14.5 It will be specified in the **TDS** if the rates and prices quoted by the Tenderer are or are not subject to adjustment during the performance of the Contract in accordance with the provisions of the Conditions of Contract, except in cases where the contract is subject to fluctuations and adjustments, not fixed price. In such a case, the Tenderer shall furnish the indices and weightings for the price adjustment formulae in the Schedule of Adjustment Data and the Procuring Entity may require the Tenderer to justify its proposed indices and weightings.
- 14.6 Where tenders are being invited for individual lots (contracts) or for any combination of lots (packages), tenderers wishing to offer discounts for the award of more than one Contract shall specify in their Tender the price reductions applicable to each package, or alternatively, to individual Contracts within the package. Discounts shall be submitted in accordance with ITT 14.4, provided the Tenders for all lots (contracts) are opened at the same time.
- 14.7 All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date 30 days prior to the deadline for submission of Tenders, shall be included in the rates and prices and the total Tender Price submitted by the Tenderer.

15. Currencies of Tender and Payment

- 15.1 The currency (ies) of the Tender and the currency (ies) of payments shall be the same.
- 15.2 Tenderers shall quote entirely in Kenya Shillings. The unit rates and the prices shall be quoted by the Tenderer in the Bill of Quantities, entirely in Kenya shillings

- a) A Tenderer expecting to incur expenditures in other currencies for inputs to the Works supplied from outside Kenya (referred to as “the foreign currency requirements”) shall (if so allowed in the **TDS**) indicate in the Appendix to Tender the percentage(s) of the Tender Price (excluding Provisional Sums), needed by the Tenderer for the payment of such foreign currency requirements, limited to no more than two foreign currencies.
- b) The rates of exchange to be used by the Tenderer in arriving at the local currency equivalent and the percentage(s) mentioned in (a) above shall be specified by the Tenderer in the Appendix to Tender and shall be based on the exchange rate provided by the Central Bank of Kenya on the date 30 days prior to the actual date of tender opening. Such exchange rate shall apply for all foreign payments under the Contract.

153 Tenderers may be required by the Procuring Entity to justify, to the Procuring Entity's satisfaction, their local and foreign currency requirements, and to substantiate that the amounts included in the unit rates and prices and shown in the Schedule of Adjustment Data in the Appendix to Tender are reasonable, in which case a detailed breakdown of the foreign currency requirements shall be provided by Tenderers.

16. Documents Comprising the Technical Proposal

The Tenderer shall furnish a technical proposal including a statement of work methods, equipment, personnel, schedule and any other information as stipulated in Section IV, Tender Forms, sufficient detail to demonstrate the adequacy of the Tenderer's proposal to meet the work's requirements and the completion time.

17. Documents Establishing the Eligibility and Qualifications of the Tenderer

- 17.1 Tenderers shall complete the Form of Tender, included in Section IV, Tender Forms, to establish Tenderer's eligibility in accordance with ITT 4.
- 17.2 In accordance with Section III, Evaluation and Qualification Criteria, to establish its qualifications to perform the Contract the Tenderer shall provide the information requested in the corresponding information sheets included in Section IV, Tender Forms.
- 17.3 If a margin of preference applies as specified in accordance with ITT33. 1, national tenderers, individually or in joint ventures, applying for eligibility for national preference shall supply all information required to satisfy the criteria for eligibility specified in accordance with ITT 33.1.
- 17.4 Tenderers shall be asked to provide, as part of the data for qualification, such information, including details of ownership, as shall be required to determine whether, according to the classification established by the Procuring Entity, a particular contract or group of contractors qualifies for a margin of preference. Further the information will enable the Procuring Entity identify any actual or potential conflict of interest in relation to the procurement and/or contract management processes, or a possibility of collusion between tenderers, and there by help to prevent any corrupt influence in relation to the procurement process or contract management.
- 17.5 The purpose of the information described in **ITT 17.2** above overrides any claims to confidentiality which a tenderer may have. There can be no circumstances in which it would be justified for a tenderer to keep information relating to its ownership and control confidential where it is tendering to undertake public sector work and receive public sector funds. Thus, confidentiality will not be accepted by the Procuring Entity as a justification for a Tenderer's failure to disclose, or failure to provide required information on its ownership and control.
- 17.6 The Tenderer shall provide further documentary proof, information or authorizations that the Procuring Entity may request in relation to ownership and control which information on any changes to the information which was provided by the tenderer under ITT 6.4. The obligations to require this information shall continue for the duration of the procurement process and contract performance and after completion of the contract, if any change to the information previously provided may reveal a conflict of interest in relation to the award or management of the contract.
- 17.7 All information provided by the tenderer pursuant to these requirements must be complete, current and accurate as at the date of provision to the Procuring Entity. In submitting the information required pursuant to these requirements, the Tenderer shall warrant that the information submitted is complete, current and accurate as at the date of submission to the Procuring Entity.
- 17.8 If a tenderer fails to submit the information required by these requirements, its tenderer will be rejected. Similarly, if the Procuring Entity is unable, after taking reasonable steps, to verify to a reasonable degree the information submitted by a tenderer pursuant to these requirements, then the tender will be rejected.

- 179 If information submitted by a tenderer pursuant to these requirements, or obtained by the Procuring Entity (whether through its own enquiries, through notification by the public or otherwise), shows any conflict of interest which could materially and improperly benefit the tenderer in relation to the procurement or contract management process, then:
- i) If the procurement process is still on going, the tenderer will be disqualified from the procurement process,
 - ii) If the contract has been awarded to that tenderer, the contract award will be set aside,
 - iii) the tenderer will be referred to the relevant law enforcement authorities for investigation of whether the tenderer or any other persons have committed any criminal offence.
- 17.10 If a tenderer submits information pursuant to these requirements that is incomplete, inaccurate or out-of-date, or attempts to obstruct the verification process, then the consequences ITT 17.8 will ensue unless the tenderer can show to the reasonable satisfaction of the Procuring Entity that any such act was not material, or was due to genuine error which was not attributable to the intentional act, negligence or recklessness of the tender.

18. Period of Validity of Tenders

- 18.1.** Tenders shall remain valid for the Tender Validity period specified in the **TDS**. The Tender Validity period starts from the date fixed for the Tender submission deadline (as prescribed by the Procuring Entity in accordance with ITT 22). A Tender valid for a shorter period shall be rejected by the Procuring Entity as non-responsive.
- 18.2 In exceptional circumstances, prior to the expiration of the Tender validity period, the Procuring Entity may request Tenderers to extend the period of validity of their Tenders. The request and the responses shall be made in writing. If a Tender Security is requested in accordance with ITT 19, it shall also be extended for thirty (30) days beyond the deadline of the extended validity period. A Tenderer may refuse the request without forfeiting its Tender security. A Tenderer granting their quest shall not be required or permitted to modify its Tender.

19. Tender Security

- 19.1 The Tenderer shall furnish as part of its Tender, either a Tender-Securing Declaration or a Tender Security as specified in the **TDS**, in original form and, in the case of a Tender Security, in the amount and currency **specified in the TDS**. A Tender-Securing Declaration shall use the form included in Section IV, Tender Forms.
- 192 If a Tender Security is specified pursuant to ITT 19.1, the Tender Security shall be a demand guarantee in any of the following forms at the Tenderer's option:
- i) cash;
 - ii) a bank guarantee;
 - iii) a guarantee by an insurance company registered and licensed by the Insurance Regulatory Authority listed by the Authority; or
 - iv) a guarantee issued by a financial institution approved and licensed by the Central Bank of Kenya, from a reputable source, and an eligible country.
- 193 If an unconditional bank guarantee is issued by a bank located outside Kenya, the issuing bank shall have a correspondent bank located in Kenya to make it enforceable. The Tender Security shall be valid for thirty (30) days beyond the original validity period of the Tender, or beyond any period of extension if requested under ITT 18.2.
- 194 If a Tender Security or Tender-Securing Declaration is specified pursuant to ITT 19.1, any Tender not accompanied by a substantially responsive Tender Security or Tender-Securing Declaration shall be rejected by the Procuring Entity as non-responsive.
- 195 If a Tender Security is specified pursuant to ITT 19.1, the Tender Security of unsuccessful Tenderers shall be returned as promptly as possible upon the successful Tenderer's signing the Contract and furnishing the Performance Security and any other documents required in the **TDS**. The Procuring Entity shall also promptly return the tender security to the tenderers where the procurement proceedings are terminated, all tenders were determined non-responsive or a bidder declines to extend tender validity period.
- 196 The Tender Security of the successful Tenderer shall be returned as promptly as possible once the successful Tenderer has signed the Contract and furnished the required Performance Security, and any other documents required in the **TDS**.

- 197 The Tender Security may be forfeited or the Tender-Securing Declaration executed:
- a) if a Tenderer withdraws its Tender during the period of Tender validity specified by the Tenderer on the Form of Tender, or any extension there to provided by the Tenderer; or
 - b) if the successful Tenderer fails to:
 - i) sign the Contract in accordance with ITT 47; or
 - ii) furnish a Performance Security and if required in the TDS, and any other documents required in the TDS.
- 198 Where tender securing declaration is executed, the Procuring Entity shall recommend to the PPRA that PPRA debars the Tenderer from participating in public procurement as provided in the law.
- 199 The Tender Security or the Tender-Securing Declaration of a JV shall be in the name of the JV that submits the Tender. If the JV has not been legally constituted into a legally enforceable JV at the time of tendering, the Tender Security or the Tender-Securing Declaration shall be in the names of all future members as named in the letter of intent referred to in ITT 4.1 and ITT 11.2.
- 19.10 A tenderer shall not issue a tender security to guarantee itself.

20. Format and Signing of Tender

- 20.1 The Tenderer shall prepare one original of the documents comprising the Tender as described in ITT 11 and clearly mark it "ORIGINAL." Alternative Tenders, if permitted in accordance with ITT 13, shall be clearly marked "ALTERNATIVE." In addition, the Tenderer shall submit copies of the Tender, in the number **specified in the TDS** and clearly mark them "COPY." In the event of any discrepancy between the original and the copies, the original shall prevail.
- 20.2 Tenderers shall mark as "CONFIDENTIAL" all information in their Tenders which is confidential to their business. This may include proprietary information, trade secrets, or commercial or financially sensitive information.
- 20.3 The original and all copies of the Tender shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Tenderer. This authorization shall consist of a written confirmation as specified in the **TDS** and shall be attached to the Tender. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the Tender where entries or amendments have been made shall be signed or initialed by the person signing the Tender.
- 20.4 In case the Tenderer is a JV, the Tender shall be signed by an authorized representative of the JV on behalf of the JV, and so as to be legally binding on all the members as evidenced by a power of attorney signed by their legally authorized representatives.
- 20.5 Any inter-lineation, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the Tender.

D. SUBMISSION AND OPENING OF TENDERS

21. Sealing and Marking of Tenders

- 21.1 The Tenderer shall deliver the Tender in a single sealed envelope, or in a single sealed package, or in a single sealed container bearing the name and Reference number of the Tender, addressed to the Procuring Entity and a warning not to open before the time and date for Tender opening date. Within the single envelope, package or container, the Tenderer shall place the following separate, sealed envelopes:
- a) in an envelope or package or container marked "ORIGINAL", all documents comprising the Tender, as described in ITT 11; and
 - b) in an envelope or package or container marked "COPIES" all required copies of the Tender; and
 - c) if alternative Tenders are permitted in accordance with ITT 13, and if relevant:
 - i) in an envelope or package or container marked "ORIGINAL - ALTERNATIVE TENDER", the alternative Tender; and
 - ii) in the envelope or package or container marked "COPIES-ALTERNATIVE TENDER", all required copies of the alternative Tender.

The inner envelopes or packages or containers shall:

- a) bear the name and address of the Procuring Entity.
- b) Bear the name and address of the Tenderer; and
- c) Bear the name and Reference number of the Tender.

- 212 If an envelope or package or container is not sealed and marked as required, the *Procuring Entity* will assume no responsibility for the misplacement or premature opening of the Tender. Tenders that were misplaced or opened prematurely will not be accepted.

22. Deadline for Submission of Tenders

- 221 Tenders must be received by the Procuring Entity at the address specified in the **TDS** and no later than the date and time also specified in the **TDS**. When so specified in the **TDS**, Tenderers shall have the option of submitting their Tenders electronically. Tenderers submitting Tenders electronically shall follow the electronic Tender submission procedures specified in the **TDS**.
- 222 The Procuring Entity may, at its discretion, extend the deadline for the submission of Tenders by amending the Tender Documents in accordance with ITT 8, in which case all rights and obligations of the Procuring Entity and Tenderers previously subject to the deadline shall thereafter be subject to the deadline as extended.

23. Late Tenders

The Procuring Entity shall not consider any Tender that arrives after the deadline for submission of tenders, in accordance with ITT 22. Any Tender received by the Procuring Entity after the deadline for submission of Tenders shall be declared late, rejected, and returned unopened to the Tenderer.

24. Withdrawal, Substitution, and Modification of Tenders

- 241 A Tenderer may withdraw, substitute, or modify its Tender after it has been submitted by sending a written notice, duly signed by an authorized representative, and shall include a copy of the authorization in accordance with ITT 20.3, (except that withdrawal notices do not require copies). The corresponding substitution or modification of the Tender must accompany the respective written notice. All notices must be:
- a) prepared and submitted in accordance with ITT 20 and ITT 21 (except that withdrawals notices do not require copies), and in addition, the respective envelopes shall be clearly marked “WITHDRAWAL,” “SUBSTITUTION,” “MODIFICATION;” and
 - b) received by the Procuring Entity prior to the deadline prescribed for submission of Tenders, in accordance with ITT 22.
- 242 Tenders requested to be withdrawn in accordance with ITT 24.1 shall be returned unopened to the Tenderers.
- 243 No Tender may be withdrawn, substituted, or modified in the interval between the deadline for submission of Tenders and the expiration of the period of Tender validity specified by the Tenderer on the Form of Tender or any extension thereof.

25. Tender Opening

- 251 Except in the cases specified in ITT 23 and ITT 24.2, the Procuring Entity shall publicly open and read out all Tenders received by the deadline, at the date, time and place specified **in the TDS**, in the presence of Tenderers' designated representatives and anyone who chooses to attend. Any specific electronic Tender opening procedures required if electronic Tendering is permitted in accordance with ITT 22.1, shall be as specified in the **TDS**.
- 252 First, envelopes marked “WITHDRAWAL” shall be opened and read out and the envelopes with the corresponding Tender shall not be opened but returned to the Tenderer. No Tender withdrawal shall be permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at tender opening.
- 253 Next, envelopes marked “SUBSTITUTION” shall be opened and read out and exchanged with the corresponding Tender being substituted, and the substituted Tender shall not be opened, but returned to the Tenderer. No Tender substitution shall be permitted unless the corresponding substitution notice contains a valid authorization to request the substitution and is read out at Tender opening.

- 254 Next, envelopes marked “MODIFICATION” shall be opened and read out with the corresponding Tender. No Tender modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at Tender opening.
- 255 Next, all remaining envelopes shall be opened on a date, time, reading out: the name of the Tenderer and whether there is a modification; the total Tender Price, per lot (contract) if applicable, including any discounts and alternative Tenders; the presence or absence of a Tender Security or Tender-Securing Declaration, if required; and any other details as the Procuring Entity may consider appropriate.
- 256 Only Tenders, alternative Tenders and discounts that are opened and read out at Tender opening shall be considered further for evaluation. The Form of Tender and pages of the Bill of Quantities (to be decided on by the tender opening committee) are to be initialed by the members of the tender opening committee attending the opening.
- 257 At the Tender Opening, the Procuring Entity shall neither discuss the merits of any Tender nor reject any Tender (except for late Tenders, in accordance with ITT 23.1).
- 258 The Procuring Entity shall prepare minutes of the Tender Opening that shall include, as a minimum:
- a) The name of the Tenderer and whether there is a withdrawal, substitution, or modification;
 - b) The Tender Price, per lot (contract) if applicable, including any discounts;
 - c) any alternative Tenders;
 - d) the presence or absence of a Tender Security, if one was required.
 - e) number of pages of each tender document submitted.
- 259 The Tenderers' representatives who are present shall be requested to sign the minutes. The omission of a Tenderer's signature on the minutes shall not invalidate the contents and effect of the minutes. A copy of tender opening register shall be issued to a tenderer upon request.

E. Evaluation and Comparison of Tenders

26. Confidentiality

- 26.1 Information relating to the evaluation of Tenders and recommendation of contract award shall not be disclosed to Tenderers or any other persons not officially concerned with the Tender process until information on Intention to Award the Contract is transmitted to all Tenderers in accordance with ITT 43.
- 26.2 Any effort by a Tenderer to influence the Procuring Entity in the evaluation of the Tenders or Contract award decisions may result in the rejection of its tender.
- 26.3 Notwithstanding ITT 26.2, from the time of tender opening to the time of contract award, if a tenderer wishes to contact the Procuring Entity on any matter related to the tendering process, it shall do so in writing.

27. Clarification of Tenders

- 27.1 To assist in the examination, evaluation, and comparison of the tenders, and qualification of the tenderers, the Procuring Entity may, at its discretion, ask any tenderer for a clarification of its tender, given a reasonable time for a response. Any clarification submitted by a tenderer that is not in response to a request by the Procuring Entity shall not be considered. The Procuring Entity's request for clarification and the response shall be in writing. No change, including any voluntary increase or decrease, in the prices or substance of the tender shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Procuring Entity in the evaluation of the tenders, in accordance with ITT 31.
- 27.2 If a tenderer does not provide clarifications of its tender by the date and time set in the Procuring Entity's request for clarification, its Tender may be rejected.

28. Deviations, Reservations, and Omissions

- 28.1 During the evaluation of tenders, the following definitions apply:
- a) “Deviation” is a departure from the requirements specified in the tender document;

- b) “Reservation” is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the tender document; and
- c) “Omission” is the failure to submit part or all of the information or documentation required in the Tender document.

29. Determination of Responsiveness

- 29.1 The Procuring Entity's determination of a Tender's responsiveness is to be based on the contents of the tender itself, as defined in ITT 11.
- 29.2 A substantially responsive Tender is one that meets the requirements of the Tender document without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that, if accepted, would:
- a) Affect in any substantial way the scope, quality, or performance of the Works specified in the Contract; or
 - b) limit in any substantial way, inconsistent with the tender document, the Procuring Entity's rights or the tenderer's obligations under the proposed contract; or
 - c) if rectified, would unfairly affect the competitive position of other tenderers presenting substantially responsive tenders.
- 29.3 The Procuring Entity shall examine the technical aspects of the tender submitted in accordance with ITT 16, to confirm that all requirements of Section VII, Works' Requirements have been met without any material deviation, reservation or omission.
- 29.4 If a tender is not substantially responsive to the requirements of the tender document, it shall be rejected by the Procuring Entity and may not subsequently be made responsive by correction of the material deviation, reservation, or omission.

30. Non-material Non-conformities

- 30.1 Provided that a tender is substantially responsive, the Procuring Entity may waive any non-conformities in the tender.
- 30.2 Provided that a Tender is substantially responsive, the Procuring Entity may request that the tenderer submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial non-conformities in the tender related to documentation requirements. Requesting information or documentation on such non-conformities shall not be related to any aspect of the price of the tender. Failure of the tenderer to comply with the request may result in the rejection of its tender.
- 30.3 Provided that a tender is substantially responsive, the Procuring Entity shall rectify quantifiable nonmaterial non-conformities related to the Tender Price. To this effect, the Tender Price shall be adjusted, for comparison purposes only, to reflect the price of a missing or non-conforming item or component in the manner specified **in the TDS**.

31. Arithmetical Errors

- 31.1 The tender sum as submitted and read out during the tender opening shall be absolute and final and shall not be the subject of correction, adjustment or amendment in anyway by any person or entity.
- 31.2 Provided that the Tender is substantially responsive, the Procuring Entity shall handle errors on the following basis:
- a) Any error detected if considered a major deviation that affects the substance of the tender, shall lead to disqualification of the tender as non-responsive.
 - b) Any errors in the submitted tender arising from a miscalculation of unit price, quantity, subtotal and total bid price shall be considered as a major deviation that affects the substance of the tender and shall lead to disqualification of the tender as non-responsive. and
 - c) If there is a discrepancy between words and figures, the amount in words shall prevail
- 31.3 Tenderers shall be notified of any error detected in their bid during the notification of award.

32 Conversion to Single Currency

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

33 Margin of Preference and Reservations

- 33.1 A margin of preference may be allowed only when the contract is open to international competitive tendering where foreign contractors are expected to participate in the tendering process and where the contract exceeds the value/threshold specified in the Regulations.
- 33.2 A margin of preference shall not be allowed unless it is specified so in the **TDS**.
- 33.3 Contracts procured on basis of international competitive tendering shall not be subject to reservations exclusive to specific groups as provided in ITT 33.4.
- 33.4 Where it is intended to reserve a contract to a specific group of businesses (these groups are Small and Medium Enterprises, Women Enterprises, Youth Enterprises and Enterprises of persons living with disability, as the case may be), and who are appropriately registered as such by the authority to be specified in the **TDS**, a procuring entity shall ensure that the invitation to tender specifically indicates that only businesses or firms belonging to the specified group are eligible to tender. No tender shall be reserved to more than one group. If not so stated in the Invitation to Tender and in the Tender documents, the invitation to tender will be open to all interested tenderers.

34 Nominated Subcontractors

- 34.1 **Unless** otherwise stated **in the TDS**, the Procuring Entity does not intend to execute any specific elements of the Works by subcontractors selected/nominated by the Procuring Entity. In case the Procuring Entity nominates a subcontractor, the subcontract agreement shall be signed by the Subcontractor and the Procuring Entity. The main contract shall specify the working arrangements between the main contractor and the nominated subcontractor.
- 34.2 Tenderers may propose subcontracting up to the percentage of total value of contracts or the volume of works as specified **in the TDS**. Subcontractors proposed by the Tenderer shall be fully qualified for their parts of the Works.
- 34.3 Domestic subcontractor's qualifications shall not be used by the Tenderer to qualify for the Works unless their specialized parts of the Works were previously designated so by the Procuring Entity **in the TDS** as can be met by subcontractors referred to hereafter as 'Specialized Subcontractors', in which case, the qualifications of the Specialized Subcontractors proposed by the Tenderer may be added to the qualifications of the Tenderer.

35 Evaluation of Tenders

- 35.1 The Procuring Entity shall use the criteria and methodologies listed in this ITT and Section III, Evaluation and Qualification Criteria. No other evaluation criteria or methodologies shall be permitted. By applying the criteria and methodologies the Procuring Entity shall determine the Lowest Evaluated Tender in accordance with ITT 40.
- 35.2 To evaluate a Tender, the Procuring Entity shall consider the following:
- a) Price adjustment in accordance with ITT 31.1(iii); excluding provisional sums and contingencies, if any, but including Day work items, where priced competitively;
 - b) Price adjustment due to discounts offered in accordance with ITT 14.4;
 - c) converting the amount resulting from applying (a) and (b) above, if relevant, to a single currency in accordance with ITT 32;
 - d) price adjustment due to quantifiable non material non-conformities in accordance with ITT 30.3; and
 - e) any additional evaluation factors specified **in the TDS** and Section III, Evaluation and Qualification Criteria.
- 35.3 The estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be considered intender evaluation.

- 35.4 Where the tender involves multiple lots or contracts, the tenderer will be allowed to tender for one or more lots (contracts). Each lot or contract will be evaluated in accordance with ITT 35.2. The methodology to determine the lowest evaluated tenderer or tenderers based one lot (contract) or based on a combination of lots (contracts), will be specified in Section III, Evaluation and Qualification Criteria. In the case of multiple lots or contracts, tenderer will be will be required to prepare the Eligibility and Qualification Criteria Form for each Lot.

36. Comparison of Tenders

The Procuring Entity shall compare the evaluated costs of all substantially responsive Tenders established in accordance with ITT 35.2 to determine the Tender that has the lowest evaluated cost.

37. Abnormally Low Tenders and Abnormally High

Tenders Abnormally Low Tenders

- 37.1 An Abnormally Low Tender is one where the Tender price, in combination with other elements of the Tender, appears so low that it raises material concerns as to the capability of the Tenderer in regards to the Tenderer's ability to perform the Contract for the offered Tender Price or that genuine competition between Tenderers is compromised.
- 37.2 In the event of identification of a potentially Abnormally Low Tender, the Procuring Entity shall seek written clarifications from the Tenderer, including detailed price analyses of its Tender price in relation to the subject matter of the contract, scope, proposed methodology, schedule, allocation of risks and responsibilities and any other requirements of the Tender document.
- 37.3 After evaluation of the price analyses, in the event that the Procuring Entity determines that the Tenderer has failed to demonstrate its capability to perform the Contract for the offered Tender Price, the Procuring Entity shall reject the Tender.

Abnormally High Tenders

- 37.4 An abnormally high tender price is one where the tender price, in combination with other constituent elements of the Tender, appears unreasonably too high to the extent that the Procuring Entity is concerned that it (the Procuring Entity) may not be getting value for money or it may be paying too high a price for the contract compared with market prices or that genuine competition between Tenderers is compromised.
- 37.5 In case of an abnormally high price, the Procuring Entity shall make a survey of the market prices, check if the estimated cost of the contract is correct and review the Tender Documents to check if the specifications, scope of work and conditions of contract are contributory to the abnormally high tenders. The Procuring Entity may also seek written clarification from the tenderer on the reason for the high tender price. The Procuring Entity shall proceed as follows:
- i) If the tender price is abnormally high based on wrong estimated cost of the contract, the Procuring Entity may accept or not accept the tender depending on the Procuring Entity's budget considerations.
 - ii) If specifications, scope of work and/or conditions of contract are contributory to the abnormally high tender prices, the Procuring Entity shall reject all tenders and may retender for the contract based on revised estimates, specifications, scope of work and conditions of contract, as the case may be.
- 37.6 If the Procuring Entity determines that the Tender Price is abnormally too high because genuine competition between tenderers is compromised (*often due to collusion, corruption or other manipulations*), the Procuring Entity shall reject all Tenders and shall institute or cause competent Government Agencies to institute an investigation on the cause of the compromise, before retendering.

38. Unbalanced and/or Front-Loaded Tenders

- 38.1 If in the Procuring Entity's opinion, the Tender that is evaluated as the lowest evaluated price is seriously unbalanced and/or front loaded, the Procuring Entity may require the Tenderer to provide written clarifications. Clarifications may include detailed price analyses to demonstrate the consistency of the tender prices with the scope of works, proposed methodology, schedule and any other requirements of the Tender document.

- 382 After the evaluation of the information and detailed price analyses presented by the Tenderer, the Procuring Entity may as appropriate:
- a) accept the Tender; or
 - b) require that the total amount of the Performance Security be increased at the expense of the Tenderer to a level not exceeding a 10% of the Contract Price; or
 - c) agree on a payment mode that eliminates the inherent risk of the Procuring Entity paying too much for undelivered works; or
 - d) reject the Tender,

39. Qualifications of the Tenderer

- 39.1 The Procuring Entity shall determine to its satisfaction whether the eligible Tenderer that is selected as having submitted the lowest evaluated cost and substantially responsive Tender, meets the qualifying criteria specified in Section III, Evaluation and Qualification Criteria.
- 39.2 The determination shall be based upon an examination of the documentary evidence of the Tenderer's qualifications submitted by the Tenderer, pursuant to ITT 17. The determination shall not take into consideration the qualifications of other firms such as the Tenderer's subsidiaries, parent entities, affiliates, subcontractors (other than Specialized Subcontractors if permitted in the Tender document), or any other firm(s) different from the Tenderer.
- 39.3 An affirmative determination shall be a prerequisite for award of the Contract to the Tenderer. A negative determination shall result in disqualification of the Tender, in which event the Procuring Entity shall proceed to the Tenderer who offers a substantially responsive Tender with the next lowest evaluated price to make a similar determination of that Tenderer's qualifications to perform satisfactorily.

40. Lowest Evaluated Tender

Having compared the evaluated prices of Tenders, the Procuring Entity shall determine the Lowest Evaluated Tender. The Lowest Evaluated Tender is the Tender of the Tenderer that meets the Qualification Criteria and whose Tender has been determined to be:

- a) Most responsive to the Tender document; and
- b) The lowest evaluated price.

41. Procuring Entity's Right to Accept Any Tender, and to Reject Any or All Tenders.

The Procuring Entity reserves the right to accept or reject any Tender and to annul the Tender process and reject all Tenders at any time prior to Contract Award, without there by incurring any liability to Tenderers. In case of annulment, all Tenders submitted and specifically, Tender securities, shall be promptly returned to the Tenderers.

F. AWARD OF CONTRACT

42. Award Criteria

The Procuring Entity shall award the Contract to the successful tenderer whose tender has been determined to be the Lowest Evaluated Tender.

43. Notice of Intention to enter into a Contract

Upon award of the contract and Prior to the expiry of the Tender Validity Period the Procuring Entity shall issue a Notification of Intention to Enter into a Contract/Notification of award to all tenderers which shall contain, at a minimum, the following information:

- a) the name and address of the Tenderer submitting the successful tender;
- b) the Contract price of the successful tender;
- c) a statement of the reason(s) the tender of the unsuccessful tenderer to whom the letter is addressed was unsuccessful, unless the price information in (c) above already reveals the reason;
- d) the expiry date of the Standstill Period; and
- e) instructions on how to request a debriefing and/or submit a complaint during the stand still period;

44. Stand still Period

- 421 The Contract shall not be signed earlier than the expiry of a Standstill Period of 14 days to allow any dissatisfied tender to launch a complaint. Where only one Tender is submitted, the Standstill Period shall not apply.
- 422 Where a Standstill Period applies, it shall commence when the Procuring Entity has transmitted to each Tenderer the Notification of Intention to Enter into a Contract with the successful Tenderer.

45. Debriefing by the Procuring Entity

- 451 On receipt of the Procuring Entity's Notification of Intention to Enter into a Contract referred to in ITT 43, an unsuccessful tenderer may make a concern regarding their tender. The Procuring Entity shall provide the debriefing within five days of receipt of the request.
- 452 Debriefings of unsuccessful Tenderers may be done in writing or verbally. The Tenderer shall bear its own costs of attending such a debriefing meeting.

46. Letter of Award

Prior to the expiry of the Tender Validity Period and upon expiry of the Standstill Period specified in ITT 42.1, upon addressing a complaint that has been filed within the Standstill Period, the Procuring Entity shall transmit the Letter of Award to the successful Tenderer. The letter of award shall request the successful tenderer to furnish the Performance Security within 21 days of the date of the letter.

47. Signing of Contract

- 471 Upon the expiry of the fourteen days of the Notification of Intention to enter into contract and upon the parties meeting their respective statutory requirements, the Procuring Entity shall send the successful Tenderer the Contract Agreement.
- 472 Within fourteen (14) days of receipt of the Contract Agreement, the successful Tenderer shall sign, date, and return it to the Procuring Entity.
- 473 The written contract shall be entered into within the period specified in the notification of award and before expiry of the tender validity period.

48. Performance Security

- 481 Within twenty-one (21) days of the receipt of the Letter of Award from the Procuring Entity, the successful Tenderer shall furnish the Performance Security and, any other documents required in the **TDS**, in accordance with the General Conditions of Contract, subject to ITT 38.2 (b), using the Performance Security and other Forms included in Section X, Contract Forms, or another form acceptable to the Procuring Entity. A foreign institution providing a bank guarantee shall have a correspondent financial institution located in Kenya, unless the Procuring Entity has agreed in writing that a correspondent bank is not required.
- 482 Failure of the successful Tenderer to submit the above-mentioned Performance Security and other documents required in the **TDS** or sign the Contract shall constitute sufficient grounds for the annulment of the award and forfeiture of the Tender Security. In that event the Procuring Entity may award the Contract to the Tenderer offering the next Best Evaluated Tender.
- 483 Performance security shall not be required for contracts estimated to cost less than the amount specified in the Regulations.

49. Publication of Procurement Contract

Within fourteen days after signing the contract, the Procuring Entity shall publish the awarded contract at its notice boards and websites; and on the Website of the Authority. At the minimum, the notice shall contain the following information:

- a) name and address of the Procuring Entity;

- b) name and reference number of the contract being awarded, a summary of its scope and the selection method used;
- c) the name of the successful Tenderer, the final total contract price, the contract duration.
- d) dates of signature, commencement and completion of contract;
- e) names of all Tenderers that submitted Tenders, and their Tender prices as read out at Tender opening.

50. Procurement Related Complaint

The procedures for making Procurement-related Complaints shall be specified in the **TDS**.

Section II - Tender Data Sheet (TDS)

The following specific data shall complement, supplement, or amend the provisions in the Instructions to Tenderers (ITT). Whenever there is a conflict, the provisions herein shall prevail over those in ITT.

ITT Reference	A. General
ITT 1.1	<p>The name of the contract is: PROPOSED GATE, GATE HOUSE, WASHROOMS AND FENCING OF BANISSA AIRSTRIP - MANDERA COUNTY</p> <p>The reference number of the contract is: KAA/OT/BANISSA/0076/2023-2024 The number and identification of lots (contracts) comprising this Tender are <u>_N/A_</u></p>
ITT 2.3	The Information made available on competing firms is as follows <u>_N/A_</u>
ITT 2.4	The firms that provided consulting services for the contract being tendered for are: <u>_N/A_</u>
ITT 3.1	<p>This invitation to tender is open to CITIZEN CONTRACTORS in accordance with the PUBLIC PROCUREMENT AND ASSET DISPOSAL ACT 2015.</p> <p>Maximum number of members in the Joint Venture (JV) shall be: TWO (2)</p>
	B. Contents of Tendering Document.
ITT 7.1	<p>The Tenderer will submit any request for clarifications in writing at the address</p> <p>Attention: <i>General Manager, Procurement & Logistics</i> Postal Address: <i>P.O. Box 19001-00501 Nairobi, Kenya</i></p> <p>Physical Address: <i>Kenya Airports Authority Headquarters Complex Building, Jomo Kenyatta International Airport, Airport North Road, 2nd Floor, Procurement & Logistics Department</i></p> <p>Electronic mail address: tenders@kaa.go.ke</p> <p>Request for clarification should be received by the Procuring Entity no later than: three (3) days before the tender closing/Opening date.</p> <p>There shall be a MANDATORY Pre-Tender/Site Visit on 27th October 2023 at 10:00 am at Banissa Airstrip – Mandera County. Site visit attendance is mandatory by a person who is authorized by bidder who is Technical Person with a Minimum qualification of a Diploma in Civil/Highway Engineering.</p> <p>The bidder's representative must bring the following for the site visit.</p> <ol style="list-style-type: none"> 1. Original introductory letter on the company letterhead detailing the names and ID number of the bidder's representative. 2. Certificate of Tenderer's visit to site, 3. Original ID, 4. Copy of technical qualification certificate
ITT 7.3	The Tenderer will submit any questions in writing, through the email address tenders@kaa.go.ke to reach the Procuring Entity not later than three (3) days before the tender closing date.
	C. Preparation of Tenders
ITT 11.1 (h)	The Tenderer shall submit the following additional documents as per the evaluation and qualification criteria in section III.
ITT 13.1	Alternative Tenders <i>“shall not be”</i> considered.
ITT 13.2	Alternative times for completion <i>“shall not be”</i> permitted.
ITT 13.4	Alternative technical solutions shall NOT be permitted for the following parts of the Works:
	[All Works]

ITT 14.5	The prices quoted by the Tenderer shall be <i>fixed</i> .
ITT 15.2	Foreign currency requirements are not allowed
ITT 18.1	The Tender Validity period shall be one hundred and twenty-six (126) days from the date of tender opening.
ITT 19.1	<p>The Tender Security shall be required of Kshs. 600,000.00 valid for 156 days from the date of tender opening/closing.</p> <p>The tender security shall be in any of the following forms:</p> <ul style="list-style-type: none"> i. cash or banker's cheque, or ii. a bank guarantee, or iii. guarantee issued by a reputable insurance company approved by Public Procurement Regulatory Authority (PPRA) or iv. Letter of credit <p>Bidders are required to note the following:</p> <p>(i) Those who have obtained a digital tender security must provide it online with their tender document in the KAA portal. The digital tender security must have a mechanism to verify such as use of quick response (QR) code or an online portal. They do not need to provide a hard copy of the tender security physically.</p> <p>(ii) Those who do not provide a digital tender security as per (i) above will be required to submit an original Tender Security physically to the office of the General Manager, Procurement and Logistics department, KAA Headquarters, 2nd Floor on or before the closing/opening date and time.</p>
ITT 20.1	In addition to the original of the Tender, the number of copies is: <u>N/A</u>
ITT 20.3	The written confirmation of authorization to sign on behalf of the Tenderer shall consist of: <u>Power of Attorney certified by a Commissioner of Oaths.</u>
	D. Submission and Opening of Tenders
ITT 22.1	Completed Tender documents and its attachments must be submitted online before the closing date 7th November 2023 at 11:00 am . All relevant submission documents must be attached on the login submission screen (<i>On submission screen, click technical Rfx Response tab which will lead you to the second screen (Cfolder) where the system creates a folder specific to you for uploading your technical tender response documents. Here you click "Tech Bid" subfolder and create attachments. "Caution Do not attach your documents on the collaboration folder"</i>). For Financial Proposal, use the submission financial screen for inputting the Price and related financial attachments on Notes and attachments. A step by step manual/guide is available for downloading using the link https://www.kaa.go.ke/corporate/procurement/manuals/
ITT 24	The written confirmation of authorization to sign on behalf of the Tenderer shall consist of: <u>Power of Attorney certified by a Commissioner of Oath.</u>
ITT 25.1	Tenders will be opened immediately on 7 th November, 2023 at 11:00am at the Conference Room, 2 nd Floor, Kenya Airports Authority Headquarters complex building. A virtual link shall be provided to those tenderers who shall submit their tenders online and who would wish to participate in the tender opening. Tenderers shall therefore be required to submit their email address to tenders@kaa.go.ke to enable them access this link during tender opening.
	E. Evaluation and Comparison of Tenders
ITT 31.2	This is not applicable.
ITT 32.1	The currency that shall be used for Tender Evaluation and comparison purposes to convert at the selling exchange rate all Tender prices expressed in various currencies into a single

	currency is Kenya Shillings
ITT 33.2	A Margin of preference <i>“shall be allowed as per PPADA 2015.”</i>
ITT 33.4	The invitation to tender is extended to the following groups that qualify for Reservations _____N/A_____
ITT 34.1	At this time, the Procuring Entity “does not intend” to execute certain specific parts of the Works by subcontractors selected in advance.
ITT 34.2	Contractor’s may propose subcontracting: Maximum percentage of subcontracting permitted is 20 % of the total contract amount. Tenderers planning to subcontract more than 20% of total volume of work shall specify, in the Form of Tender, the activity (ies) or parts of the works to be subcontracted along with complete details of the subcontractors and their qualification and experience.
ITT 34.3	This clause is not applicable.
ITT 35.2 (d)	Additional requirements apply. These are as detailed in the evaluation criteria in Section III, Evaluation and Qualification Criteria
ITT 48.2	Additional requirements are: <ul style="list-style-type: none"> a) Bidders with history of Non-performance (e.g., failure to complete the projects for the last three (3) Financial Years, notice of termination or termination of contracts in the last three (3) Financial Years will be disqualified. b) Directors bidding under different companies for the same tender shall be disqualified. c) For Joint Ventures (JV), evidence of a duly executed Joint Venture Agreement by both parties and registration of the same with the Registration of Documents Act. d) Contractors who will submit projects done outside Kenya as evidence of similar work done. There should be an accompanying letter from the Kenya Consulate office in that jurisdiction verifying that such project was undertaken. e) Bidders who provide projects contracted by private entities other than Government Agencies, Parastatals, Ministries, County Governments shall provide bank statements reflecting the interim payment certificates (IPC’s) paid for such projects.
ITT 49.1	<p>The procedures for making a Procurement-related Complaints are available from the PPRA website info@ppra.go.ke or complaints@ppra.go.ke.</p> <p>If a Tenderer wishes to make a Procurement –related Complaint, the Tenderer should submit its complaint following these procedures, in writing (by the quickest means available, that is either by hand delivery or email to:</p> <p>General Manager, Procurement & Logistics Kenya Airports Authority Email address: tenders@kaa.go.ke</p> <p>In summary, a Procurement-related Complaint may challenge any of the following:</p> <ul style="list-style-type: none"> i. The terms of the Tender Documents; and ii. The Procuring Entity’s decision to award the contract

SECTION III- EVALUATION AND QUALIFICATION CRITERIA

General Provisions

- 1.1 This section contains the criteria that the Employer shall use to evaluate tender and qualify tenderers. No other factors, methods or criteria shall be used other than specified in this tender document. The Tenderer shall provide all the information requested in the forms included in Section IV, Tendering Forms. The Procuring Entity shall use **the Standard Tender Evaluation Document for Goods and Works** for evaluating Tenders.
- 12 Wherever a Tenderer is required to state a monetary amount, Tenderers should indicate the Kenya Shilling equivalent using the rate of exchange determined as follows:
- For construction turnover or financial data required for each year - Exchange rate prevailing on the last day of the respective calendar year (in which the amounts for that year is to be converted) was originally established.
 - Value of single contract - Exchange rate prevailing on the date of the contract signature.
 - Exchange rates shall be taken from the publicly available source identified in the ITT 14.3. Any error in determining the exchange rates in the Tender may be corrected by the Procuring Entity.
- 13 Evaluation and contract award Criteria

The Procuring Entity shall use the criteria and methodologies listed in this Section to evaluate tenders and arrive at the Lowest Evaluated Tender. The tender that (i) meets the qualification criteria, (ii) has been determined to be substantially responsive to the Tender Documents, and (iii) is determined to have the Lowest Evaluated Tender price shall be selected for award of contract.

2 Preliminary examination for Determination of Responsiveness

The Procuring Entity will start by examining all tenders to ensure they meet in all respects the eligibility criteria and other requirements in the ITT, and that the tender is complete in all aspects in meeting the requirements of “*Part 2 – Procuring Entity's Works Requirements*”, including checking for tenders with unacceptable errors, abnormally low tenders, abnormally high tenders and tenders that are front loaded. The Standard Tender Evaluation Report for Goods and Works for evaluating Tenders provides clear guidelines on how to deal with review of these requirements. Tenders that do not pass the Preliminary Examination will be considered irresponsive and will not be considered further.

THE FOLLOWING IS THE PRELIMINARY/MANDATORY EVALUATION CRITERIA.

No	Requirement	Remarks
1.	Duly filled, signed and stamped form of tender including the following areas: <ul style="list-style-type: none">Not having been declared ineligible by the PPRA as described in ITT 3.7No conflicts of interest in accordance with ITT3.3	Must Meet
2.	The Tender Security shall be required of Kshs. 600,000.00 valid for 156 days from the date of tender opening/closing. The tender security shall be in any of the following forms: <ol style="list-style-type: none">cash or banker's cheque, ora bank guarantee, orguarantee issued by a reputable insurance company approved by Public Procurement Regulatory Authority (PPRA) orLetter of credit Bidders are required to note the following: (i) Those who have obtained a digital tender security must provide it online with their tender document in the KAA portal. The digital tender security must have a mechanism to verify such as use of quick response (QR) code	Must Meet

	<p>or an online portal. They do not need to provide a hard copy of the tender security physically.</p> <p>(ii) Those who do not provide a digital tender security as per (i) above will be required to submit an original Tender Security physically to the office of the General Manager, Procurement and Logistics department, KAA Headquarters, 2nd Floor on or before the closing/opening date and time.</p>	
3.	Copy of certificate of Registration/Incorporation or partnership deed to show that the applicant is a registered company and legally authorized to do business in Kenya. In case of Joint Venture both must submit	Must Meet
4.	A valid and current KRA tax compliance certificate or its equivalent in the country of origin.	Must Meet
5.	Copy of valid registration certificate issued by the National Construction Authority (NCA) for class NCA 4 to 1 for General Building works category. The registration certificate Must be accompanied by a Valid NCA practicing license at the time of close of tender. In case of Joint Venture both must submit	Must Meet
6.	<p>Copies of the following documents as proof of access to liquid assets of not less than Kshs. 50 Million or capacity to have a minimum cash flow of Kshs 50 million. This shall be evidenced by any of the following:</p> <ol style="list-style-type: none"> 1. Letter showing line of credit from an approved financial institution specific to this project and indicating the amount available. 2. Overdraft facility from a commercial bank specifically for this project and indicating the amount to be availed. 3. Current bank statement for the last six months 4. Or a combination of the above 	Must Meet
7.	The bidder Must attach a written power of Attorney authorizing the signatory of the tender to commit the Tenderer certified by a Commissioner for Oath.	Must Meet
8.	Duly filled Confidential Questionnaire form	Must Meet
9.	<p>The bidder Must submit a copy of CR12 from registrar of company's issued in the last six (6) months showing the list of company directors or a copy of IDs for Sole Proprietor.</p> <p>Where one or more of the shareholders is a company (Beneficial Ownership) the CR12 of such a company shall be provided. This requirement is not applicable to sole proprietorships and partnerships. However, where the CR12 of the beneficial shareholders is not available, as at the time of the tender submission, the successful bidder shall be required to submit it before execution of the contract.</p>	Must Meet
10.	Tender Document to be sequentially serialized from the first to the last page including all the attachments in numerical digits' format. All blank pages must clearly marked " BLANK ".	Must Meet
11.	Copy of Valid (2023) Business Permit issued by a County Government.	Must Meet
12.	The bidder Must provide a copy of Audited financial statements for the last three (3) years (2020, 2021 and 2022). For purpose of evaluation, the audited accounts are considered to be Certified if issued by registered CPA firm/member recognized by ICPAK and signed by the Company's Director.	Must Meet
13.	Duly filled Certificate Of Independent Tender Determination	Must Meet
14.	<ol style="list-style-type: none"> a) Self Declaration that the Person/Tenderer is not Debarred in the Matter of the Public Procurement And Asset Disposal Act 2015. b) Duly filled and stamped Self Declaration that the Person/Tenderer will not engage in any corrupt or fraudulent practice. c) Duly filled Declaration and commitment to the Code of Ethics 	Must Meet
15.	Duly filled and signed Tender questionnaire	Must Meet
16.	<p>Bidders must fill the following forms and submit them with their tender.</p> <ul style="list-style-type: none"> • Key personnel • Completed works • Schedule of ongoing works 	Must Meet

17.	<p>The bidder Must Fill, Sign & Stamp the Site Visit form attached in the format provided-The site visit must be signed by the Contractor and KAA Representative</p> <p>There shall be a mandatory pre-tender site visits as specified in the detailed tender notice above and as uploaded onto the KAA website.</p> <p>NOTE:</p> <p>Every Bidder shall be represented by one Technical Person with a Minimum qualification of a Diploma in Civil/Highway Engineering. The Individual MUST Bring along the following:</p> <ol style="list-style-type: none"> 1. Original ID/Passport and a Copy 2. Original Diploma/H. Dip. /Degree Certificate and a Copy 3. Original and Copy of Registration Certificate and proof of current subscription by EBK/KETRB/IET 4. Original Introductory letter bearing the Company letterhead and an Official Stamp <p>authorizing them to represent the company in the SPECIFIC pre-tender site visit/Pre Tender Conference. The letter shall be duly signed by the Director of the company. Photocopies or any other media shall not be accepted.</p> <p>The copies of ID, Academic Certificate, Professional Registration certificate and introductory letters shall be retained by the Procuring Entity's Team and may be verified later for authenticity.</p> <p>One (1) person shall only represent one (1) company per Tender.</p> <p>N/B Bidder to provide site visit certificate.</p>	Must Meet
18.	<p>In case the Tenderer is a JV, the Tender shall be signed by an authorized representative of the JV on behalf of the JV, and so as to be legally binding on all the members as evidenced by a power of attorney signed by their legally authorized representatives.</p>	Must Meet

NB: Bidders who do not meet any of the above requirements will be disqualified and shall not be evaluated further

THE FOLLOWING IS THE TECHNICAL QUALIFICATION REQUIREMENT.

No	Description	Remarks
1	<p>Work methodology</p> <ul style="list-style-type: none"> • Work Methodology <p>The Methodology should clearly indicate a detailed description of the project activities</p>	Must Meet
2	<p>Work Plan</p> <ul style="list-style-type: none"> • Resourced work program in the form of a Gantt chart prepared using MS project or similar computer software; • Logical Work plan that clearly indicate timeframes and deliverables; and • The work plan should include a project organization structure for the proposed project. 	Must Meet
3	<p>Safety Plan</p> <ul style="list-style-type: none"> • Construction safety plan 	Must Meet
4	<p>Qualifications and technical experience of site personnel to manage and execute the works on the site.</p> <p>Bidders shall submit the following documents which shall be certified by the employer as true copies of the original to be used for evaluation:</p> <ol style="list-style-type: none"> a. Copies of academic certificates b. Copies of professional certificates c. Copies of current practicing license d. Curriculum vitae signed by the nominee e. A written undertaking signed by the nominee confirming his/her availability to carry out the assignment upon winning the bid. The 	Must Meet

	<p>written undertaking shall be addressed to MD/CEO Kenya Airports Authority and must be specific to this tender</p> <p>Site Agent/ Project Manager</p> <ol style="list-style-type: none"> BSc Civil Engineering, Architecture, Quantity Surveying, Construction Project Management/Building Construction Registered Professional Civil Engineer with Engineers Board of Kenya (EBK) and a corporate member of the Institution of Engineers of Kenya (IEK) and must have a valid Practicing License - Mandatory or Registration from BORAQs with a valid practicing license. Experience – Minimum Eight (8) years. Specific experience on Construction of building works – 5 years. <p>Assistant Site Agent/ Assistant Project Manager</p> <ol style="list-style-type: none"> BSc Civil Engineering, Architecture, Quantity Surveying, Construction Project Management/Building Construction Experience – at least five years <p>Site Foreman</p> <ol style="list-style-type: none"> Diploma in Construction/Building Management. Experience – Minimum Eight (8) years <p>Engineering Surveyor</p> <ol style="list-style-type: none"> National Diploma in Surveying/Civil Engineering Experience on survey work – at least Six (6) years 	
5	<p>Average annual turnover of not less than Kshs. 100 Million for the last three consecutive years as demonstrated by the submitted Audited Accounts for the years (2019,2020 and 2021) or (2020, 2021 and 2022).</p>	Must Meet
6	<p>Company past works experience in the last 5 years</p> <p>Proof of at least two (2) similar works in general building works, costing not less than Kshs. 70 million on average previously undertaken in the last five years (2018 to date) Bidder shall attach copies of the following:</p> <ol style="list-style-type: none"> Letters of Award; and Signed Contract and Completion Certificate for the respective projects; If project is ongoing it must be at least 70% complete. Bidder to attach copies of interim payment certificates. Recommendation/ Reference Letters addressed to the MD Kenya Airports Authority, from all the works/projects listed above. 	Must Meet
7	<p>Equipment and Machinery</p> <p>Must demonstrate access to the following key minimum equipment (invoices, receipts, leased or hire agreement) necessary to undertake the work;</p> <ol style="list-style-type: none"> Mobile Concrete Mixers- Two (2) Concrete Poker Vibrator- One (1) Lorries- Two (2) Tippers- Two (2) Pick-ups- One (1) Welding Equipment <p>Notes</p> <ul style="list-style-type: none"> If the equipment is owned, must provide CLEAR copies of log book or proof of ownership; If equipment is hired or leased Provide a commitment letter from the lessor of the equipment addressed to the Managing Director/CEO Kenya Airports Authority indicating that the lessor shall avail the equipment upon award of the tender and 	Must Meet

	<p>submit a copy of a written agreement to lease between lessee and lessor indicating list of equipment and their corresponding copies of log books or proof of ownership by lessor;</p> <ul style="list-style-type: none"> • The equipment listed shall be available on site when required 	
8	<p>Other Requirements</p> <ul style="list-style-type: none"> a) Bidders with history of Non-performance (e.g., failure to complete the projects for the last three (3) Financial Years, notice of termination or termination of contracts in the last three (3) Financial Years will be disqualified. b) Directors bidding under different companies for the same tender shall be disqualified. c) For Joint Ventures (JV), evidence of a duly executed Joint Venture Agreement by both parties and registration of the same with the Registration of Documents Act. d) Contractors who will submit projects done outside Kenya as evidence of similar work done. There should be an accompanying letter from the Kenya Consulate office in that jurisdiction verifying that such project was undertaken. e) Bidders who provide projects contracted by private entities other than Government Agencies, Parastatals, Ministries, County Governments shall provide bank statements reflecting the interim payment certificates (IPC's) paid for such projects. 	
	<p>All submitted Documents may be verified from the issuing agencies, KAA Reserves the right to verify all submitted documents.</p>	

NOTE: Tenderers who will not meet ANY of the technical requirements that is mandatory will not be evaluated further.

1. Tender Evaluation (ITT 35)

FINANCIAL EVALUATION

Only the bids which will be responsive to the technical requirement shall undergo financial evaluation which shall include evaluation of:

- i. Duly completed and signed Form of Tender and the appendix to the form of tender in the format contained in this bid document
- ii. Priced Bill of Quantities in the format contained in this bid document.

The financial evaluation will be based on the **lowest evaluated price**.

Note: Bidders are hereby notified that due diligence shall be carried out on information provided by the bidder. Any false information provided will lead to automatic disqualification irrespective at any stage of the procurement process or contract execution.

Price evaluation: In addition to the criteria listed in ITT 35.2 (a) – (d) the following criteria shall apply:

- i) **Alternative Completion Times** N/A
- ii) **Multiple Contracts** – N/A
- iii) **Alternative Tenders (ITT 13.1)** – N/A
- iv) **MARGIN OF PREFERENCE** – N/A

2. Post qualification and Contract award (ITT 39), more specifically, - to use the technical evaluation criteria

provided above in no. 2 and 3 above.

- a) In case the tender was subject to post-qualification, the contract shall be awarded to the lowest evaluated tenderer, subject to confirmation of pre-qualification data, if so required.
- b) In case the tender was not subject to post-qualification, the tender that has been determined to be the lowest evaluated tenderer shall be considered for contract award, subject to meeting each of the following conditions.
 - i) The Tenderer shall demonstrate that it has access to, or has available, liquid assets, unencumbered real assets, lines of credit, and other financial means (independent of any contractual advance payment) sufficient to meet the construction cash flow of Kenya Shillings ten million (Kshs. 10,000,000/-) liquid assets.
 - ii) Contractor's Representative and Key Personnel, which are specified as **Project Manager (Principal site representative of the contractor)**.
 - iii) Other conditions as set out in the Preliminary and technical criteria.
- a) **History of non-performing contracts:**
Tenderer and each member of JV incase the Tenderer is a JV, shall demonstrate that Non-performance of a contract did not occur because of the default of the Tenderer, or the member of a JV in the last three (3) years. The required information shall be furnished in the appropriate form.
- b) **Pending Litigation**
Financial position and prospective long-term profitability of the Single Tenderer, and in the case the Tenderer is a JV, of each member of the JV, shall remain sound according to criteria established with respect to Financial Capability under Paragraph (i) above if all pending litigation will be resolved against the Tenderer. Tenderer shall provide information on pending litigations in the appropriate form.
- c) **Litigation History**
There shall be no consistent history of court/arbitral award decisions against the Tenderer, in the last Three (3) years. All parties to the contract shall furnish the information in the appropriate form about any litigation or arbitration resulting from contracts completed or ongoing under its execution over the years specified. A consistent history of awards against the Tenderer or any member of a JV may result in rejection of the tender.

3. QUALIFICATION FORM SUMMARY – BIDDERS TO USE THE CRITERIA GIVEN IN NO.2

11	12	13	14	15
Item No.	Qualification Subject	Qualification Requirement	Document To be Completed by Tenderer	For Procuring Entity's Use (Qualification met or Not Met)
1	Nationality	Nationality in accordance with ITT3.6	Forms ELI-1.1 and 1.2, with attachments	
2	Tax Obligations for Kenyan Tenderers	Has produced a current tax clearance certificate or tax exemption certificate issued by Kenya Revenue Authority in accordance with ITT 3.14.	Attachment	
13	Conflict of Interest	No conflict of interest in accordance with ITT 3.3	Form of Tender	
4	PPRA Eligibility	Not having been declared ineligible by the PPRA as described in ITT 3.7	Form of Tender	
Js	State-owned Enterprise	Meets conditions of ITT 3.8	Forms ELI-1.1 and 1.2, with attachments	
6	Goods, equipment and services to be supplied under the contract	To have their origin in any country that is not determined ineligible under ITT 4.1	Forms ELI - 1.1 and 1.2, with attachments	
7	History of Non-Performing Contracts	Non-performance of a contract did not occur as a result of contractor default since 1 st January [.....].	Form CON-2	
8	Suspension Based on Execution of Tender/Proposal Securing Declaration by the Procuring Entity	Not under suspension based on execution of a Tender/Proposal Securing Declaration pursuant to ITT 19.9	Form of Tender	
9	Pending Litigation	Tender's financial position and prospective long-term profitability still sound according to criteria established in 3.1 and assuming that all pending litigation will NOT be resolved against the Tenderer.	Form CON-2	
10	Litigation History	No consistent history of court/arbitral award decisions against the Tenderer since 1 st January [insert year].	Form CON-2	

Item No.	Qualification Subject	Qualification Requirement	Document To be Completed by Tenderer	For Entity's Use (Qualification met or Not Met)
11	Financial Capabilities	<p>(i) The Tenderer shall demonstrate that it has access to, or has available, liquid assets, unencumbered real assets, lines of credit, and other financial means (independent of any contractual advance payment) sufficient to meet the construction cash flow requirements estimated as Kenya Shillings <i>[insert amount]</i> equivalent for the subject contract(s) net of the Tenderer's other commitments.</p> <p>(ii) The Tenderers shall also demonstrate, to the satisfaction of the Procuring Entity, that it has adequate sources of finance to meet the cash flow requirements on works currently in progress and for future contract commitments.</p> <p>(iii) The audited balance sheets or, if not required by the laws of the Tenderer's country, other financial statements acceptable to the Procuring Entity, for the last <i>[insert number of years]</i> years shall be submitted and must demonstrate the current soundness of the Tenderer's financial position and indicate its prospective long-term profitability.</p>	Form FIN - 3.1, with attachments	
12	Average Annual Construction Turnover	Minimum average annual construction turnover of Kenya Shillings <i>[insert amount]</i> , equivalent calculated as total certified payments received for contracts in progress and/or completed within the last <i>[insert of year]</i> years, divided by <i>[insert number of years]</i> years	Form FIN - 3.2	
13	General Construction Experience	Experience under construction contracts in the role of prime contractor, JV member, sub-contractor, or management contractor for at least the last <i>[insert number of years]</i> years, starting 1 st January <i>[insert year]</i> .	4. Form EXP - 4.1 Experience	

11	12	13	14	15
Item No.	Qualification Subject	Qualification Requirement	Document To be Completed by Tenderer	For Procuring Entity's Use (Qualification met or Not Met)
14	Specific Construction & Contract Management Experience	<p>A minimum number of <i>[state the number]</i> similar contracts specified below that have been satisfactorily and substantially completed as a prime contractor, joint venture member, management contractor or sub-contractor between 1st January <i>[insert year]</i> and tender submission deadline i.e.(number) contracts, each of minimum value Kenya shillings.....equivalent.</p> <p><i>[In case the Works are to be tender as individual contracts under multiple contract procedure, the minimum number of contracts required for purposes of evaluating qualification shall be selected from the options mentioned in ITT 35.4]</i></p> <p>The similarity of the contracts shall be based on the following: <i>[Based on Section VII, Scope of Works, specify the minimum key requirements in terms of physical size, complexity, construction method, technology and/or other characteristics including part of the requirements that may be met by specialized subcontractors, if permitted in accordance with ITT 34.3]</i></p>	Form EXP. ⁴ _{2(a)}	

SECTION IV - TENDERING FORMS

QUALIFICATION FORMS

1. FOREIGN TENDERERS 40% RULE.
2. TENDERER'S ELIGIBILITY- CONFIDENTIAL BUSINESS QUESTIONNAIRE
3. Form EQU: EQUIPMENT.
4. FORM PER -1.
5. FORM PER-2.
6. TENDERERS QUALIFICATION WITHOUT PRE-QUALIFICATION.
 - 6.1 FORM ELI-1.1.
 - 6.2 FORM ELI-1.2.
 - 6.3 FORM CON –2.
 - 6.4 FORM FIN –3.1.
 - 6.5 FORM FIN –3.2.
 - 6.6 FORM FIN –3.3.
 - 6.7 FORM FIN –3.4.
 - 6.8 FORM EXP -4.1.
 - 6.9 FORM EXP - 4.2(a).
 - 6.9 FORM EXP - 4.2 (a) (cont.).
 - 6.10 FORM EXP -4.2 (b).

OTHER FORMS

7. FORM OF TENDER.
8. FORM OF TENDER SECURITY - DEMAND BANK GUARANTEE.
9. FORM OF TENDER SECURITY (TENDER BOND).
10. FORM OF TENDER-SECURING DECLARATION.
11. APPENDIX TO TENDER.

TECHNICAL PROPOSAL FORMS

Site Organization.

Method Statement.

Mobilization Schedule.

Construction Schedule.

QUALIFICATION FORMS

1. FOREIGN TENDERERS 40% RULE

Pursuant to ITT 3.9, a foreign tenderer must complete this form to demonstrate that the tender fulfils this condition.

ITEM	Description of Work Item	Describe location of Source	COST in K. shillings	Comments, if any
A	Local Labor			
1				
2				
3				
4				
5				
B				
1				
2				
3				
4				
5				
C	Local materials			
1				
2				
3				
4				
5				
D				
1				
2				
3				
4				
5				
E				
1				
2				
3				
4				
5				
6				
	TOTAL COST LOCAL CONTENT		XXXXX	
	PERCENTAGE OF CONTRACT PRICE		xxxx	

3. FORM EQU: EQUIPMENT

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

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

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

4 **FORM PER-1**

Contractor's Representative and Key Personnel Schedule

Tenderers should provide the names and details of the suitably qualified Contractor's Representative and Key Personnel to perform the Contract. The data on their experience should be supplied using the Form PER-2 below for each candidate.

Contractor' Representative and Key Personnel.

1.	Title of position: Contractor's Representative	
	Name of candidate:	
	Duration of appointment:	<i>[insert the whole period (start and end dates) for which this position will be engaged]</i>
	Time commitment: for this position:	<i>[insert the number of days/week/months/ that has been scheduled for this position]</i>
	Expected time schedule for this position:	<i>[insert the expected time schedule for this position (e.g. attach high level Gantt chart)]</i>
2.	Title of position: [_____]	
	Name of candidate:	
	Duration of appointment:	<i>[insert the whole period (start and end dates) for which this position will be engaged]</i>
	Time commitment: for this position:	<i>[insert the number of days/week/months/ that has been scheduled for this position]</i>
	Expected time schedule for this position:	<i>[insert the expected time schedule for this position (e.g. attach high level Gantt chart)]</i>
3.	Title of position: [_____]	
	Name of candidate:	
	Duration of appointment:	<i>[insert the whole period (start and end dates) for which this position will be engaged]</i>
	Time commitment: for this position:	<i>[insert the number of days/week/months/ that has been scheduled for this position]</i>
	Expected time schedule for this position:	<i>[insert the expected time schedule for this position (e.g. attach high level Gantt chart)]</i>

4.	Title of position: / _____]	
	Name of candidate:	
	Duration of appointment:	[insert the whole period (start and end dates) for which this position will be engaged]
	Time commitment: for this position:	[insert the number of days/week/months/ that has been scheduled for this position]
	Expected time schedule for this position:	[insert the expected time schedule for this position (e.g. attach high level Gantt chart)]
5.	Title of position: [insert title]	
	Name of candidate	
	Duration of appointment:	[insert the whole period (start and end dates) for which this position will be engaged]
	Time commitment: for this position:	[insert the number of days/week/months/ that has been scheduled for this position]
	Expected time schedule for this position:	[insert the expected time schedule for this position (e.g. attach high level Gantt chart)]

5. FORM PER-2:

Resume and Declaration - Contractor's Representative and Key Personnel.

Name of Tenderer		
Position [#1]: [title of position from Form PER-1]		
Personnel information	Name:	Date of birth:
	Address:	E-mail:
	Professional qualifications:	
	Academic qualifications:	
	Language proficiency: [language and levels of speaking, reading and writing skills]	
Details	Address of Procuring Entity:	
	Telephone:	Contact (manager / personnel officer):
	Fax:	
	Job title:	Years with present Procuring Entity:

Summarize professional experience in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

Project	Role	Duration of involvement	Relevant experience
<i>[main project details]</i>	<i>[role and responsibilities on the project]</i>	<i>[time in role]</i>	<i>[describe the experience relevant to this position]</i>

DECLARATION

I, the under signed *[insert either "Contractor's Representative" or "Key Personnel" as applicable]*, certify that to the Lowest of my knowledge and belief, the information contained in this Form PER-2 correctly describes myself, my qualifications and my experience.

I confirm that I am available as certified in the following table and throughout the expected time schedule for this position as provided in the Tender:

Commitment	Details
Commitment to duration of contract:	<i>[insert period (start and end dates) for which this Contractor's Representative or Key Personnel is available to work on this contract]</i>
Time commitment:	<i>[insert period (start and end dates) for which this Contractor's Representative or Key Personnel is available to work on this contract]</i>

I understand that any misrepresentation or omission in this Form may:

- be taken into consideration during Tender evaluation;
- result in my disqualification from participating in the Tender;
- result in my dismissal from the contract.

Name of Contractor's Representative or Key Personnel: *[insert name]*

Signature: _____

Date: (day month year): _____

Countersignature of authorized representative of the Tenderer:

Signature: _____

Date: (day month year): _____

6. TENDERERS QUALIFICATION WITHOUT PRE-QUALIFICATION

To establish its qualifications to perform the contract in accordance with Section III, Evaluation and Qualification Criteria the Tenderer shall provide the information requested in the corresponding Information Sheets included hereunder.

61 FORM ELI-

1.1 Tenderer Information

Form

Date: _____

ITT No. and title: _____

Tenderer's name
In case of Joint Venture (JV), name of each member:
Tenderer's actual or intended country of registration: <i>[icate country of Constitution]</i>
Tenderer's actual or intended year of incorporation:
Tenderer's legal address [in country of registration]:
Tenderer's authorized representative information Name: _____ Address: _____ Telephone/Fax: _____ E-mail address: _____
1 Attached are copies of original documents of <input type="checkbox"/> Articles of Incorporation (or equivalent documents of constitution or association), and/or documents of registration of the legal entity named above, in accordance with ITT 3.6 <input type="checkbox"/> In case of JV, letter of intent to form JV or JV agreement, in accordance with ITT 3.5 <input type="checkbox"/> In case of state-owned enterprise or institution, in accordance with ITT 3.8, documents establishing: 2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.

62 **FORM ELI-1.2**

Tenderer's JV Information Form

(to be completed for each member of Tenderer's JV)

Date: _____

ITT No. and title: _____

Tenderer's JV name:
JV member's name:
JV member's country of registration:
JV member's year of constitution:
JV member's legal address in country of constitution:
JV member's authorized representative information Name: _____ Address: _____ Telephone/Fax numbers: _____ E-mail address: _____
1. Attached are copies of original documents of <input type="checkbox"/> Articles of Incorporation (or equivalent documents of constitution or association), and/or registration documents of the legal entity named above, in accordance with ITT 43.6. <input type="checkbox"/> In case of a state-owned enterprise or institution, documents establishing legal and financial autonomy, operation in accordance with commercial law, and that they are not under the supervision of the Procuring Entity, in accordance with ITT 3.8. 2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.

63 FORM CON – 2

Historical Contract Non-Performance, Pending Litigation and Litigation History

Tenderer's Name: _____

Date: _____

JV Member's Name _____

ITT No. and title: _____

Non-Performed Contracts in accordance with Section III, Evaluation and Qualification Criteria			
<input type="checkbox"/> Contract non-performance did not occur since 1 st January <i>[insert year]</i> specified in Section III, Evaluation and Qualification Criteria, Sub-Factor 2.1.			
<input type="checkbox"/> Contract(s) not performed since 1 st January <i>[insert year]</i> specified in Section III, Evaluation and Qualification Criteria, requirement 2.1			
Year	Non- performed portion of contract	Contract Identification	Total Contract Amount (current value, currency, exchange rate and Kenya Shilling equivalent)
<i>[insert year]</i>	<i>[insert amount and percentage]</i>	Contract Identification: <i>[indicate complete contract name/ number, and any other identification]</i> Name of Procuring Entity: <i>[insert full name]</i> Address of Procuring Entity: <i>[insert street/city/country]</i> Reason(s) for nonperformance: <i>[indicate main reason(s)]</i>	<i>[insert amount]</i>
Pending Litigation, in accordance with Section III, Evaluation and Qualification Criteria			
<input type="checkbox"/> No pending litigation in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.3.			
<input type="checkbox"/> Pending litigation in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.3 as indicated below.			

Year of dispute	Amount in dispute (currency)	Contract Identification	Total Contract Amount (currency), Kenya Shilling Equivalent (exchange rate)
		Contract Identification: _ _ _ _ _ Name of Procuring Entity: _____ Address of Procuring Entity: _____ Matter in dispute: _ _ _ _ _ Party who initiated the dispute: Status of dispute: _____	
		Contract Identification: Name of Procuring Entity: Address of Procuring Entity: Matter in dispute: Party who initiated the dispute: Status of dispute:	

I Litigation History in accordance with Section III, Evaluation and Qualification Criteria

D No Litigation History in accordance with Section III, Evaluation and Qualification Criteria, Sub- Factor 2.4. D Litigation History in accordance with Section III, Evaluation and Qualification Criteria, Sub- Factor 2.4 as indicated below.			
<i>[insert year]</i>	<i>[insert percentage]</i>	Contract Identification: [indicate complete contract name, number, and any other identification] Name of Procuring Entity: <i>[insert full name]</i> Address of Procuring Entity: <i>[insert street/city/country]</i> Matter in dispute: <i>[indicate main issues in dispute]</i> Party who initiated the dispute: <i>[indicate "Procuring Entity" or "Contractor"]</i> Reason(s) for Litigation and award decision <i>[indicate main reason(s)]</i>	<i>[insert amount]</i>

64 FORM FIN –3.1:

Financial Situation and Performance

Tenderer's Name: _____

Date: _____

JV Member's Name _____

ITT No. and title: _____

6.4.1. Financial Data

Type of Financial information in (currency) _____	Historic information for previous _____ (amount in currency, currency, exchange rate*, USD equivalent)				
	Year 1	Year 2	Year 3	Year 4	Year 5
Statement of Financial Position (Information from Balance Sheet)					
Total Assets (TA)					
Total Liabilities (TL)					
Total Equity/Net Worth (NW)					
Current Assets (CA)					
Current Liabilities (CL)					
Working Capital (WC)					
Information from Income Statement					
Total Revenue (TR)					
Profits Before Taxes (PBT)					
Cash Flow Information					
Cash Flow from Operating Activities					

*Refer to ITT 15 for the exchange rate

642 Sources of Finance

Specify sources of finance to meet the cash flow requirements on works currently in progress and for future contract commitments.

No.	Source of finance	Amount (Kenya Shilling equivalent)
1		
2		
3		

643 Financial documents

The Tenderer and its parties shall provide copies of financial statements for _____ years pursuant Section III, Evaluation and Qualifications Criteria, Sub-factor 3.1. The financial statements shall:

- reflect the financial situation of the Tenderer or incase of JV member, and not an affiliated entity (such as parent company or group member).
- be independently audited or certified in accordance with local legislation.
- be complete, including all notes to the financial statements.
- correspond to accounting periods already completed and audited.

Attached are copies of financial statements ¹ for the _____ years required above; and complying with the requirements

6.5 FORM FIN – 3.2:

Average Annual Construction Turnover

Tenderer's Name: _____

Date: _____

JV Member's Name _____

ITT No. and title: _____

		Annual turnover data (construction only)	
Year	Amount Currency	Exchange rate	Kenya Shilling equivalent
[indicate year]	[insert amount and indicate currency]		
Average Annual Construction Turnover *			

* See Section III, Evaluation and Qualification Criteria, Sub-Factor 3.2.

¹If the most recent set of financial statements is for a period earlier than 12 months from the date of Tender, the reason for this should be justified.

6.6 FORM FIN –3.3:

Financial Resources

Specify proposed sources of financing, such as liquid assets, unencumbered real assets, lines of credit, and other financial means, net of current commitments, available to meet the total construction cash flow demands of the subject contractor contracts as specified in Section III, Evaluation and Qualification Criteria.

Financial Resources		
No.	Source of financing	Amount (Kenya Shilling equivalent)
1		
2		
3		

6.7 FORMFIN–3.4:

Current Contract Commitments / Works in Progress

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

Current Contract Commitments					
No.	Name of Contract	Procuring Entity's Contact Address, Tel,	Value of Outstanding Work [Current Kenya Shilling /month Equivalent]	Estimated Completion Date	Average Monthly Invoicing Over Last Six Months [Kenya Shilling /month]
1					
2					
3					
4					
5					

6.8 FORM EXP -4.1

General Construction Experience

Tenderer's Name: _____

Date: _____

JV Member's Name: _____

ITT No. and title: _____

Starting Year	Ending Year	Contract Identification	Role of Tenderer
		Contract name: _____ Brief Description of the Works performed by the Tenderer: _____ Amount of contract: _____ Name of Procuring Entity: _____ Address: _____	
		Contract name: _____ Brief Description of the Works performed by the Tenderer: _____ Amount of contract: _____ Name of Procuring Entity: _____ Address: _____	
		Contract name: _____ Brief Description of the Works performed by the Tenderer: _____ Amount of contract: _____ Name of Procuring Entity: _____ Address: _____	

6.9 FORM EXP -4.2(a)

Specific Construction and Contract Management Experience

Tenderer's Name: _____

Date: _____

JV Member's Name _____

ITT No. and title: _____

Similar Contract No.	Information			
Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contractor <input type="checkbox"/>	Member in JV <input type="checkbox"/>	Management Contractor <input type="checkbox"/>	Sub-contractor <input type="checkbox"/>
Total Contract Amount			Kenya Shilling	
If member in a JV or sub-contractor, specify participation in total Contract amount				
Procuring Entity's Name:				
Address: Telephone/fax number E-mail:				
Description of the similarity in accordance with Sub-Factor 4.2(a) of Section III:				
1. Amount				
2. Physical size of required works items				
3. Complexity				
4. Methods/Technology				
5. Construction rate for key activities				
6. Other Characteristics				

6.10 FORM EXP -4.2(b)

Construction Experience in Key Activities

Tenderer's Name: _____

Date: _____

Tenderer's JV Member Name: _____

Sub-contractor's Name² (as per ITT34): _____

ITT No. and title: _____

All Sub-contractors for key activities must complete the information in this form as per ITT 34 and Section III, Evaluation and Qualification Criteria, Sub-Factor 4.2.

1. Key Activity No One: _

Information				
Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contractor <input type="checkbox"/>	Member in JV <input type="checkbox"/>	Management Contractor <input type="checkbox"/>	Sub-contractor <input type="checkbox"/>
Total Contract Amount			Kenya Shilling	
Quantity (Volume, number or rate of production, as applicable) performed under the contract per year or part of the year	Total quantity in the contract (i)	Percentage participation (ii)	Actual Quantity Performed (i) x (ii)	
Year 1				
Year 2				
Year 3				
Year 4				
Procuring Entity's Name:				

²If applicable

Address: Telephone/fax number E-mail:	Information
Description of the key activities in accordance with Sub-Factor 4.2(b) of Section III:	

2 Activity No. Two

3.....

SECTION IV - TENDERING FORMS

FORM OF TENDER

(Amended and issued pursuant to PPRA CIRCULAR No. 02/2022)

INSTRUCTIONS TO TENDERERS

- i) *The Tenderer must prepare this Form of Tender on stationery with its letterhead clearly showing the Tenderer's complete name and business address.*
- ii) *All italicized text is to help Tenderer in preparing this form.*
- iii) *Tenderer must complete and sign CERTIFICATE OF INDEPENDENT TENDER DETERMINATION and the SELF DECLARATION OF THE TENDERER attached to this Form of Tender.*
- iv) *The Form of Tender shall include the following Forms duly completed and signed by the Tenderer.*
 - *Tenderer's Eligibility-Confidential Business Questionnaire.*
 - *Certificate of Independent Tender Determination.*
 - *Self-Declaration of the Tenderer.*

Date of this Tender submission:

Request for Tender No.: KAA/OT/BANISSA/0076/2023-2024 PROPOSED GATE, GATE HOUSE, WASHROOMS AND FENCING OF BANISSA AIRSTRIP - MANDERA COUNTY

To: [Kenya Airports Authority]

Dear Sirs,

1. In accordance with the Conditions of Contract, Specifications, Drawings and Bills of Quantities for the execution of the above named Works, we, the undersigned offer to construct and complete the Works and remedy any defects therein for the sum of Kenya Shillings *[[Amount in figures]* _____ Kenya Shillings *[amount in words]* _____

The above amount includes foreign currency amount (s) of *[state figure or a percentage and currency]* [figures] _____ [words] _____

The percentage or amount quoted above does not include provisional sums, and only allows not more than two foreign currencies.

2. We undertake, if our tender is accepted, to commence the Works as soon as is reasonably possible after the receipt of the Engineer's notice to commence, and to complete the whole of the Works comprised in the Contract within the time stated in the Particular Conditions of Contract.
3. We agree to adhere by this tender until one hundred and twenty six (126) days from the date of tender opening and shall remain binding upon us and may be accepted at any time before that date.
4. Unless and until a formal Agreement is prepared and executed this tender together with your written acceptance thereof, shall constitute a binding Contract between us. We further understand that you are not bound to accept the lowest or any tender you may receive.
5. We, the undersigned, further declare that:
 - i) No reservations: We have examined and have no reservations to the tender document, including Addenda issued in accordance with ITT 8;
 - ii) Eligibility: We meet the eligibility requirements and have no conflict of interest in accordance with ITT 3 and 4;
 - iii) Tender-Securing Declaration: We have not been suspended nor declared ineligible by the Procuring

Entity based on execution of a Tender-Securing or Proposal-Securing Declaration in the Procuring Entity's Country in accordance with ITT 19.8;

- (iv) Conformity: We offer to execute in conformity with the tendering documents and in accordance with the implementation and completion specified in the construction schedule, the following Works: *[insert a brief description of the Works]*;
- (v) Tender Price: The total price of our Tender, excluding any discounts offered in item 1 above is: *[Insert one of the options below as appropriate]*
- (vi) Total price is: *[insert the total price of the Tender in words and figures, indicating the various amounts and the respective currencies]*; Or
- vii) Discounts: The discounts offered and the methodology for their application are:
- viii) The discounts offered are: *[Specify in detail each discount offered.]*
- ix) The exact method of calculations to determine the net price after application of discounts is shown below: *[Specify in detail the method that shall be used to apply the discounts]*;
- x) Tender Validity Period: Our Tender shall be valid for the period specified in TDS 18.1 (as amended, if applicable) from the date fixed for the Tender submission deadline specified in TDS 22.1(as amended, if applicable), and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- xi) Performance Security: If our Tender is accepted, we commit to obtain a Performance Security in accordance with the Tendering document;
- xii) One Tender Per Tender: We are not submitting any other Tender(s) as an individual Tender, and we are not participating in any other Tender(s) as a Joint Venture member or as a subcontractor, and meet the requirements of ITT3.4, other than alternative Tenders submitted in accordance with ITT 13.3;
- xiii) Suspension and Debarment: We, along with any of our subcontractors, suppliers, Engineer, manufacturers, or service providers for any part of the contract, are not subject to, and not controlled by any entity or individual that is subject to, a temporary suspension or a debarment imposed by the Public Procurement Regulatory Authority or any other entity of the Government of Kenya, or any international organization.
- xiv) State-owned enterprise or institution: *[select the appropriate option and delete the other]* *[We are not a state-owned enterprise or institution]/[We are a state-owned enterprise or institution but meet the requirements of ITT 3.7]*;
- xv) Commissions, gratuities, fees: We have paid, or will pay the following commissions, gratuities, or fees with respect to the tender process or execution of the Contract: *[insert complete name of each Recipient, its full address, the reason for which each commission or gratuity was paid and the amount and currency of each such commission or gratuity]*

Name of Recipient	Address	Reason	Amount

(If none has been paid or is to be paid, indicate "none.")

- xvi) **Binding Contract:** We understand that this Tender, together with your written acceptance thereof included in your Letter of Acceptance, shall constitute a binding contract between us, until a formal contract is prepared and executed;
- xvii) **Not Bound to Accept:** We understand that you are not bound to accept the lowest evaluated cost Tender, the Most Advantageous Tender or any other. Tender that you may receive;
- xviii) **Fraud and Corruption:** We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf engages in any type of Fraud and Corruption;
- xix) **Collusive practices:** We hereby certify and confirm that the tender is genuine, non-collusive and made with the intention of accepting the contract if awarded. To this effect we have signed the “Certificate of Independent Tender Determination” attached below.
- xx) We undertake to adhere by the Code of Ethics for Persons Participating in Public Procurement and Asset Disposal, copy available from _____ (*specify website*) during the procurement process and the execution of any resulting contract.
- xxi) **Beneficial Ownership Information:** We commit to provide to the procuring entity the Beneficial Ownership Information in conformity with the Beneficial Ownership Disclosure Form upon receipt of notification of intention to enter into a contract in the event we are the successful tenderer in this subject procurement proceeding.
- xxii) We, the Tenderer, have completed fully and signed the following Forms as part of our Tender:
- Tenderer's Eligibility; Confidential Business Questionnaire – to establish we are not in any conflict to interest.
 - Certificate of Independent Tender Determination – to declare that we completed the tender without colluding with other tenderers.
 - Self-Declaration of the Tenderer– to declare that we will, if awarded a contract, not engage in any form of fraud and corruption.
 - Declaration and commitment to the Code of Ethics for Persons Participating in Public Procurement and Asset Disposal.

Further, we confirm that we have read and understood the full content and scope of fraud and corruption as informed in “**Appendix 1- Fraud and Corruption**” attached to the Form of Tender.

Name of the Tenderer:

Name of the person duly authorized to sign the Tender on behalf of the Tenderer:

Title of the person signing the Tender:

Signature of the person named above:

Date signedday of month, year

Date signed _____ day of _____, _____

Notes

* *In the case of the Tender submitted by joint venture specify the name of the Joint Venture as Tenderer*

** *Person signing the Tender shall have the power of attorney given by the Tenderer to be attached with the Tender,*

(This appendix forms part of the Tender)

CONDITIONS OF CONTRACT	AMOUNT
Name of the Contract	PROPOSED GATE, GATE HOUSE, WASHROOMS AND FENCING OF BANISSA AIRSTRIP - MANDERA COUNTY
Scope	i) Construction of a Gate and Gate House ii) Construction of a washroom block iii) Associated Electrical/Mechanical Works. iv) Chain-link Fencing on Concrete Posts.
Site	BANISSA Airstrip – Mandera County
Tender Security	Kshs. 600,000/-
Employer	Kenya Airports Authority P.O. Box 19001-00501, NAIROBI
Authorized representative	Managing Director/CEO Telephone: 020-6611000 Facsimile: 020-822078
Project Manager	General Manager-Projects & Engineering Services P.O. Box 19001-00501, NAIROBI Telephone: 020-6611000 Facsimile: 020-822078 Or his appointed representative
Amount of Performance Security	10% percent of Tender Sum
Revised Program of works to be submitted	Not later than 28 days after issuance of Order to Commence
Cash flow estimate to be submitted	Not later than 28 days after issuance of Order to Commence
Minimum amount of Insurance (including Works, Plant & Materials; Equipment; Other property; Personal Injury or death; Contractor's Employees; Other people)	10% of the contract sum
Period for commencement, from the Engineer's order to commence	28 days
Time for completion	12 months
Amount of liquidated damages	Kshs. 50,000/= per day up to a max. limit of 10% of the contract sum.
Limit of liquidated damages	10% of Contract Value
Defect Liability period	6 Months
Percentage of Retention	10% of Interim Payment Certificate
Limit of Retention Money	10% of Contract Price
Minimum amount of interim certificates	<i>To be agreed</i>
Time within which payment to be made after Interim Payment Certificate signed by Project Manager	30 days
Appointer of Arbitrator	AAK; EBK; or CIARB (Kenya Branch).

Notice to Employer and Engineer	<p>The Employers address is: Kenya Airports Authority, P.O. Box 19001 – 00501, <u>Nairobi</u></p> <p>The Engineer's address is: General Manager (P & ES), Kenya Airports Authority, P.O. Box 19001 – 00501, Nairobi</p>
---------------------------------	---

Signature of Bidder.....
(Affix stamp)

Date.....

TENDERER'S ELIGIBILITY-CONFIDENTIAL BUSINESS QUESTIONNAIRE

Instruction to Tenderer

Tender is instructed to complete the particulars required in this Form, *one form for each entity if Tender is a JV*.
Tenderer is further reminded that it is an offence to give false information on this Form.

i) Tenderer's details

	ITEM	DESCRIPTION
1	Name of the Procuring Entity	Kenya Airports Authority
2	Reference Number of the Tender	KAA/OT/BANISSA/0076/2023-2024
3	Date and Time of Tender Opening	
4	Name of the Tenderer	
5	Full Address and Contact Details of the Tenderer.	1.Country 2. City 3.Location 4. Building 5.Floor 6. Postal Address 7. Name and email of contact person.
6	Current Trade License Registration Number and Expiring date	
7	Name, country and full address (<i>postal and physical addresses, email, and telephone number</i>) of Registering Body/Agency	
8	Description of Nature of Business	
9	Maximum value of business which the Tenderer handles.	
10	State if Tenders Company is listed in stock exchange, give name and full address (<i>postal and physical addresses, email, and telephone number</i>) of state which stock exchange	

General and Specific Details

ii) Sole Proprietor, provide the following details.

Name in full _____ Age _____
Nationality _____ Country of Origin _____
Citizenship _____

iii) Partnership, provide the following details.

	Names of Partners	Nationality	Citizenship	% Shares owned
1				
2				
3				

(iv) Registered Company, provide the following details.

- i) Private or public Company _____
- ii) State the nominal and issued capital of the Company
Nominal Kenya Shillings (Equivalent).....
Issued Kenya Shillings (Equivalent).....
- iii) Give details of Directors as follows.

	Names of Director	Nationality	Citizenship	% Shares owned
1				
2				
3				

(v) DISCLOSURE OF INTEREST- Interest of the Firm in the Procuring Entity.

- i) Are there any person/persons in..... (Kenya Airports Authority) who has/have an interest or relationship in this firm? Yes/No.....

If yes, provide details as follows.

	Names of Person	Designation in the Procuring Entity	Interest or Relationship with Tenderer
1			
2			
3			

ii) Conflict of interest disclosure

	Type of Conflict	Disclosure YES ORNO	If YES provide details of the relationship with Tenderer
1	Tenderer is directly or indirectly controls, is controlled by or is under common control with another tenderer.		
2	Tenderer receives or has received any direct or indirect subsidy from another tenderer.		

Tenderer has the same legal

representative as another tenderer

4	Tender has a relationship with another tenderer, directly or through common third parties, that puts it in a position to influence the tender of another tenderer, or influence the decisions of the Procuring Entity regarding this tendering process.		
5	Any of the Tenderer's affiliates participated as a consultant in the preparation of the design or technical specifications of the works that are the subject of the tender.		
6	Tenderer would be providing goods, works, non-consulting services or consulting services during implementation of the contract specified in this Tender Document.		
7	Tenderer has a close business or family relationship with a professional staff of the Procuring Entity who are directly or indirectly involved in the preparation of the Tender document or specifications of the Contract, and/or the Tender evaluation process of such contract.		
8	Tenderer has a close business or family relationship with a professional staff of the Procuring Entity who would be involved in the implementation or supervision of the such Contract.		
9	Has the conflict stemming from such relationship stated in item 7 and 8 above been resolved in a manner acceptable to the Procuring Entity throughout the tendering process and execution of the Contract.		

(vi) Certification

On behalf of the Tenderer, I certify that the information given above is complete, current and accurate as at the date of submission.

Full Name_____

Title or Designation_____

(Signature)

(Date)

B. CERTIFICATE OF INDEPENDENT TENDER DETERMINATION

I, the undersigned, in submitting the accompanying Letter of Tender to the Kenya Airports Authority **KAA/OT/BANISSA/0076/2023-2024 PROPOSED GATE, GATE HOUSE, WASHROOMS AND FENCING OF BANISSA AIRSTRIP - MANDERA COUNTY** in response to the request for tenders made by: _____

_____[Name of Tenderer] do hereby make the following statements that I certify to be true and complete in every respect:

I certify, on behalf of _____ [Name of Tenderer] that:

1. I have read and I understand the contents of this Certificate;
2. I understand that the Tender will be disqualified if this Certificate is found not to be true and complete in every respect;
3. I am the authorized representative of the Tenderer with authority to sign this Certificate, and to submit the Tender on behalf of the Tenderer;
4. For the purposes of this Certificate and the Tender, I understand that the word “competitor” shall include any individual or organization, other than the Tenderer, whether or not affiliated with the Tenderer, who:
 - a) has been requested to submit a Tender in response to this request for tenders;
 - b) could potentially submit a tender in response to this request for tenders, based on their qualifications, abilities or experience;
5. The Tenderer discloses that [check one of the following, as applicable]:
 - a) The Tenderer has arrived at the Tender independently from, and without consultation, communication, agreement or arrangement with, any competitor;
 - b) The Tenderer has entered into consultations, communications, agreements or arrangements with one or more competitors regarding this request for tenders, and the Tenderer discloses, in the attached document(s), complete details thereof, including the names of the competitors and the nature of, and reasons for, such consultations, communications, agreements or arrangements;
6. In particular, without limiting the generality of paragraphs (5) (a) or (5) (b) above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
 - a) prices;
 - b) methods, factors or formulas used to calculate prices;
 - c) the intention or decision to submit, or not to submit, a tender; or
 - d) the submission of a tender which does not meet the specifications of the request for Tenders; except as specifically disclosed pursuant to paragraph (5) (b) above;
7. In addition, there has been no consultation, communication, agreement or arrangement with any competitor regarding the quality, quantity, specifications or delivery particulars of the works or services to which this request for tenders relates, except as specifically authorized by the procuring authority or as specifically disclosed pursuant to paragraph (5) (b) above;
8. The terms of the Tender have not been, and will not be, knowingly disclosed by the Tenderer, directly or indirectly, to any competitor, prior to the date and time of the official tender opening, or of the awarding of the Contract, whichever comes first, unless otherwise required by law or as specifically disclosed pursuant to paragraph (5) (b) above.

Name _____

Title _____

Date _____

[Name, title and signature of authorized agent of Tenderer and Date]

SELF-DECLARATION FORMS

FORM SD1

SELF DECLARATION THAT THE PERSON/TENDERER IS NOT DEBARRED IN THE MATTER OF THE PUBLIC PROCUREMENT AND ASSET DISPOSAL ACT 2015.

I,, of Post Office Box being a resident of in the Republic of do hereby make a statement as follows: -

1. THAT I am the Company Secretary/Chief Executive/Managing Director/Principal Officer/Director of (*insert name of the Company*) who is a Bidder in respect of Tender No. **KAA/OT/BANISSA/0076/2023-2024 PROPOSED GATE, GATE HOUSE, WASHROOMS AND FENCING OF BANISSA AIRSTRIP - MANDERA COUNTY** for Kenya Airports Authority and duly authorized and competent to make this statement.
2. THAT the aforesaid Bidder, its Directors and subcontractors have not been debarred from participating in procurement proceeding under Part IV of the Act.
3. THAT what is deponed to herein above is true to the best of my knowledge, information and belief.

.....
(Title)

.....
(Signature)

.....
(Date)

Bidder Official Stamp

FORM SD2

SELF DECLARATION THAT THE TENDERER WILL NOT ENGAGE IN ANY CORRUPT OR FRAUDULENT PRACTICE

I, of P.O. Box being a resident of..... in the Republic of... ..do hereby make a statement as follows: -

1. THAT I am the Chief Executive/Managing Director/Principal Officer/Director of (*insert name of the Company*) who is a Bidder in respect of Tender No. **KAA/OT/BANISSA/0076/2023-2024 PROPOSED GATE, GATE HOUSE, WASHROOMS AND FENCING OF BANISSA AIRSTRIP - MANDERA COUNTY** for Kenya Airports Authority and duly authorized and competent to make this statement.
2. THAT the aforesaid Bidder, its servants and/or agents /subcontractors will not engage in any corrupt or fraudulent practice and has not been requested to pay any inducement to any member of the Board, Management, Staff and/or employees and/or agents of...Kenya Airports Authority..... (*insert name of the Procuring entity*) which is the procuring entity.
3. THAT the aforesaid Bidder, its servants and/or agents /subcontractors have not offered any inducement to any member of the Board, Management, Staff and/or employees and/or agents of...Kenya Airports Authority..... (*name of the procuring entity*)
4. THAT the aforesaid Bidder will not engage/has not engaged in any corrosive practice with other bidders participating in the subject tender
5. THAT what is deponed to herein above is true to the best of my knowledge, information and belief.

.....
(Title) (Signature) (Date)

Bidder's Official Stamp

DECLARATION AND COMMITMENT TO THE CODE OF ETHICS

I (person) on behalf of (*Name of the Business/Company/Firm*)
..... declare that I have read and fully understood the contents of the
Public Procurement & Asset Disposal Act, 2015, Regulations and the Code of Ethics for persons participating in
Public Procurement and Asset Disposal and my responsibilities under the Code.

I do hereby commit to abide by the provisions of the Code of Ethics for persons participating in Public Procurement
and Asset Disposal.

Name of Authorized signatory.....

Sign.....

Position.....

Office address..... Telephone.....

E-mail.....

Name of the Firm/Company.....

Date.....

(Company Seal/Rubber Stamp where
applicable) Witness

Name.....

Sign.....

Date.....

D. APPENDIX 1-FRAUD AND CORRUPTION

(Appendix 1 shall not be modified)

1. Purpose

- 1.1 The Government of Kenya's Anti-Corruption and Economic Crime laws and their sanction's policies and procedures, Public Procurement and Asset Disposal Act (*no. 33 of 2015*) and its Regulation, and any other Kenya's Acts or Regulations related to Fraud and Corruption, and similar offences, shall apply with respect to Public Procurement Processes and Contracts that are governed by the laws of Kenya.

2. Requirements

- 2.1 The Government of Kenya requires that all parties including Procuring Entities, Tenderers, (applicants/proposers), Consultants, Contractors and Suppliers; any Sub-contractors, Sub-consultants, Service providers or Suppliers; any Agents (whether declared or not); and any of their Personnel, involved and engaged in procurement under Kenya's Laws and Regulation, observe the highest standard of ethics during the procurement process, selection and contract execution of all contracts, and refrain from Fraud and Corruption and fully comply with Kenya's laws and Regulations as per paragraphs 1.1 above.
- 2.2 Kenya's public procurement and asset disposal act (*no. 33 of 2015*) under Section 66 describes rules to be followed and actions to be taken in dealing with Corrupt, Coercive, Obstructive, Collusive or Fraudulent practices, and Conflicts of Interest in procurement including consequences for offences committed. A few of the provisions noted below highlight Kenya's policy of no tolerance for such practices and behavior:
- 1) a person to whom this Act applies shall not be involved in any corrupt, coercive, obstructive, collusive or fraudulent practice; or conflicts of interest in any procurement or asset disposal proceeding;
 - 2) A person referred to under subsection (1) who contravenes the provisions of that sub-section commits an offence;
 - 3) Without limiting the generality of the subsection (1) and (2), the person shall be—
 - a) disqualified from entering into a contract for a procurement or asset disposal proceeding; or
 - b) if a contract has already been entered into with the person, the contract shall be voidable;
 - 4) The voiding of a contract by the procuring entity under subsection (7) does not limit any legal remedy the procuring entity may have;
 - 5) An employee or agent of the procuring entity or a member of the Board or committee of the procuring entity who has a conflict of interest with respect to a procurement—
 - a) shall not take part in the procurement proceedings;
 - b) shall not, after a procurement contract has been entered into, take part in any decision relating to the procurement or contract; and
 - c) shall not be a subcontractor for the bidder to whom was awarded contract, or a member of the group of bidders to whom the contract was awarded, but the subcontractor appointed shall meet all the requirements of this Act.
 - 6) An employee, agent or member described in subsection (1) who refrains from doing anything prohibited under that subsection, but for that subsection, would have been within his or her duties shall disclose the conflict of interest to the procuring entity;
 - 7) If a person contravenes subsection (1) with respect to a conflict of interest described in subsection (5) (a) and the contract is awarded to the person or his relative or to another person in whom one of them had a direct or indirect pecuniary interest, the contract shall be terminated and all costs incurred by the public entity shall be made good by the awarding officer. Etc.
- 2.3 In compliance with Kenya's laws, regulations and policies mentioned above, the Procuring Entity:
- a) Defines broadly, for the purposes of the above provisions, the terms set forth below as follows:

- i) “corrupt practice” is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;
 - ii) “fraudulent practice” is any act or omission, including misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain financial or other benefit or to avoid an obligation;
 - iii) “collusive practice” is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;
 - iv) “coercive practice” is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;
 - v) “obstructive practice” is:
 - deliberately destroying, falsifying, altering, or concealing of evidence material to the Investigation or making false statements to investigators in order to materially impede investigation by Public Procurement Regulatory Authority (PPRA) or any other appropriate authority appointed by Government of Kenya into allegations of a corrupt, fraudulent, coercive, or collusive practice; and/or threatening, harassing, or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or
 - acts intended to materially impede the exercise of the PPRA's or the appointed authority's inspection and audit rights provided for under paragraph 2.3 e. below.
- b) Defines more specifically, in accordance with the above procurement Act provisions set forth for fraudulent and collusive practices as follows:
- "fraudulent practice" includes a misrepresentation of fact in order to influence a procurement or disposal process or the exercise of a contract to the detriment of the procuring entity or the tenderer or the contractor, and includes collusive practices amongst tenderers prior to or after tender submission designed to establish tender prices at artificial non-competitive levels and to deprive the procuring entity of the benefits of free and open competition.
- c) Rejects a proposal for award¹ of a contract if PPRA determines that the firm or individual recommended for award, any of its personnel, or its agents, or its sub-consultants, sub-contractors, service providers, suppliers and/ or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;
 - d) Pursuant to the Kenya's above stated Acts and Regulations, may sanction or recommend to appropriate authority(ies) for sanctioning and debarment of a firm or individual, as applicable under the Acts and Regulations;
 - e) Requires that a clause be included in Tender documents and Request for Proposal documents requiring (i) Tenderers (applicants/proposers), Consultants, Contractors, and Suppliers, and their Sub-contractors, Sub- consultants, Service providers, Suppliers, Agents personnel, permit the PPRA or any other appropriate authority appointed by Government of Kenya to inspect² all accounts, records and other documents relating to the procurement process, selection and/or contract execution, and to have them audited by auditors appointed by the PPRA or any other appropriate authority appointed by Government of Kenya; and
 - f) Pursuant to Section 62 of the above Act, requires Applicants/Tenderers to submit along with their Applications/Tenders/Proposals a “Self-Declaration Form” as included in the procurement document declaring that they and all parties involved in the procurement process and contract execution have not engaged/will not engage in any corrupt or fraudulent practices.

¹ For the avoidance of doubt, a party's ineligibility to be awarded a contract shall include, without limitation, (i) applying for pre-qualification, expressing interest in a consultancy, and tendering, either directly or as a nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider, in respect of such contract, and (ii) entering into an addendum or amendment introducing a material modification to any existing contract.

² Inspections in this context usually are investigative (i.e., forensic) in nature. They involve fact-finding activities undertaken by the Investigating Authority or persons appointed by the Procuring Entity to address specific matters related to investigations/audits, such as evaluating the veracity of an allegation of possible Fraud and Corruption, through the appropriate mechanisms. Such activity includes but is not limited to: accessing and examining a firm's or individual's financial records and information, and making copies thereof as relevant; accessing and examining any other documents, data and information (whether in hard copy or electronic format) deemed relevant for the investigation/audit, and making copies thereof as relevant; interviewing staff and other relevant individuals; performing physical inspections

and site visits; and obtaining third party verification of information.

2. FORM OF TENDER SECURITY-DEMAND BANK GUARANTEE

Beneficiary: _____

Request for Tenders No: _____

Date: _____

TENDER GUARANTEE No.: _____

Guarantor: _____

1. We have been informed that _____ (herein after called "the Applicant") has submitted or will submit to the Beneficiary its Tender (herein after called "the Tender") for the execution of _____ under Request for Tenders No. _____ ("the ITT").
2. Furthermore, we understand that, according to the Beneficiary's conditions, Tenders must be supported by a Tender guarantee.
3. At the request of the Applicant, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (_____) upon receipt by us of the Beneficiary's complying demand, supported by the Beneficiary's statement, whether in the demand itself or a separate signed document accompanying or identifying the demand, stating that either the Applicant:
 - a) Has withdrawn its Tender during the period of Tender validity set forth in the Applicant's Letter of Tender ("the Tender Validity Period"), or any extension there to provide by the Applicant; or
 - b) Having been notified of the acceptance of its Tender by the Beneficiary during the Tender Validity Period or any extension thereto provided by the Applicant, (i) has failed to execute the contract agreement, or (ii) has failed to furnish the Performance.
4. This guarantee will expire: (a) if the Applicant is the successful Tenderer, upon our receipt of copies of the contract agreement signed by the Applicant and the Performance Security and, or (b) if the Applicant is not the successful Tenderer, upon the earlier of (i) our receipt of a copy of the Beneficiary's notification to the Applicant of the results of the Tendering process; or (ii) twenty-eight days after the end of the Tender Validity Period.
5. Consequently, any demand for payment under this guarantee must be received by us at the office indicated above on or before that date.

[signature(s)]

3. FORM OF TENDER SECURITY (TENDER BOND) [The Surety shall fill in

this Tender Bond Form in accordance with the instructions indicated.] BOND NO. _____

1. BY THIS BOND [name of tenderer] as Principal (herein after called “the Principal”), and [name, legal title, and address of surety], **authorized to transact business in** [name of country of Purchaser], as Surety (herein after called “the Surety”), are held and firmly bound unto [name of Purchaser] as Obligee (herein after called “the Purchaser”) in the sum of [amount of Bond]⁵[amount in words], for the payment of which sum, well and truly to be made, we, the said Principal and Surety, bind ourselves, our successors and assigns, jointly and severally, firmly by these presents.
2. WHERE AS the Principal has submitted or will submit a written Tender to the Purchaser dated the _____ Day of _____, 20, for the supply of [name of Contract] (herein after called the “Tender”).
3. NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Principal:
 - (a) Has withdrawn its Tender during the period of Tender validity set forth in the Principal's Letter of Tender (“the Tender Validity Period”), or any extension thereto provided by the Principal; or
 - (b) having been notified of the acceptance of its Tender by the Purchaser during the Tender Validity Period or any extension thereto provided by the Principal; (i) failed to execute the Contract agreement; or (ii) has failed to furnish the Performance Security, in accordance with the Instructions to tenderers (“ITT”) of the Purchaser's Tendering document.then the Surety undertakes to immediately pay to the Purchaser up to the above amount upon receipt of the Purchaser's first written demand, without the Purchaser having to substantiate its demand, provided that in its demand the Purchaser shall state that the demand arises from the occurrence of any of the above events, specifying which event(s) has occurred.
4. The Surety hereby agrees that its obligation will remain in full force and effect upto and including the date 30 days after the date of expiration of the Tender Validity Period set forth in the Principal's Letter of Tender or any extension thereto provided by the Principal.
5. IN TESTIMONY WHEREOF, the Principal and the Surety have caused these presents to be executed in their respective names this day of _____ 21.

Principal: _____
Corporate Seal (where appropriate)

(Signature)
(Printed name and title)

Surety: _____

(Signature)
(Printed name and title)

⁵The amount of the Bond shall be denominated in the currency Kenya shillings or the equivalent amount in a freely convertible currency.

4. **FORM OF TENDER-SECURING DECLARATION**

[The Bidder shall complete this Form in accordance with the instructions indicated]

Date:..... *[insert date (as day, month and year) of Tender Submission]*

Tender No.:..... *[insert number of tendering process]*

To:..... *[insert complete name of*

Purchaser] I/We, the undersigned, declare that:

1. I/We understand that, according to your conditions, bids must be supported by a Tender-Securing Declaration.
2. I/We accept that I/we will automatically be suspended from being eligible for tendering in any contract with the Purchaser for the period of time of [insert number of months or years] starting on [insert date], if we are in breach of our obligation(s) under the bid conditions, because we—(a) have withdrawn our tender during the period of tender validity specified by us in the Tendering Data Sheet; or (b) having been notified of the acceptance of our Bid by the Purchaser during the period of bid validity, (i) fail or refuse to execute the Contract, if required, or (ii) fail or refuse to furnish the Performance Security, in accordance with the instructions to tenders.
3. I/We understand that this Tender Securing Declaration shall expire if we are not the successful Tenderer(s), upon the earlier of:
 - a) our receipt of a copy of your notification of the name of the successful Tenderer; or
 - b) thirty days after the expiration of our Tender.
4. I/We understand that if I am/we are/in a Joint Venture, the Tender Securing Declaration must be in the name of the Joint Venture that submits the bid, and the Joint Venture has not been legally constituted at the time of bidding, the Tender Securing Declaration shall be in the names of all future partners as named in the letter of intent.

Signed:.....

Capacity / title (director or partner or sole proprietor, etc.)

Name:.....

Duly authorized to sign the bid for and on behalf of: *[insert complete name of*

Tenderer] Dated on..... day of..... *[Insert date of signing]*

Seal or stamp

5. Appendix to Tender

Schedule of Currency requirements

Summary of currencies of the Tender for _____ *[insert name of Section of the Works]*

<i>Name of currency</i>	<i>Amounts payable</i>
Local currency: _____	
Foreign currency #1: _____	
Foreign currency #2: _____	
Foreign currency #3: _____	
Provisional sums expressed in local currency _____	[To be entered by the Procuring Entity]

6. TECHNICAL PROPOSAL

The tender shall complete these sections as a Technical proposal to indicate how he/she intends to proceed with the works. The Procuring entity will review these Proposals and determine the extent to which they meet the required standards to complete the works.

61 Work Plan

[insert Work plan information]

62 Work Methodology & Method Statement

[insert Method Statement & Work methodology]

63 Safety Plan

[insert Safety plan]

64 Construction Schedule

[insert Construction Schedule]

PART 2 - WORKS' REQUIREMENTS

SECTION V - BILLS OF QUANTITIES

SCOPE OF WORKS

The Procuring Entity will prepare this

part. Notes for Preparing a Bills of

Quantities

These Notes for Preparing Bills of Quantities are intended only as information for the Procuring Entity or the person drafting the tendering documents. They should not be included in the final documents.

1. Objectives

1.1 The objectives of the Bills of Quantities are:

- (a) to provide sufficient information on the quantities of Works to be performed to enable tenders to be prepared efficiently and accurately; and
- (b) when a contract has been entered into, to provide a priced Bills of Quantities for use in the periodic valuation of Works executed.

1.2. In order to attain these objectives, Works should be itemized in the Bills of Quantities in sufficient detail to distinguish between the different classes of Works, or between Works of the same nature carried out in different locations or in other circumstances which may give rise to different considerations of cost. Consistent with these requirements, the layout and content of the Bills of Quantities should be as simple and brief as possible.

2. Content

The Bills of Quantities should be divided generally into the following sections:

- a) Preamble;
- b) Work Items (grouped into parts);
- c) Day work Schedule; and
- d) Summary.

3. Preamble

The Preamble should indicate the inclusiveness of the unit prices, and should state the methods of measurement that have been adopted in the preparation of the Bills of Quantities and that are to be used for the measurement of any part of the Works.

4. Rock

Where excavation, boring, or drilling is included in the Works, a comprehensive definition of rock (always a contentious topic in contract administration), should be provided in the Technical Specification and this definition should be used for the purposes of measurement and payment.

5. Work Items

The items in the Bill of Quantities should be grouped into sections to distinguish between those parts of the Works that by nature, location, access, timing, or any other special characteristics may give rise to different methods of construction, phasing of the Works, or considerations of cost. General items common to all parts of the Works may be grouped as a separate section in the Bills of Quantities. When a family of Price Adjustment Formulae are used, they should relate to appropriate sections in the Bills of Quantities.

6. Quantities

Quantities should be computed net from the Drawings, unless directed otherwise in the Contract, and no allowance should be made for bulking, shrinkage, or waste. Quantities should be rounded up or down where appropriate and spurious accuracy should be avoided.

7. Units of Measurement

The following units of measurement and abbreviations are recommended for use (unless other national units are mandatory in the country of the Procuring Entity).

Unit	Abbreviation	Unit	Abbreviation
cubicmeter	m ³ or cum	millimeter	mm
hectare	ha	month	mon
hour	h	number	nr
kilogram	kg	square meter	m ² or sq m
lump sum	sum	square millimeter	mm ² or sq mm
meter	m	week	wk
metric ton (1,000 kg)	t		

8. Ground and Excavation Levels

The commencing surface should be identified in the description of each item for work involving excavation, boring, or driving, for which the commencing surface is not also the original surface. The excavated surface should be identified in the description of each item for work involving excavation for which the excavated surface is not also the final surface. The depths of work should be measured from the commencing surface to the excavated surface, as defined.

9. Day work Schedule

A Day work Schedule should be included if the probability of unforeseen work, outside the items included in the Bills of Quantities, is relatively high. To facilitate checking by the Procuring Entity of the realism of rates quoted by the Tenderers, the Day work Schedule should normally comprise:

- a list of the various classes of labor, materials, and Contractor's Equipment for which basic Day work rates or prices are to be inserted by the Tenderer, together with a statement of the conditions under which the Contractor will be paid for work executed on a Day work basis; and
- a percentage to be entered by the Tenderer against each basic Daywork Subtotal amount for labor, materials, and Plant representing the Contractor's profit, overheads, supervision, and other charges.

10. Provisional Quantities and Sums

- 10.1 Provision for quantity contingencies in any particular item or class of work with a high expectation of quantity overrun should be made by entering specific "Provisional Quantities" or "Provisional Items" in the Bills of Quantities, and *not* by increasing the quantities for that item or class of work beyond those of the work normally expected to be required. To the extent not covered above, a general provision for physical contingencies (quantity overruns) should be made by including a "Provisional Sum" in the Summary of the Bills of Quantities. Similarly, a contingency allowance for possible price increases should be provided as a "Provisional Sum" in the Summary of the Bills of Quantities. The inclusion of such Provisional Sums often facilitates budgetary approval by avoiding the need to request periodic supplementary approvals as the future need arises.
- 10.2 The estimated cost of specialized work to be carried out, or of special goods to be supplied, by a Nominated Subcontractor should be specified in the relevant part of the Bills of Quantities as a particular Provisional Sum with an appropriate brief description. A separate tendering procedure is normally carried out by the Procuring Entity to select the specialists, who are then nominated as subcontractors to the main or prime contractor. To provide an element of competition among the main Tenderers (or prime contractors) in respect of any facilities, amenities, attendance, etc., to be provided by the successful Tenderer as prime contractor for the use and convenience of the specialist or nominated subcontractor, each related Provisional Sum should be following by an item in the Bills of Quantities inviting a percentage (to be quoted by the main Tenderer) payable on the actual expenditure from the Provisional Sum.

11. Summary

The Summary should contain a tabulation of the separate parts of the Bills of Quantities carried forward, with provisional sums for Daywork, for physical (quantity) contingencies, and for price contingencies (upward price adjustment) where applicable.

12 Sample Bills of Quantities

A. Preamble

1. The Bills of Quantities shall be read in conjunction with the Instructions to Tenderers, General and Particular Conditions of Contract, Technical Specifications, and Drawings.
2. The quantities given in the Bills of Quantities are estimated and provisional, and are given to provide a common basis for tendering. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Engineer and valued at the rates and prices tender in the priced Bills of Quantities, where applicable, and otherwise at such rates and prices as the Engineer may fix within the terms of the Contract.
3. The rates and prices tender in the priced Bills of Quantities shall, except in so far as it is otherwise provided under the Contract, include all Constructional Plant, labor, supervision, materials, erection, maintenance, insurance, profit, taxes, and duties, together with all general risks, liabilities, and obligations set out or implied in the Contract.
4. A rate or price shall be entered against each item in the priced Bills of Quantities, whether quantities are stated or not. The cost of Items against which the Contractor has failed to enter a rate or price shall be deemed to be covered by other rates and prices entered in the Bills of Quantities.
5. The whole cost of complying with the provisions of the Contract shall be included in the Items provided in the priced Bills of Quantities, and where no Items are provided, the cost shall be deemed to be distributed among the rates and prices entered for the related Items of Work.
6. General directions and descriptions of work and materials are not necessarily repeated nor summarized in the Bills of Quantities. References to the relevant sections of the Contract documentation shall be made before entering prices against each item in the priced Bills of Quantities.
7. Provisional Sums included and so designated in the Bills of Quantities shall be expended in whole or in part at the direction and discretion of the Engineer in accordance with Sub-Clause 13.5 and Clause 13.6 of the General Conditions.
8. The method of measurement of completed work for payment shall be in accordance with *[insert the name of a standard reference guide, or full details of the methods to be used]*⁶.

B. Work Items

1. The Bills of Quantities usually contains the following part Bills, which have been grouped according to the nature or timing of the work:

Bill No. 1: General Items;
Bill No. 2: Gate & Gate House;
Bill No. 3: Washrooms Block
Bill No. 4: Mechanical Works;
Bill No. 5: Electrical Works;
Bill No. 6: Fencing; and
Summary Bills of Quantities.

⁶The method of measurement should be spelled out precisely in the Preamble to the Bills of Quantities, describing for example the allowances (if any) for timbering in excavation, etc. Many national standard reference guides have been prepared on the subject, and one such guide is the Standard Method of Measurement of the U.K. Institution of Civil Engineers.

2. If TDS-ITT 15.1 (a) applies, Tenderers shall price the Bills of Quantities in local currency only and shall indicate in the Appendix to Tender the percentage expected for payment in foreign currency or currencies. If TDS-ITT 15.1 (b) applies Tenderers shall price the Bills of Quantities in the applicable currency or currencies.

[Note to the Procuring Entity: The tables in BOQ must be prepared in accordance with the currency alternative retained in TDS – ITT 15.1.]

BILLS OF QUANTITIES

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP				BILL No.1
ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT KShs cts
	PRELIMINARIES & GENERAL CONDITIONS =====				
01	<u>EMPLOYER</u>				
A	The Employer is the Kenya Airports Authority. The terms "Employer" and "KAA" wherever used in any contract Document shall be synonymous				
02	<u>DEFINITION OF TERMS</u>				
B	'Approved' shall mean approved by the Project Manager at his absolute discretion				
C	'Directed' shall mean directed by the Project Manager at his absolute discretion				
D	'Selected' shall mean directed by the Project Manager at his absolute discretion				
E	'B.S.' - shall mean the current British Standard Specification published by the British Standards Institution, 2 Park Street, London, W1A 2BS, England				
F	'K.S.' - shall mean the current Kenya Standard Specification published by the Kenya Bureau of Standards Institution.				
G	CM - shall mean cubic metre SM - shall mean square metre LM - shall mean linear metre MM - shall mean millimeter KG - shall mean Kilogramme NO - shall mean Number				
H	Ditto - shall mean the whole of the preceding description except as qualifies in the description in which it occurs Where it occurs in descriptions of succeeding items it shall mean the same as in the first descriptions of the series in which it occurs except as qualified in the description concerned.				
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP		BILL No.1			
ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT KShs cts
A	KShs - shall mean Kenya Shillings				
B	'As described' shall mean as described in the 'Descriptions of Materials and Workmanship' contained in the Appendices to these Bills of Quantities				
03	<u>GROUPED SIZES</u>				
C	Girths, depths, or sizes grouped together in the Bills of Quantities item descriptions by means of hyphenated upper and lower limits shall be interpreted as 'exceeding' the lower limit and 'not exceeding' the upper limit.				
04	<u>DESCRIPTION OF SITE</u>				
D	The site of the proposed works is within Banisa Airstrip in Mandera County. The Contractor is recommended to visit the site and will be deemed to have satisfied himself with regard to the conditions of the site.				
05	<u>DESCRIPTION OF THE WORKS</u>				
E	The works in this contract comprise :- i) Construction to completion of Gate House and Gate ii) Construction to completion of Washrooms iii) Associated Electrical and Mechanical works iv) Construction of a Chainlink Fence				
06	<u>AREA TO BE OCCUPIED BY CONTRACTOR</u>				
F	The area of the site which may be occupied by the Contractor for use as storage or for the erection of workshops etc. shall be defined on the site by the Project Manager and the Contractor must confine his activities to the areas so marked and must ensure that his own and his sub-contractors workmen do not trespass on the adjoining property or cause inconvenience to its occupiers.				
TOTAL CARRIED FORWARD TO BILL COLLECTION SHHET					

TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND CHAINKINK FENCE AT BANISA AIRSTRIP					BILL No.1
ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT KShs cts
07	<u>SITE VISIT & EXAMINATION OF DRAWINGS</u>				
A	The Contractor is recommended to examine the original drawings and to satisfy himself regarding their details and regarding the extent and the nature of the works and the method of construction involved, and visit the site to familiarize himself with all local conditions before tendering. He shall be deemed to have acquainted himself with the nature of the existing conditions or any other matter which may affect his tender. No claim arising from his failure to comply with this recommendation will be considered. Drawings may be seen by appointment at the office of the General Manager (P & ES), KAA, during normal working hours.	ITEM			
08	<u>VALUATION OF LUMP SUM COSTS.</u>				
B	Lump sums entered in these Bills of Quantities against any item of Preliminaries and General Conditions will be included in appropriate valuations according to reasonable assessment of actual costs involved in the item. Any balance between this assessment and the actual sum entered in the Bills of Quantities will be included in subsequent valuations as monthly installments over the balance of the Contract Period.	ITEM			
09	<u>PAYMENT FOR MATERIALS ON SITE</u>				
C	All materials for incorporation in the works must be stored on or adjacent to the site before payment is effected, unless specifically exempted by the Project Manager. This is to include materials of the Contractor, Nominated Sub-Contractors, and Nominated Suppliers.	ITEM			
10	<u>CONTRACT AGREEMENT AND CONDITIONS</u>				
D	The Instructions to Tenderers and Conditions of Contract shall be the 'Standard Tender Document for Procurement of Works' printed in November 2001, published by the Public Procurement Directorate, Ministry of Finance and Planning. For the purposes of this Contract the said Schedule of Conditions and any such note or amendments shall be read and construed together.	ITEM			
11	<u>TOOLS, PLANT, ETC.</u>				
E	The Contractor shall allow for providing all ladders, tools, plant and transport required for the works, except in so far as may be specifically stated otherwise herein.	ITEM			
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND CHAINKINK FENCE AT BANISA AIRSTRIP					BILL No.1
ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT KShs cts
12	<u>SAFETY, HEALTH AND WELFARE OF WORKPEOPLE</u>				
A	The Contractor shall allow for providing for the safety, health and welfare of workpeople and for complying with any relevant Ordinances, Regulations or Union Agreement.	ITEM			
13	<u>NATIONAL INSURANCE AND PENSIONS</u>				
B	The Contractor shall allow for making any National Hospital Insurance and National Social Security Fund payments due in respect of workpeople.	ITEM			
14	<u>HOLIDAYS AND TRANSPORT FOR WORKPEOPLE</u>				
C	The Contractor shall allow for providing holidays and transport for workpeople and for complying with any relevant Ordinances, Regulations or Union Agreement.	ITEM			
15	<u>TRAINING LEVY</u>				
D	The Contractor's attention is drawn to Legal Notice No. 237 of October, 1971, which requires payment by the Contractor of a Training Levy on all contracts of more than Shs. 50,000/ in value and his tender must include for all costs arising or resulting therefrom. Proof of payment of this Training Levy will be required.	ITEM			
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND CHAINKINK FENCE AT BANISA AIRSTRIP					BILL No.1
ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT KShs cts
16	<u>PROTECTION OF WORKS AND PERSONS</u>				
A	<p>The Contractor shall allow for the protection of his own and his Sub Contractor's work liable to damage, including provision of temporary roofs, gutters, drains, etc., if necessary and shall case up, cover, or in other suitable ways protect all finished work liable to injury, to the satisfaction of the Project Manag, and shall at all times keep all paths and roads affected by the works in a safe and clear state, and shall use proper precautions to ensure the safety of all wheeled traffic and pedestrians. The Contractor shall allow for providing all watching, lighting, barriers, covering open trenches and protection of the works, including Sub Contract works, as may be necessary for the safety of the works and for the protection of the public and his own and Sub Contractors' employees.</p> <p>In the event of any damage or loss occurring to the works, or to materials or to any sewers, gullies, drains, paths, or other works on the site in temporary possession of the Contractor for the purpose of this Contract, either from the weather, want of proper protection, defects, theft, insufficiency of the works, or any other cause whatsoever during the progress of the works, or for any accident or damage to property or persons by reason of the said works, the Contractor alone shall be responsible and shall without extra charge, make good all damage and pay all costs incurred.</p>	ITEM			
17	<u>STANDARDS LEVY AND STANDARDS ACTS</u>				
B	The Contractor's attention is drawn to legal notice No. 267 of 1990 which requires payment by Contractors of an annual Standards Levy and his tender must include for all costs arising or resulting therefrom.	ITEM			
18	<u>NATIONAL CONSTRUCTION AUTHORITY LEVY</u>				
C	The Contractor shall allow 0.5% of the Cost of construction as a levy payable to the National Construction Authority in accordance with Section 31 of National Construction Act No. 41 of 2011. Note that this must be paid before Commencement of the Works	ITEM			
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND CHAINKINK FENCE AT BANISA AIRSTRIP					BILL No.1
ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT KShs cts
19	<u>POLICE REGULATIONS</u>				
A	The Contractor shall allow for complying with any relevant police regulations.	ITEM			
20	<u>PROCEDURE AND TIME FOR COMPLETION</u>				
B	The Contractor shall proceed with the works in such manner and such order as the Project Manager may direct.	ITEM			
21	<u>PROGRAMME AND PROGRESS</u>				
C	The Contractor shall furnish to the Project Manager, within 7 days, for approval and display in the site offices, a programme and progress chart devised in such a way that the lined programme is shown and progress can be marked up as the work proceeds. The Contractor shall keep this chart up to date at all times.	ITEM			
22	<u>WORKING HOURS</u>				
D	Generally there will be no restrictions on working hours. In the interest of the usage of the new property the employer may require that overtime be worked so as to complete the works as quickly as possible. The Contractor must allow for all costs in complying with the Project Managers instructions of working outside normal hours. No claims for extras in connection with this compliance will be entertained.	ITEM			
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND CHAINKINK FENCE AT BANISA AIRSTRIP					BILL No.1
ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT KShs cts
23	<u>DAYWORKS</u>				
A	<p>The Project Manager, if in his opinion it is necessary or desirable, order in writing that any additional or substituted work shall be executed on a Daywork basis. The Contractor shall then be paid for such work in accordance with Daywork rates and percentage additions as inserted hereafter in these Bills of Quantities.</p> <p>The Contractor shall furnish to the Project Manager all receipts or vouchers as may be necessary to prove the amounts paid and before ordering materials shall submit to the Project Manager quotations for the same for his approval.</p> <p>In respect of all work executed on a Daywork basis the Contractor shall, during the continuance of such work, deliver each day to the Project Manager a list in duplicate of the names, occupation and time of all workmen employed on such work and a statement also in duplicate showing the description and quantity of all materials and plant used thereon or therefore (other than plant which is included in the percentage addition on net amount of wages). One copy of each list and statement will, if correct or when agreed, be signed by the Project Manager and returned to the Contractor.</p> <p>At the end of each month the Contractor shall deliver to the Project Manager a priced statement of the labour, material and plant (except as aforesaid) used and the Contractor shall not be entitled to any Payment unless such lists and statements have been fully and punctually rendered. Provided always that, if the Project Manager shall consider that for any reason the sending of such list or statement by the Contractor is impracticable, he shall nevertheless be entitled to authorise payment for such work either as Daywork (on being satisfied as to the time employed and plant and materials used on such work) or at such value thereof as he shall consider fair and reasonable accordance with the foregoing provision was authorise payment for such work either as Daywork (on being satisfied as to the time employed and plant and materials used on such work) or at such value thereof as he shall consider fair and reasonable.</p>	ITEM			
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP				BILL No.1
ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT KShs cts
24	<u>WATER FOR THE WORKS</u>				
A	The Contractor shall allow for providing all temporary water supplies required for the works, including Sub Contract works, together with all necessary storage tanks, meters and distribution systems for the same and must allow for bearing all expenses incurred and paying for all water consumed without charge to any Sub Contractor. Expenses in connection with Nominated Sub Contractors should be allowed for in the attendance items under the relevant P.C. Sums. Existing water supplies may be utilized by agreement with the Employer who however gives no undertaking as	ITEM			
25	<u>LIGHTING AND POWER FOR THE WORKS</u>				
B	The Contractor shall allow for providing all temporary lighting and power supplies required for the works, including Sub Contract works, together with all necessary meters and distribution systems for the same and must allow for bearing all expenses incurred and paying for all current consumed without charge to any Sub Contractor. Expenses in connection with Nominated Sub Contractors should be allowed for in the attendance items under the relevant P.C. Sums. Existing mains power supplies may be utilized by agreement with the Employer who however gives no undertaking as to the sufficiency or suitability of existing supplies.	ITEM			
26	<u>SIGNPOST</u>				
C	The Contractor shall erect and maintain a signpost describing the nature of the project, names of the consultants, names of the contractor and his sub-contractor's and any other details as specified by the Project Manager (The signboard being 1200mm x 600mm Gauge 14 (1.99mm thick) mild steel plate welded onto 50mm x 50mm x 3mm square hollow sections frame, 2.5m frame with 0.5m fixed below ground, and painted KAA colours for the duration of the project including the defects liability period).	ITEM	1		
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND CHAINKINK FENCE AT BANISA AIRSTRIP				BILL No.1
ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT KShs cts
27	<u>SITE OFFICES</u>				
A	<p>The Contractor must allow for erecting and maintaining on the site in such positions as may be directed, adequate site offices for the use of his own site staff and and Employer's Site Staff as per the drawing attached or issued by the Project Manager. The office shall revert back to the client upon conclusion of the contract. Nonetheless, the cost to include the cost of removing the same at completion and making good all surfaces disturbed if required to do so. The site office shall have sufficient furniture to permit the Project Manager to hold site meetings in it. The site office shall conform to requirements set out in the drawings provided and shall be approved by the Project Manager.</p> <p>The Contractor shall also allow for providing, erecting and maintaining where directed a lock up hut containing a pedestal type water closet and wash basin for the sole use of the Project Manager and other consultants, including making temporary connections to drains and water supplies and paying all charges for connections, conservancy and water consumed.</p> <p>The Contractor shall also allow for providing the services of a sweeper, for keeping both office and closet in a clean and sanitary condition from the commencement to completion of the works; and for dismantling at completion and making good all disturbed surfaces. The office and closet shall be completed before the Contractor will be permitted to commence the works.</p>	ITEM			
28	<u>SHEDS FOR STORAGE OF MATERIALS</u>				
B	<p>The Contractor shall provide, erect and maintain on the site, in such positions as may be directed, ample temporary watertight, lock up sheds for the proper storage and protection of cement and other materials liable to damage and shall remove same at completion and make good all surfaces disturbed. He shall also provide space for storage accommodation which Sub Contractors may wish to erect for themselves.</p>	ITEM			
29	<u>SPACE FOR STORAGE SHEDS AND SITE OFFICES</u>				
C	<p>The site is developed, so space for site offices and storage accommodation, as described above, will be extremely limited.</p> <p>The Contractor shall allow for all necessary temporary erection, dismantling and re-erection of site offices and storage sheds made necessary by the restricted nature of the site.</p>	ITEM			
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND CHAINKINK FENCE AT BANISA AIRSTRIP					BILL No.1
ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT KShs cts
30	<u>SANITATION OF THE WORKS</u>				
A	The Contractor shall allow for providing the necessary latrines for the labour employed on the works, including labour employed by Sub Contractors, to the satisfaction of the Health and Medical Authorities and for maintaining the same in a thoroughly clean and sanitary condition and paying all conservancy fees.				
	The Contractor shall allow for removing the said latrines and leaving the ground clean and free from pollution upon completion to the satisfaction of the Health and Medical Authorities.	ITEM			
31	<u>NO WORKMEN TO BE HOUSED ON SITE</u>				
B	No labour with the exception of a watchman may be housed on the site. The cost of transporting labour to and from the site or elsewhere will be deemed to be included in the tender.	ITEM			
32	<u>HOARDING</u>				
C	The Contractor shall allow for providing and clearing away on completion such hoarding, fencing, gates etc. as may be required for the security of the site, and as instructed by the Project Manager to prevent access to the site by the public. The exact location and type of these items are to be agreed with the Project Manager and negotiated with the local Authority by the Contractor who will also be responsible for paying any fees or taxes to the Local Authority in respect of the hoarding, fencing or gates and providing any drawings necessary for approval.				
	The Contractor shall allow for thoroughly maintaining the hoarding and gates throughout the Contract and clearing away and making good disturbed ground on completion. All materials arising will remain the property of the Contractor and he should allow credit against this accordingly.	ITEM			
33	<u>TRADE NAMES</u>				
D	Where trade names or manufacturers' catalogue numbers are mentioned in these Bills of Quantities, the reference is intended as a guide to the type of article or quality of materials required. The Contractor may use any article or material equal in type or quality to those herein described subject to the prior approval of the Project Manager and at his absolute discretion. The onus of proof as to equivalent quality will rest with the Contractor, whose tender will be deemed to include for the makes described herein.	ITEM			
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND CHAINKINK FENCE AT BANISA AIRSTRIP					BILL No.1
ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT KShs cts
34	<u>REMOVAL OF PLANT, RUBBISH ETC</u>				
A	The Contractor must allow for removing and clearing away all plant, rubbish and unused materials, and leaving the whole of the site of the works in a clean and tidy state at completion to the satisfaction of the Project Manager. He must also allow for removing all rubbish and dirt from the site as it accumulates during the performance of the Contract.	ITEM			
35	<u>DEDUCTION FROM MONEY DUE TO THE CONTRACTOR</u>				
B	The Project Manager shall be entitled to deduct any monies which the Contractor shall be liable to pay under the Contract to the Employer from any sum which may become payable to the Contractor hereunder and the Project Manager in issuing his Certificates as provided in Clause 34 of the Schedule of Conditions shall have regard to any sum so chargeable to the Contractor. Provided always that this provision shall not affect any other remedy by action at law or otherwise to which the Employer may be entitled for the recovery of such monies.	ITEM			
36	<u>WORKS TO BE DELIVERED UP CLEAN</u>				
C	On completion of the Contract, the site and the works shall be cleared of all plant, scaffolding, rubbish and unused materials and shall be delivered up clean and in perfect condition in every respect to the satisfaction of the Project Manager. Particular attention is to be paid to leaving all windows and floors clean and removing all paint and cement stains.	ITEM			
37	<u>APPROVAL OF PROJECT MANAGER FOR EMPLOYMENT OF SUB CONTRACTORS</u>				
D	The Contractor will be required to obtain the approval of the Project Manager in writing before Employing any of his own Sub Contractors for any portion of the work.	ITEM			
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND CHAINKINK FENCE AT BANISA AIRSTRIP					BILL No.1
ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT KShs cts
38	<u>DISPOSAL OF WATER</u>				
A	Allow for keeping the excavations and works free from all water, including spring and running water, by pumping or other means as required.	ITEM			
39	<u>WHITE ANTS</u>				
B	Allow for destroying any white ants' nests found in the vicinity of the buildings, destroying Queen Ants, depositing cyanide lumps in holes and tunnels and filling with hardcore and murram well rammed and sealed.	ITEM			
40	<u>SECURITIES</u>				
C	Allow for the provision of Securities	ITEM			
41	<u>INSURANCE</u>				
D	Allow for the provision of Insurance for the works, plant and material	ITEM			
E	Ditto for Equipment	ITEM			
F	Ditto for other property	ITEM			
G	Ditto but against accidents or personal injury or death to workmen and third party	ITEM			
42	<u>OPERATION EXPENSES</u>				
H	Allow for the adequate provision of miscellaneous expenses to cater for project staff comprising stationery, general office consumables, airtime, teas & lunches, printing, scanning and other charges where directed by the Project Manager for the entire contract duration	ITEM			
	Allow for Contractor's Profit	%			
	Allow for Contractor's Overheads	SUM			
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND CHAINKINK FENCE AT BANISA AIRSTRIP				BILL No.1																					
ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT KShs cts																					
43 B	<p><u>SAMPLES</u></p> <p>Note: - The Contractor shall allow for furnishing at his own cost any samples of materials or workmanship that may be called for by the Architect for his approval and any further samples in the case of rejection until such samples are approved by the Architect and the Architect may reject any materials or workmanship not in his opinion in accordance with the approved samples. The Architect shall make such tests of the samples or any materials as he may at his discretion deem desirable, but such tests shall be made at the expense of the Employer and not of the Contractor, unless the result causes the Architect to reject any samples or materials as not being in his opinion in accordance with the specified requirements, in which case the Contractor shall pay for such tests and the cost thereof shall be recovered from the Contractor by the Architect by deduction from the Contract Sum.</p>																									
44 C	<p><u>NECESSARY TESTS</u></p> <p>Allow for all expenses in connection with the testing of materials as specified hereunder including the supply and preparation of materials to be tested, the cost of materials and their packing and conveyance to the nearest approved Testing Laboratory, laboratory charges, etc.</p> <p>The following items of tests will be measured according to the number of tests actually called for by the Architect but unsuccessful tests will not be included in the remeasurement.</p> <p><u>Allow for executing the following tests as detailed in the Appendices to these Bills of Quantities (PROVISIONAL QUANTITIES)</u></p> <table><tr><td>Water Test (4.5 litres)</td><td>20</td><td></td></tr><tr><td>Sand Test (0.028m3)</td><td>20</td><td></td></tr><tr><td>Aggregate Test (0.028m3)</td><td>20</td><td></td></tr><tr><td>Reinforcement test (1m of mild steel rod or high tensile steel bar of various sizes)</td><td>30</td><td></td></tr><tr><td>Concrete Test (One test comprising three cubes as described hereinafter)</td><td>30</td><td></td></tr><tr><td>Testing of concrete or stone blocks various strengths in accordance with British Standard Specification (one test comprising six blocks)</td><td>30</td><td></td></tr><tr><td colspan="3">The Contractor shall allow for all other testing of materials, apart from the above, required by the Appendices of the Bills of Quantities and he shall be responsible for all expenses incurred in completing such tests including costs of materials and labour, equipment, transport and charges of testing authority, etc.</td></tr></table>	Water Test (4.5 litres)	20		Sand Test (0.028m3)	20		Aggregate Test (0.028m3)	20		Reinforcement test (1m of mild steel rod or high tensile steel bar of various sizes)	30		Concrete Test (One test comprising three cubes as described hereinafter)	30		Testing of concrete or stone blocks various strengths in accordance with British Standard Specification (one test comprising six blocks)	30		The Contractor shall allow for all other testing of materials, apart from the above, required by the Appendices of the Bills of Quantities and he shall be responsible for all expenses incurred in completing such tests including costs of materials and labour, equipment, transport and charges of testing authority, etc.			ITEM			
Water Test (4.5 litres)	20																									
Sand Test (0.028m3)	20																									
Aggregate Test (0.028m3)	20																									
Reinforcement test (1m of mild steel rod or high tensile steel bar of various sizes)	30																									
Concrete Test (One test comprising three cubes as described hereinafter)	30																									
Testing of concrete or stone blocks various strengths in accordance with British Standard Specification (one test comprising six blocks)	30																									
The Contractor shall allow for all other testing of materials, apart from the above, required by the Appendices of the Bills of Quantities and he shall be responsible for all expenses incurred in completing such tests including costs of materials and labour, equipment, transport and charges of testing authority, etc.																										
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET																										

TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND CHAINKINK FENCE AT BANISA AIRSTRIP					BILL No.1
ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT KShs cts
45	<u>SITE PHOTOGRAPHS</u>				
A	The Contractor shall take and hand over to the Architect at approved intervals site progress photographs in a format to be directed by the Architect.	ITEM			
46	<u>HOISTING</u>				
B	The Contractor shall allow for all costs related to hoisting his and his Sub Contractor's materials for fixing at any level within the limits shown on the drawings or included in the general description of the works.	ITEM			
47	<u>SCAFFOLDING</u>				
C	The Contractor shall allow for providing, erecting and dismantling all general scaffolding required for the works. The Contractor must allow here or in his rates for providing all special scaffolding required by his Sub Contractors, other than Nominated Sub Contractors carrying out works for which P.C. Sums are included in these Bills. Where the Contractor is required to provide special scaffolding for these latter Sub Contractors, an item is included for pricing under the relevant P.C. Sum.	ITEM	1		
48	<u>CROSSINGS AND TEMPORARY ROADS</u>				
D	The Contractor must allow for providing, forming and maintaining necessary crossings on to the site and temporary roads as may be required by the Architect and removing same at completion and making good damaged or disturbed surfaces as directed by and to the approval of the Architect.	ITEM			
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND CHAINKINK FENCE AT BANISA AIRSTRIP					BILL No.1
ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT KShs cts
49	<u>WORK TO BE OPENED UP AT THE REQUEST OF THE ARCHITECT</u>				
A	<p>The Contractor shall, at the request of the Architect within such time as the Architect shall name, open for inspection any work covered up, and, should the Contractor refuse or neglect to comply with such request, the Architect may employ workmen other than those employed by the Contractor to open up the same.</p> <p>If the said work has been covered up in contravention of the Architect's instructions, or if, on being opened up, it be found not in accordance with the drawings or Bills of Quantities or the instructions of the Architect, the expenses of opening and covering it up again whether done by the Contractor or by the Architect, shall be borne by and be recoverable from the Contractor or may be deducted from any monies due to the Contractor. If the work has not been covered up in contravention of such instructions and be found in accordance with the said drawings and Bills of Quantities, then the expenses aforesaid shall be borne by the Employer, and be added to the Contract Sum; provided always that, in the case of foundations or of any other urgent work so opened up and requiring immediate attention, the Architect shall, within a reasonable time after the work has been opened, make or cause to be made the inspection thereof, and at the expiration of such time, if such inspection shall not have been made the Contractor may cover up the same and shall not be required to open it up again for inspection except at the expense of the Employer.</p>	ITEM			
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP				BILL No.I
ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT KShs cts
50	<p>Note: the following items for housing, offices and laboratory for the Engineer shall include all costs involved in providing and maintaining such buildings, including the Contractor's overheads and profit</p> <p><u>Office for Engineer</u></p> <p>A Provide and maintain a furnished Engineers Represenataive office as shown in the drawings or as instructed by the Engineer for use during the duration of the contract. Ownership to revert to the client at the end of the contract.</p> <p><u>Quality Control & Materials Testing</u></p> <p>B Allow a Prime Cost Sum of Kshs.400,000/= for Quaity Control and Materials Testing including purchase of equipments whose ownership will revert back to the client.</p> <p>C Include percentage of P.C Sum in item "B" above for contractor's overheads and profit.</p> <p><u>Provide and maintain Survey Equipment</u></p> <p>D Provide and maintain Topcon Total Station for the exclusive use by the Engineer's representative for the entire duration of the contract.</p> <p><u>Vehicles for Engineer</u></p> <p>E Provide with driver, fuel, service and maintain, insure 1No. New clean 4WD Double cab pick-up vehicle, diesel engine capacity 2500-3000 cc for exclusive use of the Engineer inclusive of the first 5,000 km per vehicle month to Engineer's approval. Vehicle to revert back to the contractor.</p> <p>F E.O Item "E" above for mileages over 5,000 km per vehicle month</p> <p><u>Security on site</u></p> <p>G Provide for three (3) number of Armed Security throughout the duration of the contract as will be directed by the Resident Engineer</p>				
		Lump Sum	1		
		PC	1		
		%	1		
		Per Month	12		
		V.mth.	12		
		Km	15,000		
		Month	12		
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP				BILL No.1
ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT KShs cts
	TOTAL BROUGHT FORWARD				
H	<u>Miscellaneous account for Engineer</u> Allow Prime Cost Sum (P.C. Sum) of Kshs. 1,000,000 for the Resident Engineer's Miscellaneous account to be spent in whole or part as directed by the Resident Engineer against receipts	P.C. Sum	1	1,000,000	
I	E.O. item "H" above for the contractor's overheads and profit	%			
	<u>Attendance to the Engineer</u>				
J	Allow Provisional sum amounting to Kshs.4,000,000 for wages and allowances of a site supervisor and Engineers Site staff including overtime whose employment shall be determined by the Employer.	P.C. Sum	1	4,000,000	
K	E.O. item "J" above for the contractor's overheads and profit	%			
L	Provide a Provisional Sum of Kshs 1,500,000 for reimbursement to the Contractor for payment of the Engineer's overtime and allowances in accordance with Clause 140 of the Special Specifications.	P.C. Sum	1	1,500,000	
M	E.O. item 'L' for the contractor's overheads and profit	%			
	TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET				

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND CHAINKINK FENCE AT BANISA AIRSTRIP				BILL No. 2
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
	<u>GATE HOUSE</u>				
	<u>SUBSTRUCTURES</u> <u>(ALL PROVISIONAL)</u>				
01	<u>SITE CLEARANCE</u>				
A	Clear site of and cutting of medium trees undergrowth including grubbing up of roots and dispose off as directed by the Project Manager	SM	60		
02	<u>EXCAVATION</u>				
	<u>Top Vegetable soil</u>				
B	Excavate oversite to remove top vegetable soil with and including existing fill 250 mm deep and dispose off site	SM	60		
	<u>Foundation excavation</u>				
C	Bulk excavation in existing ground including loose soils n.e. 1.5m dp and cart away resulting debris from site.	CM	30		
D	Excavate in rocky or sandy for column bases	CM	25		
E	Excavate in rocky or sandy for strip tooting	CM	25		
F	Extra over excavation for excavating in Rock in any class	CM	5		
	<u>Filling and carting away</u>				
G	Return, fill and ram selected excavated material around excavations	CM	40		
H	Load and cart away surplus excavated material as directed by the Consultant	CM	15		
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND CHAINKINK FENCE AT BANISA AIRSTRIP				BILL No. 2
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
03	<u>CONCRETE IN SUBSTRUCTURE</u>				
A	50 mm thick concrete 1:4:8 blinding under column bases	SM	5		
B	50 mm thick concrete 1:4:8 blinding under strip foundation	SM	10		
	<u>Vibrated Reinforced Concrete Class 25</u>				
C	In Strip foundation	CM	2		
D	In Column bases	CM	2		
E	In Column (below ground)	CM	1		
F	In 150 mm thick floor slab	SM	12		
	<u>Cement : Sand (1:4)</u>				
G	19 mm thick render on sides of slab	LM	15		
04	<u>SAWN FORMWORK</u>				
H	To vertical edges of floor slab 75 - 150 mm high	LM	15		
I	To vertical sides of column bases	SM	6		
J	To vertical sides of columns (below ground)	SM	6		
K	To vertical sides of strip footing	SM	6		
05	<u>HARDCORE</u>				
L	300 mm thick approved hardcore bed, handpacked, well watered & well compacted	SM	12		
M	50 mm thick stone dust blinding on hardcore bed	SM	12		
N	Apply Termidor or any other similar and approved anti-termite chemical treatment on hardcore	SM	12		
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND CHAINKINK FENCE AT BANISA AIRSTRIP				BILL No. 2
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
06	<u>DPM AND DPC</u>				
A	1000g polythene damp proof membrane laid with 200 end laps under floor slab, on hardcore to the satisfaction of the consultant	SM	12		
B	200 mm wide approved quality 3-ply bituminous felt damp proof course under walls	LM	15		
07	<u>REINFORCEMENT</u>				
C	Mesh fabric Ref. BRC. A142	SM	12		
	<u>Supply and fix the following high tensile ribbed bars reinforcement bars to BS 4449:2005 including all the necessary cutting, hooking, bending, cutting spacers, binding wire and supporting all in position</u>				
D	8mm diameter	Kg	20		
E	10mm diameter	Kg	80		
F	12mm diameter	Kg	60		
G	16mm diameter	Kg	50		
H	Allow for keeping excavations free from loose/falling material (Planking & Strutting)	ITEM			
I	Allow for keeping excavations free from surface water	ITEM			
08	<u>SUBSTRUCTURE WALLING</u>				
J	200mm thick natural stone walling in cement/sand (1:3) mortar including hoop iron on every alternate course	SM	20		
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

[illegible]

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND CHAINKINK FENCE AT BANISA AIRSTRIP				BILL No. 2
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
09	<u>WALLING</u>				
A	200mm thick natural stone walling in cement/sand (1:3) mortar including hoop iron on every alternate course	SM	45		
TOTAL WALLING CARRIED TO BILL SUMMARY SHEET					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND CHAINKINK FENCE AT BANISA AIRSTRIP				BILL No. 2
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
10	<u>CONCRETE WORK</u> <u>Vibrated Reinforced Concrete class 25</u>				
A	In beams	CM	1		
B	In Columns	CM	1		
11	<u>SAWN FORMWORK</u>				
C	Sides and Soffitts of beams	SM	15		
D	Sides of columns	SM	11		
E	Edge of suspended slab 75 - 150mm high.	LM	15		
12	<u>REINFORCEMENT</u> <u>Supply and fix the following high tensile ribbed bars reinforcement bars to BS 4449:2005 including all the necessary cutting, hooking, bending, cutting spacers, binding wire and supporting all in position</u>				
F	8mm diameter	Kg	115		
G	12mm diameter	Kg	60		
H	16mm diameter	Kg	75		
TOTAL CONCRETE WORKS CARRIED FORWARD TO BILL SUMMARY					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND CHAINKINK FENCE AT BANISA AIRSTRIP				BILL No. 2
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
13	<u>ROOF CONSTRUCTION</u> <u>All Structural Timber to be</u> <u>Second Grade Celcured</u> <u>Cypress, well treated and or Equal Approved</u>				
A	100 x 50 mm wall plate bolted to wall with and including bolts at 1.0 m centres	LM	15		
B	150 x 50 mm main & intermediate rafters	LM	45		
C	150 x 50 mm ceiling joists	LM	10		
D	100 x 50 mm ties & struts	LM	5		
E	150 x 50 mm ridge board	LM	10		
F	75 x 50 mm purlins	LM	60		
	<u>Pre-painted Covermax CX780 Roof Covering</u>				
G	Approved Gauge 28 pre-painted Covermax CX780 or Equal and approved profiled sheets fixed to trusses as per Structural Engineer's detail drawing	SM	30		
	<u>Fascia Board & barge boards</u>				
H	300 x 25 mm thick wrot prime grade cypress fascia board fixed to end of rafters (m/s)	LM	9		
I	Ditto verge boards fixed to end of purlins (m/s)	LM	9		
J	Knot, stop and prime and apply 3 coats of gloss oil paint on general timber surfaces 200 - 300 mm girth	LM	18		
TOTAL CARRIED TO BILL COLLECTION					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND CHAINKINK FENCE AT BANISA AIRSTRIP				BILL No. 2
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
14	<u>RAINWATER DRAINAGE</u>				
	<u>Gutter</u>				
A	250 x 250 mm rectangular/box galvanised iron pre-painted gutter in gauge 24 fixed to fascia board (m/S) with and including approved brackets at 1.0 m c/c	LM	18		
B	Extra over gutter for stopped ends	No.	4		
C	Ditto but for 150 mm diameter outlet	No.	2		
	<u>Downpipe</u>				
D	150 mm diameter galvanised iron pre-painted downpipe in gauge 24 fixed to wall with and including holder butts at 1.0 m c/c including cutting and pinning to wall	LM	6		
E	Extra over downpipe for swanneck 600 mm long	No.	2		
F	Ditto but for rain water shoe 300 mm long	No.	2		
15	<u>BAT PRROFING</u>				
G	Allow for bat proofing approved coffee tray wire as directed by the Architect	SM	15		
16	<u>EAVES BOARDING</u>				
H	25 mm thick prime grade cypress T & G boarding including all the necessary bearers	SM	15		
I	Sand paper and apply 3 coats of polyurethane lacquer on general timber surfaces	SM	15		
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

[illegible]

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND CHAINKINK FENCE AT BANISA AIRSTRIP				BILL No. 2
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
17	<u>FINISHES</u>				
	<u>FLOOR FINISHES:</u>				
	<u>NON-SLIP GRANITO TILES</u>				
	Approved coloured non-slip floor tiles; matt laid to regular pattern; including bedding and jointing in "PEGACOL" tile adhesive or other equal and approved; grouting joints with "BENFER" or other equal and approved epoxy resin-based grout				
	A Approved coloured high quality non-slip ceramic tiles size 300 x 300 x 10 mm fixed in cement on screed backing (m/s)	SM	9		
B	10 x 100 mm high skirting to match tiles	LM	12		
	<u>Cement and Sand (1:5) Screed</u>				
C	30 mm thick floated to receive non-slip ceramic tiles	SM	9		
TOTAL FLOOR FINISHES CARRIED FORWARD TO BILL COLLECTION SHEET					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND CHAINKINK FENCE AT BANISA AIRSTRIP				BILL No. 2
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
18	<u>EXTERNAL WALL FINISHES</u>				
A	15mm Cement and sand (1:4) external rendering on external surfaces of walling finished smooth with a wood float.	SM	25		
B	Extra over pointing to stone walling to Project Manager's details.	SM	35		
	<u>PAINT</u>				
C	Prepare and apply "Wall master" or equal approved cement and polymer based wall coating according to Manufacturer's instructions and Project Architect's specifications and approval to beams and columns.	SM	25		
19	<u>INTERNAL WALL FINISHES</u>				
	<u>Gauged plaster (1:1:6)</u>				
D	12 mm thick gauged plaster applied to stonework internally	SM	35		
	<u>Paint</u>				
E	Skim/Smoothen palstered surfaces with 'CROWN' Wallcare or other equal and approved skimmer; Prepare and apply 3 coats of first grade Silk Vynil Plastic Emulsion (Bacteria/Algae Resistant) paint on plastered surfaces internally	SM	35		
TOTAL WALL FINISHES CARRIED FORWARD TO BILL COLLECTION SHEET					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND CHAINKINK FENCE AT BANISA AIRSTRIP				BILL No. 2
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
20	<u>CEILING FINISHES</u>				
A	12 mm thick gypsum on and including 50 x 50 mm sawn treated timber framework where directed by the Architect	SM	9		
B	Prepare and apply 3 coats of distemper to ceiling surfaces	SM	9		
	<u>Cornice</u>				
C	75 x 75 mm wrot cypress moulded Cornice	LM	12		
D	Knot, prime and stop and apply 3 coats of polyurethane on general timber surfaces 100 - 200 mm girth	LM	12		
E	Prepare and apply primer to back of cornice only n.e. 100 mm girth	LM	12		
TOTAL CEILING FINISHES CARRIED FORWARD TO BILL COLLECTION SHEET					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND CHAINKINK FENCE AT BANISA AIRSTRIP				BILL No. 2
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
	<u>OPENNINGS</u>				
21	<u>DOORS</u>				
	<u>Steel door</u>				
A	Size 1000 x 2400 mm high overall heavy duty steel grilled door as per schedule of openings including all the necessary ironmongery including a heavy duty 5-lever metal casement cylinder lock and hanging and closing accessories to approval and all the necessary glazing	No.	1		
B	Prime metal surfaces, prepare and apply three coats of grade gloss oil paint to general surfaces externally	SM	3		
C	Ditto but internally	SM	3		
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP				BILL No. 2
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
<div>COLLECTION SHEET</div> <div><div>BROUGHT FORWARD FROM PAGE 99</div><div>BROUGHT FORWARD FROM PAGE 100</div><div>BROUGHT FORWARD FROM PAGE 101</div><div>BROUGHT FORWARD FROM PAGE 102</div></div>					
TOTAL DOORS CARRIED TO BILL SUMMARY SHEET					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND CHAINKINK FENCE AT BANISA AIRSTRIP				BILL No. 2
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
22	<u>WINDOWS</u> Steel casement windows including all necessary fixing and locking ironmongery, glazing and all necessary glazing beads all as per schedule of windows				
A	Size 1500 x 1500 mm high window including 6 mm thick approved solar-treated glazing with one-way tint <u>Window Blinds</u>	No.	3		
B	Supply and fix horizontal heavy duty window blinds with solid and mesh panels, to approved colour scheme and height including all fixing accessories as per approved samples to existing windows Project Architect's approval. <u>Timber frames</u> <u>Wrot hardwood</u>	SM	10		
C	Pelmet boxes 300 mm girth to Detail to Project Manager's Approval	LM	7		
D	Window boards 225 - 300 mm wide <u>Sand down timber surface; Prepare and apply under coat and two coats first class quality 'Pinotex' varnish on pelmet boxes and window boards.</u>	LM	7		
E	Pelmet boxes 300 mm girth	LM	7		
F	Window boards 225 - 300 mm wide <u>Window Cill</u>	LM	7		
G	250 x 75mm Precast concrete (class 20/12) sunk, weathered and throated cill cart in convenient lengths, reinforced as necessary for handling, bedded, jointed and pointed in gauged mortar and finished fair on all exposed surfaces.	LM	7		
H	Prime metal surfaces, prepare and apply three coats of grade gloss oil paint to general surfaces externally	SM	7		
I	Ditto but internally	SM	7		
23	<u>FURNITURE</u> <u>Provide the following to approval of Project Manager:</u>				
J	L-shaped block-board desk	No.	1		
K	Low-back swivel chair	No.	1		
L	Desktop computer	No.	1		
TOTAL WINDOWS CARRIED TO BILL SUMMARY SHEET					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND CHAINKINK FENCE AT BANISA AIRSTRIP				BILL No. 2
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
24	<u>EXTERNAL WORKS</u> <u>(ALL PROVISIONAL)</u> <u>Paving slabs</u>				
A	Excavate 150 mm average depth and dispose off excavated material as directed.	SM	25		
B	100 mm thick murram sub-base well compacted and watered.	SM	25		
C	600 x 600 x 50 mm precast concrete paving slabs on 50 mm thick sand bed	SM	25		
D	250 x 125 mm precast concrete kerb to paving slabs including all the necessary excavations and concrete haunching.	LM	20		
25	<u>GATE</u> <u>Mild steel bars section and plates finished with one case of red oxide primer welded and ground joints (steel section in heavy guage/ duty)</u>				
E	Supply, fabricate and install galvanized heavy duty metal gate overall size 6000 x 2400mm high; in two equal leaves; with and including 100 x 100 x 6mm SHS fixed firmly to the ground in approved concrete base; 8 gauge welded wire mesh covering fixed to 50 x 50 x 4mm SHS and tower locking heavy gauge bolt (including VIRO Cylinder 104); 3 lines of 12.5 gauge barbed wire at the top of each leaf; all as per attached drawings and approval of Project Manager. Gate to be painted in three coats of approved protective paint.	NO	2		
F	Supply materials, fabricate and install galvanized heavy duty metal gate overall size 1000 x 2400mm high pedestrian gate with and including 75 x 75 x 4mm SHS fixed firmly to the ground in approved concrete base; 8 gauge welded wire mesh covering fixed to 50 x 50 x 4mm SHS and tower locking heavy gauge bolt (including VIRO Cylinder 104); 3 lines of 12.5 gauge barbed wire at the top; all as per attached drawings and approval of Project Manager. Gate to be painted in three coats of approved protective paint. Rate inclusive of casting of beam.	NO	1		
G	Prepare and apply touch-up primer and 3 coats of gloss of gloss oil paint on metal surfaces of grille gates both sides.	SM	65		
TOTAL EXTERNAL WORKS CARRIED FORWARD TO BILL SUMMARY SHEET					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND CHAINKINK FENCE AT BANISA AIRSTRIP				BILL No. 2
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts

COLLECTION SHEET

SUBSTRUCTURES FROM PAGE 93

WALLING FROM PAGE 94

CONCRETE WORK FROM PAGE 95

ROOF FROM PAGE 98

FLOOR FINISHES FROM PAGE 99

WALL FINISHES FROM PAGE 100

CEILING FINISHES FROM PAGE 101

DOORS FROM PAGE 103

WINDOWS FROM PAGE 104

EXTERNAL WORKS FROM PAGE 105

TOTAL CARRIED TO BILL SUMMARY SHEET

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP				BILL No. 3
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
	<u>VIP PIT LATRINE - SUBSTRUCTURES</u> <u>(ALL PROVISIONAL)</u>				
01	<u>SITE CLEARANCE</u>				
A	Clear site of and cutting of medium trees undergrowth including grubbing up of roots and dispose off as directed by the Project Manager	SM	10		
02	<u>EXCAVATION</u>				
	<u>Top Vegetable soil</u>				
B	Excavate oversite to remove top vegetable soil with and including existing fill 250 mm deep and dispose off site	SM	10		
	<u>Foundation excavation</u>				
C	Bulk excavation in existing ground and cart away resulting debris from site for Latrine Pit.	CM	50		
D	Excavate for strip footing not exceeding 1.5 m deep starting from stripped level.	CM	7		
E	Extra over excavation for excavating in Rock of any class.	CM	5		
	<u>Filling and carting away</u>				
F	Return, fill and ram selected approved imported material around excavations	CM	3		
G	Load and cart away excess excavated material	CM	4		
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP				BILL No. 3
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
03	<u>CONCRETE IN SUBSTRUCTURE</u>				
A	50 mm thick concrete 1:4:8 blinding under strip foundation.	SM	5		
	<u>Vibrated Reinforced Concrete Class 25</u>				
B	In strip foundation	CM	1		
C	In 150 mm thick floor slab	SM	8		
	<u>Cement : Sand (1:4)</u>				
D	19 mm thick render on sides of slab	LM	10		
04	<u>SAWN FORMWORK</u>				
E	To vertical edges of floor slab 75 - 150 mm high	LM	10		
F	To vertical sides of strip footing	SM	5		
05	<u>HARDCORE</u>				
G	300 mm thick approved hardcore bed, handpacked, well watered & well compacted	SM	8		
H	50 mm thick stone dust blinding on hardcore bed	SM	8		
I	Apply Termidor or any other similar and approved anti-termite chemical treatment on hardcore	SM	8		
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP				BILL No. 3
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
06	<u>DPM AND DPC</u>				
A	500g polythene damp proof membrane laid with 200 end laps under floor slab, on hardcore to the satisfaction of the consultant	SM	8		
B	200 mm wide approved quality 3-ply bituminous felt damp proof course under walls	LM	8		
07	<u>REINFORCEMENT</u>				
C	Mesh fabric Ref. BRC. A142	SM	8		
	<u>Supply and fix the following high tensile ribbed bars reinforcement bars to BS 4449:2005 including all the necessary cutting, hooking, bending, cutting spacers, binding wire and supporting all in position</u>				
D	Assorted sizes	Kg	200		
08	<u>SUBSTRUCTURE WALLING</u>				
E	200mm thick natural stone walling in cement/sand (1:3) mortar including hoop iron on every alternate course	SM	12		
F	Allow for keeping excavations free from loose/falling material (Planking & Strutting)	ITEM			
G	Allow for keeping excavations free from surface water	ITEM			
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

COLLECTION

TOTAL SUB-STRUCTURES CARRIED TO BILL SUMMARY	
--	--

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP				BILL No. 3
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
09	<u>WALLING</u>				
A	150mm thick natural stone walling in cement/sand (1:3) mortar including hoop iron on every alternate course	SM	20		
TOTAL WALLING CARRIED TO BILL SUMMARY SHEET					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP				BILL No. 3
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
10	<u>CONCRETE WORK</u> <u>Vibrated Reinforced Concrete class 25</u>				
A	In beams	CM	1		
11	<u>SAWN FORMWORK</u>				
B	Sides and Soffitts of beams	SM	8		
12	<u>REINFORCEMENT</u> <u>Supply and fix the following high tensile ribbed bars reinforcement bars to BS 4449:2005 including all the necessary cutting, hooking, bending, cutting spacers, binding wire and supporting all in position</u>				
C	Assorted Sizes	Kg	120		
TOTAL CONCRETE WORKS CARRIED FORWARD TO BILL SUMMARY					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP				BILL No. 3
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
13	<u>ROOF CONSTRUCTION</u> <u>(ALL PROVISIONAL)</u> <u>All Structural Timber to be Second Grade Celcured Cypress and Approved</u> A 100 x 50 mm wall plate bolted to wall with and including bolts at 1.0 m centres B 100 x 50 mm rafters C 100 x 50 mm ceiling joists D 75 x 50 mm purlins <u>Stone-coated tiles Roof Covering</u> E Approved Gauge 28 pre-painted Covermax CX780 or Equal and approved profiled sheets fixed to trusses with and including all necessary battens as per Structural Engineer's detail drawing. <u>Fascia Board</u> F 250 x 25 mm thick wrot prime grade cypress fascia board fixed to end of rafters (m/s) G Ditto verge boards fixed to end of purlins (m/s) H Knot, stop and prime and apply 3 coats of gloss oil paint on general timber surfaces 200 - 300 mm girth	LM	6		
		LM	20		
		LM	20		
		LM	15		
		SM	10		
		LM	6		
		LM	6		
		LM	12		
TOTAL CARRIED TO BILL COLLECTION					

TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP					BILL No. 3
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
14	<u>RAINWATER DRAINAGE</u>				
	<u>Gutter</u>				
A	150mm half-round PVC gutter fixed to fascia board (m/s) with and including approved brackets at 1.0 m c/c	LM	3		
B	Extra over gutter for stopped ends	No.	2		
C	Ditto but for 150 mm diameter outlet	No.	2		
	<u>Downpipe</u>				
D	100 mm diameter PVC downpipe fixed to wall with and including holder butts at 1.0 m c/c including cutting and pinning to wall.	LM	3		
E	Extra over downpipe for swanneck 600 mm long	No.	2		
F	Ditto but for rain water shoe 300 mm long	No.	2		
15	<u>EAVES BOARDING</u>				
G	25 mm thick prime grade cypress T & G boarding including all the necessary bearers	SM	10		
16	<u>BAT PRROFING</u>				
H	Allow for bat proofing approved coffee tray wire as directed by the Architect	SM	10		
I	Sand paper and apply 3 coats of polyurethane lacquer on general timber surfaces	SM	10		
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

[illegible]

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP				BILL No. 3
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
	<u>FINISHES</u>				
17	<u>FLOOR FINISHES:</u>				
	<u>CEMENT SCREED</u>				
A	Approved coloured steel-trowelled cement and sand (1:5) screed	SM	7		
B	10 x 100 mm high skirting	LM	10		
TOTAL FLOOR FINISHES CARRIED FORWARD TO BILL COLLECTION SHEET					

TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP					BILL No. 3
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
18	<u>EXTERNAL WALL FINISHES</u>				
A	15mm Cement and sand (1:4) external rendering on external surfaces of walling finished smooth with a wood float.	SM	20		
B	Extra over pointing to stone walling to Project Manager's details.	SM	20		
	<u>PAINT</u>				
C	Prepare and apply "Wall master" or equal approved cement and polymer based wall coating according to Manufacturer's instructions and Project Architect's specifications and approval to beams and columns.	SM	5		
19	<u>INTERNAL WALL FINISHES</u>				
	<u>Cement and Sand (1:5) Screed</u>				
D	18 mm thick steel-floated plaster to new masonry walling to receive paint (m/s).	SM	10		
	<u>PAINT</u>				
E	Skim or smoothen uneven plaster in @ "Crown Wallcare" or equal approved; Prepare and apply one coat of undercoat and two finishing coats of first quality grade Silk Vinyl plastic emulsion paint to wall surfaces, beam and column surfaces.	SM	10		
	<u>Wall tiles</u>				
	<u>Approved coloured granito wall tiles matt; laid to regular pattern; including bedding and jointing in "PEGACOL" tile adhesive or other equal and approved; grouting joints with "BENFER" or other equal and approved epoxy resin-based grout</u>				
F	600 x 300mm thick glazed granito wall tiles bedded in cement & sand (1:4) mortar on backing screed (m/s).	SM	15		
G	Size 600 x 300 mm Border Tile as per Architectural Drawing	LM	5		
H	Stainless Steel strip Border	LM	5		
I	12 mm thick cement & sand (1:4) backing screed to stonework to receive tiles	SM	15		
TOTAL WALL FINISHES CARRIED FORWARD TO BILL COLLECTION SHEET					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP				BILL No. 3
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
20	<u>CEILING FINISHES</u>				
A	12 mm thick chipboard on and including 50 x 50 mm sawn treated timber framework where directed by the Architect/ Project Manager.	SM	7		
B	Prepare and apply 3 coats of silk vinyl emulsion to ceiling surfaces	SM	7		
	<u>Cornice</u>				
C	75 x 75 mm wrot cypress moulded Cornice	LM	10		
D	Knot, prime and stop and apply 3 coats of paint on general timber surfaces 100 - 200 mm girth	LM	10		
E	Prepare and apply primer to back of cornice only n.e. 100 mm girth	LM	10		
TOTAL CEILING FINISHES CARRIED FORWARD TO BILL COLLECTION SHEET					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP				BILL No. 3
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
	<u>OPENINGS</u>				
21	<u>DOORS</u>				
	<u>Semi-Solid-core Flush Doors</u>				
A	900 x 2400 mm high overall solid core flush door including fanlight size 900 x 300mmhigh and glazed view panel as per detail schedule of doors, faced on both sides with mahogany veneer and lipped and edged in hardwood strips to both vertical edges	No.	2		
	<u>Timber frames</u>				
B	150 x 50 mm wrot rebated hardwood door frame	LM	14		
C	25 x 25 mm quadrant beading plugged	LM	14		
D	38 x 25 architrave	LM	14		
	<u>Painting</u>				
E	Prepare and apply 3 coats of gloss oil paint on general timber surfaces	SM	9		
F	Prepare and apply 3 coats of gloss oil paint on timber surfaces 100 - 200 mm girth	LM	14		
G	Prime back of frame n.e 100mm girth	LM	28		
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP				BILL No. 3
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
22	<u>Iron mongery</u> <u>Supply and fix the following ironmongery as per 'Union' or other similar and approved catalogue to hardwood with screws to match</u>				
A	150 mm long pressed brass-coated butt hinges	Pairs	3.0		
B	3-lever mortice locks complete with handles and furniture brass finished	No.	2		
C	38 mm diameter rubber door stop, floor mounted	No.	2		
D	Door & wall signages to Architect's detail	No.	4		
E	Stainless steel push plates	No.	2		
F	Stainless steel Coat Hooks	No.	2		
	<u>Dowels</u>				
G	10 mm diameter, 200 mm long mild steel dowel one end morticed to wood the other grouted in concrete	No.	4		
	<u>Door cramps</u>				
H	225 x 25 x 3 mm mild steel door cramps, once bent and twice holed, one end screwed to frame the other built in masonry wall	No.	12		
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

[illegible]

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP				BILL No. 3
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
23	<u>WINDOWS</u> <u>Approved Powder-coated heavy gauge aluminium windows including all necessary fixing and locking ironmongery, glazing and all necessary glazing beads all as per schedule of windows</u>				
A	Size 900 x 600 mm high window including 6 mm thick obscure glazing with one-way tint <u>Window Cill</u>	No.	2		
B	250 x 75mm Precast concrete (class 20/12) sunk, weathered and throated cill cart in convenient lengths, reinforced as necessary for handling, bedded, jointed and pointed in gauged mortar and finished fair on all exposed surfaces.	LM	30		
TOTAL WINDOWS CARRIED TO BILL SUMMARY SHEET					

[illegible]

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND CHAINKINK FENCE AT BANISA AIRSTRIP				BILL No. 3
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
	<u>EXTERNAL WORKS</u> <u>(ALL PROVISIONAL)</u>				
24	<u>PAVING SLABS</u>				
A	Grade surface of fillion to falls and crossfalls including rolling and compacting to B.S. 95%MDD.	SM			
B	Approved imported murram laid in 150mm thick layers blinded with quarry dust on each layer and compacted to 100% BS compaction to Civil Engineer's details.	CM			
C	300mm bed of approved handpacked stone and compacted stone base well-rammed and compacted to Civil Engineer's details and specification.	SM			
D	Approved weedkiller under paving	SM			
E	50mm sand bed blinding spread and well compacted to falls and crossfals and cambers and finished to receive precast concrete block paving (measured separately).	SM			
F	600 x 600 x 50 mm precast concrete paving slabs on 50 mm thick sand bed (m/s).	SM			
G	250 x 125 mm precast concrete kerb and channel to paving slabs laid on 20mm thick mortar bed, 500 x 100mm class 15/20 concrete base, 100 x 210mm class 15/20 concrete haunch including excavation and disposal to Civil Engineer's details.	LM			
TOTAL PAVING SLABS CARRIED TO BILL SUMMARY SHEET					

[illegible]

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP				BILL No. 4
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
	<u>MECHANICAL WORKS (All Provisional)</u>				
01	<u>INTERNAL PLUMBING</u>				
	<u>Supply and install the following pipes; to include the necessary joining connecting</u>				
A	40mm PPR PN 20 water pipes	LM	80		
B	32mm PPR pipes PN 20	LM	75		
C	25mm PPR pipes PN 20	LM	60		
D	40mm diameter socket	No	12		
E	40mm diameter bend	No	8		
F	40X32mm PPR male adaptor	No	3		
G	40X32mm PPR female adaptor	No	3		
H	40x32mm m.s reducer	No	5		
I	E.O Ditto for elbow	NO	8		
J	Ditto PPR Tee	No	10		
K	Ditto 25x12.5mm male adaptor	No	13		
L	Ditto 25x12.5mm female adaptor	No	13		
M	25mm Gate valeve	No	3		
N	Allow for tread tape	Item	1		
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP				BILL No. 4
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
02	<u>WASTE WATER DRAINAGE (all provisional)</u>				
A	Gulley trap manhole of internal size 200 x 200 x 450mm depth, comprising of 150mm concrete bed class Q, 12mm internal rendering 1:1 100mm pvc gully trap, 300x300mm cast iron manhole cover and concrete benching to 1:6 fall	NO	4		
B	100mm diameter heavy duty pvc pipe laid to fall	LM	20		
C	Ditto but 50mm diameter	LM	10		
D	Backfill excavated trench	LM	15		
E	E.O ditto in inspection tee	No	2		
F	E.O ditto in waste bend	No	2		
G	E.O ditto in vent cowl	No	2		
H	E.O ditto end plug	No	2		
I	110mm diameter galvanised vent pipe clips	No	6		
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP				BILL No. 4
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
03	<u>FIRE FIGHTING EQUIPMENT</u>				
	<u>Portable fire extinguishers</u>				
A	Supply and install 4.5kg CO2 fire extinguisher complete with pressure guage mounting brackets and certified initial charge	No	2		
B	Supply and install 9 litre water fire extinguisher complete with pressure guage mounting brackets and certified initial charge	No	2		
	<u>Water Tank</u>				
C	Supply and install water storage PVC tank of 10,000litres capacity as 'Roto' or equal approved including mounting to final position and connection to pipe system as directed by Project Manager.	No	2		
D	Allow for testing and commissioning of the water reticulation and drainage systems	ITEM	1		
E	Allow for connection to Local Water Authority Including application and processing.	ITEM	1		
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP				BILL No. 4
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
<div>COLLECTION</div> <p>BROUGHT FORWARD FROM COLLECTION PG 126</p> <p>BROUGHT FORWARD FROM COLLECTION PG 127</p> <p>BROUGHT FORWARD FROM COLLECTION PG 128</p>					
TOTAL CARRIED TO GRAND SUMMARY					

TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP					BILL No. 5
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
	<u>ELECTRICAL WORKS</u>				
	(ALL PROVISIONAL) Supply and Install: -				
1	<u>LIGHTING</u>				
A	Lighting points wired in 3x1.5Sq.mm PVC insulated single core (SC) copper wires drawn in 20mm dia. HG PVC conduit concealed in walls and floors, one way switched with all accessories but excluding switch and fitting	No.	10		
B	Ditto, for two way switched lighting points	No.	2		
C	10A plate switch 1 gang one-way SP as MK Cat. No. K4870 WHI	No.	4		
D	10A plate switch 1 gang two-way SP as MK Cat. No. K4871 WHI	No.	4		
E	10A plate switch 3 gang two-way SP as MK Cat. No. K4872 WHI	No.	3		
F	300x200mm rectangular fitting complete with 11W energy saving BC lamp as Micromark Astral Cat. No. MM7531, Type 'D1'.	No.	10		
G	Circular IP54 close surface UV-stable polycarbonate fitting with E27 lampholder (60W) as per OMS 'PLAST' range with E27 lamp, Cat PLAST 3 OPTIC A60 1x60W ,Type 'D2'.	No.	4		
H	Decorative wall fitting to BS EN 61184:1997, incorporating a heat resistant connecting cables, metallic BC lamp holder complete with 11W energy saving lamp as MK Cat No. 11172WHI Type 'G1'.	No.	4		
I	IP 65 rectangular style bulkhead fitting with die-cast aluminium body, glass bowl diffuser and 100W BC lampholder c/w E27 CFL lamp as Thorn OLG 1x100W A60 BC GL WHI, Type 'G2'.	No.	2		
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP				BILL No. 5
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
2.00	<u>POWER</u>				
A	13 Amp twin socket outlet points wired as for a ring main 3 x 2.5mm ² PVC SC copper cables drawn in 25mm dia HG PVC in conduits concealed in walls and floors complete with all accessories excluding the socket outlet plate - Ringmain Circuit	No.	3		
B	13A flush 2 gang switch socket-outlet as MK Cat. No. K2747 WHI	No.	2		
C	Watertight 13A flush 2 gang switch socket-outlet as MK Cat. No. K56482WHI	No.	1		
D	20A flex outlet with neon light as MK Cat. No.5423DI WHI	No.	3		
E	20A flush DP switch with neon light marked water heater as MK Cat No. K5423WHWHI	No.	5		
F	12v Photocell Light sensor	No	2		
3	<u>TELEPHONE & TV OUTLETS</u>				
A	Fully screened non isolated IEC female standard TV/FM co-axial socket as MK K3551WHI	No.	1		
B	1 gang moulded white blanking plate to BS 5733:2010 as MK K3827WHI	No.	1		
C	Standard telephone outlet point	No.	1		
4	<u>LIGHTNING PROTECTION</u>				
A	Air termination Type Furse RA225 + RA600 fixed to ridge saddle Furse SD155 bolted to roof with water tight rubber	No	2		
B	25mm x 3mm copper tape TC030 on tape clip Furse CP210 fixed at 750mm intervals to approved detail	LM	15		
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP				BILL No. 5
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
C	50mm ² PVC insulated copper conductor enclosed in 25mm dia HG concealed PVC conduit between copper tape and test joint	LM	25		
D	Lugs for item C). above including fixing bolts to roof conductors	No	3		
E	Test clamps Furse CN305	No	3		
F	Rod to earth conductors clamps Furse CR520	No	3		
G	Earth rods Furse RC015 with driving sud, furse ST015 and spike furse SP015 driven into ground	No	3		
H	125 x 100 x 50mm deep boxes with cover and marked safety earth installed columns to approved detail	No	2		
I	Concrete earthing inspection pits, Furse PT-005	No	2		
G	Test the completed lightning protection system and report results	Item			
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIR STRIP					BILL No. 5
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
6	<u>SUB MAINS AND DISTRIBUTION</u>				
A	Supply and install 12-ways SPN MCB consumer unit	NO.	1		
B	Supply and install 30A, 20A, 10A MCBs and blankingplate to existing consumer unit	NO.	1		
C	Supply and install sub-mains from meter box to consumer unit comprising of 2x16mm ² PVC single core cables and 16mm ² PVC cable insulated earth continuity conductor in 32mm diameter heavy gauge PVC conduit	M	20		
D	Earth and label the consumer units to KP&LC standards	NO.	1		
7	<u>METER BOARD</u>				
A	Supply and install wall mounted weather proof meter board comprising of 80 AMP SP main switch fuse and provide space for 2No. SP KP&LC Ltd meters cut-outs including associated wiring switch gear and earthing terminal	NO	1		
B	Supply and install 80 AMP SP main switch fuse including associated wiring and weather proof GI enclosure at the VIP Lounge	NO	1		
C	Supply and install 16mm sq. 2core PVC SWA PVC armoured copper from the existing meterboard to the new meterboard	M	50		
D	Trenching and backfilling 500mmx600mm deep from power cable routing	M	50		
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP					BILL No. 5
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
8	<u>Earthing comprising the following:-</u>				
A	1500mm by 12mm diameter copper earth electrode	NO	1		
B	Test Clamp	NO	1		
C	16Sq.mm SC CU PVC earth wire	LM	10		
D	Standard precast earthing manhole	NO	1		
E	20mm diameter conduit drop for green PVC earth wire	LM	8		
10	<u>Sundries</u>				
A	200 x 200 x 100mm 14 gauge galvanized power draw box complete with cover	NO	2		
B	50mm Diameter PVC heavy gauge ducts concealed in floors,walls and in trench for Telkom Kenya Ltd.	LM	10		
C	Standard precast JF4 earthing manhole ditto	NO	1		
11	<u>TESTING AND COMMISSIONING</u>				
A	Allow for Testing, Commissioning and Hand over the entire Installation to the Project Manager satisfaction	ITEM			
B	Allow for KPLC liaise on for power supply	ITEM			
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP				BILL No. 5
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
12	<u>P.C. AND PROVISIONAL SUMS</u>				
	<u>POWER SUPPLY</u>				
A	Include the sum of Kenya Shillings One hundred thousand (Kshs.100,000.00) only for KPLC charges.		SUM		
B	Add for profit		0		
C	Allow for attendance		SUM		
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP				BILL No. 5
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts

SUMMARY SHEET

BROUGHT FORWARD FROM PG 130

BROUGHT FORWARD FROM PG 131

BROUGHT FORWARD FROM PG 132

BROUGHT FORWARD FROM PG 133

BROUGHT FORWARD FROM PG 134

BROUGHT FORWARD FROM PG 135

TOTAL CARRIED TO GRAND SUMMARY

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP				BILL No. 6
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
	<u>FENCE WORKS</u>				
A	Clear site by cutting grass, shrubs and other growth to allow on either side of fence for working space as will be instructed by the Engineer.	Ha	8		
	<u>Removal of topsoil</u>				
B	Topsoil removal to a maximum depth of 200mm including removal of grass and other vegetation as shall be directed by the engineer.	m3	1,800		
	<u>Removal/Cutting of Trees & Road Diversion</u>				
C	Removal/ Cutting of tall trees in the runway strip and runway approaches including uprooting of tree stumps.	No.	30		
D	Construct 6.0 m wide deviation; all in accordance with the specifications.	Km	1.4		
E	Provision, laying and compaction of gravel wearing course to deviations, 6m wide, 150mm thick, where directed by the Engineer	m ³	1,260		
	<u>Runway Marking</u>				
F	Provide and lay Runway Markers being Mass Concrete size 3000mm x 1000mm x 50mm concrete class 20 (10), laid on 50 mm well compacted gravel, and painted with white reflective paint; laid in pairs each edge of runway @ 100M c/c	No	40		
	<u>Airport Directional Signs</u>				
G	Provide and install Airport directional signs according to the provided details as directed by the Engineer	No	2		
	<u>Windsock</u>				
H	Provide and erect Windsock complete with Mast fixed to the ground	No	2		
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP				BILL No. 6
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
I	Gates Supply, fabricate and install galvanized heavy duty metal gate overall size 6000 x 2400mm high; in two equal leaves; with and including 100 x 100 x 6mm SHS fixed firmly to the ground in approved concrete base; 8 gauge welded wire mesh covering fixed to 50 x 50 x 4mm SHS and tower locking heavy gauge bolt (including VIRO Cylinder 104); 3 lines of 12.5 gauge barbed wire at the top of each leaf; all as per attached drawings and approval of Project Manager. Gate to be painted in three coats of approved protective paint.	No	2		
J	Supply materials, fabricate and install galvanized heavy duty metal gate overall size 1000 x 2400mm high pedestrian gate with and including 75 x 75 x 4mm SHS fixed firmly to the ground in approved concrete base; 8 gauge welded wire mesh covering fixed to 50 x 50 x 4mm SHS and tower locking heavy gauge bolt (including VIRO Cylinder 104); 3 lines of 12.5 gauge barbed wire at the top; all as per attached drawings and approval of Project Manager. Gate to be painted in three coats of approved protective paint. Rate inclusive of casting of beam.	No.	1		
K	Excavate holes of 450mm dia and up to 1000mm deep, and cart away waste material to spoil dumps.	CM	500		
L	As item "L" , but in hard material.	CM	50		
M	Provide and install 4.0m minimum overall length and maximum width of 125mm x 125mm reinforced concrete grade B (1:2:4 mix) intermediate posts (cranked at the top) at 3.0 meter center to center with 7 No. holes for straining wires/barbed wire hook bolts, with T10 reinforcement, including concreting of the posts holes up to the ground level.	No	1,901		
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP				BILL No. 6
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
N	As in item "M" above but for strainer posts up to 3.2m overall length and maximum width of 200mm, and T10 reinforcement.	No	380		
O	As in item "M" but for strainer post struts up to 3.0m overall length and maximum width of 100mm to be placed on either side of strainer posts at 45 degrees to the ground, and T10 reinforcement.	No	380		
P	Supply and Install High-Density Galvanized Welded Razor Mesh with Diamond Apertures; with the following characteristics:- (a) Diamond Mesh Size: 75x150mm; (b) Roll Size: (H)2.4m & (W) 6.0m ; (c) Blade Length: 30mm; (d) Blade Width: 22mm; (e) Blade Spacing: 50mm; (f) Blade Thickness: 0.5mm and (g) Core Wire: Diameter 2.5mm. h) The Galvanised mesh to also have Zinc coating for improved corrosive resistance and to be fastned with 5 No. lines of galvanized wire (m/s) 3.5mm diameter; threaded through and including mesh and hook bolts; secured by binding wire; all as per detail drawings. Provide and fix 5 lines of galvanized wire (m/s) 9 Gauge (3.5mm diameter) onto the concrete posts threaded through the holes on the posts.	M	5,700		
Q		M	28,500		
R	Provide and fix 3 lines of galvanized barbed wire 12 ^{1/2} gauge (2.5mm diameter) onto the cranked sections of the concrete posts threaded through the holes on the posts.	M	17,100		
S	Supply and Install Hot Dipped Galvanised Ripper Steel Spiral razor wire (CONCERTINA COIL) 2.5 mm dia. High Tensile, blade/strip 0.55mm, clips 2.0mm, diameter 10mm with hot dipped galvanized surface treatment along the inner face of the fence in 1 layer to Engineer's instructions, in concertina coil of loops 250mm long, 450mm diameter. Length to be measured for each coil separately.	M	11,400		
T	Provide well compacted / vibrated concrete class 20/20mm – 1:2:4 as described in: a)Ground beams and b)Regulating concrete at steep areas up to 100mm	CM CM	35 10		
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP				BILL No. 6
ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KShs cts
<div>COLLECTION</div> BROUGHT FORWARD FROM COLLECTION PG 137 - BROUGHT FORWARD FROM COLLECTION PG 138 BROUGHT FORWARD FROM COLLECTION PG 139					
TOTAL CARRIED TO GRAND SUMMARY					

	TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP				GRAND SUMMARY
ITEM No.	D E S C R I P T I O N	UNIT	QUANTITY	RATE	AMOUNT KShs cts
<div style="border: 2px solid black; border-radius: 10px; padding: 10px; width: fit-content; margin: auto;">GRAND SUMMARY</div>					
	BILL No. 1 - PRELIMINARIES & GENERAL CONDITIONS				_____
	BILL No. 2 - GATE HOUSE WORKS				_____
	BILL No. 3 - WASHROOMS				_____
	BILL No. 4 - MECHANICAL WORKS				_____
	BILL No. 5 - ELECTRICAL WORKS				_____
	BILL No. 6 - FENCE				_____
	BILL No. 7 - DAYWORKS				_____
	SUB-TOTAL				_____
	ADD 5% CONTIGENCIES				_____
	SUB-TOTAL				_____
	ALLOW FOR 16% VAT				_____
	GRAND TOTAL CARRIED TO FORM OF TENDER				=====
Name and Address of Contractor					
Signature & Stamp					

TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP					BILL No. 7
ITEM NO	DESCRIPTION	UNITS	QUANTITY	RATE (Ksh)	AMOUNT (Ksh)
	DAYWORKS				
	LABOUR				
	All items for labour must be priced. Only				
	the actual time engaged upon the work will				
	be paid for. NOTE; The rate inserted herein				
	shall include all costs of labour as well as				
	overtime, travelling, time and cost of				
	accommodation, social security, contributions,				
	use and maintenance of small tools of trade,				
	supervision, insurance, overheads, profits				
	and any other cost allowance.				
A	Unskilled Labour	Hrs	8		
B	Carpenter/ stone mason	Hrs	8		
C	Foreman having Ordinary Diploma (OD)	Hrs	8		
	and at least 5 years experience				
D	Surveyor having Ordinary Diploma (OD)	Hrs	8		
	and at least 5 years experience				
	MATERIALS				
	All materials should comply with the				
	specification. The rates inserted herein are				
	to include for delivery to site, storage,				
	handling, overheads and profit				
E	3.0m high heavy duty galvanized chain-link; Gauge 9 (3.5 mm diameter) ; 50x50mm mesh onto precast concrete posts (m/s); fastening with 5 No. lines of galvanized wire (m/s); threaded through and including mesh and hook bolts; secured by binding wire; all as per detail drawings.	M	100		
F	Ordinary Portland Cement	Tonne	1		
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

TITLE: PROPOSED CONSTRUCTION OF GATE HOUSE, WASHROOMS AND FENCING AT BANISA AIRSTRIP					BILL No. 7
ITEM NO	DESCRIPTION	UNITS	QUANTITY	RATE (Ksh)	AMOUNT (Ksh)
G	Aggregates for Concrete				
H	a) Sand	m3	1		
	b) Coarse aggregate (12mm)	m3	1		
	c) Coarse aggregate (20mm)	m3	1		
	d) 14/20mm	m3	1		
I	Building Stone	Tonne	1		
J	Natural Sub-Base Standard Gravel (Minimum CBR- 30%)	m3	1		
K	PLANT & EQUIPMENT				
	Where items of major plant listed in the				
	schedule of Day works are specified by type				
	(e.g. Cat D7, Cat 120H) the power rating of				
	such plant is that manufactured within the				
	two years prior to the date of tender. Any				
	plant employed upon day works which have				
	power rating lower than that stated above				
	shall be paid for at rates lower than those				
	schedule of day works. The deduction in				
	the payable rates shall be in proportion to				
	the power rating below the specified above				
	plant.				
L	Cat 140H motor grader or equivalent	Hr	8		
	complete with scarifier.				
M	Hand propelled vibrating roller.	Hr	8		
M	15 tonne tipper lorry.	Hr	8		
O	10 tonne tipper lorry.	Hr	8		
P	Concrete mixer 0.3 - 0.7 m3/min.	Hr	8		
Q	Concrete vibrator (poker type).	Hrs	8		
R	Self-propelled water tanker 6,000-10,000	Hrs	8		
	litre minimum capacity with pick-up .pump.				
TOTAL CARRIED FORWARD TO BILL COLLECTION SHEET					

WORKS SPECIFICATION

MANUFACTURER'S NAME

Where manufacturer's names and catalogue references are given they are so given for guidance to quality and standard only. Alternative manufacturer of equal quality will be accepted at the discretion of the Project Manager.

ARCHITECTS' SPECIFICATION

GENERAL

DISCREPANCIES IN DESCRIPTIONS

Descriptions of materials and workmanship contained in the Bills of Quantities measured items shall take precedence over descriptions contained in Appendices in the event of discrepancies between the two, unless the Architect shall otherwise direct.

DISCREPANCIES IN DRAWINGS

Drawings shall take precedence over the Bills of Quantities, for construction purposes, in the event of discrepancies between the two, and the Architect must be notified immediately any such discrepancy becomes apparent.

TESTS AND SAMPLES

Unless otherwise described in the Bills of Quantities, the Contractor will be responsible for all the costs involved in testing materials as described hereinafter. He will also be responsible for all the costs involved in supplying samples of materials or workmanship as required hereinafter to the satisfaction of the Architect. The cost of replacing materials fixed or placed in position which do not comply with the required test results or approved samples shall be borne solely by the Contractor.

KENYA STANDARDS

All materials and goods supplied for incorporation in the works must comply with any relevant current standards issued by the Kenya Bureau of Standards. Where these are not established or are unclear the latest British Standards and Codes of Practice shall be applied.

WALLING

CEMENT

All cement used for making mortar shall be Portland cement complying with B.S. 12.

SAND

All sand used for making mortar shall be clean well graded silicone sand of good sharp quality equal to samples which shall be approved by the Architect. It shall be free from lumps of stone, earth, loam, dust, salt, organic matter and any other deleterious substance, sieved through a fine sieve and washed if so directed by the Architect.

LIME

Lime for mortar shall be non-hydraulic or semi-hydraulic quick lime or hydrated lime in accordance with B.S. 890, Class B.

Quick lime shall be run to putty immediately after delivery to site in a pit dug on the site or in approved containers. The water to be first run into the pit or container and the lime to be added until it is completely submerged and stirred until all lumps are disintegrated and the resulting mild-lime shall then be run through a 3mm square mesh sieve and run into a pit or other container and kept clean and moist for not less than 4 weeks before use.

Hydrated lime shall be added to water in a clean receptacle thoroughly mixed to the consistency of thick cream and allowed to stand and be kept clean and moist for not less than 16 hours before use.

CEMENT MORTAR

The cement mortar (1:3) shall be composed of 42.5 kgs. Of Portland cement to 0.085 cubic metres of sand. The cement mortar (1:6) shall be composed of 42.5 kgs of Portland cement to 0.17 cubic metres of sand measured in specially prepared gauge boxes and thoroughly mixed in an approved mechanical mixer or mixed dry on clean and approved mixing platforms with water added afterwards until all parts are completely incorporated and brought to a proper consistency. The use or retempering of wholly or partly set mortar will not be allowed.

Foundation walling up to ground floor slab 1 part cement to 6 parts sand.

GAUGED LIME MORTAR

Gauged lime mortar shall be composed of 2 parts by volume of lime putty to 12 parts by volume of sand measured in specially prepared gauge boxes and mixed dry on clean and approved mixing platforms with water added afterwards until all parts are thoroughly incorporated and brought to a proper consistency.

The mortar shall be mixed 7 to 10 days before it is required for use and shall be stacked in a neat heap well smoothed off, covered with wet sacks and allowed to mature.

Immediately before use 1 part by volume of Portland cement shall be added to 9 parts by volume of lime mortar, the whole being remixed with the addition of extra water until all parts are completely incorporated and brought to a proper consistency.

The gauged mortar must be used within 45 minutes of being mixed and the use or retempering of wholly or partially set mortar will not be allowed.

Above ground floor slab 1 part cement to 3 parts lime to 15 parts sand.

OTHER TRADES

Close co-operation with electrical and plumbing Sub-Contractors must be maintained from the beginning of the job to avoid chases being cut in hollow block or 100mm solid block work or across any fair faced work. If necessary, conduits should be run down the jambs of the door openings behind the door frame and taken to the switch position through a horizontal joint in the masonry.

CARPENTRY, JOINERY AND IRONMONGERY

QUALITY OF TIMBER

The qualities of timber stated hereinafter are to be in accordance with the Grading Rules (Third Edition) dated 8th April, 1959, approved by the Forest Department of Kenya.

All timber described as 'Sawn Podocarpus' shall be Second (Select) Grade Sawn Podocarpus Gracilior.

All timber described as 'Sawn Cypress' shall be Second Grade Sawn Cupressus.

All timber described as 'Wrot Cypress' shall be First (Prime) Grade Wrot Cupressus.

All timber described as 'Wrot Cedar' shall be First (Prime) Grade Wrot Red Cedar (Juniperus Procera).

All timber described as 'Wrot Meru Oak' shall be First (Prime) Grade Wrot Meru Oak).

All timber described as 'Wrot Camphor' shall be First (Prime) Grade Wrot Camphor specially selected for straight grain and colouring. No joinery work is to be put in hand until the Architect has seen and approved the colour and grain of the timber.

Where hardwood is specified it shall be Mvuli, Mahogany, Mninga, Camphor, Rosewood, Blackwood or Meru Oak as selected by the Architect at the letting of the contract and all tenders will be deemed to have allowed for this.

When employed for carpentry work the above timbers shall be well seasoned to a moisture content not exceeding 18% of the dry weight.

When employed for joinery work the above timbers shall be well seasoned to a moisture content not exceeding 6% of the dry weight.

GENERALLY

All timber for permanent work in the buildings shall before use, be dry and be approved by the Architect for quality in accordance with the foregoing specification for its respective grade. All structural timber shall be in accordance with C. P. 112.

All Carpenter's work shall be left with sawn surfaces unless particularly specified to be wrot. Scantlings and boarding shall be accurately sawn and shall be left uniform in width and thickness throughout. All Carpenter's work shall be accurately set out together and securely fixed in the best possible manner with properly made joints. Provide all brads, nails, screws, bolts, etc. as necessary. Nails shall comply with B.S. 1202 and bolts with B.S. 916.

Knotting shall comply with B.S. 1336

Variations from specified dimensions of scantling shall not exceed the tolerance stated in the aforementioned Grading Rules. Boards 25mm thick or less shall hold up to the specified sizes. All timber shall be as long as possible and practicable to eliminate joints.

Ends of timbers required to be built into walls shall have 12mm space between same and walling. All ends of timbers to be strapped with hoop iron and primed.

All Joiner's work shall be wrot unless otherwise specified.

All mouldings shall be accurately run and finished and all arrises shall be slightly rounded. Framed work shall be cut out, properly tenoned, shouldered, etc., and framed together as soon after the commencement of the works as is practicable but should not be wedged up until required for fixing in position and any portions that warp, get in winding, develop shakes or other defects shall be replaced with new. As soon as required for fixing in position the framing shall be glued together with best quality glue and properly wedged or pinned, etc., as described.

Unless otherwise described oval or round brads will be used for fixing all face work, all heads shall be properly punched in. Where described as pellated work shall be countersunk screwed and the screw heads covered with timber pellets to match the adjacent timber.

Should any of the Carpenter's or Joiner's work shrink, warp, wind or develop any other defects within six months after the completion of the works, the same shall be removed and new fixed in its place together with all other work which may be affected thereby, all at the Contractor's cost and expense.

INSECT DAMAGE

All timber, whether graded or ungraded, and including shuttering, scaffolding and the like shall be free of live borer beetle or other insect attack when brought upon the site. The Contractor shall be responsible up to the end of the maintenance period for executing at his own cost all work necessary to eradicate insect attack to timber which becomes evident including the replacement of timbers attacked or suspected of being attacked, notwithstanding that the timber concerned may have been inspected and passed as fit for use.

DIMENSIONS

(a) Timber not specified to be wrought shall be as from the saw and full to the nominal dimensions stated. No undersize shall be permitted but oversize to the following tolerances may be allowed:-

- (i) 1.5mm oversize on dimensions up to 25mm
- (ii) 3mm oversize on dimensions up to 50mm
- (iii) 6mm oversize on dimensions over 50mm.

(b) Where 'nominal' dimensions are stated for wrot timber a tolerance of 3mm shall be allowed for each wrot face.

Before putting in hand any joinery work, whether built-in or fixed later, the joiner is to ascertain and check on site all dimensions which affect or govern the joinery work.

PRESERVATION OF TIMBER

All timber described as impregnated shall be vacuum pressure impregnated with Tanalith or Celcure preservative in accordance with Specification No. 1/56 (Buildings) for the Vacuum/Pressure Impregnation of Timber with Hickson's 'Tanalith' wood preservative issued by Hickson's Timber Impregnation Co. (G.B.) Ltd., or other approved source. Where timber is cut or bored after impregnation the exposed surfaces are to be liberally swabbed with Wolmanol.

SPECIES OF TIMBER

Only those timbers specified in these Bills of Quantities are to be used for the works, unless alternatives are authorised by the Architect.

SEASONING OF TIMBER

All carpentry timbers are to be seasoned to a moisture content of not more than 18% of the dry weight. All joinery timbers are to be seasoned to a moisture content of not more than 6% of the dry weight. The Contractor is to make available on site a meter for testing moisture content of all timber delivered.

PREPARATION AND PROTECTION OF TIMBER

(a) All timber necessary for the works is to be purchased immediately the Contract is signed, and when delivered is to be open stacked for such further seasoning as may be necessary. Preparation of the timber is to be commenced simultaneously with the commencement of the works generally.

(b) All timber and assembled woodwork is to be protected from the weather and stored in such a way as to prevent attack by decay, fungi, termites or other insects.

CLEARING UP

The Contractor is to clear up and destroy or remove all cut-ends, shavings and other woodwaste from all parts of the buildings and the site generally as the work progresses and at the conclusion of the works.

TIMBER IN MASONRY, ETC.

Ends of timber built into walls shall be thoroughly brush treated with creosote or other approved preservatives and clean air space maintained around the timbers where they adjoin the walls.

PRIMING WOODWORK

All woodwork which is to be painted or hidden from view, backs of door frames, etc. are to be primed and painted one coat before fixing. Allow for touching up priming during progress of works.

JOINTING

(a) All joints must be made as specified or detailed and the execution of all jointing shall be to the satisfaction of the Architect.

(b) Joining surfaces of all connections exposed to the weather are to be thickly primed except where glueing is specified. Surfaces are to be in good contact over the whole area of the joint before fastenings are applied.

(c) No nails, screws or bolts are to be placed in any end split. If splitting is likely or is encountered in the course of the

work, holes for nails are to be pre-bored at diameters not exceeding 4/5ths of the diameter of the nails. Clenched nails must be bent at right angles to the grain. Lead holes are to be bored for all screws.

(d) Where the use of bolts and washers are specified the holes are to be bored from both sides of the timber and are to be a diameter $D + D/16$ where D is the diameter of the bolt. Nuts must be brought up tight but care is to be taken to avoid crushing of the timber under the washers.

(e) Joints in joinery must be as specified or detailed and so designed and secured as to resist or compensate for any stresses to which they may be subjected. All nails, sprigs, etc., are to be punched and puttied.

(f) Loose joints are to be made where provision must be made for shrinkage, glued joints where shrinkage need not be considered and where sealed joints are required. All glued joints shall be crosstongued or otherwise reinforced.

(g) Glues for load-bearing joints or where conditions may be damp must be of the resin type. For non-load-bearing joints, or where dry conditions can be guaranteed, casin or organic glues may be used.

JOINERY

(a) All joinery shall be accurately set out on boards to full size for the information and guidance of artisans with all joints, ironwork and other works connected therewith fully delineated. This setting out shall be submitted to the Architect and approved before the work is commenced.

(b) All joinery shall be executed with workmanship of the best quality in strict accordance with the detailed drawings. All mouldings, shall be accurately and truly run and all work planed, sand-papered and finished to the approval of the Architect.

(c) All framed work shall be cut out, properly tenoned, shouldered etc., and framed together as soon after the commencement of the building as is practicable but shall not be wedged up until the building is ready for fixing the same and any portions that warp, wind, develop shakes or other defects shall be replaced with new. As soon as required for fixing in the building the framing shall be glued together and properly wedged or pinned, etc., as directed.

(d) Should any of the joinery shrink, warp, and wind or develop any other defects within the maintenance period specified in the Contract the same shall be removed and new fixed in its place together with all other work which may be affected thereby. All at the Contractor's expense.

TOLERANCE

Reasonable tolerance shall be provided at all connections between joinery works and the building carcass, so that any irregularities, settlement or other movements shall be adequately allowed for.

SCRIBING

All cornices, architraves, frames and other joinery works shall be accurately scribed to fit the contour of any irregular surfaces against which they may be required to form a close butt connection. In particular, architraves are to be cut to fit against side walls and maintain proper mitres at top corners.

SHRINKAGE

The arrangement, jointing and fixing of all joinery shall be such that shrinkage in any part and in any direction shall be compensated for and not impair the strength or appearance of the work or cause damage to adjacent structures.

VENEERS

All veneers are to be specially selected for grain and colouring and no veneered work shall be put in hand until the Architect has approved the sample of grain and colour.

NATURAL FINISH

When natural finish is specified, the timber in adjacent pieces shall be matched and uniform or symmetrical in colour and grain. The surface finish is to be as specified.

FLUSH DOORS

Flush doors shall be 3mm plywood faced doors with solid or semi-solid cores, in accordance with B.S. 459 Part 2, obtained from a manufacturer approved by the Architect and equal in every respect to a sample to be submitted to and approved by the Architect. Doors shall be lipped with hardwood strips on all edges and shall be finished for painting on both faces unless otherwise stated. Plywood for use on external doors shall be of exterior grade as described later.

The proportion of solid area in semi-solid doors shall not be less than 50% of the total and shall be evenly distributed throughout the door.

CHIPBOARD

Chipboard shall comply in all respects with B.S. 2604 for medium density resin bonded wood chipboard and shall be veneered or not as shown on the drawings and as described in the Bills of Quantities. Chipboard of non-British origin shall comply with the tests enumerated in the said B.S. and samples shall be submitted to the Architect for this purpose and for his approval.

BLOCKBOARD

Block board is to be of approved quality, solid and glued throughout. Where described as faced it shall be faced with an approved veneer of the timber specified.

PLYWOOD

Plywood shall be in accordance with B.S. 1455 and shall be of second grade and that for use externally shall be of external grade conforming at least to Clause 138 of the B.S.

HARDBOARD

Hardboard shall be oil-tempered or otherwise as specified of the thicknesses specified and is to be glued and fixed with the special hardboard nails supplied by the manufacturer. Sheeting is to be wetted the day before fixing. All sawn edges to be carefully sandpapered.

SOFTBOARD

The softboard is to be of approved quality and manufacture, fixed with galvanized clout nails or an approved adhesive as necessary, or both as specified.

PLASTIC LAMINATE

Plastic laminate shall be as manufactured by Formica Ltd. or other equal and approved and shall be worked and fixed strictly in accordance with the manufacturer's instructions with the adhesive recommended by the manufacturer. Colours shall be selected by the Architect from samples to be submitted early in the Contract.

PLUGS

All plugs described as fixing for joinery etc., shall be approved plugs such as Rawlplugs or Philplugs set into holes drilled in masonry in accordance with the manufacturer's instruction. No wooden plugs are to be used.

PROTECT JOINERY

Any fixed joinery which is liable to become bruised or damaged in any way shall be properly cased and protected by the Contractor until the completion of the works.

SITE DIMENSIONS

Before putting in hand any joinery work, whether to be built in with the carcass or fixed later, the joiner is to ascertain and check all dimensions on the site which affect or govern joinery work.

BILLS OF QUANTITIES DIMENSIONS

All wrot timber dimensions given in the Bills of Quantities are finished sizes unless otherwise stated.

IRONMONGERY

The Contractor is to check consignments of ironmongery upon receipt and store them in safe keeping until required for fixing.

All ironmongery shall be fitted and fixed in accordance with the manufacturer's instructions. Rates for fixing are to include for all cutting, sinking, boring, morticing and fitting in hardwood or softwood and for supplying all necessary and matching screws. Rates for door furniture shall also include for fixing before painting, removal during painting operations and afterwards fixing and for labelling all keys with door references and handing to the Architect upon completion.

All locks, springs and other items of ironmongery with movable parts shall be properly tested, cleaned and adjusted where necessary and left in perfect working order upon completion of the works by the Contractor who shall include for this in his prices for fixing.

GENERALLY

All pencil marks are to be removed before oiling or varnishing joinery work. Leave all joinery work perfect and clean without nail holes; clean up all waste and protect finished work from staining or damage. Oil all locks and adjust to give a perfect fit and leave clean.

METAL WORK

GENERALLY

All materials shall be of the best of their respective kinds and conform at least to the relevant B.S. where such exists. All work shall be carried out strictly as directed and approved by the Architect before fixing.

ALUMINIUM

Aluminium sheet shall comply with the requirements of B.S. 1470 and be suitable for the purpose required.

Extruded aluminium sections shall be obtained from an approved source and be equal to samples to be submitted to and approved by the Architect. The surface finish shall be matt.

HOOP IRON.

Provide 25mm wide 24-gauge hoop iron reinforcement and anchors to be laid where specified under masonry, and anchored in ring beams.

PRICING INFORMATION

Prices for all welded work shall include for preparing, welding and grinding to a smooth finish.

FLOOR, WALL AND CEILING FINISHES

GENERALLY

The whole of the plasterwork and other wall, floor and ceiling finishes shall be executed to the entire satisfaction of

the Architect and any work rejected shall be taken down and re-executed by the Contractor at his own expense. All scaffolding, temporary rules and screeds, tools or special appliances required shall be furnished by the Contractor.

CEMENT

Shall be as described in 'Walling'

LIME

Shall be as described in 'Walling'

SAND

Shall be as described in 'Walling'

WATER

Shall be as described in Structural Engineers Specification.

WORKMANSHIP

All concrete beds or slabs shall be thoroughly brushed, cleaned, hacked if necessary and well wetted and flushed over with a cement and sand (1:1) grout immediately before screeds or pavings are laid.

Screeds and cement pavings shall be laid in accordance with the relevant B.S. Code of Practice and in alternate bays generally not exceeding 3m x 3m with neat butt joints and shall be damp cured with sand or sawdust and kept damp for at least 7 days after laying.

Adequate time intervals must be left between successive coats in two coat work in order that the drying shrinkage of the under-coat may be substantially complete. All internal and external angles shall be pencil rounded.

PLASTERING AND RENDERING GENERALLY

All surfaces to be plastered or rendered shall be brushed clean and be well wetted before plaster is applied. All plaster and rendering shall be kept continuously damp for seven days after application. All arrises shall be finished true and slightly rounded except where otherwise stated, and shall be run at the same time as the adjoining plaster. No partially or wholly set plaster or rendering will be allowed to be used or re-mixed.

The Contractor shall prepare samples of the plastering and rendering as directed until the quality, texture and finish required is obtained and approved by the Architect after which all plastering executed in the work shall conform to the respective approved samples.

The Contractor shall cut out and make good all cracks, blisters and other defects and leave the whole of the work perfect on completion. When making good defects, the plaster or rendering shall be cut out to a rectangular shape with edges undercut to form dovetailed key, and all finished flush with face of surrounding plaster or rendering.

Rates for plastering and rendering are to include for raking out joints of walling or hacking concrete to form a key. Instead of hacking the Contractor will be permitted to treat concrete surfaces, at his own expense, with bonding fluid, such as 'Plastaweld' manufactured by I. Manger and Son Ltd., or other equal and approved applied in strict accordance with the manufacturer's printed instructions.

INTERNAL PLASTER

Internal plaster shall be applied in two coats as follows, overall 12mm thick unless otherwise described:-

(a) 9mm First coat consisting of cement, and sand (1:4) well scratched, wetted and keyed to receive finishing coat.

(b) 3mm finishing coat consisting of cement and lime putty (1:5) skim coat finished with a steel trowel to a smooth and even surface. Adequate time intervals must be left between successive coats in order that the drying shrinkage of the under coat may be substantially complete. All internal and external angles shall be pencil rounded.

PRICING INFORMATION

Prices for paving, beds and screeds shall include for the preparation of the concrete floor and painting with cement grout, as described; for any extra thickness consequent upon the concrete floor not being finished to true levels; and for laying over electrical conduits including reinforcing as necessary to the approval of the Architect.

Prices for plastering and rendering shall include for the preparation of the surfaces including raking out joints of brickwork or blockwork and hacking surfaces of concrete to form key, and for any extra thickness or dubbing out consequent upon any irregularities or inaccuracies in the surfaces to be covered.

Prices for terrazzo and granolithic work shall include for beds and backings, executing in the colours selected by the Architect, laying to panels and designs as may be directed, and for polishing at completion. Dividing strips forming panels and designs will be measured and paid for separately.

Prices for external finishings shall include for executing work at any height above ground and for any necessary additional scaffolding, ladders, cradles, etc.

If required by the Architect, or if indicated on the drawings prices for internal plastering and external rendering shall include for forming a fair splayed edge at all junctions with fair faced concrete surfaces and for forming 12mm wide grooves with fair splayed edges at junctions of walls with structural members and at soffits of slabs etc. Prices shall also include for V-grooves or rounded grooves, not exceeding 12mm wide, in external rendering to form decorative panels.

Prices for beds and backings are to allow for a true and even finish with a steel float, which is to be scraped clean by the Contractor before receiving the finish, to the satisfaction of the finishing Sub-Contractor.

PROTECTING FLOOR FINISHINGS

The Contractor is to allow for protecting all floor and staircase finishings after laying, whether executed by himself or a Sub-Contractor and will be held responsible for any damage to the finishings after laying. All floors are to be cleaned on completion of the building before handing over.

GENERALLY

Protect all fittings, joinery and finishings from plaster and other finishings and clean up all marks on completion.

GLAZING

GENERALLY

All glass shall be of approved manufacture in accordance with B.S. 952, and free from flaws, bubbles, specks, and other imperfections cut to size to fit the opening for which it is required with not more than 1.6mm tolerance all round. All glass to be delivered in proper containers with maker's name, guarantee, type of glass and thickness or weight of glass attached to the outside of the container.

The clear sheet glass shall be Ordinary Glazing (O.Q.) quality sheet glass.

The obscured glass shall be of a pattern approved after the Contractor has submitted samples to the Architect at the beginning of the Contract.

Tempered glass shall be of the thicknesses specified.

The putty for glazing shall be tropical putty of approved manufacture suitable for glazing to metal or wood frames as hereinafter specified.

All putty shall be delivered on site in the original manufacturer's sealed cans or drums. The putty is to be removed from the drum well kneaded with the minimum of linseed oil and left for 24 hours before using.

The rebates and backs of handle brackets to metal windows shall be painted one coat before puttying. Before glazing the rebates of all windows shall be adequately back puttied.

Within 14 days the putty must dry and harden without wrinkling of the surface or caking and shall adhere satisfactorily to the surface of the glass and the frame.

The washleather strip shall be approved by the Architect and shall be cut to fit the exact line of bead.

The wires of Georgian wired glass, in adjacent panes, are to align both ways.

PRICING INFORMATION

Prices for glass shall include for all cutting and glazing to frames as described.

PAINTING AND DECORATING

GENERALLY

The whole of the work shall be executed to the entire satisfaction of the Architect, and all work rejected is to be re-executed by the Contractor at his own expense. Subject to the foregoing, the methods of application adopted i.e. brush, spray, roller, etc. are at the discretion of the Contractor, unless otherwise described.

All paints shall be Grade A in accordance with the Ministry of Works approved paint list.

Sumps and drains shall not be used for the disposal of waste or dirty water.

MAINTENANCE

The Contractor shall make good after other trades have carried out maintenance work. In cases where the defective work is not caused by, or the responsibility of, the Contractor, or his Sub-Contractors, he should make arrangements for payment with the party concerned. Where cracks have been made good, apply two coats to the new filling and one coat to the whole wall in which the crack has appeared.

MATERIALS

Any deviation from the materials and makes specified must be approved in writing by the Architect to whom application must be made before decoration starts.

IRONMONGERY

All ironmongery already fixed is to be removed before painting doors and refixed on completion of the finishing coat. If any paint should get on to ironmongery, it must be removed with chemical solvents and not scratched off.

APPROVED SUB-CONTRACTORS

The Contractor shall arrange for the painting and decorating work to be executed by an approved Sub-Contractor. The Contractor shall state on the form provided and included as a tender document the name of the Sub-Contractor he proposes to employ and he shall not employ any other Sub-Contractor for the work without the written permission of the Architect.

MIXING

All materials shall be delivered on site intact in the original containers and shall be mixed and applied strictly in accordance with the manufacturer's printed instructions. No addition will be allowed to be made locally without the express permission of the Architect.

COLOURS

The priming, undercoats, and finishing coats shall each be of differing tints, the priming and undercoats shall be the correct brands and tints to suit the respective finishing coats, in accordance with the manufacturer's instructions. All finishing coats shall be of the colour and type specified by the Architect.

The Contractor will be required to paint trial panels and will be required to adjust tints as necessary.

AREAS TO BE READY FOR PAINTING ETC.

Before the painting or decorating is started the Contractor shall arrange that all other trades have been completed and other tradesmen removed from the vicinity of the area to be painted. All plaster, mortar, concrete, oil or stains of any kind shall be removed by the Contractor from work to be decorated before painting commences.

PREPARATION

Plastered and rendered surfaces to be decorated shall be allowed to dry for a minimum of four weeks before decoration commences.

Plaster finished with a steel trowel and fair face concrete surfaces shall be well rubbed down filled and made good as necessary and thoroughly cleaned down immediately before decoration is applied.

Plaster finished with a wood float or other rough textured surface of a similar nature shall be made good as necessary and thoroughly brushed clean immediately before decoration is applied.

Insulating board or similar surfaces shall be filled and made good as necessary and lightly brushed down to remove all dirt, dust and loose particles.

Metal work to be painted shall be scaled clean and thoroughly wire brushed.

Woodwork to be painted shall be well rubbed down. All knots shall be covered with good knotting before priming and all defects shall be filled with hard stopping after priming. Plywood shall be brush filled over the entire surface

Woodwork to receive finishes other than paint shall have all stains and pencil marks removed, be well rubbed down and have all defects levelled up with hard stopping of a colour to match the adjoining surface.

Woodwork to be clear varnished shall be well rubbed down and the varnish is to be applied with a chamois leather pad, rubbed back with fine graded steelwool between coats and afterwards buffed up to produce an approved finish.

All woodwork to be varnished is to have all pencil and other marks removed and surfaces smoothed down prior to application.

PAINTS

All paints used should be obtained from one of the following manufacturers after obtaining the Architect's approval and of the product specification hereinafter described.

- a) Robbialac
- b) Crown Paints
- c) Dulux Paints
- d) Sadolin Paints

PLASTIC EMULSION PAINTS

Plastic emulsion paint for internal and external application shall be of a manufacture approved by the Architect.

BITUMINOUS SOLUTION

Bituminous solution for use on coated pipes shall be obtained from a manufacturer approved by the Architect.

PRIMERS

Unprimed steelwork shall be primed with a Red Lead Primer.

Galvanised steelwork shall be treated with a mordant solution and primed with a Zinc Chromate Primer.

Woodwork shall be primed with a Pink Wood Primer.

UNDERCOATING

The undercoat for use under enamel finishing coats shall be an approved undercoat.

PRODUCT SPECIFICATION FOR PAINTS

Product specification for paints shall be in accordance with the composition requirements and may be required to be tested by the M.O.W. Materials Testing Branch

PRICING INFORMATION

The numbers of coats stated in the descriptions in these Bills of Quantities shall be applied in addition to any primers, stoppers, fillers, sealers, knotting, stopping, etc. required. The Contractor's prices shall be deemed to include for supplying and applying all such preparatory materials as may be required by the Standard Specification as recommended by the manufacturer of the finishing coat for the particular surface to be covered. The Contractor's prices shall further include for all other preparatory.

	1st Quality Emulsion Paint	2nd Quality Emulsion Paint	1st Quality Alkyd Gloss Paint
Non-volatile(B.S Content3900 B2)	Must not exceed 50% by weight	Not more than 60% by weight	Less than 50% by weight
Pigment Volume Concentration	Not more than 5%	Not more than 70%	Less than 25%
Resin type	Vinyl Acetate/ Acrylic Ester Copolymer	Vinyl Acetate/ Acrylic Ester Copolymer	Long Oil Alkyd minimum oil length not less than 60%
Opacity requirement (contrast ratio to B.S. 3900 D4)	Not less than 80%	Not less than 70%	Not less than 90%
Pigment/ Binder Ratio	Not more than 2.25:1	Not more than 2.75:1	Not more 2.25:1

APPROVED SUB-CONTRACTORS

The Contractor shall state on the form provided and included as a tender document, the names of the Sub-Contractors he proposes to employ, and he shall not employ any other Sub-Contractors for the work without the written permission of the Architect.

MAINTENANCE

The Contractor shall make good after other trades have carried out maintenance work. In cases where the defective work is not caused by, or the responsibility of, the Contractor, or his Sub-Contractors, he should make arrangements for payment with the party concerned. Where cracks have been made good, apply two coats to the new filling and one coat to the whole wall in which the crack has appeared.

MATERIALS

Any deviation from the materials and makes specified must be approved in writing by the Architect to whom application must be made before decoration starts.

CONCRETE WORK

ARCHITECT/ENGINEER

For the purpose of the concrete structure the Structural Engineer shall be deemed vested with the duties of and be the representative of the Architect.

CODE OF PRACTICE

All workmanship, materials, tests and performances in connection with the reinforced concrete work are to be in conformity with the latest edition of the appropriate British Standards where not inconsistent with these specifications.

SUPERVISION

A competent person approved by the Engineer shall be employed by the Contractor whose duty will be to supervise all stages in the preparation and placing of the concrete. All cubes shall be made and site tests carried out under his direct supervision, in consultation with the Engineer.

CONTRACTOR'S PLANT, EQUIPMENT AND CONSTRUCTION PROCEDURES

Not less than 30 days prior to the installation of the Contractor's plant and equipment for processing, handling, transporting and storing and proportioning ingredients, and for mixing, transporting and placing concrete, the Contractor shall submit drawings for approval by the Engineer, showing proposed general plant arrangement, together with a general description of the equipment he proposes to use.

After completion of installation, the operation of the plant and equipment shall be subject to the approval of the Engineer.

Where these specifications, the Bills of Quantities or the drawings require specific procedures to be followed, such requirements are not to be construed as prohibiting use by the Contractor of alternative procedures if it can be demonstrated to the satisfaction of the Engineer, that equal results will be obtained by the use of such alternatives.

Approval of plant and equipment or their operation, or of any construction procedure, shall not operate to waive or modify any provisions or requirements contained in these specifications governing the quality of the materials or of the finished work.

LEVELS AND FOUNDATIONS

The foundations of the work shall be carried down to depths as may be directed by the Engineer and they must be cut as nearly to the size of the concrete as possible and the vacant spaces between the concrete and solid ground excepting where otherwise shown must be carefully filled in as directed by the Engineer.

All temporary timbering shall be removed but should any timber be left in or should any other work be done beyond that specified, it will be at the Contractor's own cost.

TOLERANCES

On all setting out dimensions of 6m and over a maximum non-accumulative tolerance of plus or minus 6mm will be allowed. On all setting out dimensions under 6m a maximum non-accumulative tolerance of plus or minus 3mm will be allowed. On the cross sectional dimensions of structural members, unless otherwise required by the drawings, a maximum tolerance of plus or minus 3mm will be permitted.

The top surface of concrete floor slabs and beams shall be within 6 mm of the normal level and line shown on the drawings. Columns shall be truly plumb and non-accumulative tolerance of 3 mm in each storey and not more than 12 mm out of plumb in their full height will be permitted. The Contractor shall be responsible for the cost of all corrective

measures required by the Engineer to rectify work which is not constructed within the tolerances set out above.

MATERIALS GENERALLY

All materials which have been damaged, contaminated or have deteriorated or do not comply in any way with the requirements of these specifications shall be rejected and shall be removed immediately from the site at the Contractor's own expense. No materials shall be stored or stacked on suspended floors without the Engineer's prior approval.

SAMPLES AND TESTING

Every facility shall be provided to enable the Engineer to obtain samples and carry out tests on the materials and construction. If these tests show that any of the materials or construction do not comply with the requirements of these specifications, the Contractor will be responsible for the costs of the tests and the replacement of defective materials and/or construction.

CEMENT

Cement unless otherwise specified shall be Portland Cement of a brand approved by the Engineer and shall comply with the requirements of B.S. 12, and a manufacturer's certificate of test in accordance with B.S. 12 shall be supplied for each consignment delivered to the site. Provided that the approval of the Engineer is obtained, the cement may vary from B.S. 12 in that up to 10% of the total weight may be reactive volcanic ash and the quantity of insoluble residue may exceed that specified by B.S. 12.

Should the Contractor require to use cement of the rapid hardening variety, he shall obtain the approval of the Engineer and also obtain any instructions regarding modifications to these specification caused thereby. Any additional cost that may be caused by the use of rapid hardening cement shall be at the Contractor's expense.

Cement may be delivered to the site either in bags or in bulk.

If delivered in bags each bag shall be properly sealed and marked with the manufacturer's name and on the site is to be stored in a weatherproof shed of adequate dimensions with a raised floor. Each consignment shall be kept separate and marked so that it may be used in the sequence in which it is received. Any bag found to contain cement which has set or partly set, shall be completely discarded and not used in the works. Bags shall not be stored more than 1.50 metres in height.

If delivered in bulk the cement shall be stored in a weatherproof silo either provided by the cement supplier or by the Contractor but in either case the silo shall be to the approval of the Engineer.

AGGREGATES

Aggregates shall conform to the requirements of B.S. 882 and the sources and types of all aggregates are to be approved in all respects by the Engineer before work commences.

The grading of aggregates shall be within the limits set out in B.S. 882 and as later specified and the grading, once approved, shall be adhered to throughout the works and siliceous sand of good, sharp, hard quality and shall be free from lumps of stone, earth, loam, dust, salt, organic matter and any other deleterious substances. It shall be graded within the limits of Zone 1 or 2 of Table 2 of B.S. 882. Sea sand will not be accepted.

Coarse aggregate for concrete Classes '35', '30', '25', and '20' shall be black trap, Mazeras, or similar basaltic stone to the approval of the Engineer and coral aggregate will not be accepted. It shall be hard, clean and of good shape, free from dust, decomposed stone, clay, earthy matter, foreign substances or friable thin elongated or laminated pieces. It shall be graded within the limits of Table 1 of B.S. 882 for its respective nominal size.

If in the opinion of the Engineer the aggregate meets with the above requirements but is dirty or adulterated in any manner it shall be screened and/or washed with clean water if he so directs at the Contractor's expense,

Aggregates shall be delivered to the site in their prescribed sizes or gradings and shall be stockpiled on paved areas or boarded platforms in separate units to avoid intermixing. On no account shall aggregates be stockpiled on the ground.

The Engineer shall be entitled to require a certificate from an approved testing laboratory in connection with each

source of fine and coarse aggregate showing that materials comply with the specification.

WATER

The water used for mixing concrete shall be from an approved source, clean, fresh and free from harmful matter, and comply with B.S. 3148.

EXPANSION JOINT FILLER

Expansion joint filler shall be 'Flexcell' as manufactured by Expandite Ltd., or 'Resilex' as manufactured by Evomatics Ltd. or equal and approved.

JOINT SEALER

Sealers shall be 'Pli-astic' or 'Seelastic' as described, both manufactured by Expandite Ltd., applied in accordance with the manufacturer's printed instructions and prices shall include for temporary battens or fillets and afterwards withdrawing to form grooves as necessary.

'Seelastic' shall be applied by gun and where more than 12mm deep shall include filling the groove with loose packing yarn to within 1mm from outer face.

'Pli-astic' shall be Grade 88 and applied hot. With the Engineer's prior approval 'Polevomastic' fillers of the appropriate grade as manufactured by Evomatics Ltd. may be substituted for 'Seelastic' and 'Pli-astic'.

CONCRETE STRENGTHS

Classes '35', '30', '25', and '20' concrete shall have the minimum strengths as given by works cube tests shown herebelow.

Classes lower than those given shall be of the following nominal mixes and may be measured by volume or weight. No cube tests will be required for these classes.

Nominal mix by volume	1:3:6 (Class 15)	1:4:8 (Class 10)
Cubic m. fine aggregate per 50Kg. bag of cement	0.12	0.16
Cubic m. coarse aggregate per 50Kg. bag of cement	0.24	0.32
Max. size of coarse aggregate	40mm	40mm

MEASURED PROPORTIONS OF CONCRETE

Cement

The quantity of cement shall be measured by weight. Where delivered in bags, each batch of concrete is to use one or more whole bags of cement.

- Aggregate
- (i) For Classes '35', '30', '25', and '20' concrete shall be measured by weight in a weigh batching machine as described hereafter.
 - (ii) For lower Classes concrete, aggregates may be measured by weight or by volume. Where by volume, approved gauge boxes of such a size as will give the correct proportions shall be used.

WEIGH BATCHING MACHINE

Weigh batching machines shall be of an approved type and shall be properly maintained and checked for accuracy at regular intervals.

CONCRETE CLASSES - '35', '30', '25', and '20'

The weights of fine and coarse aggregate to be used in concrete classes '35', '30', '25', and '20' shall be limited in accordance with the table below. The proportions of fine to coarse aggregate and cement which the Contractor proposes to use for the mix specified shall first be approved by the Engineer. The Contractor will then be required to prepare preliminary test cubes and have these cubes tested as described for work cube tests. The test results should be submitted to the Engineer in sufficient time for further tests to be carried out should they prove unsatisfactory. Cube strengths in the preliminary tests must show crushing strengths of at least 25% higher than the strengths specified for work cube tests. If the Contractor is unable to produce specified cube strengths, he will be required at his own cost to increase the cement of the mix until satisfactory results are produced.

Minimum Crushing Strengths

Age	Class 35	Class 30	Class 25	Class 20
7 days	24.5 N/mm ²	21.0 N/mm ²	17.5 N/mm ²	14.0 N/mm ²
28 days	36.0 N/mm ²	31.0 N/mm ²	26.5 N/mm ²	21.0 N/mm ²

The average strength obtained from cube tests shall be 10% higher than the minimum strength shown above.

The Engineer may require at any time during the Contract the proportions of fine to coarse aggregate to be altered in order to produce a mix of greater strength or improved workability and providing that the total proportions of aggregate to cement remain unchanged, no claim for additional cost will be considered.

Concrete shall be poured to the classes as follows: -

The mixes given below e.g. 1:3:6 shall mean concrete composed by volume one part Portland cement, three parts sand or fine aggregate and six parts of coarse aggregate. All other compositions shall be interpreted in a like manner.

Class '35' designed	using 5mm to 20mm coarse aggregate
Class '30' concrete 1:1:2:3	using 5mm to 20mm coarse aggregate
Class '25' concrete 1:1 1/2:3	using 5mm to 20mm coarse aggregate
Class '20' concrete 1:2:4	using 5mm to 20mm coarse aggregate

Unless otherwise specified concrete shall be used as follows:-

High stress reinforced concrete	CLASSES '35' & '30'
Normal reinforced concrete	CLASSES '25' & '20'
Reinforced concrete member of thickness 75mm or less	CLASSES '20'
Surface beds, threshold, concrete surface channels and mass concrete fill	Concrete 1:3:6 mix
Concrete benching to cupboards and fittings and filling where described	Concrete 1:4:8 mix

MINIMUM CEMENT CONTENT - CLASSES '35', '30', '25', and '20'

The minimum cement content by weight shall be limited to: -

Mix.	'35'	'30'	'25'	'20'	1:3:6	1:4:8
------	------	------	------	------	-------	-------

Minimum cement content (kg/m ³)	350	300	300	260	220	150
--	-----	-----	-----	-----	-----	-----

WATERPROOF CONCRETE

Where 'waterproof concrete' is specified, the system may be an approved surface applied product, or waterproofing additives of a type approved in writing by the Engineer are to be added to the mixing water strictly in accordance with the manufacturer's instructions. Not more than 25 litres of water per 50Kg. bag of cement are to be used unless otherwise approved by the Engineer.

WATER BAR

Water bar shall be P.V.C. water bar as manufactured by Expandite Limited, or other approved type and shall be provided in width and at the positions indicated on the drawings.

Joints shall be heat welded in accordance with the manufacturer's instructions and where the water bar is to be fixed vertically, metal clips as manufactured by the supplier of the water bar or of other approved design shall be provided to suspend the water bar from the reinforcement.

Where waterproof concrete is used the Contractor shall adhere strictly to the position and type of construction joints as detailed on the drawings. Any deviation from this procedure or the provision of additional construction joints will require the prior approval of the Engineer and any additional water bar so required will be at the Contractor's expense.

Formwork shall be designed with sufficient timber formers and blocking pieces to support the water bar and to ensure that it is not displaced during concreting. In the case of horizontal joints in vertical walling and similar members the formwork shall be so constructed as to permit the starter or upstand of concrete surrounding the lower half of the water bar to be poured in the same operation as the slab or other concrete from which it springs. Formwork to walls or similar members where water bar is positioned at the base of the lift shall have sufficient openings not less than 300mm square at approximately 150mm to 300mm above the level of the water bar to permit checking that the water bar is correctly positioned and not displaced during concreting.

No concreting will be permitted to portions where upstand starters form an integral part until the formwork to the starter has been fixed and approved.

SEALCRETE SUPERCOAT WATERPROOFER

Where '*Sealcrete Supercoat Waterproofer*' specified shall be applied to concrete or blockwork surfaces strictly in accordance with the manufacturer's instructions. The surfaces must be well wire-brushed to remove dirt, efflorescence, adhering mortar and all foreign matter. It shall then be cleaned with fresh water. When absolutely dry a generous coat of Sealcrete Supercoat shall be applied by brush or spray gun. Surfaces so treated shall be protected from damage or staining as described elsewhere.

TESTING EQUIPMENT

The Contractor shall provide the following equipment for carrying out control tests on the site: -

- (a) Straight edges 3.00m and 1.20m long for testing the accuracy of the finished concrete;
- (b) A glass graduated cylinder for use in the silt test for organic impurities in the sand;
- (c) Slump test apparatus;
- (d) Four 150mm steel cube moulds with base plates and tamping rods to B.S. 1881.

WORK CUBE TESTS

Work cubes are to be made at intervals such that one set of four cubes shall represent no more than 50m³ of

concrete in the works or as required by the Engineer and the Contractor shall provide a continuous record of the concrete work. The cubes shall be made in approved 150mm moulds in strict accordance with the British Standards.

Four cubes shall be made on each occasion, from each batch, the concrete being taken from the point of deposit.

Each cube shall be marked with a distinguishing number (numbers to run consecutively) and the date, and a record shall be kept on site giving the following particulars: -

- (a) Cube No.
- (b) Date made.
- (c) Location in work.
- (d) 7-day Test

Date
Strength required

- (e) 28-day Test

Date
Strength required

Cubes shall be forwarded, carriage paid, to an approved Testing Authority, in time to be tested, two at 7 days and one at 28 days and the fourth at the discretion of the Engineer. No cube shall be despatched within 3 days of casting.

Copies of all work cube test results shall be forwarded to the Engineer and one shall be retained on the site.

If the strengths required above are not attained, and maintained throughout the carrying out of the Contract, the Contractor will be required to increase the proportion of cement and/or substitute better aggregates so as to give concrete which does comply with the requirements of the Contract. The Contractor may be required to remove and replace at his own cost any concrete which fails to attain the required strength as ascertained by work cube tests.

The Contractor must allow in his rates for concrete test cubes for all expenses in connection with the preparation and conveyance to the Testing Laboratory of test cubes and no claim in respect of his not so doing will be allowed.

MIXING AND PLACING OF CONCRETE

The concrete shall be mixed only in approved power driven mixers of a type and capacity suitable for the work, and in any event not smaller than 0.33 cu.m. Capacity.

The mixer shall be equipped with an accurate water measuring device. All materials shall be thoroughly mixed dry before the water is added and the mixing of each batch shall continue for a period of not less than two minutes after the water has been added and until there is a uniform distribution of the materials and the mass is uniform in colour.

The entire contents of the mixed drum shall be discharged before recharging. The volume of mixed materials shall not exceed the rated capacity of the mixer. Whenever the mixer is started, 10% extra cement shall be added to the first batch and no extra payment will be made on this account.

As a check on concrete consistency slump tests may be carried out and shall be in accordance with B.S. 1881. The Contractor shall provide the necessary apparatus and allow for the costs of such tests. The slump of the concrete made with the specified water content, using dry materials, shall be determined and the water to be added under wet conditions shall be so reduced as to give approximately the same slump. Slump shall be 75 + 25mm, unless otherwise instructed by the Engineer.

The concrete shall be mixed as near to the place where it is required as is practicable, and only as much as is required for a specified section of the work shall be mixed at one time, such section being commenced and finished in one operation without delay. All concrete must be efficiently handled and used in the works within twenty (20) minutes of mixing. It shall be discharged from the mixer direct either into receptacles or barrows and shall be distributed by approved means which do not cause separation or otherwise impair the quality of the concrete. Approved mechanical means of handling will be encouraged, but the use of chutes or pumping for placing concrete is subject to the prior approval of the Engineer.

Concrete shall be placed from a height not exceeding 1.5m directly into its permanent position and shall not be worked along the shutters to that position. Unless otherwise approved, concrete shall be placed in a single operation to the full thickness of slabs, beams and similar members, and shall be placed in horizontal layers not exceeding 1.4m deep in walls or similar members.

Concrete in columns may be placed to a height of 4.00m with careful placing and vibration and satisfactory results. Where the height of the column exceeds 4.00m suitable openings must be left in the shutters so that this maximum lift is not exceeded.

Concrete shall be placed continuously until completion of the part of the work between construction joints as specified hereinafter or of a part of approved extent. At the completion of a specified or approved part a construction joint of the form and in the positions hereinafter specified shall be made. If stopping of concreting be unavoidable elsewhere, a construction joint shall be made where the work is stopped. A record of all such joints must be made by the Contractor and a copy supplied to the Engineer.

Any accumulation of set concrete on the reinforcement shall be removed by wire brushing before further concrete is placed.

The Contractor shall provide runways for concreting to the satisfaction of the Engineer. Under no circumstances will the runways be allowed to rest on the reinforcement.

Care shall be taken that the concrete is not disturbed or subjected to the vibrations and shocks during the setting period.

Mixing machines, platforms and barrows shall be clean before commencing mixing and be cleaned on every cessation of work.

Where concrete is laid on hardcore or other absorbent materials, the base shall be suitably and sufficiently wetted before the concrete is deposited.

COMPACTION

At all times during which concrete is being placed, the Contractor shall provide adequate trained and experienced labour to ensure that the concrete is compacted in the forms to the satisfaction of the Engineer.

Concrete shall not be placed at a rate greater than will permit satisfactory compaction nor to a depth greater than 450mm before it is compacted.

During and immediately after placing, the concrete shall be thoroughly compacted by means of continuous tamping, spading, slicing and vibration. Vibration is required for all concrete of classes '35', '30', '25' and '20'

Care shall be taken to fill every part of the forms, to work the concrete under and around the reinforcement without displacing it and to avoid disturbing recently placed concrete which has begun to set.

Any water accumulating on the surface of newly placed concrete shall be removed and no further concrete shall be placed thereon until such water be removed.

Internal vibrators shall have a frequency of not less than 7,000 cycles per minute and shall have a rotating eccentric weight of at least 0.7Kg., with an eccentricity of not more than 12mm. Such vibrators shall visibly affect the concrete within a radius of 230mm from the vibrator.

Internal vibrators shall not be inserted between layers of reinforcement less than one and a half times the diameter of the vibrators apart. Contact between vibrators and reinforcement and vibrators and formwork shall be avoided.

Internal vibrators shall be inserted vertically into the concrete wherever possible at not more than 500 mm centres and shall constantly be moved from place to place. No internal vibrator shall be permitted to remain in any one position for more than ten seconds and it shall be withdrawn very slowly from the concrete. In consolidating each layer of concrete the vibrating head shall be allowed to penetrate and re-vibrate the concrete in the upper portion of the underlying layer. In the area where newly placed concrete in each layer joins previously placed concrete more than usual vibration shall be performed, the vibrator penetrating deeply at close intervals along these contacts. Layers of concrete shall not be placed until layers previously placed have been vibrated thoroughly as specified.

Vibrators shall not be used to move concrete from place to place in the formwork.

At least one internal vibrator shall be operated for every three cubic metres of concrete placed per hour and at least one spare vibrator shall be maintained on site in case of break-down during concreting operations.

External formwork vibrators shall be of the high frequency low amplitude type applied with the principal direction of vibration in the horizontal plane. They shall be attached directly to the forms at not more than 1224mm centres.

In addition to internal and external vibration the upper surface of suspended floor slabs shall be levelled with a tamping or vibrating screed prior to finishing. Vibrating elements shall be of the low frequency high amplitude type operating at a speed of not less than 3,000 r.p.m.

CONSTRUCTION JOINTS

Construction joints shall be permitted only at the positions pre-determined on the drawings or as instructed on the site by the Engineer. In general they shall be perpendicular to the lines of principal stress and shall be located at points of minimum shear, viz. vertically at, or near, mid-spans of slabs, ribs and beams.

Suspended concrete slabs are generally to be cast using alternate bay construction in bays not exceeding 13 metres in length. No two adjacent bays are to be cast within a minimum period of 48 hours of each other. The joints between adjacent bays are to be in positions agreed with the Engineer.

Under no circumstances shall concrete be allowed to tail-off, but it shall be deposited against stopping-off boards.

Before placing new concrete against concrete already hardened, the face of the old concrete shall be thoroughly hacked, roughened and cleaned, and laitance and loose material removed therefrom, and immediately before placing the new concrete the surface shall be saturated with water and covered with a coat of mortar at least twenty five mm in thickness composed of cement and fine aggregate in the proportions used in the concrete.

CURING AND PROTECTION

Care must be taken that no concrete is allowed to become prematurely dry and the fresh concrete must be carefully protected within two hours of placing from rain, sun and wind by means of hessian sacking, polythene sheeting, or other approved means. This protective layer and the concrete itself must be kept continuously wet for at least seven days after the concrete has been placed. The Contractor must allow for the complete coverage of all fresh concrete for a period of 7 days. Hessian or polythene sheeting shall be in the maximum widths obtainable and shall be secured against wind. The Contractor will not be permitted to use old cement bags, hession or other material in small pieces.

Concrete in foundations and other underground work shall be protected from admixture with falling earth during and after placing.

Traffic or loading must not be allowed on the concrete until the concrete is sufficiently matured, and in no case shall traffic or loading be of such magnitude as to cause deflection or other movement in the formwork or damage to the concrete members. Where directed by the Engineer props may be required to be left in position under slabs and other members for greater period than those specified hereafter.

FAULTY CONCRETE

Any concrete which fails to comply with these specifications, or which shows signs of setting before it is placed shall be taken out and removed from the site. Where concrete is found to be defective after it has set, the concrete shall be cut out and replaced in accordance with the Engineer's instructions. On no account shall any faulty, honeycombed, or otherwise defective concrete be repaired or patched until the Engineer has made an inspection and issued instructions for the repair. The whole of the cost whatsoever, which may be occasioned by the need to remove faulty concrete shall be borne by the Contractor.

ROD REINFORCEMENT

The steel reinforcement shall be mild steel or high tensile steel as detailed on drawings or schedules and comply with

the latest requirements of the following British Standards: -

It shall be in metric sizes as detailed on the drawings.

The Contractor shall submit a test certificate of the rollings. Reinforcement shall be stored on racks above ground level. All reinforcement shall be free from loose mill scale or rust, grease, paint or other substances likely to reduce the bond between the steel and concrete.

FABRIC REINFORCEMENT

To be electrically cross-welded wire mesh reinforcement to B.S. 4483 and of the size and weight specified

FIXING ROD REINFORCEMENT

Reinforcement shall be accurately bent to the shapes and dimensions shown on the drawings and schedules and in accordance with B.S. 4466. Reinforcement must be cut and bent cold and no welded joints will be permitted unless so detailed.

Reinforcement shall be accurately placed in position as shown on the drawings and, before and during concreting, shall be secured against displacement by using No. 18 S.W.G. annealed binding wire or suitable clips at intersections, and shall be supported by concrete or metal supports, spacers or metal hangers to ensure the correct position and cover.

No concreting shall be commenced until the Engineer has inspected the reinforcement in position and until his approval has been obtained and the Contractor shall give two clear days' notice of his intention to concrete.

The Contractor is responsible for maintaining the reinforcement in its correct position, according to the drawings, before and during concreting. During concreting a competent steel fixer must be in attendance on the concretors to adjust and correct the positions of any reinforcement which may be displaced. The vibrators are not to come into contact with the reinforcement.

Where reinforcement projects from a concreted section of the structure and this reinforcement is expected to remain exposed for some time, it is to be coated with a cement grout to prevent rust staining on the finished concrete. This grout is to be brushed off the reinforcement prior to the continuation of concreting.

POSITION AND CORRECTNESS OF REINFORCEMENT

Irrespective of whether any inspection and/or approval of the fixing of the reinforcement has been carried out as above, it shall be the Contractor's sole responsibility to ensure that the reinforcement complies with the details on the drawings or schedules and is fixed exactly in the positions shown therein and in the positions to give the prescribed cover. The Contractor will be held entirely responsible for any failing or defect in any portion of the reinforced concrete structure and including any consequent delay, claims, third party claims, etc., where it is shown that the reinforcement has been incorrectly positioned or is incorrect in size or quantity with respect to the detailed drawings or schedules.

SPACING BLOCKS

Spacing blocks of approved size and shape made of concrete similar to that used in the surrounding construction and fixed to the reinforcement or formwork by No. 18 S.W.G. wires set into the spacer blocks, or other approved means, shall be provided where necessary to ensure that the requisite cover is obtained. The Contractor is to include for providing sufficient such spacer blocks in his prices for steel reinforcement where a supplier has been nominated. Where composite blocks or other forms of rib construction are used, spacer blocks are to be provided as shown on the drawings. These will generally consist of concrete blocks as described above made to fit the width of the rib less 3mm tolerance and with single or double grooves (depending on the number of reinforcement bars used per rib) in the top surface with wire ties at each groove.

CONCRETE COVER TO REINFORCEMENT

Unless otherwise directed the concrete cover to rod reinforcement over main bars in any face shall be :-

Foundations	50mm
Columns and walls	40mm

Beams	25mm
Slabs	15mm

FIXING FABRIC REINFORCEMENT

The fabric shall be free from scale, rust, grease or other substance likely to reduce the bond between the steel and the concrete and shall be laid with minimum 300mm laps and bound with No. 18 S.W.G. annealed iron wire.

In all ground slabs, unless otherwise specified a single layer of square mesh steel fabric shall be placed at a depth of 50mm below the top surface of the concrete. The fabric shall comply in all respects with B.S. 4483 and be of the size and weight specified or shown on the drawings.

The fabric shall extend to within 75mm of the expansion joints and shall have laps of at least 230mm at all joints in the fabric at junctions with reinforced concrete beams or other members. It shall be placed on top of the first layer of concrete as previously described and sufficient wire ties shall be provided to ensure that the fabric is held down securely.

FIXTURES AND INDENTATIONS IN CONCRETE

No openings, chases, holes or other voids shall be formed in the concrete without the prior approval of the Engineer. Details of any fixtures to be permanently built into the concrete including the proposed position of all electrical conduits 25mm and over in diameter shall be submitted to the Engineer for his approval before being placed.

CHASES, HOLES, ETC. IN CONCRETE

The Contractor shall be responsible for the co-ordination with the Electrical and other Sub-Contractors for incorporating electrical conduit, pipes, fixing blocks, chases, holes and the like in concrete members as required and must ensure that adequate notice is given to such Sub-Contractors informing them when concrete members incorporating the above are to be poured. The Contractor shall submit full details of these items to the Engineer for approval before the work is put in hand. All fixing blocks, chases, holes, etc., to be left in the concrete shall be accurately set out and cast with the concrete.

POSITION OF ELECTRICAL CONDUIT

Unless otherwise instructed by the Engineer all electrical conduit to be positioned within the reinforced concrete shall be fixed inside the steel cages of beams and columns and between the top and bottom steel layers in slabs and similar members.

The proposed position of all electrical conduits 25mm and over in diameter which are to be enclosed in the concrete shall be shown accurately on a plan to be submitted to the Engineer, whose approval shall be obtained before any such conduit is placed.

FORMWORK

The method and system of formwork which the Contractor proposes to use shall be approved by the Engineer before construction commences. Formwork shall be substantially and rigidly constructed of timber or steel or precast concrete or other approved material.

All timber for formwork shall be good sound clean sawn well-seasoned timber, free from warps and loose knots and of scantlings sufficiently strong for their purpose.

CONSTRUCTION OF FORMWORK

All formwork shall be of sufficient thickness and with joints close enough to prevent undue leakage of liquid from the concrete and fixed to proper alignment, level and plumb and supported on sufficiently strong bearers, shores, braces, plates, etc. properly held together by bolts or other fastenings to prevent displacement, vibration or movement by the weight of materials, men and plant on same and so wedged and clamped as to permit of easing and removal of the

formwork without jarring the concrete. Where formwork is supported on previously constructed portions of the reinforced concrete structural frame, the Contractor shall be in consultation with the Engineer to ensure that the supporting concrete structure is capable of carrying the load and/or sufficiently propped from lower floors or portions of the frame to permit the load to be temporarily carried during construction.

Soffits shall be erected with an upward camber of 10mm for each 4000mm of each horizontal span or as directed by the Engineer.

Great care shall be taken to make and maintain all joints in the formwork as tight as possible, to prevent the leakage of grout during vibration. All faulty joints shall be caulked to the Engineer's approval before concreting.

The formwork shall be sufficiently rigid to ensure that no distortion or bulging occurs under the effects of vibration. If at any time the formwork is insufficiently rigid or in any way defective the Contractor shall strengthen or improve such formwork as the Engineer may direct.

The Contractor's attention is drawn to the various surface textures and applied finishes required and the faces of formwork next to the concrete must be of such material and construction and be sufficiently true to provide a concrete surface which will in each case permit the specified surface treatment or applied finish.

All surfaces which will be in contact with concrete shall be oiled or greased to prevent adhesion of mortar. Oil or grease shall be of a non-staining mineral type applied as a thin film before the reinforcement is placed. Surplus moisture shall be removed from the forms prior to placing of the concrete.

Temporary openings shall be provided at the base of columns, wall and beam forms and at any other points where necessary to facilitate cleaning and inspection immediately before the pouring of concrete. Before the concrete is placed the shuttering shall be trued-up and any water accumulated therein shall be removed. All sawdust, chips, nails and other debris shall be washed out or otherwise removed from within the framework. The reinforcement shall then be inspected for accuracy of fixing. Immediately before placing the concrete the formwork shall be well wetted and inspection openings shall be closed. The erection, easing, striking and removing of all formwork must be done under personal supervision of a competent foreman, and any damage occurring through faulty formwork or its incorrect removal shall be made good by the Contractor at his own expense.

After removal of formwork, all projections, fins, etc., on the concrete surface shall be chipped off, and made good to the requirements of the Engineer. Any voids or honeycombing shall be treated as described in 'Faulty Concrete'.

STRIPPING FORMWORK

All formwork shall be removed without undue vibration or shock and without damage to the concrete. No formwork shall be removed without the prior consent of the Engineer and the minimum periods that shall elapse between the placing of the concrete and the striking of the formwork will be as follows:-

Beam sides, walls and inclined columns (unloaded)	2 days
---	--------

Slab horizontal soffits (props left under)	3 days
--	--------

Beam soffits (props left under)	7 days
---------------------------------	--------

Removal of props (subject to 7 days concrete cube strength being satisfactory) to :-

Slabs	10 days
Beams	14 days

If the Contractor wishes to take advantage of the shorter stripping times permitted for beam and slab soffits when props are left in place, he must so design his formwork that sufficient props as agreed with the Engineer can remain in their original position without being moved in any way until expiry of the minimum time for removal of props. Stripping and re-propping will not be permitted.

The above times may be reduced in certain circumstances, at the discretion of the Engineer provided an approved

method is adopted at the Contractor's expense to ensure that the required concrete strength is attained before the forms are stripped.

Solid strips in composite slab shall be considered as beams. The tops of retaining walls shall be adequately supported with stout raking props at intervals required by Engineer. These props are not to be removed until 7 days after casting of the floor slab.

PRECAST CONCRETE

Unless otherwise approved by the Engineer, all precast concrete construction shall be carried out on the site and shall conform to the requirements given elsewhere.

The maximum size of coarse aggregate in precast concrete shall not exceed 20mm except for thicknesses less than 75mm where it shall not exceed 12mm.

The compaction of precast concrete shall conform to requirements given elsewhere in these Specifications except for thin slabs where use of immersion type vibrators is not practicable. The concrete in these slabs may be consolidated on a vibrating table or by any other methods approved by the Engineer.

Steam curing of precast concrete will be permitted. The procedure for steam curing shall be subject to the approval of the Engineer.

The precast work shall be made under cover and shall remain under the same for seven days. During this period and for a further seven days the concrete shall be shielded by sacking or other approved material kept constantly wet. It shall then be stacked in the open for at least a further seven days to season before being set in position. Where steam curing is used these times may be reduced to the approval of the Engineer.

Precast concrete units shall be constructed in individual forms. The method of handling the precast concrete units after casting, during curing and during transport and erection shall be subject to the approval of the Engineer. Providing that such approval shall not relieve the Contractor of responsibility for damage to precast concrete units resulting from careless handling.

Repair of damage to the precast concrete units, except for minor abrasions of the edges which will not impair the installation and/or appearance of the units will not be permitted and the damaged units shall be replaced by the Contractor at his own expense.

Moulds for 'Fair Face' precast work are to be made of metal or are to have metal or plywood linings or are to be other approved moulds which will produce a smooth dense fair face to the finished concrete suitable to receive a painted finish direct and free from all shutter marks, holes, pinnacles, etc. In his prices for such precast work the Contractor shall include for all rubbing down to produce the finish required, to the satisfaction and approval of the Engineer.

The precast units shall be installed to the lines, grades and dimensions shown on the drawings or as directed by Engineer.

CONCRETE SURFACE BEDS

Concrete for surface beds shall be Grade '20'.

Before placing concrete and where specified or shown on the drawings a layer of 500 gauge polythene or diothene sheeting shall be laid on the base course. Minimum 300mm laps shall be provided at all joints.

The concrete shall be placed as soon as possible after being mixed. In transporting the concrete, adequate precautions shall be taken to avoid damage to the prepared base. The concrete shall be spread to such a thickness that when compacted it shall have the finished thickness as specified or shown on the drawings. A layer of concrete 50mm less than the finished thickness shall first be spread and struck off at the correct level to receive the top fabric reinforcement.

The top layer shall then be added. Not more than 30 minutes shall elapse between spreading the bottom layer. The Contractor shall be responsible for maintaining the reinforcement in its correct position during the placing and

compaction of the concrete.

The compaction and finishing of the concrete shall be effected by immersion vibrators and a hand or mechanical tamper weighing not less than 10Kg per meter run and having a tamping edge shod with a steel strip 75mm wide fixed to the tamper by countersunk screws. Immersion vibrator with 'spade' attachments will be permitted. Compaction shall be continued until a dense, sealed surface finish is achieved. Over-compaction causing an excessive amount of fines to be brought to the surface shall be avoided.

The surface of the concrete shall be finished to the surface texture specified to the levels, falls and crossfalls, as directed or shown on the drawings and shall be subject to the following tolerance :-

The level shall be within or - 6mm of the levels specified.

The falls shall be within 10% of the falls specified.

The smoothness shall be such that departure from a 3.000m straight edge laid in any direction shall not exceed 3mm. Minor irregularities shall be made good by the use of a steel float but in no circumstances shall mortar be used to make good the surface.

As soon as the surface has been finished, it shall be protected against too rapid drying by means of damp hessian, polythene sheeting or other approved means placed carefully on the surface and kept damp and in position for 7 days and the concrete shall be kept wet for further 21 days. The most critical period is the first 24 hours after placing and curing during that time shall be very thorough. The Contractor is to obtain the Engineer's approval to the material and method he proposes to use for curing and no concreting will be permitted until sufficient such material is on site.

Forms shall not be removed from freshly placed concrete until it is at least 24 hours old. Care shall be taken that in their removal no damage is done to the concrete, but should any damage occur the Contractor shall be responsible for making it good.

EXPANSION JOINTS IN CONCRETE SURFACE BEDS

Expansion joints shall be positioned and constructed as shown on the drawings. The joints in the surface beds shall be absolutely square and true to line and position.

All joints in surface beds shall be formed to the patterns and shapes to coincide exactly with the joints in the surface finish or as otherwise indicated on the drawings. Formwork shall be manufactured from steel of heavy angle section and be to the Engineer's approval. The Contractor shall submit drawings of the forms he intends to use and obtain the Engineer's approval before fabrication. Panels shall be poured in alternate bays as agreed with the Engineer. No construction joints other than those indicated on the drawings shall be submitted.

NOTES CONCERNING MEASUREMENT AND PRICING

The Contractor must allow for all costs incurred during the progress of the Contract for complying with the provisions concerning the preparation and use of graded mixes.

Prices for concrete shall include for mixing and depositing as described or indicated and for hoisting and depositing at the various levels required throughout the building, and shall also include for forming or hacking a satisfactory key for all faces receiving asphalt and plaster work. Prices for slabs shall also include for levelling off the surface as described under 'Compaction', and all temporary formwork to form construction joints at bay edges.

Prices for reinforced concrete shall, in addition, include for filling into, between or on formwork and thoroughly compacting between and around rods or fabric reinforcement and for forming all additional construction joints between varying mixes. Where described as vibrated, prices must include for fully vibrating as described.

Formwork (use and waste only) is measured net to the actual face of the concrete to be supported and the prices for formwork shall include for extra material at joints, extra labour and waste for narrow widths, small quantities, overlaps, passing at angles, straight cutting and waste, splayed edges, notchings, etc., and for fixing at the various levels including battens, struts, and supports and for bolting, wedging, easing, striking and removal. Prices for linear items such as boxings shall include for angles and ends. Strutting has been measured at varying levels to soffits only

and prices for other items must include for strutting at any level.

Prices for steel rod reinforcement shall include for cutting to lengths and all labour in bending and cranking, forming hooked ends, handling, hoisting and fixing in position and for providing all necessary tying wire and supports. Prices for fabric reinforcement shall include for all straight cutting and waste, handling, hoisting and fixing in position, providing all necessary tying wire, and supports and all extra material in laps.

Prices of all precast concrete shall include for all moulds, finishings as described, handling reinforcement, hoisting and fixing at the required levels, bedding, jointing and pointing in cement and sand (1:5) mortar, also for casting or cutting to the exact lengths required and any waste resulting from such cutting. The sizes of weathered or moulded items stated are extreme sizes.

Prices for suspended hollow tile composite floor and roof slabs must be 'all inclusive' to include for concrete hollow tiles, in situ concrete ribs, concrete topping, concrete filling to open ends of hollow concrete tiles.

Concrete in main beams has been measured to the full width thereof and for full depth to top of slab level and composite slabs are measured separately, the net area between same. No adjustment will be made in these measurements for any projection of ribs, reinforcement, etc., into main beams or floors etc., to obtain bearings, which are deemed to be covered in the Contractor's rates.

Prices for expansion joints shall include for cutting to size and all temporary supports and prices for expansion joint sealers shall include for all temporary battens or fillets required to form the necessary grooves.

STRUCTURAL STEELWORK

APPROVED SUB-CONTRACTOR

The whole of the structural steelwork is to be executed by a specialist Sub-Contractor who is to be specifically approved by the Engineer and the Contractor will be required to make arrangements for the execution of this work and bear all expenses incurred. No change in the rates for this work inserted by the Contractor in these Bills of Quantities will be allowed

ARCHITECT/ENGINEER

For the purpose of the steel structure the Structural Engineer shall be deemed vested with the duties of and be the representative of the Architect.

QUALITY OF MATERIAL AND WORKMANSHIP

The quality of all materials and workmanship used in the execution of the works shall comply with the requirements of current relevant British Standard and Codes of Practice, including all the latest amendments.

BRITISH STANDARDS AND CODES OF PRACTICE

B.S. 4360.....	Weldable Structural Steels
B.S. 5950.....	The use of Structural Steel in Building.
B.S. 4 (Part 1).....	Hot Rolled Sections
B.S. 4848 (Part 2).....	Hot Rolled Hollow Sections.
B.S. 2994 & 1449.....	Cold Formed Steel Sections
B.S. 5135.....	General Requirements for the Metal Arc Welding of Structural Steel Tubes to B.S. 6222, (B.S. 5125 will be considered to apply to the requirements for welding of hot-rolled hollow sections to B.S. 4848 Part 2).
B.S. 6323 Parts 1 – 8...	Steel Tubes for Mechanical, Structural & General Engineering Purposes.
B.S. 1856.....	General Requirements for the Metal Arc Welding of Mild Steel.

TESTS

The Engineer may at any time require any materials to be tested in accordance with the requirements of the Standards listed above. The cost of all successful tests shall be borne by the Employer. The Contractor shall, if required by the Engineer, promptly supply at his own expense test pieces. The costs of tests on materials failing to comply with these Standards shall be borne by the Contractor. If in the opinion of the Engineer, faulty material and/or workmanship has been used in the works, the Contractor may be directed to dismantle and cut out the parts concerned and remove them for examination and testing. The cost of dismantling, cutting out and making good to the approval of the Engineer shall be borne by the Contractor.

FABRICATION

The standard of work and the general procedure to be followed during fabrication shall be in accordance with B.S. 449. The Contractor must ascertain all dimensions on the site prior to commencement of fabrication.

- (a) Cutting & Bending - All members, plates, brackets, etc., shall be neatly and accurately sheared, sawn, or profiled to the required shape as shown on the drawings. Where steel is oxy-cut to shape, care shall be taken to preserve the full finished sizes required.

If members or plates are bent or set, the bends or sets shall be correctly made to the radii or angles specified without leaving hammer marks. The materials may be heated to permit this. Material that has been heated should be annealed to approval.

- (b) Punching & Drilling - Holes for black bolts shall be drilled or punched 2mm larger in diameter than the bolt size. Holes for high tensile friction grip bolts shall be drilled or sub-punched and reamed to 2mm larger in diameter than the specified bolt size. All drilled holes shall be parallel sided and shall be drilled with the axis of the holes perpendicular to the surface. Badly drilled holes shall either be reamed out to approval and larger bolts fitted or otherwise as directed. All rough arrises shall be ground off. Holes for bolts in material thicker than 15mm must be drilled. When holes are drilled in one operation through two or more thicknesses of material, the parts shall be separated after drilling and all burrs removed before assembly. Holes for bolts shall not be formed by a gas cutting process. Holes formed or enlarged by oxy-cutting will not be accepted and must be filled to approval by electric welding and re-drilling.

- (c) Bolting - All bolts used shall be of such length that at least one full thread is exposed beyond the nut after the nut has been tightened. Where a nut or bolt head would bear on an inclined surface, a bevelled washer of the correct shape shall be interposed between the two surfaces. Bevelled washers shall not be allowed to get out of position during fabrication and erection and for this purpose may be spot welded to the steel surface. Bevelled washers for use with high tensile bolts shall not be welded.

- (i) Black Bolts, Nuts and Washers

Black bolts shall comply with the requirements of B.S. 916. (B.S.W. Threads).

- (ii) Close Tolerance Bolts

Close tolerance bolts shall conform to B.S. 916.

- (iii) High Strength Friction Grip Bolts

- (a) General grade bolts to B.S. 3692.

- (b) Load indicating bolts manufactured by G.K.N. Ltd. or any other approved manufacturer.

(c) High tensile bolts to B.S. 4395.

(iv) Rawl bolts

Rawlbolts shall be those manufactured by Rawlplug Company Ltd or any other approved manufacturer.

(v) Washers

Washers to B.S. 4320.

Washers for high strength friction grip bolts shall be appropriate to the type and quality of the bolt specified.

(vi) Rivets

The steel used for rivets shall be in accordance with B.S. 4360 and in the case of high tensile steel rivets shall be so manufactured that they can be driven and the heads formed and the physical properties not impaired.

(d) Pressed Steel Sections

Pressed or cold rolled steel purlins and girders shall be to the sizes indicated on the drawings and shall be formed from approved steel strip with a minimum yield strength of 175N/mm².

The sections shall be manufactured straight and free from twist. The tolerance away from straightness shall not be greater than 2mm for every 2000mm in length along any folded edge.

The Contractor shall ensure that each run is inspected and any unsatisfactory weld cut out and remade to approval.

Welds in material 25mm or greater in thickness shall be made by the Argon arc or similar approved process, and special precautions shall be taken to prevent weld cracking.

Unless otherwise specified, the minimum size of fillet shall be 6mm.

On completion, welds shall present a smooth and regular finish. Weld metal shall be solid throughout with complete fusion between weld metal and parent metal and between successive runs throughout the joint

Defects shall be cut out and made good to approval in sound weld metal.

The external faces of butt welds are to be ground smooth on completion to the approval of the Engineer.

SHOP AND FIELD CONNECTIONS

(a) Rolled Sections

All shop connections shall be electric welded or bolted with high tensile bolts.

No bolts used shall be less than 12mm diameter and no weld less than 40mm in length. At least two bolts shall be used in connections transmitting loads unless otherwise indicated by the Engineer.

No weld of length less than four times the nominal fillet size shall be deemed capable of carrying load.

Beam to column connections not detailed shall be on 'Standard' top and bottom cleat connections with the load carried on the bottom cleat. 'Standard' web connections shall be used for connecting beams to beams.

Field connections shall be as detailed, i.e. bolted with high tensile or black bolts in drilled holes. Black bolts in punched holes will only be permitted for connections carrying a designed load or for connections to timber members.

(b) Structural Hollow Sections

Hollow sections shall be connected by electric welding unless specified otherwise.

The designs of welds shall be in accordance with Clause 6.6 of B.S. 5950.

Butt welds in tension members will not be permitted unless the prior approval of the Engineer in writing has first been obtained.

Butt welds where permitted, shall be made with the fusion surfaces of the ends of each member properly prepared and the member properly aligned.

ASSEMBLY

(a) Trusses and Portal frames

Trusses and portal frames shall be carefully set out to the dimensions shown on the drawings.

Where it is required that trusses be cambered, such camber shall be provided by bending the bottom chord to an arc of a circle.

Notwithstanding any dimensioned spacing of purlin cleats, the Contractor shall ensure that purlin cleat spacing is satisfactory for the available stock lengths of roof sheeting. However, the Engineer's approval must first be obtained before any alteration is made in purlin spacing or sheeting sizes.

Splices in portal and other frames shall be made where shown on the details or where directed by the Engineer.

(b) Boxed Members

Abutting edges of boxed members shall be connected and sealed with a continuous weld to exclude the entrance of moisture. Where specified such welds shall be ground flush to approval.

(c) Shop Assembly

Assembly of units in the shop prior to transporting to the site must be inspected by the Engineer before painting. The assembled work shall be laid out in the shop or yard such that all parts are accessible for inspection and testing.

The Contractor shall furnish all facilities for inspection and testing of the works and must notify the Engineer on every occasion materials are ready for inspection.

(d) Marking

All members of the structures to be site assembled shall be marked in accordance with the shop details and marking plans submitted to the Engineer for approval.

ERECTION

(a) Site Dimensions

Erection shall not commence unless and until accurate site dimensions have been taken by the Contractor. No claims will be considered should site dimensions differ from those on the drawings. Any modifications to the structural steel required in order to comply with site dimensions shall be made on the ground to the Engineer's approval before erection is commenced.

(b) Safety

All erection shall be carried out by competent and experienced personnel and the Contractor shall take every care to safeguard members of the public, workmen, and adjoining property against injury and/or damage. The Contractor shall be held responsible for all damage caused to the structure, workmen, or other property during erection.

All gear used shall be of adequate strength and shall comply with all current Regulations. During erection the work shall at all times be adequately bolted, guyed and/or braced to make the structure secure.

(c) Storage and handling

Steel members shall be stored, handled and erected in such a manner that no member shall be subjected to excessive stresses which could have adverse effect on the properties of the steel. If, in the opinion of the Engineer, the steelwork has been subjected to such treatment, the Contractor shall remove the member from the site and replace it at his own expense.

(d) Erection Notes

No member or part of a member which has been bent or distorted shall be erected in that condition. All straightening shall be done on the ground.

Stanchions shall be wedged to line and level on steel or cast iron wedges and checked by the Engineer. After acceptance, stanchion bases shall be grouted to approval before wedges are removed. Unless otherwise shown on the drawings, all stanchions shall be left truly vertical and correct to line and level. Beams, girders, etc., shall be erected level unless otherwise shown, and correctly positioned.

Trusses and open web joists shall be carefully handled at all times and during erection shall be lifted at such points and in such a manner as will preclude any possibility of damage from excessive stresses.

Packing plates, shims, washers or similar adjusting pieces found necessary to accommodate tolerances in structural site dimensions shall be provided and fixed to the approval of the Engineer.

Immediately after erection, each truss shall be made secure by purlins, bracing or guys to approval of the Engineer.

Bracing shall be fixed in position as soon as dependent portion of the work is completed.

(e) Tightening and Testing High Tensile Friction Grip Bolts

Before assembly, the contact surfaces, including those adjacent to the washers, shall be descaled, and be free from dirt, oil, loose scale, burrs, paint (except priming paint), pits and other defects that would prevent proper seating of the parts.

Bolts shall be fixed with approved hardened flat or tapered washers as required between the bolt and nut and the softer mild steel.

When bearing faces of the bolted parts have a slope of more than 1 in 20 with respect to a plane normal to the bolt axis, square smooth bevelled washers shall be used to compensate for the lack of parallelism.

All bolts shall be tightened by the 'Turn of Nut' method and as approved by the Engineer to achieve in all bolts a minimum tension equal to the proof load.

(f) Grouting

Unless otherwise detailed on the drawings, a space of not less than 40mm shall be provided between undersides of column base plates and footings, and between all beams and roof truss bearings and concrete pads.

After each column, beam or roof truss has been wedged up to a line and level and fixed in position to approval, the space between footing or pad and the underside of the column base plate or steel member shall be grouted with a mixture of one part of Portland cement and one part of approved washed sand (1:1).

The Portland cement and sand shall be thoroughly mixed together with sufficient water to produce a mixture of 'damp earth' consistency and shall be used within twenty minutes of mixing. The caulking mixture shall be packed tight into the space between baseplate and foundation and protected from damage until it sets.

PAINTING

(a) Paints

All paints are to be obtained from suppliers approved in writing by the Engineer.

Paints are to be delivered to the site or to the Contractor's fabrication site in the original containers as supplied by the manufacturer with seals unbroken and are to be used in strict accordance with the manufacturer's instructions. Manufacturer's representatives are to be free to visit the site and inspect materials for laboratory analysis.

Paints are not be thinned unless instructed by the Engineer. No external painting is to be carried out during rain or when rain is likely to occur before the paint has had time to dry. All surfaces are to be dry and free from moisture during painting.

(b) Preparation for Painting

All structural steel shall be thoroughly scraped and wire brushed to remove mill scale and rust. Dirt, grease and oil shall be washed off with white spirit and the steel allowed to dry.

(c) Application

A first coat of Red Lead Graphite Primer or other approved primer shall be applied after fabrication of the works has been completed. A minimum of 24 hours shall elapse before the steel is moved from its position after painting has been completed.

After delivery to site, the steel shall be carefully examined and all areas where the priming coat has been damaged and/or where rust has developed shall be washed with white spirit and wire brushed as necessary and a further priming coat as for the first coat applied to completely cover the damaged areas.

During erection, surfaces of steel which are to be in contact shall be painted with one further coat of primer as previously described and the surfaces brought together whilst the paint is still wet.

After erection, paint a second and finishing coat of 'Oil Company Aluminium Paint 368/36' or other finishing paint of standard as for steelwork. Welds shall not be painted over until they have been deslagged, inspected and approved.

Steel purlins and side rails shall generally be painted as for steelwork when the following specification shall be used:

1st Coat - Red Oxide Zinc Chromate Primer or other approved primer

2nd Coat - Robbialac 'Oil Company Aluminium Paint 368/36' or other equal and approved Aluminium Paint

The interior of mild steel gutters shall be prepared as previously described and painted with 2 coats of "Robbialac Epilac Coal Tar Epoxy Paint" or other approved paint.

PRICES, MEASUREMENTS AND PAYMENT

Prices quoted by the Contractor shall be based on the calculated weights of steel, and shall include for manufacture, painting, and supply, all as described in the Bills of Quantities, specified, and shown on the drawings, including the cost of delivery to the site or other agreed place or places and the supply of all bolts, rivets, plugs, gussets, cleats, to complete the erection of the works.

Prices shall include for erection, (all labour, scaffolding, and other erection equipment necessary) and cover the cost of additional prime coat painting as previously specified. The prices shall also include for lining up, levelling and plumbing but not for grouting up of the bases.

The basis for payment for steelwork shall be the calculated steel weights of the structure. Any variation from the original design on which the tender was based, which results in either an increase or decrease in calculated weight of the structure as completed, shall result in the appropriate additions or deductions to the submitted tender totals.

Any written instruction from the Engineer which may result in additional work over and above that for which the Contractor quoted will be considered as extras and shall be paid for on the basis of calculated additional steel weights.

GENERAL PLUMBING AND DRAINAGE SPECIFICATION

GENERAL

All plumbing works shall be carried out by a licenced plumber and/or drain layer.

APPROVAL

The entire installations shall be carried out to the approval of the Local Authority and in compliance with all governing regulations, in particular the following specific codes and regulations:-

- a) The Local Authority by-laws and regulations.
- b) The current Republic of Kenya Building Code.
- c) The M.O.W. latest issue of General Specification for Building Works.
- d) B.S. 5572 - Code of practice for sanitary pipework
- e) B.S. 8301 - Code of practice on building drainage
- f) B.S. 6465 - Sanitary Appliances.
- g) C.P. 6700, 7181 - water supply
- h) The I.E.E. Regulations 16th Edition
- i) The Kenya Bureau of Standards (K.B.S.) Specification.

Galvanized Steel Pipework

Galvanized steel pipework shall be manufactured to comply in all respects with the standards described for black steel pipework in paragraph. (a) above.

Galvanizing shall be carried out in accordance with the requirements of B.S. 729.

Copper Tubing

All copper tubing shall be to B.S. 2871 Part 1 of approved manufacture, solid drawn, round, clean, smooth and free from all defects and deleterious filing in the bore.

Pipe joints shall be made with soldered capillary fittings and connections to equipment shall be with compression fittings manufactured in accordance with B.S. 864.

Copper tubing is to be used as connection tubes between steel pipework and sanitary or laboratory fittings. In order to avoid direct contact a PVC or ABS straight connector shall be positioned between the steel pipe and the copper tube.

Cast Iron Pipework

Cast iron pipework and fittings for use above ground in connection with internal building services, shall be manufactured with spigot and socket joints of the weight required by the Local Authority and shall comply fully with the requirements of B.S. 416.

All joints on cast iron spigot and socket pipes shall be made with an approval cold caulking compound and so installed as to allow for any expansion or contraction which may take place.

All cast iron pipework, branches, tees, bends and other fittings shall be supplied complete with inspection covers for cleaning purposes. These inspection covers shall be included as part of the fittings and shall comply with the requirements of B.S. 416.

A.B.S. Waste System

Where indicated on the drawings and schedules, supply and fix A.B.S. waste pipes and fittings.

The pipes, traps and fittings shall be in accordance with the relevant British Standards, including B.S. 3943, and fixed generally in accordance with manufacturer's instructions, and B.S. 5572: 1978.

Jointing of pipes shall be carried out by means of solvent welding. The manufacturer's recommended method of joint preparation and fixing shall be followed.

Standard brackets, as supplied for use with this system, shall be used wherever possible. Where the building structure renders this impracticable provide purpose made supports, the centres of which shall not exceed one metre.

Expansion joints shall be provided as indicated. Supporting brackets and pipe clips shall be fixed on each side of these joints.

Connections to Existing Piping, etc.

The Contractor must keep all existing pipework, special fittings, etc. free from debris at all times during the progress of the work and must leave them free from debris on completion of the work.

Diversions of Existing Services

Where services are to be diverted on the instructions of the Engineer the work must be carried out with minimum of interference with existing services.

All precautions must be taken to prevent any damage to existing installations and prevent any unnecessary interference with the working thereof.

The Contractor must ensure that any services supplied to existing properties being retained are maintained at all times and to prevent any unnecessary interference with the working thereof.

Where required or directed by the Engineer, existing services on the site must be disconnected and sealed off to the approval of the appropriate Authority.

Testing

Pipelines shall be tested in sections under an internal water pressure - normally one and a half times the maximum allowable working pressure for the class of pipe used. Testing shall be carried out as soon as practicable after laying and when the pipeline is adequately anchored. Precautions shall be taken to eliminate all air from the test section and to fill the pipeline slowly to avoid risk of damage due to surge.

SANITARY APPLIANCES

General

Installation of all pipework, valves, fittings and equipment shall be carried out under adequate supervision from skilled staff to the relevant codes and standards as specified herein. All builder's work associated with the piping installation is to be carried out in a satisfactory manner to the approval of the Engineer.

ELECTRICAL ENGINEER'S GENERAL SPECIFICATIONS

GENERAL

The Electrical Sub-Contractor shall be responsible for the supply, delivery, installation, connection, testing and setting to work of the entire electrical system in accordance with the Contract Documents.

The Electrical Sub-Contractor shall provide all the necessary tools, skilled and un-skilled labour to comply and complete

the whole installation in accordance with the tenderer's works programme.

Standards and Regulations

The electrical portion of the works shall comply with the current regulations of The Kenya Power and Lighting Co. Ltd. The latest codes of Practice of The British Standards Institution, the Regulations for Electrical Equipment in buildings issued by the Institution of Electrical Engineers (I.E.E) in Great Britain and this specification.

Power Supply on Site.

The supply voltage will be 240 volts single phase or 415 volts 3 phase 50 Hz. TN-S system, viz. separate neutral and protective conductor throughout the system.

INSTALLATION OF CABLES.

General

Bending of cables shall be in accordance with table 52c of the IEE Regulations and no cable shall be bent to radius less than that specified by the cable manufacturers.

Cables shall be rated for the maximum connected load with due consideration to the following factors:-

- (i) Voltage drop not in excess of 4% of the nominal voltage.
- (ii) Ambient temperature.
- (iii) Degree of excess-current protection.
- (iv) Grouping.
- (v) Cables run under defined conditions.

Cables in conduits and Trunking

All cables shall be polyvinyl chloride (PVC) insulated to BS 6604, "PVC-insulated cables (non-armoured) for electric power lighting", 450/750 volt grade, unless an alternative is specified elsewhere in the contract documents. The quality and size of cables contained in any one conduit shall comply with IEE Regulation 529-7 and Appendix 12. No cable with a cross-section area of less than 1.5mm² shall be used. All cables installed in a conduit or trunking system shall be PVC single insulated conductors and shall be colour coded in accordance with the IEE Regulation 524-3 and Table 52A.

Final sub-circuits shall be run in conduits separate from main or sub-main cables. All cables in conduit shall be drawn in simultaneously. All cables shall be drawn in without the use of excessive force, without the use of lubricants and the wiring shall be easily withdrawable.

PVC/SWA/PVC Cable

These cables shall comprise copper conductors unless specifically detailed otherwise, laid up with PVC fillers bedded with an extruded inner PVC sheath, armoured with a single layer of galvanised steel wires, aluminium or strip as specified, and covered overall with PVC sheath.

Cables shall be manufactured to BS 6346 "PVC insulated cables for electrical supply" with conductor dimensions and resistances in accordance with BS 6360 1969, "copper conductors in insulated cables and cords", Armouring shall be galvanised steel to BS 1442.

Attention is drawn to Chapter 52 of the IEE Regulations and Appendix 9. Where the armour wires of cables are used to provide protective conductor they shall comply with the requirements of Chapter 54 of the IEE Regulations, particularly section 543; alternatively, additional cables with copper conductors shall be installed to reduce the impedance to a level which ensures compliance with Section 543 of the IEE Regulations.

Unless permission is given by the Engineer, no joints will be allowed. In the event of joints being authorised, they shall be made using plastic boxes of approved design filled with an approved cold pouring plastic or resin compound. The cable box shall incorporate suitable copper tapes and clamps to bond the armouring of the jointed cables.

The PVC/SWA/PVC cables should be terminated in the cable manufacture's approved glands. These shall be of the compression type providing controlled radial compression of the sheath seal. The gland shall incorporate an armour clamping ring and earthing ring and, where used outdoors, a lead washer shall be used to ensure a watertight joint between the gland and the unit to which it is fitted. The earthing ring shall be rigidly fixed to the item of equipment and terminated using brass nuts, bolts and washers. All gland terminations shall be protected by a PVC shroud which shall fit tightly over the cables.

The Electrical Sub-Contractor is responsible for determining the true nature and extent of cable routes. No claim on the grounds of lack of knowledge will be entertained. All cable routes shall be agreed with the Engineer. After the cables have been installed and terminated, but prior to putting into service, they shall be subjected to an insulation test of 500 volts and the results of these tests (recorded on test sheets) forwarded to the Engineer.

CONDUIT AND CONDUIT FACILITIES - MILD STEEL CONDUIT SYSTEM

Conduits

Conduits shall be installed as required by the IEE Regulations and as detailed in this specification.

All metal conduits must be heavy gauge, seam welded, steel tube screwed conduits manufactured to BS 31, "steel tube screwed conduits and fittings for electrical wiring", Class B, BS 4568, "Steel conduit and fittings with thread of ISO form for electrical installation", for metric conduit, unless specified otherwise. Conduits shall be finished black stove enamelled, except in positions exposed to water (other than water used in construction), steam condensation or the action of weather, where hot galvanised conduits shall be used.

Any conduits work rejected by the Engineer shall be replaced at no extra cost. No conduit smaller than 20 mm in diameter or longer than 50mm diameter shall be used.

All bends in conduit shall be in accordance with the IEE Regulation 529-5, and made in a conduit bending machine fitted with a former of the correct radius for each conduit size.

Conduits shall be secured in an efficient pipe vice whilst being screwed. Conduit system shall be installed so as to ensure compliance with requirements of IEE Regulations 529-7. Attention is drawn to Appendix 12 of the IEE Regulations.

Conduit Fittings

Conduit fittings shall have same finish as the conduits being used and shall comply with BS 31 or BS 4586. All conduit fittings shall be screwed or loop-in malleable iron circular type, fitted with covers secured by brass screws. Rectangular adaptable steel boxes may be used on multi-conduit runs.

All circular type boxes must be fitted with long screwed spout conduit entries with the screwed thread terminating within the spout and the edges of the internal orifice of the box rounded and smoothed to act as a bush except for the adaptable steel rectangular boxes and loop-in conduit boxes, in which case male bush and coupling must be used for conduit connections. In concealed installation, boxes shall be fixed with the rims flush with the finished surface, but when, for any reason whatsoever, the rims are below the surface, suitable extension rings of the required depth shall be provided and installed to finish flush with the surrounding surfaces and with the lids of sufficient oversize (7.5 mm minimum all round) to cover the junction between box and plaster. In no case will the use of site-manufactured bends, sets, elbows, inspection elbows or tees be permitted.

Fixing of Conduits

All conduits must be firmly and rigidly fixed to be entirely without whip or movement. Space-bar saddles, or strap saddles, must be used on the timbers in roof spaces and will be allowed when the conduits are run on the underside of exposed unsealed floor or ceiling joints. Pipe hooks or crumpets will not be allowed except for security conduits in chases, or screeds, when the top of the hook must at least be 10 mm below the finished surface of the wall, or 25 mm below the floor finish. Pipe hooks shall be galvanised.

The finish of the saddles must in all cases conform to the finish of the supported conduits. Galvanised, sherardised or cadmium plated screws shall be used in all cases where galvanised conduits are installed.

The standard cast iron distance saddle, (single fixing base and two-screw fixing top), must be used for all conduits run on the surface of walls and ceilings etc., fixed at intervals of not more than 1.2 metres.

Conduit Runs and Concealment

The routes of the conduit installation shall be agreed with the Engineer prior to commencing the installation. Conduits shall be installed at least 150 mm from, and preferably under, any hot water pipes and at least 50 mm from other surface pipes and cables. Conduits shall be bonded to other surfaces in accordance with the requirements of IEE Regulations 413-2 and 547-4 to 547-7 inclusive.

Each continuity test shall be applied to the system before plastering, screeding, or casting of concrete is commenced. Surface work will be allowed where certain pre-fabricated methods of construction preclude the concealment of the runs, and or fair-faced brickwork or block work or other unplastered walls.

Conduit runs shall be planned to obviate the need for draw-in boxes, but where the use of such boxes is unavoidable they shall be accessible at all times and be fitted with covers. When Conduits are specified as being installed on the surface the runs must be arranged to render the whole system as neat and inconspicuous as possible, having regard to the existing architectural features. All vertical and horizontal runs must be taken where conduits converge and run together near distribution centres to obtain a symmetrical layout. The distance between the conduits shall be maintained through bends and sets and shall not vary noticeably.

Flexible Metallic Conduit

Flexible Conduit shall comply with the BS 731 part 1. "Flexible steel conduit and adaptors for the protection of electrical cables." It shall be used for the final connection from a rigid conduit installation to the terminal boxes of all the equipment provided with a means of positional adjustment and /or where vibration may reasonably be expected to occur.

Flexible conduits shall be PVC sheathed and shall be terminated using approved glands. In all instances a separate PVC insulated green and yellow coloured protective conductor complying with table 41A1 or 41A2 and section 543 of the IEE Regulations shall be installed, terminating at each end into purpose-made earthing terminals.

Under no circumstances will flexible conduits be accepted in lieu of sets and bends in a rigid conduit installation.

In normal circumstances flexible conduits shall have a minimum length of 300 mm and a maximum unstretched length of 800mm. It shall permit a full range of withdrawal, adjustment or movement of the equipment.

Locking, Bushing and Coupling

All conduit ends must be filed square and reamed before erection to ensure freedom from internal burrs and roughness.

Running couplings shall only be used on black enamelled steel conduit installations, and the use of this shall be kept to the minimum. All running couplings shall be secured by means of the lock nuts or lock rings, and the exposed thread painted after installation.

Every conduit connection to the equipment, boxes, distribution boards, loop-in boxes, cable trunking etc, shall be made by means of a screw coupling and a male hexagonal headed smooth bore brass bush. The smooth bore shall be fitted to secure the conduit to the item connected via a purpose-made clear hole to be closed by the bush and coupling when fitted. Paint must be removed from the surface of the item connected to allow it to be covered by the end of the coupling which shall be filed, clean and square, to ensure a good mechanical and electrical metal to metal joint. Any exposed area of metal from which paint has been removed must be made good in a matching paint. Bushes shall be fitted and tightened by means of correctly fitting spanners. Mutilated bushes damaged whilst being fitted must be removed and replaced.

Conduits connecting via couplings shall be connected by a means of 15 mm long threaded section and shall have a gap of approximately 2 mm between them. No thread shall be exposed except running couplings.

Continuity and Earthing

The whole of the conduit installations shall be mechanically and electrically sound and continuous throughout their length in accordance with the IEE Regulations.

Where the conduit system is used to provide a protective conductor it shall comply with the requirements of Chapter 54 of the IEE Regulations particularly Section 543; alternatively, a separate protective conductor shall be installed in the conduit to comply with Section 543 of the IEE regulations.

CABLE TRUNKING-SHEET STEEL

Trunking shall only be installed in situations which will remain readily accessible throughout the life of the buildings. No cable trunking shall be installed behind a plastered ceiling or in other inaccessible situations.

All cable trunking shall comply with BS 4678, part 1 "Steel surface trunking" and part 2 for "Steel underfloor (duct) trunking".

Sheet steel cable trunking may be used on installations employing steel conduits, for connecting two or more switchboards together or where several conduits would otherwise have to run alongside each other. Proper allowance should be made for the derating of cables installed together in a container system. The cables must be capable of carrying the current imposed by the equipment connected. Attention is drawn to Chapter 52 of the IEE Regulations, particularly Section 522, and Appendix 9: the current carrying capabilities of cables indicated shall not be exceeded. The Engineer must be consulted as to precise details concerning trunking routes and applications.

All lengths of trunking shall be heavy gauge zinc coated steel connected together by internally fitted rectangular couplings of sufficient width to provide a minimum bearing face of 25mm, to which the lengths shall be bolted on site or welded at the factory.

Adequate provision shall be made to allow for expansion.

All Tee pieces and bends shall be formed with similar means of connection and the inner radii area shall be such that cables will not be bent through a radius less than that prescribed in the IEE Regulations. Only bends and tees of approved pattern will be accepted.

All fixing screws within the trunking shall be of the round head type. The trunking shall have an over-lapping well-fitted lid securely fixed to the trunking by approved means that will avoid damage to the cables. Self-tapping screws shall not be used.

All necessary accessories including long sleeve couplings, end piece, bends, sets, tees, reducers, branches, fillets, pinracks, cable retainers etc., shall be purpose-made units rather than being fabricated on site.

Where a change in direction of trunking run occurs, the deviation should be effected by a purpose-made unit manufactured on similar lines to the bends and tee pieces described above. Where this is not practical, changes in direction shall be fabricated in a neat workmanlike manner. All joints shall fit closely and gaps will not be permitted. All burrs and sharp edges shall be removed and no screw shall protrude into the trunking.

Trunking shall be firmly attached to its associated equipment either by bolted flanges or by male bushes and couplings.

Where trunking is connected to equipment by means of flange connectors, the entry into the equipment shall be of the same cross-section as the trunking.

Where trunking does not terminate in equipment, the otherwise open end shall be capped with a cover suitable bolted in position.

Where communications, extra low voltage circuits (category 1) etc., are contained in a trunking, the requisite number of separate compartments shall be provided to segregate the wiring. Where conduits are taken off such trunking they shall not pass through other compartments unless prior permission is obtained from the Engineer.

The entire trunking is required to be recessed in the structure of the building, the finished edge of the trunking is to be installed flush with the plaster work.

Trunking runs shall be so arranged that the lid or cover plate is always on the top or side and not underneath, unless this cannot be avoided, in which case the Engineer's permission shall be obtained.

Wherever trunking passes through walls, vertical partitions etc., a fixed piece of trunking lid shall be fitted to the trunking extended 25 mm either side of the wall or other barrier, this is to allow removal of the adjacent lid without disturbing the building fabric. Care shall be taken to ensure that no opening is left between the trunking and the building structure through which fire might spread. In addition a suitable barrier of incombustible material shall be provide and fitted inside the trunking, in accordance with the IEE Regulations 528-1. On vertical runs of trunking internal incombustible barriers shall be fitted at the distance between floors or 5m, whichever is the less, in accordance with IEE Regulations 523-6.

All necessary trunking support work, hangers, brackets and fixing requirements shall be provided by the Electrical Sub-Contractor.

Earth links of the appropriate size and type shall be installed at every jointing coupling, manufactured bend, etc., throughout the entire trunking system. Where trunking is used to provide a protective conductor it shall comply with the requirements of Chapter 54 of the IEE Regulations, particularly Section 543; alternatively, a separate protective conductor shall be installed in the trunking to comply with section 543 of the IEE Regulations.

In cases where sheet steel trunking is installed and there is danger of movement, a flexible earth conductor shall be installed bonding all joints in the trunking. This shall be fitted in addition to the standard earth links. Cable retaining strips shall be fitted at 1 m intervals. Insulated cable support pins shall be fitted at intervals of 4 m in vertical runs of trunking and at the top of the vertical trunking.

CABLE TRAYS

Cable trays shall be formed from perforated steel of not less than 0.9 mm thickness up to and including 100 mm width - 1.25 mm thickness from 150 mm up to and including 300 mm width - and 2.00 mm thickness above 300 mm width. They shall be galvanised unless otherwise specified. Tray shall be adequately sized to support the cable without bunching.

Support shall be by means of steel brackets installed at intervals necessary to provide a rigid fixing and ensure that no undue deflection occurs in the complete installation. The brackets shall be galvanised prior to fixing. Dome-headed bolts, nuts and washers of finish suitable to the tray shall be used between tray and brackets.

Fixing to the surfaces of walls, ceilings, etc. shall be by means of expansion-type masonry plugs or bolts. Fixings shall be galvanised unless otherwise stated. Cable trays shall be installed using factory-formed bends, elbows, tees, couplers and risers etc. Site fabrication of elbows etc., will only be permitted with prior approval of the Engineer and where it is not possible to obtain the necessary factory-made item.

Where cuts have been made, the try shall be painted with zinc rich paint.

Holes which have been cut to allow cables to pass through shall be suitably bushed.

Suspension sets shall comprise threaded M12 cadmium plated hanger rods together with nuts and locking washers, verticle hanger brackets, support channel, tray hold-down clips etc., all of which shall have a galvanised finish.

All cables shall be securely fixed to traywork and the complete installation must be carries out in a neat and workmanlike manner without crossovers. A 25% reserve margin in size and weight shall be allowed for all cable tray works.

Cables of 30 mm diameter and above shall be fixed using the appropriate size cable straps of approved manufacture. On light duty multi-cable runs, cable straps of plastic coated metal shall be used to secure cables.

Bunching of cables will not be permitted.

Cables shall be clipped by means of copper or brass saddles and clips where high temperature or humid conditions are likely to be experiences. In all cases, saddles, clips, straps, etc., shall be fixed to the tray by means of brass screws or bolts and nuts.

General

Cable routing shall be such that the maximum degree of protection against accidental damage is obtained by running cables along the inside of channels and beams, etc.

Cables shall be laid in performed trenches or duct throughout all paved areas. Ducts shall be installed for underground cables before the paving is constructed.

Cable ducts shall be sealed at both ends using materials which are resistant to any likely corrosive and insect attack in the area concerned.

All cables rising through floors and trench covers, except in switch rooms, shall be protected by a length of steel pipe which shall project at least 150 mm above the finished surface level.

The open end of the pipe shall be sealed with a suitable compound. Care must be taken that all phases of single core cables pass through the same protective steel duct.

Cables Direct in Ground

All excavation and backfilling of cable trenches will be carried out by the Main Contractor unless otherwise specified, but the Electrical Sub-Contractor shall in any case make sure that trenches are made to a depth as specified.

The Electrical Sub-Contractor shall lay cables direct in the ground in the following manner:-

75 mm (3 inches) of dry fine sand shall be placed to form a bed for the cables. After cables have been laid they shall be covered with additional dry fine sand well punned over and around the cables to a level of 75 mm above the top of the uppermost cable. Mechanical punners shall not be used for this work. The Electrical Sub-Contractor shall supply and install concrete cable tiles which shall be carefully placed over the cable forming each circuit.

Until all the cables have been laid in the trench and have been covered with their protective tiles, no sharp metal tools such as spades or fencing stakes, shall be used in the trench. Rollers used during laying of cables shall have no sharp projecting parts liable to damage the cables.

Cables above Ground

For main cable runs the cable shall be run on approved tray or ladder rack, and secured to it at intervals of not more than 400 mm horizontally and 600 mm vertically.

Cables shall be dressed together and fixed with a common saddle. If the number of cables is such as to require the tiering of cables, the number of tiers shall generally be two.

TERMINATION OF CABLES

Cables shall be terminated in accordance with Chapter 52 of the IEE Regulations, particularly Section 527.

Cables shall be terminated by one of the following methods:-

- (i) The cable conductors shall be sweated into lugs of the appropriate size for the cable and equipment terminal.
- (ii) The cable conductors shall be secured by compression type lugs of the correct size for the cable and equipment terminal.
- (iii) The cable conductors shall be secured in pinch screw terminals.
- (iv) The cable shall be secured by means of clamps.

Where cables are required to terminate at connectors, as at lighting points, such connectors shall secure all the strands of stranded cables. Care shall be taken to ensure that cables are not damaged during preparation for termination.

Cables terminating at pinch screw terminals shall be twisted together and single cables shall have the conductor doubled back to ensure adequate purchase for pinching screws.

Cables connected to lampholders or other components at which heat is produced shall be insulated with heat resisting

material capable of withstanding, without detriment, the temperature encountered.

All terminations on PVC/SWA/PVC insulated cables shall be by compression type glands of an approved design and manufacture with facilities for clamping the armouring the outer sheath of the cable.

Glands mounted outdoor shall incorporate a seal to prevent ingress of moisture into the gland, and all glands shall be fitted with a thermoplastic shroud.

Where circular terminations are to be made, these shall be completed using Ross Counterney terminals.

Where cables are terminated in "Klippon" type terminals with parallel faced jaws, the individual cores shall be terminated using the appropriate flat or hook blade crimped lugs. Where the terminal faces are concaved, the cores shall be terminated in wires pin crimped lugs.

The Electrical Sub-Contractor shall avoid multiple connections under one screw or one pin. Where more than two wires are required, a common termination jumper bar shall be used.

Terminals shall be mounted on rails or supports. All internal wiring is to be clearly marked by markers.

SEGREGATION OF SERVICES

Cables of differing voltages shall be segregated so that there is no possibility of a fault in a power cable damaging any adjacent cables or imposing a different voltage upon them.

IDENTIFICATION OF CABLES

All cables shall be fitted with non-corrosive cable identification bands at each end, and at all changes of direction where they leave a group of cables. All cables cores connected to equipment having marked terminals shall be fitted with non-corrosive identification bands bearing markings corresponding to those of the terminals at both ends.

EARTHING

The whole of the metallic portion of the installation, other than current carrying parts, shall be electrically and mechanically bonded to the consumer's main earth terminal and also if applicable, to the lightning protection system or other points specified.

The installation shall be earthed in accordance with the Sixteenth Edition of the Regulations for Electrical Installation issued by the IEE, BS CP1013, "Earthing" and BS 6651 'The protection of structures against Lightning'. The Electrical Sub-Contractor's attention is drawn to Chapter 54 of the IEE Regulations.

A main earth terminal shall be supplied and installed adjacent to the electricity supply cable termination. The terminal shall be of ample size and capacity to suit the installation. All items of equipment, switchgear, etc., shall be bonded to this earth terminal using PVC insulated PVC sheathed cables, coloured green and yellow and sized in accordance with Tables 41A1 of the IEE Regulations. An invorine label reading "SAFETY ELECTRICAL CONNECTION - DO NOT REMOVE" in engraved upper case characters not less than 4.75mm high, shall be permanently fixed immediately adjacent to or on the earth terminal.

A heavy duty copper clamp complying with BS. 951 shall be used to bond the main protective conductor to the electricity supply cable armouring or metallic sheath (where applicable the armouring and sheath shall be bonded together).

All protective conductors shall, where possible, be enclosed within metal trunking or conduit serving switchgear, distribution board etc., so as to provide mechanical protection. Where protective conductors are run on building surfaces they shall be properly fixed and supported by means of PVC coated metal saddles along selected routes.

Earth continuity between separate items of switchgear, distribution boards etc., mounted adjacent to one another shall be affected by means of high conductivity continuous copper tape, or PVC sheathed cable, coloured green and yellow, and sized in accordance with the Table 41A1 or 41A2 and Section 543 of the IEE Regulations, connecting all items to the earth terminal.

All items of switchgear, accessories, luminaires, conduits, and the outer sheaths of MICS cables, the armouring of all PVC/SWA/PVC cables together with all other items of electrical plant and equipment shall be effectively earthed by means of a protective conductor in accordance with Table 41A1 and 41A2 and section 543 of the IEE Regulations.

At every terminal point on the fixed wiring an integral earth terminal shall be provided e.g. BESA boxes, accessory boxes etc. A protective conductor shall be provided and installed between this terminal and the earth terminal on the associated switch, socket outlet, luminaire etc.

Each circuit protective conductor shall be connected to a multiway earth terminal provided and fixed within each distribution board. The earth terminal shall be provided with an adequate number of ways such that not more than one conductor per terminal shall be installed and the earthing conductors shall be connected in the same sequence as the current carrying conductors.

All metal piped services, e.g., Heating, Water and Gas Services, metal wastes and piped services at sinks, baths and showers etc., shall be bonded to the earth terminal in accordance with the IEE Regulations 413-2.

A 50 mm section of each gas and water pipe, at position close to their entry into the relevant building, shall be cleaned and made smooth. A copper earthing clamp designed to permit the connection of protective conductors shall be provided and sized in accordance with Table 41A1 and 41A2 and Section 543 of the IEE Regulations.

The clamp shall be a proprietary type or shall be fabricated from high conductivity copper strip, minimum size 40 mm x 4 mm which shall encircle the cleaned sections of the pipe. A permanent label indelibly marked with the words, "SAFETY ELECTRICAL CONNECTION - DO NOT REMOVE" in legible type not less than 4.75 mm high, shall be permanently fixed at the points of connections.

The final connection of bonding conductors from gas, water pipes and other services to the earthing terminal shall not be completed until earth electrode and earth impedance tests have been satisfactorily completed.

Bonding connections to pipework shall be as unobstructive as possible where practicable shall be made in service ducts or accessible voids and shall be readily on the Record Drawings. All materials and sundry items shall be provided whether or not specifically mentioned, necessary to completely and effectively earth the installation. The installation shall be fully protected against dampness and corrosion and the effect of electrolytic action between dissimilar materials. A completely permanent installation shall be provided which shall be fully accessible for regular testing and inspection.

The value of earth resistance from any point of an installation to the general mass of earth shall be low enough to ensure operation of circuit protective devices and shall in any case not exceed four(4) ohms for electrical equipment, seven (7) ohms for lighting protection. Each earthing cable shall terminate in an approved design of cable lug.

Where earth conductors are run upon structures or walls they shall be fastened by means of heavy gauge non-ferrous fasteners not more than 0.75 m apart on horizontal runs and not more than 1.2 m apart on vertical runs and to give a minimum clearance of 4 mm from the fixing face.

In the event of the Electrical sub-Contractor not being able to establish a suitable earth connection to the electricity supply cable, earth electrodes shall be installed which shall be galvanised or copper clad steel extendable rods not less than 16 mm diameter and not less than 1.2 m in length. Connections to electrodes shall be made by means of solderless mechanical clamps.

To avoid corrosion, all earth system connections shall be cleaned bright and immediately covered with silicon MS4 compound or approved equal.

Earth pits, where required, shall be in accordance with the Tenderer's relevant drawings, with the facility to disconnect the earth ring while measuring the electrode earth resistance.

LIGHTING PROTECTION

Lighting protection shall be provided on high buildings/structures more than 10 m in height. Such protection shall be effected by bonding each individual building/structures direct to the earthing system, in accordance with the BS CP

326, by a minimum size of 170mm² conductor.

FUSED-SWITCH UNITS, SWITCHFUSES AND ISOLATORS

The above units comply with BS 5419 and shall be 500 volt type and installed where specified and indicated on the relevant drawings.

All switchgear shall be provided with suitable locks for padlocking the switches in the 'OFF' position. The cover shall be interlocked with the operating mechanism to prevent it from being opened in the 'ON' position. This interlocking shall also prevent the switch from being closed with the cover open unless for maintenance purposes. The cover shall be gasketed to prevent ingress of dust.

The switch action mechanism shall be of the parallel operation (double break type having cartridge fuses mounted switches) and shall be ASTA certified to meet adequately all the duties specified.

The end plates shall be removable for drilling for conduit or cable entry and shall be fitted with additional distance pieces where necessary. Switchgear boards shall be fixed to the wall/floor by Rawl bolts or other approved fixings.

No building alteration shall be allowed when moving the switchboard into position, the switchboard being supplied in sections to be built in position, if so required.

Switchgear shall be delivered to site when required to suit the progress of the works. Care shall be taken to preserve the manufacturer's paint finish. Any refurbishing etc. shall be carried out, using paint obtained from the switchboard manufacturer, to the original standard of finish.

All fuses in switchgear shall be HRC fuses sized for the fused-switch units or switch-fuses etc., in which they are incorporated. They shall be ASTA certified for compliance with BS 88, Category of Duty 440 A.C 5 Class 01 and in all cases fuse links shall be selected to provide circuits discrimination.

CONTROL PANELS AND CUBICLES

The details specified in clause 4.11 shall apply as far as fused switches, bus-bars and rating etc are concerned. The panels shall be constructed from rolled steel channel minimum size 60 mm x 30 mm deep x 5 mm or equivalent angle section clad with sheet steel of 3 mm gauge. 2 mm gauge may be used for covers and doors of not more than 1 m square.

Terminals shall be of the "Klippon" standards rail-mounted feed-through type or approved equal. All terminals shall be identified by means of numbered or lettered marking tags, which shall be identical to the number of letter applied to the cables. Cables shall be identified as terminations by means of cable markers as manufactured by "Klippon" or approved equal. 25% spare terminals capacity within wiring duct shall be provided. All components motors, starters, relays, timers, etc. shall be labelled showing their reference and function and these shall relate to the panels' schematic wiring diagram provided with the "As-built" drawing and manuals.

All control panels shall be fitted with multi-pole isolating switches through which all electricity supplies shall pass. The door(s) of the control panel shall not open unless the isolating switch is in the "off" position. A facility to lock the control panel isolating switch in the "off" position shall be included.

DISTRIBUTION BOARDS

General

All distribution boards, unless stated otherwise, shall be miniature Circuit Breaker Distribution Boards and shall be of surface or flush type, as specified. Facilities for local isolation of the distribution boards shall be provided by either a local fused-switch unit or an integral isolating switch, whichever is specified.

Where surface mounted on a flush installation, all conductors shall terminate behind the board in an adequate box. For surface mounting, trunking shall be fixed between the board and ceiling level, or conduits run directly into the board. Adequate earth continuity connection shall be made between the various components.

Fused Distribution Boards

All fuseboards shall be of 500 volt rating to BS. 5486 part 11 "Particular requirements for Fuseboards". The details specified in clause 4.12 shall apply as far as cabinet and construction, cabling arrangements, bus-bars, neutral bars, earthing and isolating switches are connected.

Fuse banks shall be spaced so as to obviate the necessity for insulating barriers, but protection shall be provided by means of insulating shields to prevent accidental contact with the main bus-bars and connections.

All fuses lighting and heating circuits shall be of the HRC cartridge type, ASTA certified, for compliance with BS. 88, category of Duty 440 A.C 5 class 01.

Miniature Circuit-Breaker Distribution Boards

MCB distribution boards shall comply with BS. 5486 part 12 'Particular requirements for miniature circuits-breaker boards'. The cases shall be constructed of heavy gauge sheet steel, in such a manner as to afford rigidity and maximum ease of wiring for full size circuit and main cables.

The cover shall be provided with an efficient gasket or alternatively designed with generous overlapping edges to prevent the ingress of dust. Components shall not be manufactured from zinc alloy in conjunction with sheet steel where they are relied upon for earth continuity.

Where the cover is required to be lockable, cylinder type locks shall be provided, having two keys per lock. All locked distribution boards shall be handed to the Engineering Supervisor on completion of the works. The cases shall be provided with detachable cable/conduit terminating plates, which shall be reversible and interchangeable from top to bottom.

All screws and nuts used in the construction of the case shall be fitted with shakeproof washers and care taken to ensure efficient earth continuity. An external earthing terminal with cable socket shall be fitted.

All MCB banks shall be fitted to frames, with robust locking plates provided to ensure the frames rigidly in the fixed position.

The banks shall be so spaced to obviate the necessity for insulating barriers, but protection shall be provided by means of insulating shields to prevent accidental contact with main bus-bars and incoming mains cable.

Bus-bars shall be of high conductivity, hard drawn copper conductors connected to the MCB contacts by means of spring washered screws or bolts, unless plug-in type MCB's are specified.

Neutral bars shall be similar to the main bus-bars and shall have two screw terminals per way for rating of 30 amps or over. Single screw connections will be allowed for capacities up to 30 amps. The neutral bars shall have one terminal for each MCB within the board, and connection of conductors to the neutral bar shall be in the same order as the MCB ways.

Where installations are carried out with cables with a protective conductor, all distribution boards shall also contain internal earthing bars similar to the neutral bars detailed above, with one terminal for each MCB within the board. Earthing conductors shall be connected in the manner described for neutral conductors to neutral bars.

Where a main integral isolating switch is provided in an MCB case it shall be arranged to isolate incoming live and neutral main cables from the bus-bars. The isolator switch shall be rated at 500 volts and of the quick make-and break pattern with positive action. Incoming and outgoing terminals shall be fitted with two clamping screws and outgoing conductors to the bus-bars shall be high conductivity hard drawn copper rods.

Isolating switches shall comply with IEE Regulations, Part 537, and shall be capable of carrying their full rated load continuously and shall 'make' or 'break' their full rated load without undue burning of the contacts.

Miniature Circuits Breaker (MCB)

All MCB's shall have movements which are positive in both directions (make and break) so as to enable units to be closed decisively by the operation of the handle, and to be able to assume the 'OFF' position unless the contacts are definitely separated, to safeguard against false indications.

The hand shall be trip free to make it impossible for the operator to hold the breaker in the closed position under faulty conditions. The operating mechanism and arc chambers of the circuit breaker shall be separated from the terminals and fixing screws.

Terminal identification shall be readily discernable as viewed from the front of the board with automatic and clear signal identification for both 'ON' and 'OFF' position.

All terminals shall be readily accessible from the front and each wiring chamber shall be closed by a screw fixed cover which protects the terminals and prevents dust from settling on the insulation.

Where the full capacity of a distribution board is not required the Electrical Sub-Contractor shall fix blanking plates in the vacant MCB housings. All MCB's shall be rated at 500 volts minimum, and comply with BS 3871. "Miniature and moulded case circuits breakers" and 4752 part 1, "Circuit breakers".

Moulded Case Circuit Breakers (MCCB)

Where specified, MCCB's shall be of the thermal/magnetic type, having a quick make, quick break, trip free mechanism which prevents the MCCB from being closed or held against short circuits or overloads. Tripping of every multi-pole MCCB shall be such that operation ensures simultaneous action in all phases.

Clear indication shall be provide for the three positions of operation of the mechanism - 'ON', 'OFF' and 'TRIPPED'. The operation shall be such that the MCCB shall trip automatically under fault conditions and, to reset, the dolly shall require first moving through the 'off' position. All MCCB's shall be provided with facilities for locking the breaker in 'OFF' position.

All MCCB's shall be rated at 500 volts minimum, be ASTA certified for this operational duty, and comply with BS. 3871 and BS. 4752 Part 1.

LABELLING AND ENGRAVING

Labelling

All fused-switch units, switchfuses, switches, bus-bars chambers, distribution boards etc., and all items of equipment on the main panel shall be identified in accordance with section 514 of the IEE Regulations and shall have securely fitted externally a white 'Traffolyte', 'Formica' or other approved plastic laminate label engraved with 6 mm high black letters detailing the function of the equipment and any reference number.

Red, yellow, blue, plastic laminate phase discs shall be fixed inside all switchgear and distribution boards to indicate to which phase of the supply the various circuits are connected. The colourings shall comply with Part 524 of the IEE Regulations.

Each TP or TP & N item of switchgear shall have fitted on the cover a white plastic laminate label having 'CAUTION' - 415 VOLTS' engraved in 10 mm high red lettering.

Engraving

The Electrical Sub-Contractor shall allow for engraving of all switched fused spurs, double pole switch accessories and any other accessories which are customarily required.

The accessory plate shall be engraved in either black or red, capital letters 5 mm high, detailing and appliance or equipment being supplied by the accessory e.g., 'WATER PUMP' etc.

MOUNTING HEIGHTS

The approximate position of main switchgear, control equipment distribution boards, fittings and accessories shall be as indicated on the Drawings. Actual positions shall be determined on site by the Engineer.

Unless otherwise stated on the relevant drawings or directed by the Engineer the following mounting heights of all accessories above finished floor level shall be adhered to:-

Lighting Switches 1400 mm to centre

Socket Outlet and Spur 300 mm to centre (or 150 mm above work top level to centre)

Distribution Boards 1800 mm to lower edges.

All groups of accessories shall be in line either vertically or horizontally or as specified.

LUMINAIRES

All Luminaires shall be of the manufacture, size and type specified and shall comply in all respects to BS 4533 "Electric Luminaires".

The Electrical Sub-Contractor shall supply and install all luminaires including lamps, lampholders, control gear, capacitors, glassware, diffusers or other attachments, heat resistant internal cables, fuses and terminals and all necessary suspension gear. In case where Luminaires are supplied by the client the Sub-Contractor shall deliver to site store, install, commission and set to work.

Unless otherwise stated, Luminaires shall be suitable for Class 1 normal indoor environments, giving a degree of protection against ingress of moisture or dust.

All Luminaires shall be assembled and installed in accordance with the respective manufacturer's instructions/recommendations, in the position and mounting heights specified.

Luminaires shall not be installed under dirty and hazardous site conditions, and any damage or deterioration to luminaires installed under these conditions shall be made good by the electrical Sub-Contractor.

The Luminaires shall be cleaned free of dust and dirt after completion of the installation. Where dirt, dust, corrosion or other conditions cause imperfections in the luminaires, they shall be replaced.

Luminaires, diffusers, attachments or glassware etc., shall be properly stored to final erection, in such a manner as to avoid damage of any kind.

Luminaires fixings shall generally be suitable for direct connection to conduit boxes or as otherwise specified. Luminaires not provided with suitable BESA box shall be modified as necessary.

Where a flexible cord supports, or partly supports, a luminaire the maximum mass supported by the cord shall not exceed the values set out in IEE Regulations 523-32.

The minimum cross-section area flexible core to the employed shall be 0.75mm².

Specified attention shall be given to Chapter 52 of the IEE Regulations, particularly Regulation 521-5 and 521-6, Appendices 9 and 10.

Pendant tungsten luminaires shall be fitted with heat resistant flexible cord complying with BS 6500, capable of continuous operation with a conductor temperature of 150 degrees C. The cable shall be of the circular multicore type, finished white, if not otherwise specified.

Ceiling mounted tungsten luminaires, spotlights and other luminaires of the category 'hot' luminaires shall be wired internally with cable suitable for continuous operation at 185 degree C. Where cable tails are provided they shall be of the heat resistant type capable of operation at 185 degree C.

Exterior luminaires, fixed to the walls of buildings etc., shall be wired such that final circuit wiring terminates within the luminaire. All final circuit cables so installed shall be provided with heat resistant sleeves from the connection point within the luminaire for a distance of 300 mm.

All fluorescent and other discharge luminaires shall be provided with an integral fused connector block. The rating of the fuse shall be in accordance with the manufacturer's instructions to protect the internal wiring of the luminaire and to provide discrimination between final circuit protection and luminaire protection.

All recessed and semi-recessed luminaires in ceilings shall be connected by three core 0.75 mm² high temperature flexible cord from the terminals of the luminaires to a plug-in ceiling rose fixed and connected to an accessible outlet box in the wiring system, within the suspended ceiling immediately above the luminaire. The ceiling rose shall be accessible via the opening provided in the ceiling.

The Electrical Sub-Contractor shall ensure that the methods of suspension for luminaires are electrically and mechanically sound.

Luminaires suspended by means of tubes shall be fitted to ball joints allowing a swing of at least 20 degrees all round. Reliable earthing between the fixed and moving parts shall be provided by means of a flexible braided copper tape.

Fluorescent luminaires shall be provided with a minimum of two fixings, except in the case of recessed modular luminaires or surface-mounted luminaires exceeding 300 mm in width, where four number fixings (one from each corner) shall be provided by means of conduit drops or threaded rods.

Normally visible luminaires support shall be conduit. All fluorescent luminaires shall be solidly mounted with all assembly nuts, bolts and accessories made tight to prevent vibrations and noise. Anti-vibration packing shall be fitted where necessary. Luminaires mounted direct to trunking shall be fixed by means of the manufacturer's recommended fixing assemblies.

Unless stated otherwise, all luminaire supports shall be fixed to the building primary structure. Luminaires shall not be supported from suspended ceiling unless otherwise specified. The Electrical Sub-Contractor shall be responsible for mounting and fixing arrangements.

Break joint rings of approved colour shall be provided for all suspended luminaires and fluorescent battery luminaires where the batten is of insufficient width to cover completely the conduit box and its associated clearance hole in the ceiling.

The metalwork of all luminaires shall be effectively bonded to the earthing system in accordance with Chapter 54 of the IEE Regulations.

Care shall be taken to ensure that the internal wiring of luminaires and the cable of any fixed wiring shall not be in contact with high temperature areas in luminaires.

Lighting track shall be of the type, size, finish, number of circuits and manufacture specified and shall comply with the requirements of the relevant section of BS. 4533. The positions of luminaires as shown on the Drawings are approximate only and exact position shall be determined after reference to the Engineering supervisor.

CEILING ROSES

Surface mounted ceiling roses shall be of all insulated, high impact moulded plastic construction complying with BS. 67 and shall be suitable for direct attachment to conduit outlet boxes. Recessed or semi-recessed ceiling roses shall be manufactured from porcelain. Break joint rings shall be provided when used on flush conduit outlet boxes.

Ceiling roses shall not be connected to fixed wiring in such a manner that one of the terminals remains 'live' when the associated switch is in the 'off' position, unless that terminal is inaccessible to touch when the ceiling rose cover is removed, e.g for replacement flexible cord.

Terminals shall be provided for switched live, neutral and protective conductors. Loop-in facilities shall also be provided.

LAMPS

Lamps shall be compatible with the luminaire for which they are intended and shall be of the wattage, type and colour specified. Lamps shall be of the correct voltage rating for the particular electricity supply concerned.

Tungsten filament lamps, unless otherwise specified, shall be of the 'PEARL' type and of the long-life type giving 2000 hours average life.

Luminaires designed to accommodate lamps with reduced physical dimensions shall be fitted with lamps of the mushroom type of approved equal.

EXTERNAL LIGHTING

External lighting system shall comprise the lighting points at the position shown on the Drawings and shall include the provision, erection and connection of all lighting columns, bollards, wall and ceiling luminaires and the provision and connection of all control gear together with the laying, jointing and connection of all necessary cables.

All excavation, trenching, backfilling etc., will be undertaken by the Main Contractor.

All lighting columns shall be of the type specified, suitable for looping in and out three No.2 Core PVC/SWA/PVC cables of the specified size.

Where discharge lamps are specified the associated controlgear shall be mounted in the base of the column above the fused 'cut out', all on a timber board housed within the base of the column.

Each lighting column/bollard shall be completed with all adaptors, spigots, mounting brackets, luminaires, controlgear and lamps and shall be provided with a base compartment and locking door.

All column/bollards shall be fixed in the position specified.

Cable routes are shown on the relevant drawings and the Electrical Sub-Contractor shall lay the lighting cables in the trenches.

All connections shall be made in an approved manner, and the installations shall be finished complete and handed over in working order to the full satisfaction of the Engineer.

LIGHTING SWITCHES

Lighting switches shall be of the type, size and manufacture as specified.

Wall and ceiling switches shall comply with BS 3676. Wall and ceiling switches controlling A.C lighting circuits shall be rated 20 amp and be of the slow break quick make, type unless stated otherwise.

Where several switches on one phase are shown at one position, a ganged box shall be used.

Where switches at any location are connected to different phases, purpose-make phase barrier switches shall be installed. The phases shall be separated by means of rigidly fixed barriers and the cable for each phase shall be confined to the area enclosed by the barriers for that phase.

Switches connected to a particular phase shall have separate cover or covers fitted over each phase. The covers shall be engraved "CAUTION 415 VOLTS".

The switch plate of the specified finish shall be fitted over phase covers to render the switch unit indistinguishable from the switches that are not phase barrier switches.

Alternatively, each gang shall have its own piping and box for each phase, physically separated from other phases with similar arrangements.

For flush position on a plastered or equivalent finish wall, the switches shall have overlapping plates.

In any places where the finish is fair-faced brickwork, the wiring shall be installed on the back of the wall and make a back entry into the accessories. Each switch in these areas shall be neatly recessed and incorporate an overlapping plate.

For surface-mounted positions and such Plant Rooms, Electrical Switch room etc., employing a surface-mounted system or wiring, switches shall be surface-mounted, having metal front plates of an aluminium finish, mounted in matching metal boxes.

SOCKETS OUTLETS

All socket outlets and plugs shall be supplied and installed in accordance with the manufacture, type, sizes and finish

specified.

All round pin 2A, 5A, 15A, and 30A socket outlets shall comply with the requirements of BS 546.

All sockets outlets shall be switched, unless otherwise specified.

All switched sockets outlets shall be complete with steel boxes of the same manufacture, complete with earth terminal.

Assemblies shall comply fully with the requirements of the IEE Regulations concerning the bonding of protective conductor terminals and each such terminal shall be connected by a conductor, having a minimum cross-sectional area of 2.5 mm², to a permanent earthing terminal incorporated in the associated box providing an effective, solid connection to the earth continuity conductor of the installation.

Where the assembly does not provide a reliable electrical contact between the cover plate and box with effective connection of metal operating bars and toggles, then an insulated earthing lead shall be provided, solidly connected to the metal plate and operating bar or toggle and terminating at the fixed earthing terminal incorporated in the associated box. 13 amp sockets will generally be installed using ring circuits in accordance with Appendix 5, Table 5A of the IEE Regulations.

All plugs shall be of moulded rubber or other resilient material complying with BS 1363 or BS 546. The plug shall have internal cord grip. 13 amp plugs shall be fitted with cartridge fuse links to BS 1362. The fuse rating shall be selected to give protection to the flexible cord or cable connected.

All fuses installed within 13 amp plug top, fused spurs, clock connections etc., shall be cartridge fuse links rated at 240 volts, ASTA certified for compliance with BS 1362 'General purpose fuse links for domestic and similar purposes', or BS 464 'Cartridge fuse links (rated at upto 5 amperes) for AC and DC service', or BS 2950 'Cartridge fuse-link for telecommunications and light electrical apparatus'.

All equipment which is locally fused shall have fitted fuses with characteristics which are recommended by the manufacturer of the equipment.

If any appliance or equipment suffers due to incorrect fusing of the appliances, such appliances or equipment shall be repaired or replaced at the Electrical Sub-Contractor's cost, to the satisfaction of the Engineer.

INSPECTION AND TESTING

A visual inspection shall be made in accordance with IEE Regulations 612-1. References shall be made to appendix 14 of the IEE Regulations which is a check list for initial inspection of installations.

The electrical installation shall be inspected and tested by the Electrical Sub-Contractor in accordance with part 6 of the IEE Regulations.

Where any part of installation is to be concealed within a building, fabric tests shall be made to ensure that the installation is satisfactory prior to concealment.

Upon completion of the works the whole installation shall be subjected to the tests detailed hereafter and every defect shall be noted, corrected and brought to the notice of the Engineer.

All tests shall be witnessed by the Engineer to his full satisfaction and he shall be given at least one week's notice in writing of the proposed tests.

All labour and test instruments shall be provided by the Electrical Sub-Contractor and the instruments shall be correctly calibrated and certified for the limits of accuracy required and shall be operated by competent person. If, in the Engineer's opinion, a particular instrument is not suitable, then an acceptable alternative shall be provided. The Engineer shall be at liberty to demand the use of any testing instrument or apparatus that he may reasonably consider to be necessary in the execution of the testing.

In the event of the installation failing to pass the test, the Engineer has the full authority of the Employer to deduct from the Contract Price all reasonable expenses incurred, due to him being required to attend a repetition of the test.

The following items, where relevant, shall be tested in the sequence indicated. Standard methods of testing, in respect of some of the following regulations of this section, are given in Appendix 15 of the IEE Regulations.

- i) Continuity of ring final circuit conductors.
- ii) Continuity of protective conductors, including main supplementary equipotential bonding.
- iii) Earth electrode resistance.
- iv) Insulation resistance.
- v) Insulation of site-built assemblies.
- vi) Protection of barriers or enclosures provided during erection.
- vii) Insulation of non-conducting floors and walls.
- viii) Polarity.
- ix) Earth fault loop impedance.
- x) Operation of residual current devices and fault voltage operated protected devices.

Upon completion of all tests and commissioning, two copies of detailed certificates shall be provided by the Electrical Sub-Contractor to show that the equipment, materials, installation etc., have been tested and commissioned. One copy of each, duly completed and signed shall be submitted to the Engineer within 154 days of the results being obtained. The second copy of the certificates shall be retained to be included with operator and maintenance manuals. The results of the test and details of completion for the electrical test shall be detailed on the Test and Completion Certificates respectively; issued by the National Inspection council for Electrical Installation Contracting or other approved authority.

AS BUILT DRAWINGS, AND DOCUMENTATION

Within one month of the date of completion the Electrical Sub-Contractor shall provide 3 prints of all electrical drawings showing the electrical installations "As built". In case the Electrical Sub-Contractor fails to provide "As Built" drawings as required, these will be prepared by others at the expense of the Electrical Sub-Contractor.

PART 2 - PRODUCTS

2.1 AGGREGATE

General

1. Aggregate shall consist of crushed stone or crushed gravel. Natural sand can be blended if allowed by these specifications.
2. The definition of the various portions of material is as follows:
 - a) Coarse aggregate: material retained on the No. 8 sieve (size > 2.4 mm);
 - b) Fine aggregate: material passing the No. 8 sieve and retained on the No. 200 sieve (0.075 mm < size < 2.4 mm);
 - c) Mineral filler: material passing the No. 200 sieve (size < 0.075 mm).

A. Coarse Aggregate

1. Coarse aggregate shall consist of sound, tough, durable particles, free from adherent films of matter that would prevent thorough coating and bonding with the bituminous material and be free from organic matter and other deleterious substances.
2. The aggregate shall comply with the requirements as shown in Table 1.

B. Fine Aggregate

1. Fine aggregate shall consist of clean, sound, durable, angular particles produced by crushing stone or gravel..
2. To obtain the required gradation of aggregate blend or to improve the workability, natural sand may be used. The amount of sand to be added shall be adjusted to produce mixtures conforming to the requirements of this Section. If it is necessary to add natural sand, the percentage shall be kept below 15% (calculated by weight of total mixture).
3. The aggregate shall comply with the requirements as shown in Table 1.

C. Filler

1. The Contractor shall be aware that the mineral filler, naturally present in the crushed aggregate shall comply with the requirements in Table 1. In case of non-compliance, the natural filler shall be completely discarded from the blended aggregate and replaced with manufactured filler.
2. Manufactured filler shall be from limestone and shall comply with the requirements in Table 1.

D. Summary of Aggregate Requirements

Test	Size	Requirement	Reference
- Grading	combined filler	Table 4 ASTM D 242	ASTM D 242
- Shape			
- Two or more fractured faces	coarse	> 95% (w/w)	ASTM D 5821
- One or more fractured faces			
- Flat and elongated pieces ratio 3:1	coarse	> 100% (w/w)	ASTM D 5821
Water Absorption	coarse	<15% (w/w)	ASTM D 4791
- Sand Equivalent	coarse	< 3%	ASTM C 127
- Angularity	fine	< 3%	ASTM C 128
- Aggregate Impact Value		> 65%	
- Ten Percent Fines Value	fine	> 45%	ASTM D 2419
	10-14 mm	< 30%	ASTM C 1252
- Wear (Los Angeles Abrasion Value)	10-14 mm	> 150 kN	EN 13043 EN 13043
- Sodium Sulphate Soundness Loss ⁽¹⁾	coarse	< 35%	
	coarse	< 9%	ASTM C 131
- Magnesium Sulphate Soundness Loss ⁽¹⁾		< 12%	ASTM C 88
Clay/friable particles	coarse	<3%	ASTM C 88
Plasticity Index		<4	
Harmful fines by Methylene Blue	fine filler filler	< 1.9 MEQ/	ASTM C 142 ASTM D 4318 EN 933-9

Table 1: Aggregate Requirements

F Preliminary Material Acceptance

1. Sources of aggregate shall be selected well in advance of the time the materials are required on site. An inspection of the producer's operation may be made by the Engineer.
2. Prior to delivery of materials to the site, the Contractor shall submit test reports to the Engineer for the following materials:
 - a) Coarse Aggregate
 - 1) Percent of Wear
 - 2) Soundness
 - 3) Water Absorption
 - b) Fine Aggregate
 - 1) Angularity
 - 2) Sand Equivalent

- 3) Clay/Friable Particles
- c) Filler

- 1) Plasticity Index
- 2) Swelling Potential

- 3. Preliminary acceptance of the aggregates by the Engineer does not relieve the Contractor from the obligation to supply aggregates to the site in full compliance with the requirements in this specification.
- 4. Failure to obtain preliminary acceptance from the Engineer shall mean that the Contractor shall identify another source of aggregates.

2.2 ANTI-STRIPPING AGENT

- A. Anti-stripping agent shall be added, if necessary, to meet the requirements of the Job Mix Formula (JMF).
- B. If ordinary Portland cement is used as an anti-stripping agent, it shall be restricted to a maximum of 1% by weight of the combined aggregate.

2.3 BITUMINOUS MATERIAL

- A. The type, grades and controlling specifications for the unmodified bituminous base material shall be as follows:
 - 1. Penetration grade: 80-100
 - 2. Specification: ASTM D 946
- B. Additional field tests may be required by the Engineer before acceptance of:
 - 1. Penetration;
 - 2. Softening Point;

2.4 COMPOSITION

A. Mixtures

- 1. The asphalt mix shall be composed of a mixture of aggregate, filler and bituminous material.
- 2. The several aggregate fractions shall be combined in such proportions that the resulting mixture meets the grading requirements of the following:
 - a) Laboratory Trial Mix Formula (LTMF);
 - b) Field Job Mix Formula (FJMF).

B. Laboratory Trial Mix Formula

- 1. No asphalt mixture for pavement shall be produced until a Laboratory Job Mix Formula (LJMF) has been approved by the Engineer. Details of the JMF shall be submitted at least 15 days prior to first trials.

- The LTMF shall be based on volumetric mix design.

C . Volumetric Mixture Design

- The bituminous mixture shall be designed using testing methods and procedures contained in Chapters 2, 3, 4 and 5, Marshall Method of Mix Design, The Asphalt Institute's Manual Series No. 2 (MS-2), current edition.
- The Contractor shall prepare a series of test specimens for a range of different asphalt contents, so that the test data show a well-defined curve. To provide adequate data, triplicate test specimens shall be prepared for each asphalt content to be used.
- The requirements of Table 3 and Table 4 shall be met for this stage. The requirements of Table 3 and Table 4 are target values necessary to meet the acceptance requirements contained in Clause 3.6.
- The gradations in Table 4 represent the limits that shall determine the suitability of aggregate for use in the source of supply, The selection of the maximum aggregate size shall be as indicated in Table 2.

Layer Thickness	Maximum Aggregate size
< 50 mm	12.5 mm
>50mm	19 mm

Table 2: Maximum Aggregate Size

Criterion	Requirement
Number of Blows	2 x 75
Stability, in Newton	> 8,000
Flow, in mm	3 – 6
Air Voids, percent	3 – 5
Marshall Quotient, N/mm (= Stability/Flow)	2,000 – 3,000
Percent Voids in Mineral Aggregate (VMA)	see Table 5

Table 3: Marshall Criteria

ASTM		Percentage by Weight Passing Sieves			
Sieve Size		25 mm max	19 mm max	16 mm max	12.5 mm max
1 1/4"	(32.0 mm)	-	-	-	-

1"	(25.0 mm)	100	-	-	-
3/4"	(19.0 mm)	76 - 98	100	-	-
5/8"	(16.0 mm)	-	90 -100	100	-
1/2"	(12.5 mm)	66 - 86	78 — 98	79 — 99	100
3/8"	(9.5 mm)	55 - 77	68 - 88	70 - 90	78 - 98
No. 4	(4.75 mm)	40 - 60	48 - 68	55 - 75	58-78
No. 8	(2.26 mm)	26 — 46	33 - 53	35 - 55	39 - 59
No. 16	(1.18 mm)	17-37	20 — 40	20 — 40	26 — 46
No. 30	(0.60 mm)	11 -27	14 - 30	16-30	19- 35
No. 50	(0.30 mm)	7-19	9-21	10 -22	12- 24
No. 100	(0.15 mm)	6-16	6- 16	7- 16	7- 17
No. 200	0.075 mm	3-6	3-6	3-5	3 -6
Bitumen Content		4.5-7.0	5.0-7.5	5.5 - 7.5	5.5-8.0
VMA%		> 13	> 13	> 13	> 14

Table 4: Aggregate Grading Requirements

5. Bitumen content shall be calculated by weight of total mixture, excluding absorption.

6. The percentages in Table 4 are based on dry sieving. When the aggregate contains much fine dust, or clay, which might cling to the coarser aggregate particles, washed sieve analysis may be used. The percentages shown in Table 4 shall be adjusted for wet sieving, tested as per ASTM C 117.
7. The Loss of Stability shall not be more than 25 percent determined as follows:
 - a) Submerge tablets in water at 60°C for 30 minutes and determine Marshal Stability - result (a);
 - b) Submerge tablets in water at 60°C for 24 hours - result (b);
 - c) Loss of Stability calculated as $(a-b)/a \times 100 \%$

D. Mix Tolerances

1. The tolerances shown in Table 5 shall be applied to the FJMF to establish a job control-limits.

Material	Tolerance
Aggregate passing No. 4 sieve or larger	$\pm 7\%$
Aggregate passing Nos. 8, 16, 30 and 50 sieves	$\pm 4\%$
Aggregate passing Nos. 100 and 200 sieves	$\pm 1\%$
Bitumen content	$\pm 0.3\%$
Temperature	$\pm 10^\circ\text{C}$

Table 5: Job Mix Tolerances

PART 3 - EXECUTION

3.1 TEST SECTION

- A. Prior to full production, the Contractor shall prepare a quantity of bituminous mixture according to the LTMF, sufficient to construct a test section at least 30 m long and 5 m wide and shall be of the same depth specified for the construction of the course which it represents.
- B. The trial mixtures shall be laid at a location selected by the Engineer with the spreading and compacting equipment the Contractor proposes to use.
- C. The test section shall determine the appropriate method of spreading, compacting and finishing the bituminous mixture to comply with the specifications.

- D. If the test results should prove to be unsatisfactory, the necessary adjustments to the mix design, plant operation and work procedures shall be made till the plant can produce a mix as per the LJMF and within the tolerances as per Table 5. This mix shall be the FJMF (Filed Job Mix Formula) subject to approval by the Engineer. Full production shall not start prior to approval by the Engineer of the FJMF.
- E. When test sections do not conform to specification requirements, the layer(s) shall be removed and replaced at the Contractor's expense.
- F. The trials during the test section shall establish the following:
 - 1. Maximum mixing temperature in the plant for both aggregate and modified binder. (Guideline: not more than 175 °C);
 - 2. Minimum temperature of the mixture behind the paver. (Guideline: not less than 150 °C);
 - 3. Preferred temperature to achieve maximum compaction. (Guideline: 140 — 160 °C);
 - 4. Layer temperature for finishing compaction using steel wheel rollers and P T R, without causing damage. (Guideline: 100 — 120 °C);
- G. If the test sections are successful, establish a correlation between nuclear method of density determination and core density with at least 12 separate tests.

3.2 WORK PROCEDURE AND QUALITY ASSURANCE PLAN

- A. After the approval of the test section, the Contractor shall prepare and submit to the Engineer a detailed Work Procedure and a Quality Assurance Plan.
- B. The contents shall include as a minimum:
 - 1. Description of work;
 - 2. Work organization and responsibilities;
 - 3. Method of testing and reporting;
 - 4. Method, sequence and authority for correction measures based on laboratory & field tests (job mix, mixing plant and working methods);
 - 5. Remedial measures in case of non-acceptance.
- C. Full production shall not begin without the approval of the Engineer of the Work Procedure and Quality Assurance Plan.

3.3 WEATHER LIMITATIONS

- A. The bituminous mixture shall not be placed upon a wet surface or when the surface temperature of the underlying course is less than 5 deg. C.

3.4 EQUIPMENT

A. Bituminous Mixing Plant

- Mixing shall be in batch mixing plant(s) in accordance with the requirements of ASTM D 995. The mixing plant shall have provision to separately weigh the filler to be added to the aggregate.

2. The Engineer or his authorized representative shall have access, at all times, to all parts of the mixing plants for checking the adequacy of equipment, verifying weights, proportions and material properties and checking the temperatures maintained in the preparation of the mixtures.
3. The plant calibration shall be checked and reported as follows:
 - a) At the beginning before the trial section is laid (Alternatively: Recent Proof of Certification for calibration from a recognized agency);
 - b) Every 100,000 tons of mix produced and incorporated in the works.
4. The emission of the plant shall comply with the national standards.

B. Hauling Equipment

1. Trucks used for hauling bituminous mixtures shall have tight, clean and smooth metal beds. To prevent the mixture from adhering to them, the truck beds shall be lightly coated with a minimum amount of paraffin oil, lime solution, or other approved material.
2. Each truck shall have a suitable cover and tailgate to protect the mixture from adverse weather. When necessary, to ensure that the mix will be delivered to the site at the specified temperature, truck beds shall be insulated or heated and covers shall be securely fastened.
3. The preferred payload of the trucks shall be at least 20 metric tons. This is to prevent rapid cooling. This requirement may be waived by the Engineer if the Contractor can prove to deliver asphalt mix on site at a temperature not less than required in Clause 3.1 F. .

C. Asphalt Pavers

1. Bituminous pavers shall be well maintained, self-contained, power-propelled units with an activated screed or strike-off assembly, heated if necessary, and shall be capable of spreading and finishing courses of bituminous plant-mix material which will meet the specified thickness, smoothness, and grade.
2. The paving width capacity of the paving equipment shall be as specified in Clause 3. IA and easily adjustable in width.

D. Rollers

1. Rollers shall be a combination of the steel wheel (with and without vibration), and pneumatic-tired (PTR) type. They shall be in good condition, capable of reversing without backlash, and operating at slow speeds to avoid displacement of the bituminous mixture.
2. The number, type, and weight of rollers shall be sufficient to compact the mixture to the required density, both steel wheel rollers and PTR's are necessary to achieve the required compaction and finishing standards.

E. prior to the start and during the length of each night shift the Contractor shall have available on site:

- minimum 120 tons of hot asphalt in storage;
- a lifting crane, suitable to remove the heaviest piece Of equipment from the runway area.

3.5 PREPARATION OF MATERIAL

A. Bituminous Material

1. The bituminous material shall be heated to the specified temperature in a manner, which will avoid local overheating and provide a continuous supply to the mixer at a uniform temperature.
2. The temperature of the bituminous binder delivered to the mixer shall have a suitable viscosity for adequate coating of the aggregate particles (see Clause 3.1 F) and not be more than 5⁰ C above the temperature of the aggregate.

B. Mineral Aggregate

1. The aggregate for the mixture shall be dried and heated to the temperature designated by the Field Job Mix Formula within the job mix tolerance specified. The moisture content of the stockpiled aggregate shall not be more than 4%.
2. The maximum temperature and rate of heating shall be such that no permanent damage occurs to the aggregate.

C. Preparation of Bituminous Mixture

1. The aggregate and the bituminous material shall be measured or gauged and introduced into the mixer in the amount specified by the FJMF.
2. The combined materials shall be mixed until a complete and uniform coating of the particles and a thorough distribution of the bituminous material throughout the aggregate are secured.
3. Wet mixing time shall be the shortest time that will produce a satisfactory mix without excessive plant aging and shall be approved by the Engineer.

D. Transporting, Spreading and Finishing

1. Transporting and deliveries shall be scheduled to match the spreading and rolling for one day's run during daylight or under proper artificial lighting.
2. Hauling over freshly placed material shall not be permitted until the material has been compacted, as specified, and allowed to cool to atmospheric temperature.
3. Immediately before placing the bituminous mixture, the underlying course shall be cleared of all loose or deleterious material with power blowers, power brooms, or hand brooms as directed.
4. The mix shall be placed and compacted at a temperature as determined in Clause 3.1 F. .
5. Moisture content of the mix shall not exceed 1%. Mixture shall be rejected if delivered on site at a temperature less than the placing temperature.
6. Upon arrival, the mixture shall be spread to the full width by an approved bituminous paver.
7. It shall be struck off in a uniform layer of such depth that, when the work is completed, it shall have the required thickness and shall conform to the grade and contour indicated. The speed of the paver shall be regulated to eliminate pulling and tearing of the bituminous mat.
8. Unless otherwise directed, placing shall begin along the centerline of areas to be paved on a crowned section or on the high side of areas with a oneway slope. The mixture shall be placed in consecutive adjacent lanes having a minimum width as specified in Clause 3. IA, except where edge lanes require a lesser width to complete the area.
9. As far as practical the paving shall continue without stopping. Start-stop procedures shall be avoided.

10. The longitudinal joint in one layer shall offset that in the layer immediately below by at least 0.3 m (preferably 0.5 m).
11. Transverse joints in one layer shall be offset by at least 0.6 m from transverse joints in the previous layer. Transverse joints in adjacent lanes shall be offset a minimum of 3 m.
12. On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impractical, the mixture may be spread, raked, and luted by hand tools.

E. Grade and Slope Control

1. Grade control shall be based on string line or by mobile reference (ski or shoe).
2. Slope control shall be based on Electronic Slope Sensors, compatible with the paver equipment. .
3. The preferred method of grade control for the base layers of the asphalt pavement is by string line. The spacing of the support brackets for the string line shall not exceed 5.0 m at straight portions and 3.5 m in curves.
4. The preferred method of grade control for the middle layers is by ski. The length of the ski shall be at least 6 m.
5. Ski or string line shall not be used for the final layer. Instead, only a shoe grade follower shall be used.
6. No asphalt pavement shall be placed prior to approval by the Engineer of the grade and slope control measures. Refer also to Clause 3.6 hereof.

F. Compaction of Mixture

1. After spreading, the mixture shall be thoroughly and uniformly compacted with power rollers. Rolling of the mixture shall begin as soon after spreading as it will bear the roller without undue displacement or hairline cracking.¶
2. Sufficient rollers shall be furnished to handle the output of the plant.
3. Rolling shall continue until the surface is of uniform texture and true to grade and cross section, and the required field density is achieved. It is recommended to compact at the highest practical temperature (see 3.1 F).
4. To prevent adhesion of the mixture to the steel wheel roller, the wheels shall be kept properly (but not excessively) moistened.
5. When pneumatic tire rollers are used after the steel wheel roller, they shall not be allowed to start rolling until the surface is completely dry (hot and dry rolling).
6. The speed of the roller shall, at all times, be sufficiently slow to avoid displacement of the hot mixture. Any displacement occurring as a result of reversing the roller or from any other cause shall be corrected at once by raking and applying fresh mixture.
7. In areas not accessible to the roller, the mixture shall be thoroughly compacted with hot hand tampers.

8. Any mixture, which becomes loose and broken, mixed with dirt, or in any way defective, shall be removed and replaced with fresh hot mixture and immediately compacted to conform to the surrounding area Skin patching and hand working shall not be allowed.

G. Joints

1. The formation of all joints shall be made in such a manner as to ensure a continuous bond between old and new sections of the course. All joints shall present the same texture and smoothness as other sections of the course.
2. When a new lane is to be placed adjacent to a cold lane, the longitudinal joint between the lanes shall be constructed as specified in the Section for Hot-to-Cold Joint Preparation (Section 32 12 73.13).
3. A cold lane is defined as such when the surface temperature of the already laid asphalt mix is less than 80 0 C.

H. Shaping Edges

1. While the surface is being compacted and finished, the Contractor shall carefully trim the outside edges of the pavement to the proper alignment.

3.6 MATERIAL ACCEPTANCE

A. Sampling and Testing

1. All sampling and testing of plant produced and field placed material necessary to determine conformance with the requirements specified in this Section will be on a lot basis unless indicated differently. Each lot shall consist of a one-day production or 6,000 m², whichever is less as agreed with the Engineer. Each lot shall be subdivided into 4 approximately equal sub-lots for random sampling,
2. All sampling and testing shall be executed by the Contractor. Random sampling shall be as agreed with the Engineer.
3. The Engineer reserves the right to increase or decrease the frequency of sampling and testing at any moment during production.
4. ASTM D 75 shall be followed in sampling coarse and fine aggregate, ASTM C 183 shall be followed in sampling mineral filler.

B. Routine Tests on Materials during Production

1. The Contractor shall perform all quality control procedures described below to control the production and construction process applicable to these specifications.
2. Samples of aggregate, filler and binder shall be furnished and tested by the Contractor, as indicated in Table 6, prior to delivery at the job site and prior to the start of and at intervals during production.

Test Description		Frequency of Tests
1	Grading	Daily
2	Shape: a. two/one fractured faces	each 5,000 tons

	b. flat and elongated pieces	each 5,000 tons
3	Water absorption	each 5,000 tons
4	Sand equivalent	each 2,000 tons
5	Wear	each 5,000 tons
6	Sodium/Magnesium sulphate soundness loss	each 2,000 tons
7	Clay/ friable articles	each 5,000 tons
8	Plasticity index and grading filler	each 100 tons
9	Bitumen	each bulk delivery

Table 6: Schedule for Quality Control Testing

C. Routine Tests on Plant Produced Material

- One sample of sufficient plant produced material shall be taken on a random basis at the start of production for every two sub-lots for conducting all test described hereafter.
- The theoretical maximum specific gravity of the un-compacted mixture (Gmm) shall be determined in accordance with ASTM D 2041.
- One set of four (4) Marshall Specimens shall be prepared from each sample at the required number of blows.
- Prior to testing, for each specimen the bulk specific gravity (Gmb) shall be determined in accordance with ASTM D 2726, the percent air voids shall be determined in accordance with ASTM D 3203 and the VMA and VFA shall be determined in accordance with Asphalt Institute MS-2.
- Three specimens per set shall be tested to determine Marshall Stability and flow in accordance with ASTM D 1559.■
- One Marshall Specimen shall be retained for record purposes.
- Every three days a sample of sufficient material shall be taken to prepare one additional set of three Marshall Specimens. The specimens shall be tested to determine the Loss of Stability as per 2.4C.7.
- One extraction test shall be performed per sample in accordance with ASTM D 2172 for determination of asphalt content and aggregate gradation in accordance with ASTM C 136 and ASTM C 117. The results of these test shall be submitted to the Engineer within 2 hours after sampling.
- Conduct one test per day of softening point (Tr&b) as per ASTM D 36 and Penetration as per ASTM D 5 on the binder..
- The Contractor shall maintain and keep current, linear control charts indicating the approved target, warning lines at one, two and three times the calculated standard deviation on either side of the target

and the individual measurements of the data obtained. As a minimum, control charts shall be established for the test parameters indicated in Table 7.

Test Parameter for Control Charts	Standard Deviation
Bitumen Content Percentage passing No. 4 Sieve Percentage passing No. 30 Sieve Percentage passing No. 200 Sieve	to be determined during the field trials and continuously updated as the work progresses

Table 7: Linear Control Charts

11. The control charts shall be used as part of the process control, for identifying potential problems before they occur. Adjustments to the process shall be deemed necessary when:
 - a) One (1) individual result outside the 3 x a lines;
 - b) Two (2) consecutive results outside the 2 x a lines
 - c) Three (3) consecutive results outside the 1x q warning line;
 - d) Eleven (11) consecutive results at one side of the target.

Clause 1602B:

- (i) Penetration Grade Bitumen shall be 80/100
- (ii) Aggregates shall be Class A

Clause 1604B:

Grading Requirements for the asphalt concrete shall be type 1 – 0/14

- (a) Marshall stability = Min 9000
- (b) Flow value = 2 – 4 mm
- (c) Voids in total mix = 3 – 5 %
- (d) Bitumen content = 5.5 – 7%

Clause 2002 - Fencing

Chain link fence on reinforced concrete posts

1. The fence shall have an overall height of 2.4 M above the ground level. The Galvanized Welded Razor Mesh fence section shall be of a height of 2.4M above ground level, with cranked section of at least 0.475 m with 3 lines of barbed wire on top of the chain link.
2. Chain-link shall be 50 mm mesh size. It shall be gauge twelve and half (12.5G) (2.5 mm) high tensile galvanized wire and manufactured in accordance with dimensions and other requirements as stipulated in KS 261: 2013, or equivalent standard.
3. Supply and Install High Density Galvanized Welded Razor Mesh with Diamond Apertures; with the following characteristics: -
 - (a) Diamond Mesh Size: 75x150mm;
 - (b) Roll Size: (H)2.4m & (W) 6.0m;
 - (c) Blade Length: 30mm;

(d) Blade Width: 22mm;

(e) Blade Spacing: 50mm;

(f) Blade Thickness: 0.5mm and

(g) Core Wire: Diameter 2.5mm. The galvanized Welded Mesh to be fastened with 5 No. lines of galvanized wire (m/s) 2.5mm diameter; threaded through and including mesh and hook bolts; secured by binding wire; all as per detail drawings.

4. Concrete posts shall be pre-cast under ideal controlled conditions. Concrete shall be class 20/20 reinforced with 10mm mild steel square ribbed bars with 8mm stirrups at 350mm center to center.
5. The concrete posts shall be cast in approved mild steel moulds and subjected to curing by being immersed in water troughs for at least 7 days. Thereafter, the posts shall be further cured under continuously moist conditions until they achieve the full strength before being transported to site for installation.
6. Barbed wire shall consist of the following:
 - Conventional line wires.
 - High tensile galvanized with nominal wire diameter 2.50 mm.
 - To conform to requirements of KS 261: 2013 or equivalent standards.
6. Line wires shall be 2.5 mm nominal diameter high tensile galvanized straining wire and manufactured in accordance with KS 261: 2013 or equivalent standards. They shall have a minimum tensile strength of 550 Mpa.

2005 Pavement Marking

Paint for runway marking shall be internally reflectorized hot applied durable, high build, fast dry traffic line marking in accordance with Clause 219 of the Standard Specification.

The rates inserted in the Bills of Quantities for pavement marking shall include for prior application of approved tack coat.

SECTION 22-DAYWORKS

2201 Scope

This specification covers instructions that may be issued by the Engineer as additional or substituted work to be executed on a day work basis by the Contractor or by his sub-contractors.

2202 Standards

All codes and standards mean the latest. Where not specified otherwise the installation shall generally follow the Kenyan Standard Specification for Road and Bridge Construction

2203 Measurement and Payments

Measurement and payment for all day works items shall be in accordance with the items listed in the Bill of Quantities, the preamble to Bill of quantities and the specifications above and cover the payment of plant, labour and materials for work executed in accordance with the Engineer's instructions

PART 3 – CONDITIONS OF CONTRACT AND CONTRACT FORMS

Section VIII - General Conditions of Contract 1. GENERAL CONDITIONS

1.1 General Provisions

1.1.1 Definitions

In the Conditions of Contract (“these Conditions”), which include Particular Conditions, Parts A and B, and these General Conditions, the following words and expressions shall have the meanings stated. Words indicating persons or parties include corporations and other legal entities, except where the context requires otherwise.

1.1.2 The Contract

“**Bills of Quantities**”, “**Daywork Schedule**” and “**Schedule of Payment Currencies**” mean the documents so named (if any) which are comprised in the Schedules.

“**Contract Agreement**” means the contract agreement referred to in Sub-Clause 1.6 [Contract Agreement].

“**Contract**” means the Contract Agreement, the Letter of Acceptance, the Letter of Tender, these Conditions, the Specification, the Drawings, the Schedules, and the further documents (if any) which are listed in the Contract Agreement or in the Letter of Acceptance.

“**Drawings**” means the drawings of the Works, as included in the Contract, and any additional and modified drawings issued by (or on behalf of) the Procuring Entity in accordance with the Contract.

“**Laws**” means all national legislation, statutes, ordinances, and regulations and by-laws of any legally constituted public authority.

“**Letter of Acceptance**” means the letter of formal acceptance, signed by the contractor and the Procuring Entity, including any annexed memoranda comprising agreements between and signed by both Parties.

“**Letter of Tender**” means the document entitled letter of tender or letter of tender, which was completed by the Contractor and includes the signed offer to the Procuring Entity for the Works.

“**SCC**” means the **Special Conditions of Contract completed by the Procuring Entity which modify the General Conditions of Contract.**

“**Schedules**” means the document(s) entitled schedules, completed by the Contractor and submitted with the Letter of Tender, as included in the Contract. Such document may include the Bills of Quantities, data, lists, and schedules of rates and/or prices.

“**Specification**” means the document entitled specification, as included in the Contract, and any additions and modifications to the specification in accordance with the Contract. Such document specifies the Works.

“**Tender**” means the Letter of Tender and all other documents which the Contractor submitted with the Letter of Tender, as included in the Contract.

1.1.3 Parties and Persons

“**Contractor's Personnel**” means the Contractor's Representative and all personnel whom the Contractor utilizes on Site, who may include the staff, labor and other employees of the Contractor and of each Subcontractor; and any other personnel assisting the Contractor in the execution of the Works.

“**Contractor's Representative**” means the person named by the Contract or in the Contractor appointed from time to time by the Contractor under Sub-Clause 4.3 [Contractor's Representative], who acts on behalf of the Contractor.

“**Contractor**” means the person(s) named as contractor in the Letter of Tender accepted by the Procuring Entity and the legal successors in title to this person(s).

“**Engineer**” means the person appointed by the Procuring Entity to act as the Engineer for the purposes of the Contract and named in the **SCC**, or other person appointed from time to time by the Procuring Entity and

notified to the Contractor under Sub-Clause 3.4 [Replacement of the Engineer].

“Party” means the Procuring Entity or the Contractor, as the context requires.

“Procuring Entity” means the Entity named in the Special Conditions of Contract.

“Procuring Entity's Personnel” means the Engineer, the assistants referred to in Sub-Clause 3.2 [Delegation by the Engineer] and all other staff, labor and other employees of the Engineer and of the Procuring Entity; and any other personnel notified to the Contractor, by the Procuring Entity or the Engineer, as Procuring Entity's Personnel.

“Procuring Entity” means the person named as Procuring Entity in the SCC and the legal successors in title to this person.

“Subcontractor” means any person named in the Contract as a subcontractor, or any person appointed as a subcontractor, for a part of the Works; and the legal successors in title to each of these persons.

1.1.4 Dates, Tests, Periods and Completion

“Base Date” means a date 30 day prior to the submission of tenders.

“Commencement Date” means the date notified under Sub-Clause 8.1 [Commencement of Works].

“Completion Certificate” means the certificate issued under Sub-Clause 11.9 [Performance

Certificate]. **“Day”** means a calendar day and **“year”** means 365 days.

“Defects Notification Period” means the period for notifying defects in the Works or a Section (as the case may be) under Sub-Clause 11.1 [Completion of Outstanding Work and Remedying Defects], which extends over 365 days except if otherwise stated in the SCC (with any extension under Sub-Clause 11.3 [Extension of Defects Notification Period]), calculated from the date on which the Works or Section is completed as certified under Sub-Clause 10.1 [Taking Over of the Works and Sections].

“Taking-Over Certificate” means a certificate issued under Clause 10 [Procuring Entity's Taking Over].

“Tests after Completion” means the tests (if any) which are specified in the Contract and which are carried out in accordance with the Specification after the Works or a Section (as the case may be) are taken over by the Procuring Entity.

“Tests on Completion” means the tests which are specified in the Contract or agreed by both Parties or instructed as a Variation, and which are carried out under Clause 9 [Tests on Completion] before the Works or a Section (as the case may be) are taken over by the Procuring Entity.

“Time for Completion” means the time for completing the Works or a Section (as the case may be) under Sub-Clause 8.2 [Time for Completion], as stated in the SCC (with any extension under Sub-Clause 8.4 [Extension of Time for Completion]), calculated from the Commencement Date.

1.1.5 Money and Payments

“Accepted Contract Amount” means the amount accepted in the Letter of Acceptance for the execution and completion of the Works and the remedying of any defects.

“Contract Price” means the price defined in Sub-Clause 14.1 [The Contract Price] and includes adjustments in accordance with the Contract.

“Cost” means all expenditure reasonably incurred (or to be incurred) by the Contractor, whether on or off the Site, including overhead and similar charges, but does not include profit.

“Final Payment Certificate” means the payment certificate issued under Sub-Clause 14.13 [Issue of Final Payment Certificate].

“Final Statement” means the statement defined in Sub-Clause 14.11 [Application for Final Payment

Certificate].

“Foreign Currency” means a currency in which part (or all) of the Contract Price is payable, but not the Local Currency.

“Interim Payment Certificate” means a payment certificate issued under Clause 14 [Contract Price and Payment], other than the Final Payment Certificate.

“Local Currency” means the currency of the Country.

“Payment Certificate” means a payment certificate issued under Clause 14 [Contract Price and Payment].

“Provisional Sum” means a sum (if any) which is specified in the Contract as a provisional sum, for the execution of any part of the Works or for the supply of Plant, Materials or services under Sub-Clause 13.5 [Provisional Sums].

“Retention Money” means the accumulated retention moneys which the Procuring Entity retains under Sub-Clause 14.3 [Application for Interim Payment Certificates] and pays under Sub-Clause 14.9 [Payment of Retention Money].

“Statement” means a statement submitted by the Contractor as part of an application, under Clause 14 [Contract Price and Payment], for a payment certificate.

1.1.6 Works and Goods

“Contractor's Equipment” means all apparatus, machinery, vehicles and other things required for the execution and completion of the Works and the remedying of any defects. However, Contractor's Equipment excludes Temporary Works, Procuring Entity's Equipment (if any), Plant, Materials and any other things intended to form or forming part of the Permanent Works.

“Goods” means Contractor's Equipment, Materials, Plant and Temporary Works, or any of them as appropriate.

“Materials” means things of all kinds (other than Plant) intended to form or forming part of the Permanent Works, including the supply-only materials (if any) to be supplied by the Contractor under the Contract.

“Permanent Works” means the permanent works to be executed by the Contractor under the Contract.

“Plant” means the apparatus, machinery and other equipment intended to form or forming part of the Permanent Works, including vehicles purchased for the Procuring Entity and relating to the construction or operation of the Works.

“Section” means a part of the Works specified in the SCC as a Section (if any).

“Temporary Works” means all temporary works of every kind (other than Contractor's Equipment) required on Site for the execution and completion of the Permanent Works and the remedying of any defects.

“Works” mean the Permanent Works and the Temporary Works, or either of them as appropriate.

1.1.7 Other Definitions

“Contractor's Documents” means the calculations, computer programs and other software, drawings, manuals, models and other documents of a technical nature (if any) supplied by the Contractor under the Contract.

“Country” means Kenya as the country in which the Site is located, where the Permanent Works are to be executed.

“Force Majeure” is defined in Clause 19 [Force Majeure].

“Laws” means all national (or state) legislation, statutes, ordinances and other laws, and regulations and by-laws of any legally constituted public authority.

“Notice of Dissatisfaction” means the notice given by either Party to the other under Sub-Clause 20.4

indicating its dissatisfaction and intention to commence arbitration.

“Performance Security” means the security (or securities, if any) under Sub-Clause 4.2 [Performance Security].

“Procuring Entity's Equipment” means the apparatus, machinery and vehicles (if any) made available by the Procuring Entity for the use of the Contractor in the execution of the Works, as stated in the Specification; but does not include Plant which has not been taken over by the Procuring Entity.

“Site” means the places where the Permanent Works are to be executed, including storage and working areas, and to which Plant and Materials are to be delivered, and any other places as may be specified in the Contract as forming part of the Site.

“Unforeseeable” means not reasonably foreseeable by an experienced contractor by the Base Date.

“Variation” means any change to the Works, which is instructed or approved as a variation under Clause 13 [Variations and Adjustments].

12 Interpretation

In the Contract, except where the context requires otherwise:

- a) Words indicating one gender include all genders;
- b) words indicating the singular also include the plural and words indicating the plural also include the singular;
- c) provisions including the word “agree”, “agreed” or “agreement” require the agreement to be recorded in writing;
- d) “written” or “in writing” means hand-written, type-written, printed or electronically made, and resulting in a permanent record; and
- e) the word “tender” is synonymous with “tender” and “tenderer” with “Tenderer” and the words “tender documents” with “tendering documents.”

13 Communications

1.3.1 Wherever these Conditions provide for the giving or issuing of approvals, certificates, consents, determinations, notices, requests and discharges, these communications shall be:

- a) In writing and delivered by hand (against receipt), sent by mail or courier, or transmitted using any of the agreed systems of electronic transmission as stated in the **SCC**; and
- b) delivered, sent or transmitted to the address for the recipient's communications as stated in the **SCC**.
However:
 - i) if the recipient gives notice of another address, communications shall thereafter be delivered accordingly; and
 - ii) if the recipient has not stated otherwise when requesting an approval or consent, it may be sent to the address from which the request was issued.

1.3.2 Approvals, certificates, consents and determinations shall not be unreasonably withheld or delayed. When a certificate is issued to a Party, the certifier shall send a copy to the other Party. When a notice is issued to a Party, by the other Party or the Engineer, a copy shall be sent to the Engineer or the other Party, as the case may be.

14 Law and Language

1.4.1 The Contract shall be governed by the **laws of Kenya**.

1.4.2 The ruling language of the Contract shall be the **English Language**.

15 Priority of Documents

1.5.1 The documents forming the Contract are to be taken as mutually explanatory of one another. For the purposes of interpretation, the priority of the documents shall be in accordance with the following sequence:

- a) The Contract Agreement,
- b) The Letter of Acceptance,

- c) the Particular Conditions–Part A,
- d) the Particular Conditions–Part B
- e) the General Conditions of Contract
- f) the Form of Tender,
- g) the Specifications and Bills of Quantities
- h) the Drawings, and
- i) the Schedules and any other documents forming part of the Contract.

1.5.2 If an ambiguity or discrepancy is found in the documents, the Engineer shall issue any necessary clarification or instruction.

16 Contract Agreement

The Parties shall enter into a Contract Agreement within 14 days after the Contractor receives the Letter of Acceptance, unless the Particular Conditions establish otherwise. The Contract Agreement shall be based upon the form annexed to the Particular Conditions. The costs of stamp duties and similar charges (if any) imposed by law in connection with entry into the Contract Agreement shall be borne by the Procuring Entity.

17 Assignment

Neither Party shall assign the whole or any part of the Contract or any benefit or interest in or under the Contract. However, either Party:

- a) May assign the whole or any part with the prior agreement of the other Party, at the sole discretion of such other Party, and
- b) may, as security in favor of a Procuring Entity or financial institution, assign its right to any moneys due, or to become due, under the Contract.

18 Care and Supply of Documents

- 1.8.1 The Specification and Drawings shall be in the custody and care of the Procuring Entity. Unless otherwise stated in the Contract, two copies of the Contract and of each subsequent Drawing shall be supplied to the Contractor, who may make or request further copies at the cost of the Contractor.
- 1.8.2 Each of the Contractor's Documents shall be in the custody and care of the Contractor, unless and until taken over by the Procuring Entity. Unless otherwise stated in the Contract, the Contractor shall supply to the Engineer
- 1.8.3 The Contractor shall keep, on the Site, a copy of the Contract, publications named in the Specification, the Contractor's Documents (if any), the Drawings and Variations and other communications given under the Contract. The Procuring Entity's Personnel shall have the right of access to all these documents at all reasonable times.
- 1.8.4 If a Party becomes aware of an error or defect in a document which was prepared for use in executing the Works, the Party shall promptly give notice to the other Party of such error or defect.

19 Delayed Drawings or Instructions

- 1.9.1 The Contractor shall give notice to the Engineer whenever the Works are likely to be delayed or disrupted if any necessary drawing or instruction is not issued to the Contractor within a particular time, which shall be reasonable. The notice shall include details of the necessary drawing or instruction, details of why and by when it should be issued, and the nature and amount of the delay or disruption likely to be suffered if it is late.

If the Contractor suffers delay and/or incurs Cost as a result of a failure of the Engineer to issue the notified drawing or instruction within a time which is reasonable and is specified in the notice with supporting details, the Contractor shall give a further notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- b) payment of any such Cost-plus profit, which shall be included in the Contract Price.

- 1.9.2 After receiving this further notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.
- 1.9.3 However, if and to the extent that the Engineer's failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor's Documents, the Contractor shall not be entitled to such extension of time, Cost or profit.

1.10 Procuring Entity's Use of Contractor's Documents

- 1.10.1 As between the Parties, the Contractor shall retain the copyright and other intellectual property rights in the Contractor's Documents and other design documents made by (or on behalf of) the Contractor. The Contractor shall be deemed (by signing the Contract) to give to the Procuring Entity a non-terminable transferable non-exclusive royalty-free license to copy, use and communicate the Contractor's Documents, including making and using modifications of them. This license shall:
- a) apply throughout the actual or intended working life (whichever is longer) of the relevant parts of the Works,
 - b) entitle any person in proper possession of the relevant part of the Works to copy, use and communicate the Contractor's Documents for the purposes of completing, operating, maintaining, altering, adjusting, repairing and demolishing the Works, and
 - c) in the case of Contractor's Documents which are in the form of computer programs and other software, permit their use on any computer on the Site and other places as envisaged by the Contract, including replacements of any computers supplied by the Contractor.
- 1.10.2 The Contractor's Documents and other design documents made by (or on behalf of) the Contractor shall not, without the Contractor's consent, be used, copied or communicated to a third party by (or on behalf of) the Procuring Entity for purposes other than those permitted under this Sub-Clause.

1.11 Contractor's Use of Procuring Entity's Documents

As between the Parties, the Procuring Entity shall retain the copyright and other intellectual property rights in the Specification, the Drawings and other documents made by (or on behalf of) the Procuring Entity. The Contractor may, at his cost, copy, use, and obtain communication of these documents for the purposes of the Contract. They shall not, without the Procuring Entity's consent, be copied, used or communicated to a third party by the Contractor, except as necessary for the purposes of the Contract.

1.12 Confidential Details

The Contractor's and the Procuring Entity's Personnel shall disclose all such confidential and other information as may be reasonably required in order to verify compliance with the Contract and allow its proper implementation.

1.13 Compliance with Laws

The Contractor shall, in performing the Contract, comply with applicable Laws. Unless otherwise stated in the Particular Conditions:

- a) The Procuring Entity shall have obtained (or shall obtain) the planning, zoning, building permit or similar permission for the Permanent Works, and any other permissions described in the Specification as having been (or to be) obtained by the Procuring Entity; and the Procuring Entity shall indemnify and hold the Contractor harmless against and from the consequences of any failure to do so; and
- b) the Contractor shall give all notices, pay all taxes, duties and fees, and obtain all permits, licenses and approvals, as required by the Laws in relation to the execution and completion of the Works and the remedying of any defects; and the Contractor shall indemnify and hold the Procuring Entity harmless against and from the consequences of any failure to do so, unless the Contractor is impeded to accomplish these actions and shows evidence of its diligence.

1.14 Joint and Several Liability

If the Contractor constitutes (under applicable Laws) a joint venture, consortium or other unincorporated grouping of two or more persons:

- a) These persons shall be deemed to be jointly and severally liable to the Procuring Entity for the performance of the Contract;
- b) these persons shall notify the Procuring Entity of their leader who shall have authority to bind the Contractor and each of these persons; and
- c) the Contractor shall not alter its composition or legal status without the prior consent of the Procuring Entity.

1.15 Inspections and Audit by the Procuring Entity

Pursuant to paragraph 2.2 e. of Appendix B to the General Conditions, the Contractor shall permit and shall cause its subcontractors and sub-consultants to permit, the Procuring Entity and/or persons appointed by the Procuring Entity to inspect the Site and/or the accounts and records relating to the procurement process, selection and/or contract execution, and to have such accounts and records audited by auditors appointed by the Procuring Entity if requested by the Procuring Entity. The Contractor's and its Subcontractors' and sub-consultants' attention is drawn to Sub-Clause 15.6 (Fraud and Corruption) which provides, inter alia, that acts intended to materially impede the exercise of the Procuring Entity's inspection and audit rights constitute a prohibited practice subject to contract termination (as well as to a determination of ineligibility pursuant to the Procuring Entity's prevailing sanctions procedures).

2 THE PROCURING ENTITY

2.1 Right of Access to the Site

- 2.1.1 The Procuring Entity shall give the Contractor right of access to, and possession of, all parts of the Site within the time (or times) stated in the **SCC**. The right and possession may not be exclusive to the Contractor. If, under the Contract, the Procuring Entity is required to give (to the Contractor) possession of any foundation, structure, plant or means of access, the Procuring Entity shall do so in the time and manner stated in the Specification. However, the Procuring Entity may withhold any such right or possession until the Performance Security has been received.
- 2.1.2 If no such time is stated in the **SCC**, the Procuring Entity shall give the Contractor right of access to, and possession of, the Site within such times as required to enable the Contractor to proceed without disruption in accordance with the programme submitted under Sub-Clause 8.3 [Programme].
- 2.1.3 If the Contractor suffers delay and/or incurs Cost as a result of a failure by the Procuring Entity to give any such right or possession within such time, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
 - a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
 - b) payment of any such Cost-plus profit, which shall be included in the Contract Price.
- 2.1.4 After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.
- 2.1.5 However, if and to the extent that the Procuring Entity's failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor's Documents, the Contractor shall not be entitled to such extension of time, Cost or profit.

2.2 Permits, Licenses or Approvals

The Procuring Entity shall provide, at the request of the Contractor, such reasonable assistance as to allow the Contractor to obtain properly:

- a) Copies of the Laws of the Country which are relevant to the Contract but are not readily available, and
- b) Any permits, licenses or approvals required by the Laws of the Country:

- i) Which the Contractor is required to obtain under Sub-Clause 1.13 [Compliance with Laws],
- ii) For the delivery of Goods, including clearance through customs, and
- iii) For the export of Contractor's Equipment when it is removed from the Site.

23 Procuring Entity's Personnel

The Procuring Entity shall be responsible for ensuring that the Procuring Entity's Personnel and the Procuring Entity's other contractors on the Site:

- a) co-operate with the Contractor's efforts under Sub-Clause 4.6 [Co-operation], and
- b) take actions similar to those which the Contractor is required to take under sub-paragraphs (a), (b) and (c) of Sub-Clause 4.8 [Safety Procedures] and under Sub-Clause 4.18 [Protection of the Environment].

24 Procuring Entity's Financial Arrangement

24.1 The Procuring Entity shall submit, before the Commencement Date and there after within 30 days after receiving any request from the Contractor, reasonable evidence that financial arrangements have been made and are being maintained which will enable the Procuring Entity to pay the Contract Price punctually (as estimated at that time) in accordance with Clause 14 [Contract Price and Payment]. Before the Procuring Entity makes any material change to his financial arrangements, the Procuring Entity shall give notice to the Contractor with detailed particulars.

24.2 In addition, if the Procuring Entity has notified to the Contractor that the Procuring Entity has suspended disbursements under its loan, which finances in whole or in part the execution of the Works, the Procuring Entity shall give notice of such suspension to the Contractor with detailed particulars, including the date of such notification, with a copy to the 2.4.3 Engineer, within 7 days of the Procuring Entity having received the suspension notification from the Procuring Entity. If alternative funds will be available in appropriate currencies to the Procuring Entity to continue making payments to the Contractor beyond a date 60 day after the date of Procuring Entity notification of the suspension, the Procuring Entity shall provide reasonable evidence in his notice of the extent to which such funds will be available.

25 Procuring Entity's Claims

25.1 If the Procuring Entity considers itself to be entitled to any payment under any Clause of these Conditions or otherwise in connection with the Contract, and/or to any extension of the Defects Notification Period, the Procuring Entity or the shall give notice and particulars to the Contractor. However, notice is not required for payments due under Sub-Clause 4.19 [Electricity, Water and Gas], under Sub-Clause 4.20 [Procuring Entity's Equipment and Free-Issue Materials], or for other services requested by the Contractor.

25.2 The notice shall be given as soon as practicable and no longer than 30 days after the Procuring Entity became aware, or should have become aware, of the event or circumstances giving rise to the claim. A notice relating to any extension of the Defects Notification Period shall be given before the expiry of such period.

25.3 The particulars shall specify the Clause or other basis of the claim and shall include substantiation of the amount and/or extension to which the Procuring Entity considers itself to be entitled in connection with the Contract. The Engineer shall then proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) the amount (if any) which the Procuring Entity is entitled to be paid by the Contractor, and/or(ii) the extension (if any) of the Defects Notification Period in accordance with Sub-Clause 11.3 [Extension of Defects Notification Period].

3 THE ENGINEER

3.1 Engineer's Duties and Authority

3.1.1 The Procuring Entity shall appoint the Engineer who shall carry out the duties assigned to him in the Contract. The Engineer's staff shall include suitably qualified engineers and other professionals who are competent to carry out these duties.

The Engineer shall have no authority to amend the Contract.

The Engineer may exercise the authority attributable to the Engineer as specified in or necessarily to be implied from the Contract. If the Engineer is required to obtain the approval of the Procuring Entity before exercising a

specified authority, the requirements shall be as stated in the Particular Conditions. The Procuring Entity shall promptly inform the Contractor of any change to the authority attributed to the Engineer.

- 3.12 However, whenever the Engineer exercises a specified authority for which the Procuring Entity's approval is required, then (for the purposes of the Contract) the Procuring Entity shall be deemed to have given approval. Except as otherwise stated in these Conditions:
- a) Whenever carrying out duties or exercising authority, specified in or implied by the Contract, the Engineer shall be deemed to act for the Procuring Entity; the Engineer has no authority to relieve either Party of any duties, obligations or
 - b) any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by the Engineer (including absence of disapproval) shall not relieve the Contractor from any responsibility he has under the Contract, including responsibility for errors, omissions, discrepancies and non-compliances; and
 - c) any act by the Engineer in response to a Contractor's request except as otherwise expressly specified shall be notified in writing to the Contractor within 14 days of receipt.
- 3.12 The following provisions shall apply; The Engineer shall obtain the specific approval of the Procuring Entity before taking action under the-following Sub-Clauses of these Conditions:
- a) Sub-Clause 4.12: agreeing or determining an extension of time and/or additional cost.
 - b) Sub-Clause 13.1: instructing a Variation, except;
 - i) In an emergency situation as determined by the Engineer, or
 - ii) If such a Variation would increase the Accepted Contract Amount by less than the percentage specified in the **SCC**.
 - c) Sub-Clause 13.3: Approving a proposal for Variation submitted by the Contractor in accordance with Sub Clause 13.1 or 13.2.
 - d) Sub-Clause 13.4: Specifying the amount payable in each of the applicable currencies.
- 3.13 Notwithstanding the obligation, as set out above, to obtain approval, if, in the opinion of the Engineer, an emergency occurs affecting the safety of life or of the Works or of adjoining property, he may, without relieving the Contractor of any of his duties and responsibility under the Contract, instruct the Contractor to execute all such work or to do all such things as may, in the opinion of the Engineer, be necessary to abate or reduce the risk. The Contractor shall forthwith comply, despite the absence of approval of the Procuring Entity, with any such instruction of the Engineer. The Engineer shall determine an addition to the Contract Price, in respect of such instruction, in accordance with Clause 13 and shall notify the Contractor accordingly, with a copy to the Procuring Entity.

3.2 Delegation by the Engineer

- 3.21 The Engineer may from time to time assign duties and delegate authority to assistants, and may also revoke such assignment or delegation. These assistants may include a resident engineer, and/or independent inspectors appointed to inspect and/or test items of Plant and/or Materials. The assignment, delegation or revocation shall be in writing and shall not take effect until copies have been received by both Parties. However, unless otherwise agreed by both Parties, the Engineer shall not delegate the authority to determine any matter in accordance with Sub-Clause 3.5 [Determinations].
- 3.22 Each assistant, to whom duties have been assigned or authority has been delegated, shall only be authorized to issue instructions to the Contractor to the extent defined by the delegation. Any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by an assistant, in accordance with the delegation, shall have the same effect as though the act had been an act of the Engineer. However:
- a) Any failure to disapprove any work, Plant or Materials shall not constitute approval, and shall therefore not prejudice the right of the Engineer to reject the work, Plant or Materials;
 - b) if the Contractor questions any determination or instruction of an assistant, the Contractor may refer the matter to the Engineer, who shall promptly confirm, reverse or vary the determination or instruction.

3.3 Instructions of the Engineer

- 3.31 The Engineer may issue to the Contractor (at any time) instructions and additional or modified Drawings which may be necessary for the execution of the Works and the remedying of any defects, all in accordance with the

Contract. The Contractor shall only take instructions from the Engineer, or from an assistant to whom the appropriate authority has been delegated under this Clause. If an instruction constitutes a Variation, Clause 13 [Variations and Adjustments] shall apply.

- 3.3.2 The Contractor shall comply with the instructions given by the Engineer or delegated assistant, on any matter related to the Contract. Whenever practicable, their instructions shall be given in writing. If the Engineer or a delegated assistant:
- a) Gives an oral instruction,
 - b) receives a written confirmation of the instruction, from (or on behalf of) the Contractor, within two working days after giving the instruction, and
 - c) does not reply by issuing a written rejection and/or instruction within two working days after receiving the confirmation, then the confirmation shall constitute the written instruction of the Engineer or delegated assistant (as the case may be).

3.4 Replacement of the Engineer

- 3.4.1 If the Procuring Entity intends to replace the Engineer, the Procuring Entity shall, not less than 21 days before the intended date of replacement, give notice to the Contractor of the name, address and relevant experience of the intended replacement Engineer. If the Contractor considers the intended replacement Engineer to be unsuitable, he has the right to raise objection against him by notice to the Procuring Entity, with supporting particulars, and the Procuring Entity shall give full and fair consideration to this objection.

3.5 Determinations

- 3.5.1 Whenever these Conditions provide that the Engineer shall proceed in accordance with this Sub-Clause 3.5 to agree or determine any matter, the Engineer shall consult with each Party in an endeavor to reach agreement. If agreement is not achieved, the Engineer shall make a fair determination in accordance with the Contract, taking due regard of all relevant circumstances.
- 3.5.2 The Engineer shall give notice to both Parties of each agreement or determination, with supporting particulars, within 30 days from the receipt of the corresponding claim or request except when otherwise specified. Each Party shall give effect to each agreement or determination unless and until revised under Clause 20 [Claims, Disputes and Arbitration].

4 THE CONTRACTOR

4.1 Contractor's General Obligations

- 4.1.1 The Contractor shall design (to the extent specified in the Contract), execute and complete the Works in accordance with the Contract and with the Engineer's instructions, and shall remedy any defects in the Works.
- 4.1.2 The Contractor shall provide the Plant and Contractor's Documents specified in the Contract, and all Contractor's Personnel, Goods, consumables and other things and services, whether of a temporary or permanent nature, required in and for this design, execution, completion and remedying of defects.
- 4.1.3 All equipment, material, and services to be incorporated in or required for the Works shall have their origin in any eligible source country as defined by the Procuring Entity.
- 4.1.4 The Contractor shall be responsible for the adequacy, stability and safety of all Site operations and of all methods of construction. Except to the extent specified in the Contract, the Contractor (i) shall be responsible for all Contractor's Documents, Temporary Works, and such design of each item of Plant and Materials as is required for the item to be in accordance with the Contract, and (ii) shall not otherwise be responsible for the design or specification of the Permanent Works.
- 4.1.5 The Contractor shall, whenever required by the Engineer, submit details of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works. No significant alteration to these arrangements and methods shall be made without this having previously been notified to the Engineer.
- 4.1.6 The Contractor shall not commence any Works, including mobilization and/or pre-construction activities (e.g. limited clearance for haul roads, site accesses and work site establishment, geotechnical investigations or investigations to select ancillary features such as quarries and borrowpits), unless the Engineer is satisfied that appropriate measures are in place to address environmental, social, health and safety risks and impacts.

- 4.1.7 If the Contract specifies that the Contractor shall design any part of the Permanent Works, then unless otherwise stated in the Particular Conditions:
- a) The Contractor shall submit to the Engineer the Contractor's Documents for this part in accordance with the procedures specified in the Contract;
 - b) These Contractor's Documents shall be in accordance with the Specification and Drawings, shall be written in the language for communications defined in Sub-Clause 1.4 [Law and Language], and shall include additional information required by the Engineer to add to the Drawings for co-ordination of each Party's designs;
 - c) The Contractor shall be responsible for this part and it shall, when the Works are completed, be fit for such purposes for which the part is intended as are specified in the Contract; and
 - d) Prior to the commencement of the Tests on Completion, the Contractor shall submit to the Engineer the "as-built" documents and, if applicable, operation and maintenance manuals in accordance with the Specification and insufficient detail for the Procuring Entity to operate, maintain, dismantle, reassemble, adjust and repair this part of the Works. Such part shall not be considered to be completed for the purposes of taking-over under Sub-Clause 10.1 [Taking Over of the Works and Sections] until these documents and manuals have been submitted to the Engineer.

42 Performance Security

- 4.2.1 Performance security shall not be required for contracts estimated to cost less than Kenya shillings five million shillings.
- 4.2.2 The Contractor shall obtain (at his cost) a Performance Security for proper performance, in the amount stated in the **SCC** and denominated in the currency (ies) of the Contractor in a freely convertible currency acceptable to the Procuring Entity. If an amount is not stated in the **SCC**, this Sub-Clause shall not apply.
- 4.2.3 The Contractor shall deliver the Performance Security to the Procuring Entity within 14 days after receiving the Letter of Acceptance and shall send a copy to the Engineer. The Performance Security shall be issued by a reputable Procuring Entity or financial institution selected by the Contractor and shall be in the form annexed to the Particular Conditions, as stipulated by the Procuring Entity in the **SCC**, or in another form approved by the Procuring Entity.
- 4.2.4 The Contractor shall ensure that the Performance Security is valid and enforceable until the Contractor has executed and completed the Works and remedied any defects. If the terms of the Performance Security specify its expiry date, and the Contractor has not become entitled to receive the Performance Certificate by the date 30 days prior to the expiry date, the Contractor shall extend the validity of the Performance Security until the Works have been completed and any defects have been remedied.
- 4.2.5 The Procuring Entity shall not make a claim under the Performance Security, except for amounts to which the Procuring Entity is entitled under the Contract.

The Procuring Entity shall indemnify and hold the Contractor harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from a claim under the Performance Security to the extent to which the Procuring Entity was not entitled to make the claim.

- 4.2.6 The Procuring Entity shall return the Performance Security to the Contractor within 21 days after receiving a copy of the Performance Certificate.
- 4.2.7 Without limitation to the provisions of the rest of this Sub-Clause, whenever the Engineer determines an addition or a deduction to the Contract Price as a result of a change in cost and/or legislation, or as a result of a Variation, amounting to more than 25 percent of the portion of the Contract Price payable in a specific currency, the Contractor shall at the Engineer's request promptly increase, or may decrease, as the case may be, the value of the Performance Security in that currency by an equal percentage.

43 Contractor's Representative

- 4.3.1 The Contractor shall appoint the Contractor's Representative and shall give him all authority necessary to act on the Contractor's behalf under the Contract.

Unless the Contractor's Representative is named in the Contract, the Contractor shall, prior to the Commencement Date, submit to the Engineer for consent the name and particulars of the person the Contractor proposes to appoint as Contractor's Representative. If consent is withheld or subsequently revoked interms of Sub-Clause 6.9 [Contractor's Personnel], or if the appointed person fails to act as Contractor's Representative, the Contractor shall similarly submit the name and particulars of another suitable person for such appointment.

The Contractor shall not, without the prior consent of the Engineer, revoke the appointment of the Contractor's Representative or appoint a replacement.

432 The whole time of the Contractor's Representative shall be given to directing the Contractor's performance of the Contract. If the Contractor's Representative is to be temporarily absent from the Site during the execution of the Works, a suitable replacement person shall be appointed, subject to the Engineer's prior consent, and the Engineer shall be notified accordingly.

433 The Contractor's Representative shall, on behalf of the Contractor, receive instructions under Sub-Clause 3.3 [Instructions of the Engineer].

The Contractor's Representative may delegate any powers, functions and authority to any competent person, and may at anytime revoke the delegation. Any delegation or revocation shall not take effect until the Engineer has received prior notice signed by the Contractor's Representative, naming the person and specifying the powers, functions and authority being delegated or revoked.

434 The Contractor's Representative shall be fluent in the language for communications defined in Sub-Clause 1.4 [Law and Language]. If the Contractor's Representative's delegates are not fluent in the said language, the Contractor shall make competent interpreters available during all working hours in a number deemed sufficient by the Engineer.

44 Subcontractors

44.1 The Contractor shall not subcontract the whole of the Works.

The Contractor shall be responsible for the acts or defaults of any Subcontractor, his agents or employees, as if they were the acts or defaults of the Contractor. Unless otherwise stated in the Particular Conditions:

- a) The Contractor shall not be required to obtain consent to suppliers solely of Materials, or to a subcontract for which the Subcontractor is named in the Contract;
- b) The prior consent of the Engineer shall be obtained to other proposed Sub contractors;
- c) the Contractor shall give the Procuring entity not less than 14 days' notice of the intended date of the commencement of each Subcontractor's work, and of the commencement of such work on the Site; and
- d) each subcontract shall include provisions which would entitle the Procuring Entity to require the subcontract to be assigned to the Procuring Entity under Sub-Clause 4.5 [Assignment of Benefit of Subcontract] (if or when applicable) or in the event of termination under Sub-Clause 15.2 [Termination by Procuring Entity].

44.2 The Contractor shall ensure that the requirements imposed on the Contractor by Sub-Clause 1.12 [Confidential Details] apply equally to each Subcontractor.

44.3 Where practicable, the Contractor shall give fair and reasonable opportunity for contractors from the Country to be appointed as Subcontractors.

45 Assignment of Benefit of Subcontract

If a Subcontractor's obligations extend beyond the expiry date of the relevant Defects Notification Period and the Engineer, prior to this date, instructs the Contractor to assign the benefit of such obligations to the Procuring Entity, then the Contractor shall do so. Unless otherwise stated in the assignment, the Contractor shall have no liability to the Procuring Entity for the work carried out by the Subcontractor after the assignment takes effect.

46 Co-operation

- 46.1 The Contractor shall, as specified in the Contract or as instructed by the Engineer, allow appropriate opportunities for carrying out work to:
- a) The Procuring Entity's Personnel,
 - b) Any other contractors employed by the Procuring Entity, and
 - c) The personnel of any legally constituted public authorities, who may be employed in the execution on or near the Site of any work not included in the Contract.

- 46.2 Any such instruction shall constitute a Variation if and to the extent that it causes the Contractor to suffer delays and/or to incur Unforeseeable Cost. Services for these personnel and other contractors may include the use of Contractor's Equipment, Temporary Works or access arrangements which are the responsibility of the Contractor.

If, under the Contract, the Procuring Entity is required to give to the Contractor possession of any foundation, structure, plant or means of access in accordance with Contractor's Documents, the Contractor shall submit such documents to the Engineer in the time and manner stated in the Specification.

47 Setting Out

- 47.1 The Contractor shall set out the Works in relation to original points, lines and levels of reference specified in the Contractor notified by the Engineer. The Contractor shall be responsible for the correct positioning of all parts of the Works, and shall rectify any error in the positions, levels, dimensions or alignment of the Works.

The Procuring Entity shall be responsible for any errors in these specified or notified items of reference, but the Contractor shall use reasonable efforts to verify their accuracy before they are used.

- 47.2 If the Contractor suffers delay and/or incurs Cost from executing work which was necessitated by an error in these items of reference, and an experienced contractor could not reasonably have discovered such error and avoided this delay and/or Cost, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
- a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
 - b) payment of any such Cost-plus profit, which shall be included in the Contract Price.
- 47.3 After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) whether and (if so) to what extent the error could not reasonably have been discovered, and (ii) the matters described in sub-paragraphs (a) and (b) above related to these.

48 Safety Procedures

The Contractor shall:

- a) Comply with all applicable safety regulations,
- b) Take care for the safety of all persons entitled to be on the Site,
- c) Use reasonable efforts to keep the Site and Works clear of unnecessary obstructions as to avoid danger to these persons,
- d) provide fencing, lighting, guarding and watching of the Works until completion and taking over under Clause 10 [Procuring Entity's Taking Over], and
- e) provide any Temporary Works (including roadways, footways, guards and fences) which may be necessary, because of the execution of the Works, for the use and protection of the public and of owners and occupiers of adjacent land.

49 Quality Assurance

The Contractor shall institute a quality assurance system to demonstrate compliance with the requirements of the Contract. The system shall be in accordance with the details stated in the Contract. The Engineer shall be entitled to audit any aspect of the system.

Details of all procedures and compliance documents shall be submitted to the Engineer for information before each design and execution stage is commenced. When any document of a technical nature is issued to the Engineer, evidence of the prior approval by the Contractor itself shall be apparent on the document

itself. Compliance with the quality assurance system shall not relieve the Contractor of any of his duties, obligations or responsibilities under the Contract.

4.10 Site Data

The Procuring Entity shall have made available to the Contractor for his information, prior to the Base Date, all relevant data in the Procuring Entity's possession on sub-surface and hydrological conditions at the Site, including environmental aspects. The Procuring Entity shall similarly make available to the Contractor all such data which come into the Procuring Entity's possession after the Base Date. The Contractor shall be responsible for interpreting all such data.

To the extent which was practicable (taking account of cost and time), the Contractor shall be deemed to have obtained all necessary information as to risks, contingencies and other circumstances which may influence or affect the Tender or Works. To the same extent, the Contractor shall be deemed to have inspected and examined the Site, its surroundings, the above data and other available information, and to have been satisfied before submitting the Tender as to all relevant matters, including (without limitation):

- a) The form and nature of the Site, including sub-surface conditions,
- b) The hydrological and climatic conditions,
- c) The extent and nature of the work and Goods necessary for the execution and completion of the Works and the remedying of any defects,
- d) The Laws, procedures and labor practices of the Country, and
- e) The Contractor's requirements for access, accommodation, facilities, personnel, power, transport, water and other services.

4.11 Sufficiency of the Accepted Contract Amount

4.11.1 The Contractor shall be deemed to:

- a) Have satisfied itself as to the correctness and sufficiency of the Accepted Contract Amount, and
- b) Have based the Accepted Contract Amount on the data, interpretations, necessary information, inspections, examinations and satisfaction as to all relevant matters referred to in Sub-Clause 4.10 [Site Data].

4.11.2 Unless otherwise stated in the Contract, the Accepted Contract Amount covers all the Contractor's obligations under the Contract (including those under Provisional Sums, if any) and all things necessary for the proper execution and completion of the Works and the remedying of any defects.

4.12 Unforeseeable Physical Conditions

4.12.1 In this Sub-Clause, "physical conditions" means natural physical conditions and man-made and other physical obstructions and pollutants, which the Contractor encounters at the Site when executing the Works, including sub-surface and hydrological conditions but excluding climatic conditions.

4.12.2 If the Contractor encounters adverse physical conditions which he considers to have been Unforeseeable, the Contractor shall give notice to the Engineer as soon as practicable.

This notice shall describe the physical conditions, so that they can be inspected by the Engineer, and shall set out the reasons why the Contractor considers them to be Unforeseeable. The Contractor shall continue executing the Works, using such proper and reasonable measures as are appropriate for the physical conditions, and shall comply with any instructions which the Engineer may give. If an instruction constitutes a Variation, Clause 13 [Variations and Adjustments] shall apply.

4.12.3 If and to the extent that the Contractor encounters physical conditions which are Unforeseeable, gives such a notice, and suffers delay and/or incurs Cost due to these conditions, the Contractor shall be entitled subject to notice under Sub-Clause 20.1 [Contractor's Claims] to:

- a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- b) Payment of any such Cost, which shall be included in the Contract Price.

4.12.4 Upon receiving such notice and inspecting and/or investigating these physical conditions, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) whether and (if so) to what extent these physical conditions were Unforeseeable, and (ii) the matters described in sub-paragraphs (a) and (b) above related to this extent.

4.125 However, before additional Cost is finally agreed or determined under sub-paragraph (ii), the Engineer may also review whether other physical conditions in similar parts of the Works (if any) were more favorable than could reasonably have been foreseen when the Contractor submitted the Tender. If and to the extent that these more favorable conditions were encountered, the Engineer may proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the reductions in Cost which were due to these conditions, which may be included (as deductions) in the Contract Price and Payment Certificates. However, the net effect of all adjustments under sub-paragraph (b) and all these reductions, for all the physical conditions encountered in similar parts of the Works, shall not result in any reduction in the Contract Price.

4.126 The Engineer shall take account of any evidence of the physical conditions foreseen by the Contractor when submitting the Tender, which shall be made available by the Contractor, but shall not be bound by the Contractor's interpretation of any such evidence.

413 Rights of Way and Facilities

Unless otherwise specified in the Contract the Procuring Entity shall provide effective access to and possession of the Site including special and/or temporary rights-of-way which are necessary for the Works. The Contractor shall obtain, at his risk and cost, any additional rights of way or facilities outside the Site which he may require for the purposes of the Works.

414 Avoidance of Interference

The Contractor shall not interfere unnecessarily or improperly with:

- a) The convenience of the public, or
- b) The access to and use and occupation of all roads and footpaths, irrespective of whether they are public or in the possession of the Procuring Entity or of others.

The Contractor shall indemnify and hold the Procuring Entity harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from any such unnecessary or improper interference.

415 Access Route

The Contractor shall be deemed to have been satisfied as to the suitability and availability of access routes to the Site at Base Date. The Contractor shall use reasonable effort to prevent any road or bridge from being damaged by the Contractor's traffic or by the Contractor's Personnel. These efforts shall include the proper use of appropriate vehicles and routes.

Except as otherwise stated in these Conditions:

- a) The Contractor shall (as between the Parties) be responsible for any maintenance which may be required for his use of access routes;
- b) the Contractor shall provide all necessary signs or directions along access routes, and shall obtain any permission which may be required from the relevant authorities for his use of routes, signs and directions;
- c) the Procuring Entity shall not be responsible for any claims which may arise from the use or otherwise of any access route;
- d) the Procuring Entity does not guarantee the suitability or availability of particular access routes; and
- e) Costs due to non-suitability or non-availability, for the use required by the Contractor, of access routes shall be borne by the Contractor.

416 Transport of Goods

Unless otherwise stated in the Particular Conditions:

- a) The Contractor shall give the Engineer not less than 21 days' notice of the date on which any Plant or a major item of other Goods will be delivered to the Site;
- b) the Contractor shall be responsible for packing, loading, transporting, receiving, unloading, storing and protecting all Goods and other things required for the Works; and
- c) the Contractor shall indemnify and hold the Procuring Entity harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from the transport of Goods, and shall negotiate and pay all claims arising from their transport.

417 Contractor's Equipment

The Contractor shall be responsible for all Contractor's Equipment. When brought onto the Site, Contractor's Equipment shall be deemed to be exclusively intended for the execution of the Works. The Contractor shall not remove from the Site any major items of Contractor's Equipment without the consent of the Engineer. However, consent shall not be required for vehicles transporting Goods or Contractor's Personnel off Site.

418 Protection of the Environment

The Contractor shall take all reasonable steps to protect the environment (both on and off the Site) and to limit damage and nuisance to people and property resulting from pollution, noise and other results of his operations.

The Contractor shall ensure that emissions, surfaced is charges and effluent from the Contractor's activities shall not exceed the values stated in the Specification or prescribed by applicable Laws.

419 Electricity, Water and Gas

- 4.19.1 The Contractor shall, except as stated below, be responsible for the provision of all power, water and other services he may require for his construction activities and to the extent defined in the Specifications, for the tests.

The Contractor shall be entitled to use for the purposes of the Works such supplies of electricity, water, gas and other services as may be available on the Site and of which details and prices are given in the Specification. The Contractor shall, at his risk and cost, provide any apparatus necessary for his use of these services and for measuring the quantities consumed.

- 4.19.2 The quantities consumed and the amounts due (at these prices) for such services shall be agreed or determined by the Engineer in accordance with Sub-Clause 2.5 [Procuring Entity's Claims] and Sub-Clause 3.5 [Determinations]. The Contractor shall pay these amounts to the Procuring Entity.

420 Procuring Entity's Equipment and Free-Issue Materials

- 4.20.1 The Procuring Entity shall make the Procuring Entity's Equipment (if any) available for the use of the Contractor in the execution of the Works in accordance with the details, arrangements and prices stated in the Specification. Unless otherwise stated in the Specification:

- a) The Procuring Entity shall be responsible for the Procuring Entity's Equipment, except that
- b) the Contractor shall be responsible for each item of Procuring Entity's Equipment whilst any of the Contractor's Personnel is operating it, driving it, directing it or in possession or control of it.

- 4.20.2 The appropriate quantities and the amounts due (at such stated prices) for the use of Procuring Entity's Equipment shall be agreed or determined by the Engineer in accordance with Sub-Clause 2.5 [Procuring Entity's Claims] and Sub-Clause 3.5 [Determinations]. The Contractor shall pay these amounts to the Procuring Entity.

The Procuring Entity shall supply, free of charge, the "free-issue materials" (if any) in accordance with the details stated in the Specification. The Procuring Entity shall, at his risk and cost, provide these materials at the time and place specified in the Contract. The Contractor shall then visually inspect them and shall promptly give notice to the Engineer of any shortage, defect or default in these materials. Unless otherwise agreed by both Parties, the Procuring Entity shall immediately rectify the notified shortage, defect or default.

- 4.20.3 After this visual inspection, the free-issue materials shall come under the care, custody and control of the Contractor. The Contractor's obligations of inspection, care, custody and control shall not relieve the Procuring Entity of liability for any shortage, defect or default not apparent from a visual inspection.

421 Progress Reports

- 4.21.1 Unless otherwise stated in the Particular Conditions, monthly progress reports shall be prepared by the Contractor and submitted to the Engineer in six copies. The first report shall cover the period upto the end of the first calendar month following the Commencement Date. Reports shall be submitted monthly thereafter, each within 7 days after the last day of the period to which it relates.

- 4.21.2 Reporting shall continue until the Contractor has completed all work which is known to be outstanding at the completion date stated in the Taking-Over Certificate for the Works.

Each report shall include:

- a) charts and detailed descriptions of progress, including each stage of design (if any), Contractor's Documents, procurement, manufacture, delivery to Site, construction, erection and testing; and including these stages for work by each nominated Subcontractor (as defined in Clause 5 [Nominated Subcontractors]),
- b) photographs showing the status of manufacture and of progress on the Site;
- c) for the manufacture of each main item of Plant and Materials, the name of the manufacturer, manufacture location, percentage progress, and the actual or expected dates of:
 - i) commencement of manufacture,
 - ii) Contractor's inspections,
 - iii) tests, and
 - iv) shipment and arrival at the Site;
- d) the details described in Sub-Clause 6.10 [Records of Contractor's Personnel and Equipment];
- e) copies of quality assurance documents, test results and certificates of Materials;
- f) list of notices given under Sub-Clause 2.5 [Procuring Entity's Claims] and notices given under Sub-Clause 20.1 [Contractor's Claims];
- g) safety statistics, including details of any hazardous incidents and activities relating to environmental aspects and public relations; and
- h) comparisons of actual and planned progress, with details of any events or circumstances which may jeopardize the completion in accordance with the Contract, and the measures being (or to be) adopted to overcome delays.

4213 The Contractor shall provide immediate notification to the Engineer of incidents in the following categories. Full details of such incidents shall be provided to the Engineer within the time frame agreed with the Engineer.

- a) confirmed or likely violation of any law or international agreement;
- b) any fatality or serious injury;
- c) significant adverse effects or damage to private property (e.g. vehicle accident, damage from fly rock, working beyond the boundary);
- d) major pollution of drinking water aquifer or damage or destruction of rare or endangered habitat (including protected areas) or species; or
- e) any allegation of sexual harassment or sexual misbehavior, child abuse, defilement, or other violations involving children.

422 Security of the Site

Unless otherwise stated in the Particular Conditions:

- a) The Contractor shall be responsible for keeping unauthorized persons off the Site, and
- b) Authorized persons shall be limited to the Contractor's Personnel and the Procuring Entity's Personnel; and to any other personnel notified to the Contractor, by the Procuring Entity or the Engineer, as authorized personnel of the Procuring Entity's other contractors on the Site.

423 Contractor's Operations on Site

423.1 The Contractor shall confine his operations to the Site, and to any additional areas which may be obtained by the Contractor and agreed by the Engineer as additional working areas. The Contractor shall take all necessary precautions to keep Contractor's Equipment and Contractor's Personnel within the Site and these additional areas, and to keep them off adjacent land.

During the execution of the Works, the Contractor shall keep the Site free from all unnecessary obstruction and shall store or dispose of any Contractor's Equipment or surplus materials. The Contractor shall clear away and remove from the Site any wreckage, rubbish and Temporary Works which are no longer required.

423.2 Upon the issue of a Taking-Over Certificate, the Contractor shall clear away and remove, from that part of the Site and Works to which the Taking-Over Certificate refers, all Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works. The Contractor shall leave that part of the Site and the Works in a clean and safe condition. However, the Contractor may retain on Site, during the Defects Notification Period, such Goods as are required for the Contractor to fulfil obligations under the Contract.

424 Fossils

All fossils, coins, articles of value or antiquity, and structures and other remains or items of geological or archaeological interest found on the Site shall be placed under the care and authority of the Procuring Entity. The Contractor shall take reasonable precautions to prevent Contractor's Personnel or other persons from removing or damaging any of these findings.

The Contractor shall, upon discovery of any such finding, promptly give notice to the Engineer, who shall issue instructions for dealing with it. If the Contractor suffers delay and/or incurs Cost from complying with the instructions, the Contractor shall give a further notice to the Engineer and shall be entitled subject to Sub-Clause

20.1 [Contractor's Claims] to:

- a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- b) payment of any such Cost, which shall be included in the Contract Price.

After receiving this further notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

5. NOMINATED SUB CONTRACTORS

5.1 Definition of “nominated Subcontractor

In the Contract, “nominated Subcontractor” means a Subcontractor:

- a) Who is stated in the Contract as being a nominated Subcontractor, or
- b) whom the Engineer, under Clause 13 [Variations and Adjustments], instructs the Contractor to employ as a Subcontractor subject to Sub-Clause 5.2 [Objection to Notification].

5.2 Objection to Nomination

The Contractor shall not be under any obligation to employ a nominated Subcontractor against whom the Contractor raises reasonable objection by notice to the Engineer as soon as practicable, with supporting particulars. An objection shall be deemed reasonable if it arises from (among other things) any of the following matters, unless the Procuring Entity agrees in writing to indemnify the Contractor against and from the consequences of the matter:

- a) there are reasons to believe that the Subcontractor does not have sufficient competence, resources or financial strength;
- b) the nominated Subcontractor does not accept to indemnify the Contractor against and from any negligence or misuse of Goods by the nominated Subcontractor, his agents and employees; or
- c) the nominated Subcontractor does not accept to enter into a subcontract which specifies that, for the subcontracted work (including design, if any), the nominated Subcontractor shall:
 - i) undertake to the Contractor such obligations and liabilities as will enable the Contractor to discharge his obligations and liabilities under the Contract;
 - ii) indemnify the Contractor against and from all obligations and liabilities arising under or in connection with the Contract and from the consequences of any failure by the Subcontractor to perform these obligations or to fulfil these liabilities, and
 - iii) be paid only if and when the Contractor has received from the Procuring Entity payments for sums due under the Subcontract referred to under Sub-Clause 5.3 [Payment to nominated Subcontractors].

5.3 Payments to nominated Subcontractors

The Contractor shall pay to the nominated Subcontractor the amounts shown on the nominated Subcontractor's invoices approved by the Contractor which the Engineer certifies to be due in accordance with the subcontract. These amounts plus other charges shall be included in the Contract Price in accordance with sub-paragraph (b) of Sub-Clause 13.5 [Provisional Sums], except as stated in Sub-Clause 5.4 [Evidence of Payments].

5.4 Evidence of Payments

Before issuing a Payment Certificate which includes an amount payable to a nominated Subcontractor, the Engineer may request the Contractor to supply reasonable evidence that the nominated Subcontractor has

received all amounts due in accordance with previous Payment Certificates, less applicable deductions for retention or otherwise. Unless the Contractor:

- a) Submits this reasonable evidence to the Engineer, or
- b) i) satisfies the Engineer in writing that the Contractor is reasonably entitled to withhold or refuse to pay these amounts, and
- ii) submits to the Engineer reasonable evidence that the nominated Subcontractor has been notified of the Contractor's entitlement, then the Procuring Entity may (at his sole discretion) pay, direct to the nominated Subcontractor, part or all of such amounts previously certified (less applicable deductions) as are due to the nominated Subcontractor and for which the Contractor has failed to submit the evidence described in sub-paragraphs (a) or (b) above. The Contractor shall then repay, to the Procuring Entity, the amount which the nominated Subcontractor was directly paid by the Procuring Entity.

6 STAFF AND LABOR

61 Engagement of Staff and Labor

Except as otherwise stated in the Specification, the Contractor shall make arrangements for the engagement of all staff and labor, local or otherwise, and for their payment, feeding, transport, and, when appropriate, housing. The Contractor is encouraged, to the extent practicable and reasonable, to employ staff and labor with appropriate qualifications and experience from sources within the Country.

62 Rates of Wages and Conditions of Labor

621 The Contractor shall pay rates of wages, and observe conditions of labor, which are not lower than those established for the trade or industry where the work is carried out. If no established rates or conditions are applicable, the Contractor shall pay rates of wages and observe conditions which are not lower than the general level of wages and conditions observed locally by Procuring Entity's whose trade or industry is similar to that of the Contractor.

622 The Contractor shall inform the Contractor's Personnel about their liability to pay personal income taxes in Kenya in respect of such of their salaries, wages, allowances and any benefits as are subject to tax under the Laws of Kenya for the time being in force, and the Contractor shall perform such duties in regard to such deductions there of as may be imposed on him by such Laws.

63 Persons in the Service of Procuring Entity

The Contractor shall not recruit, or attempt to recruit, staff and labor from amongst the Procuring Entity's Personnel.

64 Labor Laws

The Contractor shall comply with all the relevant labor Laws applicable to the Contractor's Personnel, including Laws relating to their employment, health, safety, welfare, immigration and emigration, and shall allow them all their legal rights.

The Contractor shall require his employees to obey all applicable Laws, including those concerning safety at work.

65 Working Hours

No work shall be carried out on the Site on locally recognized days of rest, or outside the normal working hours stated in the SCC, unless:

- a) Otherwise stated in the Contract,
- b) The Engineer gives consent, or
- c) The work is unavoidable, or necessary for the protection of life or property or for the safety of the Works, in which case the Contractor shall immediately advise the Engineer.

66 Facilities for Staff and Labor

Except as otherwise stated in the Specification, the Contractor shall provide and maintain all necessary accommodation and welfare facilities for the Contractor's Personnel. The Contractor shall also provide facilities for the Procuring Entity's Personnel as stated in the Specification.

The Contractor shall not permit any of the Contractor's Personnel to maintain any temporary or permanent living quarters within the structures forming part of the Permanent Works.

67 Health and Safety

67.1 The Contractor shall at all times take all reasonable precautions to maintain the health and safety of the Contractor's Personnel. In collaboration with local health authorities, the Contractor shall ensure that medical staff, first aid facilities, sick bay and ambulance service are available at all times at the Site and at any accommodation for Contractor's and Procuring Entity's Personnel, and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics.

67.2 The Contractor shall appoint an accident prevention officer at the Site, responsible for maintaining safety and protection against accidents. This person shall be qualified for this responsibility and shall have the authority to issue instructions and take protective measures to prevent accidents. Throughout the execution of the Works, the Contractor shall provide whatever is required by this person to exercise this responsibility and authority.

67.3 The Contractor shall send, to the Engineer, details of any accident as soon as practicable after its occurrence. The Contractor shall maintain records and make reports concerning health, safety and welfare of persons, and damage to property, as the Engineer may reasonably require.

6.7.3 HIV-AIDS Prevention. The Contractor shall conduct an HIV-AIDS awareness programme via an approved service provider and shall undertake such other measures as are specified in this Contract to reduce the risk of the transfer of the HIV virus between and among the Contractor's Personnel and the local community, to promote early diagnosis and to assist affected individuals.

68 Contractor's Superintendence

68.1 Throughout the execution of the Works, and as long thereafter as is necessary to fulfil the Contractor's obligations, the Contractor shall provide all necessary superintendence to plan, arrange, direct, manage, inspect and test the work.

68.2 Superintendence shall be given by a sufficient number of persons having adequate knowledge of the language for communications (defined in Sub-Clause 1.4 [Law and Language]) and of the operations to be carried out (including the methods and techniques required, the hazards likely to be encountered and methods of preventing accidents), for the satisfactory and safe execution of the Works.

69 Contractor's Personnel

69.1 The Contractor's Personnel specified in the SCC shall be appropriately qualified, skilled and experienced in their respective trades or occupations. The Engineer may require the Contractor to remove (or cause to be removed) any person employed on the Site or Works, including the Contractor's Representative if applicable, who:

- a) Persists in any misconduct or lack of care,
- b) Carries out duties incompetently or negligently,
- c) Fails to conform with any provisions of the Contract,
- d) Persists in any conduct which is prejudicial to safety, health, or the protection of the environment, or
- e) Based on reasonable evidence, is determined to have engaged in Fraud and Corruption during the execution of the Works.

69.2 If appropriate, the Contractor shall then appoint (or cause to be appointed) a suitable replacement person.

6.10 Records of Contractor's Personnel and Equipment

The Contractor shall submit, to the Engineer, details showing the number of each class of Contractor's Personnel and of each type of Contractor's Equipment on the Site. Details shall be submitted each calendar month, in a form approved by the Engineer, until the Contractor has completed all work which is known to be outstanding at the completion date stated in the Taking-Over Certificate for the Works.

6.11 Disorderly Conduct

The Contractor shall at all times take all reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or amongst the Contractor's Personnel, and to preserve peace and protection of persons and property on and near the Site.

6.12 Foreign Personnel

6.12.1 The Contractor may bring in to the Country any foreign personnel who are necessary for the execution of the Works to the extent allowed by the applicable Laws. The Contractor shall ensure that these personnel are provided with the required residence visas and work permits. The Procuring Entity will, if requested by the Contractor, use his Lowest endeavors in a timely and expeditious manner to assist the Contractor or in obtaining any local, state, national or government permission required for bringing in the Contractor's personnel.

6.12.2 The Contractor shall be responsible for the return of these personnel to the place where they were recruited or to their domicile. In the event of the death in the Country of any of these personnel or members of their families, the Contractor shall similarly be responsible for making the appropriate arrangements for their return or burial.

6.13 Supply of Foodstuffs

The Contractor shall arrange for the provision of a sufficient supply of suitable food as may be stated in the Specification at reasonable prices for the Contractor's Personnel for the purposes of or in connection with the Contract.

6.14 Supply of Water

The Contractor shall, having regard to local conditions, provide on the Site an adequate supply of drinking and other water for the use of the Contractor's Personnel.

6.15 Measures against Insect and Pest Nuisance

The Contractor shall at all times take the necessary precautions to protect the Contractor's Personnel employed on the Site from insect and pest nuisance, and to reduce the danger to their health. The Contractor shall comply with all the regulations of the local health authorities, including use of appropriate insecticide.

6.16 Alcoholic Liquor or Drugs

The Contractor shall not, otherwise than in accordance with the Laws of the Country, import, sell, give, barter or otherwise dispose of any alcoholic liquor or drugs, or permit or allow importation, sale, gift, barter or disposal thereof by Contractor's Personnel.

6.17 Arms and Ammunition

The Contractor shall not give, barter, or otherwise dispose of, to any person, any arms or ammunition of any kind, or allow Contractor's Personnel to do so.

6.18 Festivals and Religious Customs

The Contractor shall respect the Country's recognized festivals, days of rest and religious or other customs.

6.19 Funeral Arrangements

The Contractor shall be responsible, to the extent required by local regulations, for making any funeral arrangements for any of his local employees who may die while engaged upon the Works.

620 Prohibition of Forced or Compulsory Labor

The Contractor shall not employ forced labor, which consists of any work or service, not voluntarily performed, that is exacted from an individual under threat of force or penalty, and includes any kind of involuntary or compulsory labor, such as indentured labor, bonded labor or similar labor-contracting arrangements.

621 Prohibition of Harmful Child Labor

The Contractor shall not employ children in a manner that is economically exploitative, or is likely to be hazardous, or to interfere with, the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development. Where the relevant labor laws of the Country have provisions for employment of minors, the Contractor shall follow those laws applicable to the Contractor. Children below the age of 18 years shall not be employed in dangerous work.

622 Employment Records of Workers

The Contractor shall keep complete and accurate records of the employment of labor at the Site. The records shall include the names, ages, genders, hours worked and wages paid to all workers. These records shall be summarized on a monthly basis and submitted to the Engineer. These records shall be included in the details to be submitted by the Contractor under Sub-Clause 6.10 [Records of Contractor's Personnel and Equipment].

623 Workers' Organizations

The Contractor shall comply with laws on workers' rights to form and to join workers' organizations without interference and to bargain collectively.

624 Non-Discrimination and Equal Opportunity

The Contractor shall not make employment decisions on the basis of personal characteristics unrelated to inherent job requirements. The Contractor shall base the employment relationship on the principle of equal opportunity and fair treatment and shall not discriminate with respect to aspects of the employment relationship, including recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, promotion, termination of employment or retirement, and discipline.

7. Plant, Materials and Workmanship

7.1 Manner of Execution

The Contractor shall carry out the manufacture of Plant, the production and manufacture of Materials, and all other execution of the Works:

- a) In the manner (if any) specified in the Contract,
- b) In a proper workman like and careful manner, in accordance with recognized good practice, and
- c) with properly equipped facilities and non-hazardous Materials, except as otherwise specified in the Contract.

7.2 Samples

The Contractor shall submit the following samples of Materials, and relevant information, to the Engineer for consent prior to using the Materials in or for the Works:

- a) manufacturer's standard samples of Materials and samples specified in the Contract, all at the Contractor's cost, and
- b) additional samples instructed by the Engineer as a Variation.

Each sample shall be labeled as to origin and intended use in the Works.

7.3 Inspection

7.3.1 The Procuring Entity's Personnel shall at all reasonable times:

- a) Have full access to all parts of the Site and to all places from which natural Materials are being obtained, and
- b) during production, manufacture and construction (at the Site and elsewhere), be entitled to examine, inspect, measure and test the materials and workmanship, and to check the progress of manufacture of Plant and production and manufacture of Materials.

- 732 The Contractor shall give the Procuring Entity's Personnel full opportunity to carry out these activities, including providing access, facilities, permissions and safety equipment. No such activity shall relieve the Contractor from any obligation or responsibility.
- The Contractor shall give notice to the Engineer whenever any work is ready and before it is covered up, put out of sight, or packaged for storage or transport. The Engineer shall then either carry out the examination, inspection, measurement or testing without unreasonable delay, or promptly give notice to the Contractor that the Engineer does not require to do so. If the Contractor fails to give the notice, he shall, if and when required by the Engineer, uncover the work and thereafter reinstate and make good, all at the Contractor's cost.
- 74 Testing**
- 741 This Sub-Clause shall apply to all tests specified in the Contract, other than the Tests after Completion (if any).
- 742 Except as otherwise specified in the Contract, the Contractor shall provide all apparatus, assistance, documents and other information, electricity, equipment, fuel, consumables, instruments, labor, materials, and suitably qualified and experienced staff, as are necessary to carry out the specified tests efficiently. The Contractor shall agree, with the Engineer, the time and place for the specified testing of any Plant, Materials and other parts of the Works.
- The Engineer may, under Clause 13 [Variations and Adjustments], vary the location or details of specified tests, or instruct the Contractor to carry out additional tests. If these varied or additional tests show that the tested Plant, Materials or workmanship is not in accordance with the Contract, the cost of carrying out this Variation shall be borne by the Contractor, notwithstanding other provisions of the Contract.
- 743 The Engineer shall give the Contractor not less than 24 hours' notice of the Engineer's intention to attend the tests. If the Engineer does not attend at the time and place agreed, the Contractor may proceed with the tests, unless otherwise instructed by the Engineer, and the tests shall then be deemed to have been made in the Engineer's presence.
- If the Contractor suffers delay and/or incurs Cost from complying with these instructions or as a result of a delay for which the Procuring Entity is responsible, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
- a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
 - b) Payment of any such Cost-plus profit, which shall be included in the Contract Price.
- 744 After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.
- The Contractor shall promptly forward to the Engineer duly certified reports of the tests. When the specified tests have been passed, the Engineer shall endorse the Contractor's test certificate, or issue a certificate to him, to that effect. If the Engineer has not attended the tests, he shall be deemed to have accepted the readings as accurate.
- 75 Rejection**
- 751 If, as a result of an examination, inspection, measurement or testing, any Plant, Materials or workmanship is found to be defective or otherwise not in accordance with the Contract, the Engineer may reject the Plant, Materials or workmanship by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the defect and ensure that the rejected item complies with the Contract.
- 752 If the Engineer requires this Plant, Materials or workmanship to be retested, the tests shall be repeated under the same terms and conditions. If the rejection and retesting cause the Procuring Entity to incur additional costs, the Contractor shall subject to Sub-Clause 2.5 [Procuring Entity's Claims] pay these costs to the Procuring Entity.
- 76 Remedial Work**
- 761 Notwithstanding any previous test or certification, the Engineer may instruct the Contractor to:
- a) remove from the Site and replace any Plant or Materials which is not in accordance with the Contract,
 - b) remove and re-execute any other work which is not in accordance with the Contract, and
 - c) execute any work which is urgently required for the safety of the Works, whether because of an accident, unforeseeable event or otherwise.

- 7.62 The Contractor shall comply with the instruction within a reasonable time, which shall be the time (if any) specified in the instruction, or immediately if urgency is specified under sub-paragraph (c).
- 7.63 If the Contractor fails to comply with the instruction, the Procuring Entity shall be entitled to employ and pay other persons to carry out the work. Except to the extent that the Contractor would have been entitled to payment for the work, the Contractor shall subject to Sub-Clause 2.5 [Procuring Entity's Claims] pay to the Procuring Entity all costs arising from this failure.

7.7 Ownership of Plant and Materials

Except as otherwise provided in the Contract, each item of Plant and Materials shall, to the extent consistent with the Laws of the Country, become the property of the Procuring Entity at whichever is the earlier of the following times, free from liens and other encumbrances:

- a) When it is incorporated in the Works;
- b) when the Contractor is paid the corresponding value of the Plant and Materials under Sub-Clause 8.10 [Payment for Plant and Materials in Event of Suspension].

7.8 Royalties

Unless otherwise stated in the Specification, the Contractor shall pay all royalties, rents and other payments for:

- a) Natural Materials obtained from outside the Site, and
- b) The disposal of material from demolitions and excavations and of other surplus material (whether natural or man-made), except to the extent that disposal areas within the Site are specified in the Contract.

8 COMMENCEMENT, DELAYS AND SUSPENSION

8.1 Commencement of Works

- 8.1.1 Except as otherwise specified in the Special Conditions of Contract, the Commencement Date shall be the date at which the following precedent conditions have all been fulfilled and the Engineer's notification recording the agreement of both Parties on such fulfilment and instructing to commence the Work is received by the Contractor:
- a) Contract by relevant authorities of the Country;
 - b) delivery to the Contractor of reasonable evidence of the Procuring Entity's financial arrangements (under Sub-Clause 2.4 [Procuring Entity's Financial Arrangements]);
 - c) signature of the Contract Agreement by both Parties, and if required, approval of the except if otherwise specified in the SCC, effective access to and possession of the Site given to the Contractor together with such permission(s) under (a) of Sub-Clause 1.13 [Compliance with Laws] as required for the commencement of the Works
 - d) receipt by the Contract or of the Advance Payment under Sub-Clause 14.2 [Advance Payment] provided that the corresponding Procuring Entity guarantee has been delivered by the Contractor.
- 8.1.2 If the said Engineer's instruction is not received by the Contractor within 180 days from his receipt of the Letter of Acceptance, the Contractor shall be entitled to terminate the Contract under Sub-Clause 16.2 [Termination by Contractor].
- 8.1.3 The Contractor shall commence the execution of the Works as soon as is reasonably practicable after the Commencement Date and shall then proceed with the Works with due expedition and without delay.

8.2 Time for Completion

The Contractor shall complete the whole of the Works, and each Section (if any), within the Time for Completion for the Works or Section (as the case may be), including:

- a) achieving the passing of the Tests on Completion, and
- b) completing all work which is stated in the Contract as being required for the Works or Section to be considered to be completed for the purposes of taking-over under Sub-Clause 10.1 [Taking Over of the Works and Sections].

83 Programme

- 83.1 The Contractor shall submit a detailed time programme to the Engineer within 14 days after receiving the notice under Sub-Clause 8.1 [Commencement of Works]. The Contractor shall also submit a revised programme whenever the previous programme is inconsistent with actual progress or with the Contractor's obligations. Each programme shall include:
- a) the order in which the Contractor intends to carry out the Works, including the anticipated timing of each stage of design (if any), Contractor's Documents, procurement, manufacture of Plant, delivery to Site, construction, erection and testing,
 - b) each of these stages for work by each nominated Subcontractor (as defined in Clause 5 [Nominated Subcontractors]),
 - c) the sequence and timing of inspections and tests specified in the Contract, and
 - d) a supporting report which includes:
 - i) a general description of the methods which the Contractor intends to adopt, and of the major stages, in the execution of the Works, and
 - ii) details showing the Contractor's reasonable estimate of the number of each class of Contractor's Personnel and of each type of Contractor's Equipment, required on the Site for each major stage.
- 83.2 Unless the Engineer, within 14 days after receiving a programme, gives notice to the Contractor stating the extent to which it does not comply with the Contract, the Contractor shall proceed in accordance with the programme, subject to his other obligations under the Contract. The Procuring Entity's Personnel shall be entitled to rely upon the programme when planning their activities.
- 83.3 The Contractor shall promptly give notice to the Engineer of specific probable future events or circumstances which may adversely affect the work, increase the Contract Price or delay the execution of the Works. The Engineer may require the Contractor to submit an estimate of the anticipated effect of the future event or circumstances, and/or a proposal under Sub-Clause 13.3 [Variation Procedure].
- 83.4 If, at any time, the Engineer gives notice to the Contractor that a programme fails (to the extent stated) to comply with the Contract or to be consistent with actual progress and the Contractor's stated intentions, the Contractor shall submit a revised programme to the Engineer in accordance with this Sub-Clause.

84 Extension of Time for Completion

- 84.1 The Contractor shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to an extension of the Time for Completion if and to the extent that completion for the purposes of Sub-Clause 10.1 [Taking Over of the Works and Sections] is or will be delayed by any of the following causes:
- a) a Variation (unless an adjustment to the Time for Completion has been agreed under Sub-Clause 13.3 [Variation Procedure]) or other substantial change in the quantity of an item of work included in the Contract,
 - b) a cause of delay giving an entitlement to extension of time under a Sub-Clause of these Conditions,
 - c) exceptionally adverse climatic conditions,
 - d) Unforeseeable shortages in the availability of personnel or Goods caused by epidemic or governmental actions, or
 - e) Any delay, impediment or prevention caused by or attributable to the Procuring Entity, the Procuring Entity's Personnel, or the Procuring Entity's other contractors.
- 84.2 If the Contractor considers itself to be entitled to an extension of the Time for Completion, the Contractor shall give notice to the Engineer in accordance with Sub-Clause 20.1 [Contractor's Claims]. When determining each extension of time under Sub-Clause 20.1, the Engineer shall review previous determinations and may increase, but shall not decrease, the total extension of time.

85 Delays Caused by Authorities

If the following conditions apply, namely:

- a) The Contractor has diligently followed the procedures laid down by the relevant legally constituted public authorities in the Country,
- b) These authorities delay or disrupt the Contractor's work, and
- c) the delay or disruption was Unforeseeable, then this delay or disruption will be considered as a cause of delay under sub-paragraph (b) of Sub-Clause 8.4 [Extension of Time for Completion].

86 Rate of Progress

86.1 If, at any time:

- a) Actual progress is too slow to complete within the Time for Completion, and/or
- b) Progress has fallen (or will fall) behind the current programme under Sub-Clause 8.3 [Programme], other than as a result of a cause listed in Sub-Clause 8.4 [Extension of Time for Completion], then the Engineer may instruct the Contractor to submit, under Sub-Clause 8.3 [Programme], a revised programme and supporting report describing the revised methods which the Contractor proposes to adopt in order to expedite progress and complete within the Time for Completion.

Unless the Engineer notifies otherwise, the Contractor shall adopt these revised methods, which may require increases in the working hours and/or in the numbers of Contractor's Personnel and/or Goods, at the risk and cost of the Contractor. If these revised methods cause the Procuring Entity to incur additional costs, the Contractor shall subject to notice under Sub-Clause 2.5 [Procuring Entity's Claims] pay these costs to the Procuring Entity, in addition to delay damages (if any) under Sub-Clause 8.7 below.

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

87 Delay Damages

87.1 If the Contractor fails to comply with Sub-Clause 8.2 [Time for Completion], the Contractor shall subject to notice under Sub-Clause 2.5 [Procuring Entity's Claims] pay delay damages to the Procuring Entity for this default. These delay damages shall be the sum stated in the **SCC**, which shall be paid for everyday which shall elapse between the relevant Time for Completion and the date stated in the Taking-Over Certificate. However, the total amount due under this Sub-Clause shall not exceed the maximum amount of delay damages (if any) stated in the **SCC**.

87.2 These delay damages shall be the only damages due from the Contractor for such default, other than in the event of termination under Sub-Clause 15.2 [Termination by Procuring Entity] prior to completion of the Works. These damages shall not relieve the Contractor from his obligation to complete the Works, or from any other duties, obligations or responsibilities which he may have under the Contract.

88 Suspension of Work

The Engineer may at any time instruct the Contractor to suspend progress of part or all of the Works. During such suspension, the Contractor shall protect, store and secure such part or the Works against any deterioration, loss or damage.

The Engineer may also notify the cause for the suspension. If and to the extent that the cause is notified and is the responsibility of the Contractor, the following Sub-Clauses 8.9, 8.10 and 8.11 shall not apply.

89 Consequences of Suspension

89.1 If the Contractor suffers delay and/or incurs Cost from complying with the Engineer's instructions under Sub-Clause 8.8 [Suspension of Work] and/or from resuming the work, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- b) Payment of any such Cost, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

89.2 The Contractor shall not be entitled to an extension of time for, or to payment of the Cost incurred in, making good the consequences of the Contractor's faulty design, workmanship or materials, or of the Contractor's failure to protect, store or secure in accordance with Sub-Clause 8.8 [Suspension of Work].

8.10 Payment for Plant and Materials in Event of Suspension

The Contractor shall be entitled to payment of the value (as at the date of suspension) of Plant and/or Materials which have not been delivered to Site, if:

- a) the work on Plant or delivery of Plant and/or Materials has been suspended for more than 30 days, and
- b) the Contractor has marked the Plant and/or Materials as the Procuring Entity's property in accordance with the Engineer's instructions.

8.11 Prolonged Suspension

If the suspension under Sub-Clause 8.8 [Suspension of Work] has continued for more than 84 days, the Contractor may request the Engineer's permission to proceed. If the Engineer does not give permission within 30 days after being requested to do so, the Contractor may, by giving notice to the Engineer, treat the suspension as an omission under Clause 13 [Variations and Adjustments] of the affected part of the Works. If the suspension affects the whole of the Works, the Contractor may give notice of termination under Sub-Clause 16.2 [Termination by Contractor].

8.12 Resumption of Work

After the permission or instruction to proceed is given, the Contractor and the Engineer shall jointly examine the Works and the Plant and Materials affected by the suspension. The Contractor shall make good any deterioration or defect in or loss of the Works or Plant or Materials, which has occurred during the suspension after receiving from the Engineer an instruction to this effect under Clause 13 [Variations and Adjustments].

9. TESTS ON COMPLETION

9.1 Contractor's Obligations

- 9.1.1 The Contractor shall carry out the Tests on Completion in accordance with this Clause and Sub-Clause 7.4 [Testing], after providing the documents in accordance with sub-paragraph (d) of Sub-Clause 4.1 [Contractor's General Obligations].
- 9.1.2 The Contractor shall give to the Engineer not less than 21 days' notice of the date after which the Contract or will be ready to carry out each of the Tests on Completion. Unless otherwise agreed, Tests on Completion shall be carried out within 14 days after this date, on such day or days as the Engineer shall instruct.
- 9.1.3 In considering the results of the Tests on Completion, the Engineer shall make allowances for the effect of any use of the Works by the Procuring Entity on the performance or other characteristics of the Works. As soon as the Works, or a Section, have passed any Tests on Completion, the Contractor shall submit a certified report of the results of these Tests to the Engineer.

9.2 Delayed Tests

- 9.2.1 If the Tests on Completion are being unduly delayed by the Procuring Entity, Sub-Clause 7.4 [Testing] (fifth paragraph) and/or Sub-Clause 10.3 [Interference with Tests on Completion] shall be applicable.

If the Tests on Completion are being unduly delayed by the Contractor, the Engineer may by notice require the Contractor to carry out the Tests within 21 days after receiving the notice. The Contractor shall carry out the Tests on such day or days within that period as the Contract or may fix and of which he shall give notice to the Engineer.

If the Contractor fails to carry out the Tests on Completion within the period of 21 days, the Procuring Entity's Personnel may proceed with the Tests at the risk and cost of the Contractor. The Tests on Completion shall then be deemed to have been carried out in the presence of the Contract or and the results of the Tests shall be accepted as accurate.

9.3 Retesting

If the Works, or a Section, fail to pass the Tests on Completion, Sub-Clause 7.5 [Rejection] shall apply, and the Engineer or the Contractor may require the failed Tests, and Tests on Completion on any related work, to be repeated under the same terms and conditions.

94 Failure to Pass Tests on Completion

- 94.1 If the Works, or a Section, fail to pass the Tests on Completion repeated under Sub-Clause 9.3 [Retesting], the Engineer shall be entitled to:
- a) Order further repetition of Tests on Completion under Sub-Clause 9.3;
 - b) If the failure deprives the Procuring Entity of substantially the whole benefit of the Works or Section, reject the Works or Section (as the case may be), in which event the Procuring Entity shall have the same remedies as are provided in sub-paragraph (c) of Sub-Clause 11.4 [Failure to Remedy Defects]; or
 - c) Issue a Taking-Over Certificate, if the Procuring Entity so requests.
- 94.2 In the event of sub-paragraph (c), the Contractor shall proceed in accordance with all other obligations under the Contract, and the Contract Price shall be reduced by such amount as shall be appropriate to cover the reduced value to the Procuring Entity as a result of this failure. Unless the relevant reduction for this failure is stated (or its method of calculation is defined) in the Contract, the Procuring Entity may require the reduction to be (i) agreed by both Parties (in full satisfaction of this failure only) and paid before this Taking-Over Certificate is issued, or
- (ii) determined and paid under Sub-Clause 2.5 [Procuring Entity's Claims] and Sub-Clause 3.5 [Determinations].

10. PROCURING ENTITY'S TAKING OVER

10.1 Taking Over of the Works and Sections

- 10.1.1 Except as stated in Sub-Clause 9.4 [Failure to Pass Tests on Completion], the Works shall be taken over by the Procuring Entity when (i) the Works have been completed in accordance with the Contract, including the matters described in Sub-Clause 8.2 [Time for Completion] and except as allowed in sub-paragraph (a) below, and (ii) a Taking-Over Certificate for the Works has been issued, or is deemed to have been issued in accordance with this Sub-Clause.
- 10.1.2 The Contractor may apply by notice to the Engineer for a Taking-Over Certificate not earlier than 14 days before the Works will, in the Contractor's opinion, be complete and ready for taking over. If the Works are divided into Sections, the Contractor may similarly apply for a Taking-Over Certificate for each Section.

The Engineer shall, within 30 days after receiving the Contractor's application:

- a) issue the Taking-Over Certificate to the Contractor, stating the date on which the Works or Section were completed in accordance with the Contract, except for any minor outstanding work and defects which will not substantially affect the use of the Works or Section for their intended purpose (either until or whilst this work is completed and these defects are remedied); or
 - b) reject the application, giving reasons and specifying the work required to be done by the Contractor to enable the Taking-Over Certificate to be issued. The Contractor shall then complete this work before issuing a further notice under this Sub-Clause.
- 10.1.3 If the Engineer fails either to issue the Taking-Over Certificate or to reject the Contractor's application within the period of 30 days, and if the Works or Section (as the case may be) are substantially in accordance with the Contract, the Taking-Over Certificate shall be deemed to have been issued on the last day of that period.

10.2 Taking Over of Parts of the Works

- 10.2.1 The Engineer may, at the sole discretion of the Procuring Entity, issue a Taking-Over Certificate for any part of the Permanent Works.

The Procuring Entity shall not use any part of the Works (other than as a temporary measure which is either specified in the Contract or agreed by both Parties) unless and until the Engineer has issued a Taking-Over Certificate for this part. However, if the Procuring Entity does use any part of the Works before the Taking-Over Certificate is issued:

- a) The part which is used shall be deemed to have been taken over as from the date on which it is used,
- b) The Contractor shall cease to be liable for the care of such part as from this date, when responsibility shall pass to the Procuring Entity, and
- c) If requested by the Contractor, the Engineer shall issue a Taking-Over Certificate for this part.

- 1022 After the Engineer has issued a Taking-Over Certificate for a part of the Works, the Contractor shall be given the earliest opportunity to take such steps as may be necessary to carry out any outstanding Tests on Completion. The Contractor shall carry out these Tests on Completion as soon as practicable before the expiry date of the relevant Defects Notification Period.
- 1023 If the Contractor incurs Cost as a result of the Procuring Entity taking over and/or using a part of the Works, other than such use as is specified in the Contractor agreed by the Contractor, the Contractor shall (i) give notice to the Engineer and (ii) be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to payment of any such Cost-plus profit, which shall be included in the Contract Price. After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine this Cost and profit.
- 1024 If a Taking-Over Certificate has been issued for a part of the Works (other than a Section), the delay damages there after for completion of the remainder of the Works shall be reduced. Similarly, the delay damages for the remainder of the Section (if any) in which this part is included shall also be reduced. For any period of delay after the date stated in this Taking-Over Certificate, the proportional reduction in these delay damages shall be calculated as the proportion which the value of the part so certified bears to the value of the Works or Section (as the case may be) as a whole. The Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these proportions. The provisions of this paragraph shall only apply to the daily rate of delay damages under Sub-Clause 8.7 [Delay Damages] and shall not affect the maximum amount of these damages.

103 Interference with Tests on Completion

- 103.1 If the Contractor is prevented, for more than 14 days, from carrying out the Tests on Completion by a cause for which the Procuring Entity is responsible, the Procuring Entity shall be deemed to have taken over the Works or Section (as the case may be) on the date when the Tests on Completion would otherwise have been completed.

The Engineer shall then issue a Taking-Over Certificate accordingly, and the Contractor shall carry out the Tests on Completion as soon as practicable, before the expiry date of the Defects Notification Period. The Engineer shall require the Tests on Completion to be carried out by giving 14 days' notice and in accordance with the relevant provisions of the Contract.

- 1032 If the Contractor suffers delay and/or incurs Cost as a result of this delay in carrying out the Tests on Completion, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- b) Payment of any such Cost-plus profit, which shall be included in the Contract Price.

- 1033 After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

104 Surfaces Requiring Reinstatement

Except as otherwise stated in a Taking-Over Certificate, a certificate for a Section or part of the Works shall not be deemed to certify completion of any ground or other surfaces requiring reinstatement.

11. Defects Liability

11.1 Completion of Outstanding Work and Remedying Defects

In order that the Works and Contractor's Documents, and each Section, shall be in the condition required by the Contract (fair wear and tear excepted) by the expiry date of the relevant Defects Notification Period or as soon as practicable there after, the Contractor shall:

- a) complete any work which is outstanding on the date stated in a Taking-Over Certificate, within such reasonable time as is instructed by the Engineer, and
- b) execute all work required to remedy defects or damage, as may be notified by (or on behalf of) the Procuring Entity on or before the expiry date of the Defects Notification Period for the Works or Section (as the case may be).

If a defect appears or damage occurs, the Contractor shall be notified accordingly, by (or on behalf of) the Procuring Entity.

11.2 Cost of Remedying Defects

- 11.2.1 All work referred to in sub-paragraph (b) of Sub-Clause 11.1 [Completion of Outstanding Work and Remedying Defects] shall be executed at the risk and cost of the Contractor, if and to the extent that the work is attributable to:
- a) Any design for which the Contractor is responsible,
 - b) Plant, Materials or workmanship not being in accordance with the Contract, or
 - c) Failure by the Contractor to comply with any other obligation.
- 11.2.2 If and to the extent that such work is attributable to any other cause, the Contractor shall be notified promptly by (or on behalf of) the Procuring Entity, and Sub-Clause 13.3 [Variation Procedure] shall apply.

11.3 Extension of Defects Notification Period

- 11.3.1 The Procuring Entity shall be entitled subject to Sub-Clause 2.5 [Procuring Entity's Claims] to an extension of the Defects Notification Period for the Works or a Section if and to the extent that the Works, Section or a major item of Plant (as the case may be, and after taking over) cannot be used for the purposes for which they are intended by reason of a defect or by reason of damage attributable to the Contractor. However, a Defects Notification Period shall not be extended by more than two years.
- 11.3.2 If delivery and/or erection of Plant and/or Materials was suspended under Sub-Clause 8.8 [Suspension of Work] or Sub-Clause 16.1 [Contractor's Entitlement to Suspend Work], the Contractor's obligations under this Clause shall not apply to any defects or damage occurring more than two years after the Defects Notification Period for the Plant and/or Materials would otherwise have expired.

11.4 Failure to Remedy Defects

- 11.4.1 If the Contractor fails to remedy any defect or damage within a reasonable time, a date may be fixed by (or on behalf of) the Procuring Entity, on or by which the defect or damage is to be remedied. The Contractor shall be given reasonable notice of this date.
- 11.4.2 If the Contractor fails to remedy the defect or damage by this notified date and this remedial work was to be executed at the cost of the Contractor under Sub-Clause 11.2 [Cost of Remedying Defects], the Procuring Entity may (at his option):
- a) Carry out the work itself or by others, in a reasonable manner and at the Contractor's cost, but the Contractor shall have no responsibility for this work; and the Contractor shall subject to Sub-Clause 2.5 [Procuring Entity's Claims] pay to the Procuring Entity the costs reasonably incurred by the Procuring Entity in remedying the defect or damage;
 - b) Require the Engineer to agree or determine a reasonable reduction in the Contract Price in accordance with Sub-Clause 3.5 [Determinations]; or
 - c) If the defect or damage deprives the Procuring Entity of substantially the whole benefit of the Works or any major part of the Works, terminate the Contract as a whole, or in respect of such major part which cannot be put to the intended use.
- 11.4.3 Without prejudice to any other rights, under the Contract otherwise, the Procuring Entity shall then be entitled to recover all sums paid for the Works or for such part (as the case may be), plus financing costs and the cost of dismantling the same, clearing the Site and returning Plant and Materials to the Contractor.

11.5 Removal of Defective Work

If the defect or damage cannot be remedied expeditiously on the Site and the Procuring Entity gives consent, the Contractor may remove from the Site for the purposes of repair such items of Plant as are defective or damaged. This consent may require the Contractor to increase the amount of the Performance Security by the full replacement cost of these items, or to provide other appropriate security.

11.6 Further Tests

If the work of remedying of any defect or damage may affect the performance of the Works, the Engineer may require the repetition of any of the tests described in the Contract. The requirement shall be made by notice within 30 days after the defect or damage is remedied.

These tests shall be carried out in accordance with the terms applicable to the previous tests, except that they shall be carried out at the risk and cost of the Party liable, under Sub-Clause 11.2 [Cost of Remedying Defects], for the cost of the remedial work.

11.7 Right of Access

Until the Performance Certificate has been issued, the Contractor shall have such right of access to the Works as is reasonably required in order to comply with this Clause, except as may be inconsistent with the Procuring Entity's reasonable security restrictions.

11.8 Contractor to Search

The Contractor shall, if required by the Engineer, search for the cause of any defect, under the direction of the Engineer. Unless the defect is to be remedied at the cost of the Contractor under Sub-Clause 11.2 [Cost of Remedying Defects], the Cost of the search plus profit shall be agreed or determined by the Engineer in accordance with Sub-Clause 3.5 [Determinations] and shall be included in the Contract Price.

11.9 Completion Certificate

- 11.9.1 Performance of the Contractor's obligations shall not be considered to have been completed until the Engineer has issued the Performance Certificate to the Contractor, stating the date on which the Contractor completed his obligations under the Contract.
- 11.9.2 The Engineer shall issue the Performance Certificate within 30 days after the latest of the expiry dates of the Defects Notification Periods, or as soon thereafter as the Contractor has supplied all the Contractor's Documents and completed and tested all the Works, including remedying any defects. A copy of the Performance Certificate shall be issued to the Procuring Entity.
- 11.9.3 Only the Performance Certificate shall be deemed to constitute acceptance of the Works.

11.10 Unfulfilled Obligations

After the Performance Certificate has been issued, each Party shall remain liable for the fulfilment of any obligation which remains unperformed at that time. For the purposes of determining the nature and extent of unperformed obligations, the Contract shall be deemed to remain in force.

11.11 Clearance of Site

- 11.11.1 Upon receiving the Performance Certificate, the Contractor shall remove any remaining Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works from the Site.
- 11.11.2 If all these items have not been removed within 30 days after receipt by the Contractor of the Performance Certificate, the Procuring Entity may sell or otherwise dispose of any remaining items. The Procuring Entity shall be entitled to be paid the costs incurred in connection with, or attributable to, such sale or disposal and restoring the Site.

Any balance of the moneys from the sale shall be paid to the Contractor. If these moneys are less than the Procuring Entity's costs, the Contractor shall pay the outstanding balance to the Procuring Entity.

12 MEASUREMENT AND EVALUATION

12.1 Works to be Measured

- 12.1.1 The Works shall be measured, and valued for payment, in accordance with this Clause. The Contractor shall show in each application under Sub-Clauses 14.3 [Application for Interim Payment Certificates], 14.10 [Statement on Completion] and 14.11 [Application for Final Payment Certificate] the quantities and other particulars detailing the amounts which he considers to be entitled under the Contract.

- 1212 Whenever the Engineer requires any part of the Works to be measured, reasonable notice shall be given to the Contractor's Representative, who shall:
- a) promptly either attend or send another qualified representative to assist the Engineer in making the measurement, and
 - (b) supply any particulars requested by the Engineer.
- If the Contractor fails to attend or send a representative, the measurement made by (or on behalf of) the Engineer shall be accepted as accurate.
- 1213 Except as otherwise stated in the Contract, wherever any Permanent Works are to be measured from records, these shall be prepared by the Engineer. The Contractor shall, as and when requested, attend to examine and agree the records with the Engineer, and shall sign the same when agreed. If the Contractor does not attend, the records shall be accepted as accurate.
- 1214 If the Contractor examines and disagrees the records, and/or does not sign them as agreed, then the Contractor shall give notice to the Engineer of the respects in which the records are asserted to be inaccurate. After receiving this notice, the Engineer shall review the records and either confirm or vary them and certify the payment of the undisputed part. If the Contractor does not so give notice to the Engineer within 14 days after being requested to examine the records, they shall be accepted as accurate.

122 Method of Measurement

Except as otherwise stated in the Contract and notwithstanding local practice:

- a) Measurement shall be made of the net actual quantity of each item of the Permanent Works, and
- b) The method of measurement shall be in accordance with the Bills of Quantities or other applicable Schedules.

123 Evaluation

- 123.1 Except as otherwise stated in the Contract, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the Contract Price by evaluating each item of work, applying the measurement agreed or determined in accordance with the above Sub-Clauses 12.1 and 12.2 and the appropriate rate or price for the item.

For each item of work, the appropriate rate or price for the item shall be the rate or price specified for such item in the Contractor, if there is no such item, specified for similar work.

- 123.2 Any item of work included in the Bills of Quantities for which no rate or price was specified shall be considered as included in other rates and prices in the Bills of Quantities and will not be paid for separately.

However, a new rate or price shall be appropriate for an item of work if:

- a)
 - I) the measured quantity of the item is changed by more than 25% from the quantity of this item in the Bills of Quantities or another Schedule,
 - ii) This change in quantity multiplied by such specified rate for this item exceeds 0.25% of the Accepted Contract Amount,
 - iii) This change in quantity directly changes the Cost per unit quantity of this item by more than 1%, and
 - iv) This item is not specified in the Contract as a “fixed rate item”; or
- b)
 - i) the work is instructed under Clause 13 [Variations and Adjustments],
 - ii) no rate or price is specified in the Contract for this item, and
 - iii) no specified rate or price is appropriate because the item of work is not of similar character, or is not executed under similar conditions, as any item in the Contract.

- 123.3 Each new rate or price shall be derived from any relevant rates or prices in the Contract, with reasonable adjustments to take account of the matters described in sub-paragraph (a) and/or (b), as

applicable. If no rates or prices are relevant for the derivation of a new rate or price, it shall be derived from the reasonable Cost of executing the work, together with profit, taking account of any other relevant matters.

- 1234 Until such time as an appropriate rate or price is agreed or determined, the Engineer shall determine a provisional rate or price for the purposes of Interim Payment Certificates as soon as the concerned work commences.
- 1235 Where the contract price is different from the corrected tender price, in order to ensure the contractor is not paid less or more relative to the contract price (*which would be the tender price*), payment valuation certificates and variation orders on omissions and additions valued based on rates in the Bill of Quantities or schedule of rates in the Tender, will be adjusted by a plus or minus percentage. The percentage already worked out during tender evaluation is worked out as follows: (*corrected tender price – tender price*)/*tender price* X 100.

124 Omissions

Whenever the omission of any work forms part (or all) of a Variation, the value of which has not been agreed, if:

- a) the Contractor will incur (or has incurred) cost which, if the work had not been omitted, would have been deemed to be covered by a sum forming part of the Accepted Contract Amount;
- b) the omission of the work will result (or has resulted) in this sum not forming part of the Contract Price; and
- c) this cost is not deemed to be included in the evaluation of any substituted work; then the Contractor shall give notice to the Engineer accordingly, with supporting particulars. Upon receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine this cost, which shall be included in the Contract Price.

13. VARIATIONS AND ADJUSTMENTS

13.1 Right to Vary

- 13.1.1 Variations may be initiated by the Engineer at any time prior to issuing the Taking-Over Certificate for the Works, either by an instruction or by a request for the Contractor to submit a proposal.
- 13.1.2 The Contractor shall execute and be bound by each Variation, unless the Contractor promptly gives notice to the Engineer stating (with supporting particulars) that (i) the Contractor cannot readily obtain the Goods required for the Variation, or (ii) such Variation triggers a substantial change in the sequence or progress of the Works. Upon receiving this notice, the Engineer shall cancel, confirm or vary the instruction.
Each Variation may include:
- a) Changes to the quantities of any item of work included in the Contract (however, such changes do not necessarily constitute a Variation),
 - b) Changes to the quality and other characteristics of any item of work,
 - c) Changes to the levels, positions and/or dimensions of any part of the Works,
 - d) Omission of any work unless it is to be carried out by others,
 - e) any additional work, Plant, Materials or services necessary for the Permanent Works, including any associated Tests on Completion, boreholes and other testing and exploratory work, or
 - f) changes to the sequence or timing of the execution of the Works.
- 13.1.3 The Contractor shall not make any alteration and/or modification of the Permanent Works, unless and until the Engineer instructs or approves a Variation.

132 Value Engineering

132.1 The Contractor may, at any time, submit to the Engineer a written proposal which (in the Contractor's opinion) will, if adopted, (i) accelerate completion, (ii) reduce the cost to the Procuring Entity of executing, maintaining or operating the Works, (iii) improve the efficiency or value to the Procuring Entity of the completed Works, or (iv) otherwise be of benefit to the Procuring Entity.

132.2 The proposal shall be prepared at the cost of the Contractor and shall include the items listed in Sub-Clause 13.3 [Variation Procedure].

If a proposal, which is approved by the Engineer, includes a change in the design of part of the Permanent Works, then unless otherwise agreed by both Parties:

- a) The Contractor shall design this part,
- b) sub-paragraphs (a) to (d) of Sub-Clause 4.1 [Contractor's General Obligations] shall apply, and
- c) if this change results in a reduction in the contract value of this part, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine a fee, which shall be included in the Contract Price. This fee shall be half (50%) of the difference between the following amounts:
 - i) such reduction in contract value, resulting from the change, excluding adjustments under Sub-Clause 13.7 [Adjustments for Changes in Legislation] and Sub-Clause 13.8 [Adjustments for Changes in Cost], and
 - ii) the reduction (if any) in the value to the Procuring Entity of the varied works, taking account of any reductions in quality, anticipated life or operational efficiencies.

132.3 However, if amount (i) is less than amount (ii), there shall not be a fee.

133 Variation Procedure

133.1 If the Engineer requests a proposal, prior to instructing a Variation, the Contractor shall respond in writing as soon as practicable, either by giving reasons why he cannot comply (if this is the case) or by submitting:

- a) A description of the proposed work to be performed and a programme for its execution,
- b) the Contractor's proposal for any necessary modifications to the programme according to Sub-Clause 8.3 [Programme] and to the Time for Completion, and
- c) the Contractor's proposal for evaluation of the Variation.

133.2 The Engineer shall, as soon as practicable after receiving such proposal (under Sub-Clause 13.2 [Value Engineering] or otherwise), respond with approval, disapproval or comments. The Contractor shall not delay any work whilst awaiting a response.

133.3 Each instruction to execute a Variation, with any requirements for the recording of Costs, shall be issued by the Engineer to the Contractor, who shall acknowledge receipt.

Each Variation shall be evaluated in accordance with Clause 12 [Measurement and Evaluation], unless the Engineer instructs or approves otherwise in accordance with this Clause.

134 Payment in Applicable Currencies

If the Contract provides for payment of the Contract Price in more than one currency, then whenever an adjustment is agreed, approved or determined as stated above, the amount payable in each of the applicable currencies shall be specified. For this purpose, reference shall be made to the actual or expected currency proportions of the Cost of the varied work, and to the proportions of various currencies specified for payment of the Contract Price.

13.5 Provisional Sums

- 13.5.1 Each Provisional Sum shall only be used, in whole or in part, in accordance with the Engineer's instructions, and the Contract Price shall be adjusted accordingly. The total sum paid to the Contractor shall include only such amounts, for the work, supplies or services to which the Provisional Sum relates, as the Engineer shall have instructed. For each Provisional Sum, the Engineer may instruct:
- a) Work to be executed (including Plant, Materials or services to be supplied) by the Contractor and valued under Sub-Clause 13.3 [Variation Procedure]; and/or
 - b) Plant, Materials or services to be purchased by the Contractor, from a nominated Subcontractor (as defined in Clause 5 [Nominated Subcontractors]) or otherwise; and for which there shall be included in the Contract Price:
 - i) The actual amounts paid (or due to be paid) by the Contractor, and
 - ii) A sum for overhead charges and profit, calculated as a percentage of these actual amounts by applying the relevant percentage rate (if any) stated in the appropriate Schedule.
 - iii) If there is no such rate, the percentage rate stated in the **SCC** shall be applied.
- 13.5.2 The Contractor shall, when required by the Engineer, produce quotations, invoices, vouchers and accounts or receipts in substantiation.

13.6 Daywork

- 13.6.1 For work of a minor or incidental nature, the Engineer may instruct that a Variation shall be executed on a daywork basis. The work shall then be valued in accordance with the Daywork Schedule included in the Contract, and the following procedure shall apply. If a Daywork Schedule is not included in the Contract, this Sub-Clauses shall not apply.

Before ordering Goods for the work, the Contractor shall submit quotations to the Engineer. When applying for payment, the Contractor shall submit invoices, vouchers and accounts or receipts for any Goods.

- 13.6.2 Except for any items for which the Daywork Schedule specifies that payment is not due, the Contractor shall deliver each day to the Engineer accurate statements in duplicate which shall include the following details of the resources used in executing the previous day's work:
- a) The names, occupations and time of Contractor's Personnel,
 - b) The identification, type and time of Contractor's Equipment and Temporary Works, and
 - c) The quantities and types of Plant and Materials used.
- 13.6.3 One copy of each statement will, if correct, or when agreed, be signed by the Engineer and returned to the Contractor. The Contractor shall then submit priced statements of these resources to the Engineer, prior to their inclusion in the next Statement under Sub-Clause 14.3 [Application for Interim Payment Certificates].

13.7 Adjustments for Changes in Legislation

- 13.7.1 The Contract Price shall be adjusted to take account of any increase or decrease in Cost resulting from a change in the Laws of the Country (including the introduction of new Laws and the repeal or modification of existing Laws) or in the judicial or official governmental interpretation of such Laws, made after the Base Date, which affect the Contractor in the performance of obligations under the Contract.
- 13.7.2 If the Contract or suffers (or will suffer) delay and/or incurs (or will incur) additional Cost as a result of these changes in the Laws or in such interpretations, made after the Base Date, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
 - b) Payment of any such Cost, which shall be included in the Contract Price.
- After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

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

13.8 Adjustments for Changes in Cost

- 13.8.1 In this Sub-Clause, “table of adjustment data” means the completed table of adjustment data for local and foreign currencies included in the Schedules. If there is no such table of adjustment data, this Sub-Clause shall not apply.
- 13.8.2 If this Sub-Clause applies, the amounts payable to the Contractor shall be adjusted for rises or falls in the cost of labor, Goods and other inputs to the Works, by the addition or deduction of the amounts determined by the formulae prescribed in this Sub-Clause. To the extent that full compensation for any rise or fall in Costs is not covered by the provisions of this or other Clauses, the Accepted Contract Amount shall be deemed to have included amounts to cover the contingency of other rises and falls in costs.
- 13.8.3 The adjustment to be applied to the amount otherwise payable to the Contractor, as valued in accordance with the appropriate Schedule and certified in Payment Certificates, shall be determined from formulae for each of the currencies in which the Contract Price is payable. No adjustment is to be applied to work valued on the basis of Cost or current prices. The formulae shall be of the following general type:

$$P_n = a + b \frac{L_n}{L_o} + c \frac{E_n}{E_o} + d \frac{M_n}{M_o} + \dots \text{ where:}$$

“P_n” is the adjustment multiplier to be applied to the estimated contract value in the relevant currency of the work carried out in period “n”, this period being a month unless otherwise stated in the SCC;

“a” is a fixed coefficient, stated in the relevant table of adjustment data, representing the non-adjustable portion in contractual payments;

“b”, “c”, “d” ... are coefficients representing the estimated proportion of each cost element related to the execution of the Works, as stated in the relevant table of adjustment data; such tabulated cost elements may be indicative of resources such as labor, equipment and materials;

“L_n”, “E_n”, “M_n”, ... are the current cost indices or reference prices for period “n”, expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated cost element on the date 49 days prior to the last day of the period (to which the particular Payment Certificate relates); and

“L_o”, “E_o”, “M_o”, ... are the base cost indices or reference prices, expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated cost element on the Base Date.

- 1384 The cost indices or reference prices stated in the table of adjustment data shall be used. If their source is in doubt, it shall be determined by the Engineer. For this purpose, reference shall be made to the values of the indices at stated dates (quoted in the fourth and fifth columns respectively of the table) for the purposes of clarification of the source; although these dates (and thus these values) may not correspond to the base cost indices.
- 1385 In cases where the “currency of index” is not the relevant currency of payment, each index shall be converted into the relevant currency of payment at the selling rate, established by the central Procuring Entity of the Country, of this relevant currency on the above date for which the index is required to be applicable.
- 1386 Until such time as each current cost index is available, the Engineer shall determine a provisional index for the issue of Interim Payment Certificates. When a current cost index is available, the adjustment shall be recalculated accordingly.
- 1387 If the Contractor fails to complete the Works within the Time for Completion, adjustment of prices thereafter shall be made using either (i) each index or price applicable on the date 49 days prior to the expiry of the Time for Completion of the Works, or (ii) the current index or price, whichever is more favorable to the Procuring Entity.
- 1388 The weightings (coefficients) for each of the factors of cost stated in the table(s) of adjustment data shall only be adjusted if they have been rendered unreasonable, unbalanced or inapplicable, as a result of Variations.

14. CONTRACT PRICE AND PAYMENT

141 The Contract Price

- 141.1 Unless otherwise stated in the Particular Conditions:
- a) the Contract Price shall be agreed or determined under Sub-Clause 12.3 [Evaluation] and be subject to adjustments in accordance with the Contract;
 - b) the Contractor shall pay all taxes, duties and fees required to be paid by him under the Contract, and the Contract Price shall not be adjusted for any of these costs except as stated in Sub-Clause 13.7 [Adjustments for Changes in Legislation];
 - c) any quantities which may be set out in the Bills of Quantities or other Schedule are estimated quantities and are not to be taken as the actual and correct quantities:
 - i) of the Works which the Contractor is required to execute, or
 - ii) for the purposes of Clause 12 [Measurement and Evaluation]; and
 - d) the Contractor shall submit to the Engineer, within 30 days after the Commencement Date, a proposed breakdown of each lump sum price in the Schedules.
- 141.2 The Engineer may take account of the breakdown when preparing Payment Certificates, but shall not be bound by it.
- 141.3 Notwithstanding the provisions of subparagraph (b), Contractor's Equipment, including essential spare parts there for, imported by the Contractor for the sole purpose of executing the Contract shall be exempt from the payment of import duties and taxes upon importation.

142 Advance Payment

- 142.1 The Procuring Entity shall make an advance payment, as an interest- free loan for mobilization and cash flow support, when the Contractor submits a guarantee in accordance with this Sub-Clause. The total advance payment, the number and timing of instalments (if more than one), and the applicable currencies and proportions, shall be as stated in the **SCC**. Unless and until the Procuring Entity receives this guarantee, or if the total advance payment is not stated in the **SCC**, this Sub-Clause shall not apply.
- 142.2 The Engineer shall deliver to the Procuring Entity and to the Contractor an Interim Payment Certificate for the advance payment or its first instalment after receiving a Statement (under Sub-Clause 14.3 [Application for Interim Payment Certificates]) and after the Procuring Entity receives (i) the Performance Security in accordance with Sub-Clause 4.2 [Performance Security] and (ii) a guarantee in amounts and currencies equal to the advance payment. This guarantee shall be issued by a reputable Procuring Entity or financial institution selected by the Contractor and shall be in the form annexed to the Particular Conditions or in another form approved by the Procuring Entity.

- 1423 The Contractor shall ensure that the guarantee is valid and enforceable until the advance payment has been repaid, but its amount shall be progressively reduced by the amount repaid by the Contractor as indicated in the Payment Certificates. If the terms of the guarantee specify its expiry date, and the advance payment has not been repaid by the date 30 days prior to the expiry date, the Contractor shall extend the validity of the guarantee until the advance payment has been repaid.
- 1424 Unless stated otherwise in the SCC, the advance payment shall be repaid through percentage deductions from the interim payments determined by the Engineer in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates], as follows:
- a) Deductions shall commence in the next interim Payment Certificate following that in which the total of all certified interim payments (excluding the advance payment and deductions and repayments of retention) exceeds 30 percent (30%) of the Accepted Contract Amount Less Provisional Sums; and
 - b) Deductions shall be made at the amortization rate stated in the SCC of the amount of each Interim Payment Certificate (excluding the advance payment and deductions for its repayments as well as deductions for retention money) in the currencies and proportions of the advance payment until such time as the advance payment has been repaid; provided that the advance payment shall be completely repaid prior to the time when 90 percent (90%) of the Accepted Contract Amount less Provisional Sums has been certified for payment.
- 1425 If the advance payment has not been repaid prior to the issue of the Taking-Over Certificate for the Works or prior to termination under Clause 15 [Termination by Procuring Entity], Clause 16 [Suspension and Termination by Contractor] or Clause 19 [Force Majeure] (as the case may be), the whole of the balance then outstanding shall immediately become due and in case of termination under Clause 15 [Termination by Procuring Entity], except for Sub-Clause 15.5 [Procuring Entity's Entitlement to Termination for Convenience], payable by the Contractor to the Procuring Entity.

143 Application for Interim Payment Certificates

- 143.1 The Contractor shall submit a Statement in six copies to the Engineer after the end of each month, in a form approved by the Engineer, showing in detail the amounts to which the Contractor considers itself to be entitled, together with supporting documents which shall include the report on the progress during this month in accordance with Sub-Clause 4.21 [Progress Reports].
- 1432 The Statement shall include the following items, as applicable, which shall be expressed in the various currencies in which the Contract Price is payable, in the sequence listed:
- a) the estimated contract value of the Works executed and the Contractor's Documents produced up to the end of the month (including Variations but excluding items described in sub-paragraphs (b) to (g) below);
 - b) any amounts to be added and deducted for changes in legislation and changes in cost, in accordance with Sub-Clause 13.7 [Adjustments for Changes in Legislation] and Sub-Clause 13.8 [Adjustments for Changes in Cost];
 - c) any amount to be deducted for retention, calculated by applying the percentage of retention stated in the SCC to the total of the above amounts, until the amount so retained by the Procuring Entity reaches the limit of Retention Money (if any) stated in the SCC;
 - d) any amounts to be added for the advance payment and (if more than one instalment) and to be deducted for its repayments in accordance with Sub-Clause 14.2 [Advance Payment];
 - e) any amounts to be added and deducted for Plant and Materials in accordance with Sub-Clause 14.5 [Plant and Materials intended for the Works];
 - f) any other additions or deductions which may have become due under the Contract or otherwise, including those under Clause 20 [Claims, Disputes and Arbitration]; and
 - g) the deduction of amounts certified in all previous Payment Certificates.
- 1433 Where the contract price is different from the corrected tender price, in order to ensure the contractor is not paid less or more relative to the contract price (*which would be the tender price*), payment valuation certificates and variation orders on omissions and additions valued based on rates in the Bill of Quantities or schedule of rates in the Tender, will be adjusted by a plus or minus percentage. The percentage already worked out during tender evaluation is worked out as follows: $(\text{corrected tender price} - \text{tender price}) / \text{tender price} \times 100$.

144 Schedule of Payments

- 144.1 If the Contract includes a schedule of payments specifying the instalments in which the Contract Price will be paid, then unless otherwise stated in this schedule:

- a) The instalments quoted in this schedule of payments shall be the estimated contract values for the purposes of sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment Certificates];
- b) Sub-Clause 14.5 [Plant and Materials intended for the Works] shall not apply; and
- c) If these instalments are not defined by reference to the actual progress achieved in executing the Works, and if actual progress is found to be less or more than that on which this schedule of payments was based, then the Engineer may proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine revised instalments, which shall take account of the extent to which progress is less or more than that on which the instalments were previously based.

1442 If the Contract does not include a schedule of payments, the Contractor shall submit non-binding estimates of the payments which he expects to become due during each quarterly period. The first estimate shall be submitted within 42 days after the Commencement Date. Revised estimates shall be submitted at quarterly intervals, until the Taking-Over Certificate has been issued for the Works.

145 Plant and Materials intended for the Works *(see SCC for lists)*

1451 If this Sub-Clause applies, Interim Payment Certificates shall include, under sub-paragraph (e) of Sub-Clause 14.3, (i) an amount for Plant and Materials which have been sent to the Site for incorporation in the Permanent Works, and (ii) a reduction when the contract value of such Plant and Materials is included as part of the Permanent Works under sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment Certificates].

1452 If the lists referred to in sub-paragraphs (b) (i) or (c) (i) below are not included in the Schedules, this Sub-Clause shall not apply. The Engineer shall determine and certify each addition if the following conditions are satisfied:

- a) The Contractor has:
 - i) Kept satisfactory records (including the orders, receipts, Costs and use of Plant and Materials) which are available for inspection, and
 - ii) Submitted a statement of the Cost of acquiring and delivering the Plant and Materials to the Site, supported by satisfactory evidence; and either:
- b) The relevant Plant and Materials:
 - i) Are those listed in the Schedules for payment when shipped,
 - ii) Have been shipped to the Country, enroute to the Site, in accordance with the Contract; and
 - iii) are described in a clean shipped bill of lading or other evidence of shipment, which has been submitted to the Engineer together with evidence of payment of freight and insurance, any other documents reasonably required, and an Procuring Entity guarantee in a form and issued by an entity approved by the Procuring Entity in amounts and currencies equal to the amount due under this Sub-Clause: this guarantee may be in a similar form to the form referred to in Sub-Clause 14.2 [Advance Payment] and shall be valid until the Plant and Materials are properly stored on Site and protected against loss, damage or deterioration;
- c) the relevant Plant and Materials:
 - i) are those listed in the Schedules for payment when delivered to the Site, and
 - ii) have been delivered to and are properly stored on the Site, are protected against loss, damage or deterioration, and appear to be in accordance with the Contract.

1453 The additional amount to be certified shall be the equivalent of eighty percent (80%) of the Engineer's determination of the cost of the Plant and Materials (including delivery to Site), taking account of the documents mentioned in this Sub-Clause and of the contract value of the Plant and Materials.

1454 The currencies for this additional amount shall be the same as those in which payment will become due when the contract value is included under sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment Certificates]. At that time, the Payment Certificate shall include the applicable reduction which shall be equivalent to, and in the same currencies and proportions as, this additional amount for the relevant Plant and Materials.

146 Issue of Interim Payment Certificates

1461 No amount will be certified or paid until the Procuring Entity has received and approved the Performance Security. Thereafter, the Engineer shall, within 30 days after receiving a Statement and supporting

documents, deliver to the Procuring Entity and to the Contractor an Interim Payment Certificate which shall state the amount which the Engineer fairly determines to be due, with all supporting particulars for any reduction or withholding made

However, prior to issuing the Taking-Over Certificate for the Works, the Engineer shall not be bound to issue an Interim Payment Certificate in an amount which would (after retention and other deductions) be less than the minimum amount of Interim Payment Certificates (if any) stated in the SCC. In this event, the Engineer shall give notice to the Contractor accordingly.

1462 An Interim Payment Certificate shall not be withheld for any other reason, although:

- a) if anything supplied or work done by the Contractor is not in accordance with the Contract, the cost of rectification or replacement may be withheld until rectification or replacement has been completed; and/or
- b) if the Contractor was or is failing to perform any work or obligation in accordance with the Contract, and had been so notified by the Engineer, the value of this work or obligation may be withheld until the work or obligation has been performed.

1463 The Engineer may in any Payment Certificate make any correction or modification that should properly be made to any previous Payment Certificate. A Payment Certificate shall not be deemed to indicate the Engineer's acceptance, approval, consent or satisfaction.

147 Payment

147.1 The Procuring Entity shall pay to the Contractor:

- a) The first instalment of the advance payment within 42 days after issuing the Letter of Acceptance or within 21 days after receiving the documents in accordance with Sub-Clause 4.2 [Performance Security] and Sub-Clause 14.2 [Advance Payment], whichever is later;
- b) the amount certified in each Interim Payment Certificate within 56 days after the Engineer receives the Statement and supporting documents; or, at a time when the Procuring Entity's loan or credit (from which part of the payments to the Contractor is being made) is suspended, the amount shown on any statement submitted by the Contractor within 14 days after such statement is submitted, any discrepancy being rectified in the next payment to the Contractor; and
- c) the amount certified in the Final Payment Certificate within 56 days after the Procuring Entity receives this Payment Certificate; or, at a time when the Procuring Entity's loan or credit (from which part of the payments to the Contractor is being made) is suspended, the undisputed amount shown in the Final Statement within 56 days after the date of notification of the suspension in accordance with Sub-Clause 16.2 [Termination by Contractor].

147.2 Payment of the amount due in each currency shall be made in to the Procuring Entity account, nominated by the Contractor, in the payment country (for this currency) specified in the Contract.

148 Delayed Payment

If the Contractor does not receive payment in accordance with Sub-Clause 14.7 [Payment], the Contractor shall be entitled to receive financing charges compounded monthly on the amount unpaid during the period of delay. This period shall be deemed to commence on the date for payment specified in Sub-Clause 14.7 [Payment], irrespective (in the case of its sub-paragraph (b)) of the date on which any Interim Payment Certificate is issued.

Unless otherwise stated in the Particular Conditions, these financing charges shall be calculated at the annual rate of three percentage points above the discount rate of the central Procuring Entity in the country of the currency of payment, or if not available, the inter-Procuring Entity offered rate, and shall be paid in such currency.

The Contractor shall be entitled to this payment without formal notice or certification, and without prejudice to any other right or remedy.

149 Payment of Retention Money

149.1 When the Taking-Over Certificate has been issued for the Works, the first half of the Retention Money shall be certified by the Engineer for payment to the Contractor. If a Taking-Over Certificate is issued for a Section or part of the Works, a proportion of the Retention Money shall be certified and paid. This proportion shall be half

(50%) of the proportion calculated by dividing the estimated contract value of the Section or part, by the estimated final Contract Price.

- 1492 Promptly after the latest of the expiry dates of the Defects Notification Periods, the outstanding balance of the Retention Money shall be certified by the Engineer for payment to the Contractor. If a Taking-Over Certificate was issued for a Section, a proportion of the second half of the Retention Money shall be certified and paid promptly after the expiry date of the Defects Notification Period for the Section. This proportion shall be half (50%) of the proportion calculated by dividing the estimated contract value of the Section by the estimated final Contract Price.
- 1493 However, if any work remains to be executed under Clause 11 [Defects Liability], the Engineer shall be entitled to withhold certification of the estimated cost of this work until it has been executed.
- 1494 When calculating these proportions, no account shall be taken of any adjustments under Sub-Clause 13.7 [Adjustments for Changes in Legislation] and Sub-Clause 13.8 [Adjustments for Changes in Cost].
- 1495 Unless otherwise stated in the Particular Conditions, when the Taking-Over Certificate has been issued for the Works and the first half of the Retention Money has been certified for payment by the Engineer, the Contractor shall be entitled to substitute a guarantee, in the form annexed to the Particular Conditions or in another form approved by the Procuring Entity and issued by a reputable Procuring Entity or financial institution selected by the Contractor, for the second half of the Retention Money. The Contractor shall ensure that the guarantee is in the amounts and currencies of the second half of the Retention Money and is valid and enforceable until the Contract or has executed and completed the Works and remedied any defects, as specified for the Performance Security in Sub-Clause 4.2. On receipt by the Procuring Entity of the required guarantee, the Engineer shall certify and the Procuring Entity shall pay the second half of the Retention Money. The release of the second half of the Retention Money against a guarantee shall then be in lieu of the release under the second paragraph of this Sub-Clause. The Procuring Entity shall return the guarantee to the Contractor within 21 days after receiving a copy of the Performance Certificate.
- 1496 If the Performance Security required under Sub-Clause 4.2 is in the form of a demand guarantee, and the amount guaranteed under it when the Taking-Over Certificate is issued is more than half of the Retention Money, then the Retention Money guarantee will not be required. If the amount guaranteed under the Performance Security when the Taking-Over Certificate is issued is less than half of the Retention Money, the Retention Money guarantee will only be required for the difference between half of the Retention Money and the amount guaranteed under the Performance Security.

14.10 Statement at Completion

Within 84 days after receiving the Taking-Over Certificate for the Works, the Contractor shall submit to the Engineer six copies of a Statement at completion with supporting documents, in accordance with Sub-Clause

14.3 [Application for Interim Payment Certificates], showing:

- a) the value of all work done in accordance with the Contract up to the date stated in the Taking-Over Certificate for the Works,
- b) any further sums which the Contractor considers to be due, and
- c) an estimate of any other amounts which the Contractor considers will become due to him under the Contract. Estimated amounts shall be shown separately in this Statement at completion.

The Engineer shall then certify in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates].

14.11 Application for Final Payment Certificate

- 14.11.1 Within 56 days after receiving the Performance Certificate, the Contractor shall submit, to the Engineer, six copies of a draft final statement with supporting documents showing in detail in a form approved by the Engineer:
- a) The value of all work done in accordance with the Contract, and
 - b) Any further sums which the Contractor considers to be due to him under the Contractor otherwise.
- 14.11.2 If the Engineer disagrees with or cannot verify any part of the draft final statement, the Contractor shall submit such further information as the Engineer may reasonably require within 30 days from receipt of said draft and shall make such changes in the draft as may be agreed between them. The Contractor shall then prepare and submit to the Engineer the final statement as agreed. This agreed statement is referred to in these Conditions as the "Final Statement".

14.113 However, if, following discussions between the Engineer and the Contractor and any changes to the draft final statement which are agreed, it becomes evident that a dispute exists, the Engineer shall deliver to the Procuring Entity (with a copy to the Contractor) an Interim Payment Certificate for the agreed parts of the draft final statement. Thereafter, if the dispute is finally resolved under Sub-Clause 20.4 [Obtaining Dispute Board's Decision] or Sub-Clause 20.5 [Amicable Settlement], the Contractor shall then prepare and submit to the Procuring Entity (with a copy to the Engineer) a Final Statement.

14.12 Discharge

When submitting the Final Statement, the Contractor shall submit a discharge which confirms that the total of the Final Statement represents full and final settlement of all moneys due to the Contractor under or in connection with the Contract. This discharge may state that it becomes effective when the Contractor has received the Performance Security and the outstanding balance of this total, in which event the discharge shall be effective on such date.

14.13 Issue of Final Payment Certificate

14.13.1 Within 30 days after receiving the Final Statement and discharge in accordance with Sub-Clause 14.11 [Application for Final Payment Certificate] and Sub-Clause 14.12 [Discharge], the Engineer shall deliver, to the Procuring Entity and to the Contractor, the Final Payment Certificate which shall state:

- (a) The amount which he fairly determines is finally due, and
- (b) After giving credit to the Procuring Entity for all amounts previously paid by the Procuring Entity and for all sums to which the Procuring Entity is entitled, the balance (if any) due from the Procuring Entity to the Contractor or from the Contractor to the Procuring Entity, as the case may be.

14.13.1 If the Contractor has not applied for a Final Payment Certificate in accordance with Sub-Clause 14.11 [Application for Final Payment Certificate] and Sub-Clause 14.12 [Discharge], the Engineer shall request the Contractor to do so. If the Contractor fails to submit an application within a period of 30 days, the Engineer shall issue the Final Payment Certificate for such amount as he fairly determines to be due.

14.14 Cessation of Procuring Entity's Liability

14.14.1 The Procuring Entity shall not be liable to the Contractor for any matter or thing under or in connection with the Contract or execution of the Works, except to the extent that the Contractor shall have included an amount expressly for it:

- a) In the Final Statement and also
- b) (except for matters or things arising after the issue of the Taking-Over Certificate for the Works) in the Statement at completion described in Sub-Clause 14.10[Statement at Completion].

14.14.2 However, this Sub-Clause shall not limit the Procuring Entity's liability under his indemnification obligations, or the Procuring Entity's liability in any case of fraud, deliberate default or reckless misconduct by the Procuring Entity.

14.15 Currencies of Payment

The Contract Price shall be paid in the currency or currencies named in the Schedule of Payment Currencies. If more than one currency is so named, payments shall be made as follows:

- a) If the Accepted Contract Amount was expressed in Local Currency only:
 - (i) The proportions or amounts of the Local and Foreign Currencies, and the fixed rates of exchange to be used for calculating the payments, shall be as stated in the Schedule of Payment Currencies, except as otherwise agreed by both Parties;
 - ii) payments and deductions under Sub-Clause 13.5 [Provisional Sums] and Sub-Clause 13.7 [Adjustments for Changes in Legislation] shall be made in the applicable currencies and proportions; and
 - iii) other payments and deductions under sub-paragraphs (a) to (d) of Sub-Clause 14.3 [Application for Interim Payment Certificates] shall be made in the currencies and proportions specified in sub-paragraph (a) (i) above;

- b) payment of the damages specified in the **SCC**, shall be made in the currencies and proportions specified in the Schedule of Payment Currencies;
- c) other payments to the Procuring Entity by the Contractor shall be made in the currency in which the sum was expended by the Procuring Entity, or in such currency as may be agreed by both Parties;
- d) if any amount payable by the Contractor to the Procuring Entity in a particular currency exceeds the sum payable by the Procuring Entity to the Contractor in that currency, the Procuring Entity may recover the balance of this amount from the sums otherwise payable to the Contractor in other currencies; and
- e) if no rates of exchange are stated in the Schedule of Payment Currencies, they shall be those prevailing on the Base Date and determined by the central Procuring Entity of the Country.

15. TERMINATION BY PROCURING ENTITY

15.1 Notice to Correct

If the Contractor fails to carry out any obligation under the Contract, the Engineer may by notice require the Contractor to make good the failure and to remedy it within a specified reasonable time.

15.2 Termination by Procuring Entity

- 1521 The Procuring Entity shall be entitled to terminate the Contract if the Contractor:
- a) fails to comply with Sub-Clause 4.2 [Performance Security] or with a notice under Sub-Clause 15.1 [Notice to Correct],
 - b) abandons the Works or otherwise plainly demonstrates the intention not to continue performance of his obligations under the Contract,
 - c) without reasonable excuse fails:
 - (i) to proceed with the Works in accordance with Clause 8 [Commencement, Delays and Suspension], or
 - ii) to comply with a notice issued under Sub-Clause 7.5 [Rejection] or Sub-Clause 7.6 [Remedial Work], within 30 days after receiving it,
 - d) subcontracts the whole of the Works or as signs the Contract without the required agreement,
 - e) becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events, or
 - f) gives or offers to give (directly or indirectly) to any person any bribe, gift, gratuity, commission or other thing of value, as an inducement or reward:
 - i) for doing or forbearing to do any action in relation to the Contract, or
 - ii) for showing or for bearing to show favor or disfavor to any person in relation to the Contract, or if any of the Contractor's Personnel, agents or Subcontractors gives or offers to give (directly or indirectly) to any person any such inducement or reward as is described in this sub-paragraph (f). However, lawful inducements and rewards to Contractor's Personnel shall not entitle termination, or
 - g) based on reasonable evidence, has engaged in Fraud and Corruption as defined in paragraph 2.2 of the Appendix B to these General Conditions, in competing for or in executing the Contract.
- 1522 In any of these events or circumstances, the Procuring Entity may, upon giving 14 days' notice to the Contractor, terminate the Contract and expel the Contractor from the Site. However, in the case of sub-paragraph (e) or (f) or (g), the Procuring Entity may by notice terminate the Contract immediately.
- 1523 The Procuring Entity's election to terminate the Contract shall not prejudice any other rights of the Procuring Entity, under the Contract or otherwise.

The Contractor shall then leave the Site and deliver any required Goods, all Contractor's Documents, and other design documents made by or for him, to the Engineer. However, the Contractor shall use his Lowest efforts to comply immediately with any reasonable instructions included in the notice (i) for the assignment of any subcontract, and (ii) for the protection of life or property or for the safety of the Works.

After termination, the Procuring Entity may complete the Works and/or arrange for any other entities to do so. The Procuring Entity and these entities may then use any Goods, Contractor's Documents and other design documents made by or on behalf of the Contractor.

The Procuring Entity shall then give notice that the Contractor's Equipment and Temporary Works will be released to the Contractor at or near the Site. The Contractor shall promptly arrange their removal, at the risk and cost of the Contractor. However, if by this time the Contractor has failed to make a payment due to the Procuring Entity, these items may be sold by the Procuring Entity in order to recover this payment. Any balance of the proceeds shall then be paid to the Contractor.

153 Valuation at Date of Termination

As soon as practicable after a notice of termination under Sub-Clause 15.2 [Termination by Procuring Entity] has taken effect, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the value of the Works, Goods and Contractor's Documents, and any other sums due to the Contractor for work executed in accordance with the Contract.

154 Payment after Termination

After a notice of termination under Sub-Clause 15.2 [Termination by Procuring Entity] has taken effect, the Procuring Entity may:

- a) Proceed in accordance with Sub-Clause 2.5 [Procuring Entity's Claims],
- b) Withhold further payments to the Contractor until the costs of execution, completion and remedying of any defects, damages for delay in completion (if any), and all other costs incurred by the Procuring Entity, have been established, and/or
- c) Recover from the Contractor any losses and damages incurred by the Procuring Entity and any extra costs of completing the Works, after allowing for any sum due to the Contractor under Sub-Clause 15.3 [Valuation at Date of Termination]. After recovering any such losses, damages and extra costs, the Procuring Entity shall pay any balance to the Contractor.

155 Procuring Entity's Entitlement to Termination for Convenience

155.1 The Procuring Entity shall be entitled to terminate the Contract, at any time for the Procuring Entity's convenience, by giving notice of such termination to the Contractor. The termination shall take effect 30 days after the later of the dates on which the Contractor receives this notice or the Procuring Entity returns the Performance Security. The Procuring Entity shall not terminate the Contract under this Sub-Clause in order to execute the Works itself or to arrange for the Works to be executed by another contractor or to avoid a termination of the Contract by the Contractor under Clause 16.2[Termination by Contractor].

155.2 After this termination, the Contractor shall proceed in accordance with Sub-Clause 16.3 [Cessation of Work and Removal of Contractor's Equipment] and shall be paid in accordance with Sub-Clause 16.4 [Payment on Termination].

156 Fraud and Corruption

The Procuring Entity requires compliance with the national law and regulations against corruption. All available sanctions will apply where corruption is detected.

16. SUSPENSION AND TERMINATION BY CONTRACTOR

16.1 Contractor's Entitlement to Suspend Work

16.1.1 If the Engineer fails to certify in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates] or the Procuring Entity fails to comply with Sub-Clause 2.4 [Procuring Entity's Financial Arrangements] or Sub-Clause 14.7 [Payment], the Contractor may, after giving not less than 21days' notice to the Procuring Entity, suspend work (or reduce the rate of work) unless and until the Contractor has received the Payment Certificate, reasonable evidence or payment, as the case may be and as described in the notice.

16.1.2 Notwithstanding the above, if the Procuring Entity has suspended disbursements under the loan or credit from which payments to the Contractor are being made, in whole or in part, for the execution of the Works, and no alternative funds are available as provided for in Sub-Clause 2.4 [Procuring Entity's Financial Arrangements], the Contractor may by notice suspend work or reduce the rate of work at any time, but not less than 7 days after the Procuring Entity having received the suspension notification from the Procuring Entity.

- 16.13 The Contractor's action shall not prejudice his entitlements to financing charges under Sub-Clause 14.8 [Delayed Payment] and to termination under Sub-Clause 16.2[Termination by Contractor].
- 16.14 If the Contractor subsequently receives such Payment Certificate, evidence or payment (as described in the relevant Sub-Clause and in the above notice) before giving a notice of termination, the Contractor shall resume normal working as soon as is reasonably practicable.
- 16.15 If the Contractor suffers delay and/or incurs Cost as a result of suspending work (or reducing the rate of work) in accordance with this Sub-Clause, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
- a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
 - b) payment of any such Cost-plus profit, which shall be included in the Contract Price.
- 16.16 After receiving this notice, the Engineers shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

16.2 Termination by Contractor

- 16.21 The Contractor shall be entitled to terminate the Contract if:
- a) the Contractor does not receive the reasonable evidence within 42 days after giving notice under Sub-Clause 16.1 [Contractor's Entitlement to Suspend Work] in respect of a failure to comply with Sub-Clause 2.4 [Procuring Entity's Financial Arrangements],
 - b) the Engineer fails, within 56 days after receiving a Statement and supporting documents, to issue the relevant Payment Certificate,
 - c) the Contractor does not receive the amount due under an Interim Payment Certificate within 42 days after the expiry of the time stated in Sub-Clause 14.7 [Payment] within which payment is to be made (except for deductions in accordance with Sub-Clause 2.5 [Procuring Entity's Claims]),
 - d) the Procuring Entity substantially fails to perform his obligations under the Contract in such manner as to materially and adversely affect the economic balance of the Contract and/or the ability of the Contractor to perform the Contract,
 - e) the Procuring Entity fails to comply with Sub-Clause 1.6 [Contract Agreement] or Sub-Clause 1.7 [Assignment],
 - f) a prolonged suspension affects the whole of the Works as described in Sub-Clause 8.11 [Prolonged Suspension], or
 - g) the Procuring Entity becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events.
 - h) The Contractor does not receive the Engineer's instruction recording the agreement of both Parties on the fulfilment of the conditions for the Commencement of Works under Sub-Clause 8.1 [Commencement of Works].
- 16.22 In any of these events or circumstances, the Contractor may, upon giving 14 days' notice to the Procuring Entity, terminate the Contract. However, in the case of sub-paragraph (f) or (g), the Contractor may by notice terminate the Contract immediately.
- 16.23 In the event the Procuring Entity suspends the loan or credit from which part or whole of the payments to the Contractor are being made, if the Contractor has not received the sums due to him upon expiration of the 14 days referred to in Sub-Clause 14.7 [Payment] for payments under Interim Payment Certificates, the Contractor may, without prejudice to the Contractor's entitlement to financing charges under Sub-Clause 14.8 [Delayed Payment], take one of the following actions, namely (i) suspend work or reduce the rate of work under Sub-Clause 16.1 above, or (ii) terminate the Contract by giving notice to the Procuring Entity, with a copy to the Engineer, such termination to take effect 14 days after the giving of the notice.

The Contractor's election to terminate the Contract shall not prejudice any other rights of the Contractor, under the Contract or otherwise.

163 Cessation of Work and Removal of Contractor's Equipment

After a notice of termination under Sub-Clause 15.5 [Procuring Entity's Entitlement to Termination for Convenience], Sub-Clause 16.2 [Termination by Contractor] or Sub-Clause 19.6 [Optional Termination, Payment and Release] has taken effect, the Contractor shall promptly:

- a) Cease all further work, except for such work as may have been instructed by the Engineer for the protection of life or property or for the safety of the Works,
- b) Handover Contractor's Documents, Plant, Materials and other work, for which the Contractor has received payment, and
- c) Remove all other Goods from the Site, except as necessary for safety, and leave the Site.

164 Payment on Termination

After a notice of termination under Sub-Clause 16.2 [Termination by Contractor] has taken effect, the Procuring Entity shall promptly:

- a) Return the Performance Security to the Contractor,
- b) pay the Contractor in accordance with Sub-Clause 19.6 [Optional Termination, Payment and Release], and
- c) pay to the Contractor the amount of any loss or damage sustained by the Contractor as a result of this termination.

17. RISK AND RESPONSIBILITY

17.1 Indemnities

17.1.1 The Contractor shall indemnify and hold harmless the Procuring Entity, the Procuring Entity's Personnel, and their respective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of:

- (a) Bodily injury, sickness, disease or death, of any person whatsoever arising out of or in the course of or by reason of the Contractor's design (if any), the execution and completion of the Works and the remedying of any defects, unless attributable to any negligence, willful actor breach of the Contract by the Procuring Entity, the Procuring Entity's Personnel, or any of the irrespective agents, and
- (b) Damage to or loss of any property, real or personal (other than the Works), to the extent that such damage or loss arises out of or in the course of or by reason of the Contractor's design (if any), the execution and completion of the Works and the remedying of any defects, unless and to the extent that any such damage or loss is attributable to any negligence, willful act or breach of the Contract by the Procuring Entity, the Procuring Entity's Personnel, the irrespective agents, or any one directly or indirectly employed by any of them.

17.1.2 The Procuring Entity shall indemnify and hold harmless the Contractor, the Contractor's Personnel, and their respective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of (1) bodily injury, sickness, disease or death, which is attributable to any negligence, willful act or breach of the Contract by the Procuring Entity, the Procuring Entity's Personnel, or any of their respective agents, and (2) the matters for which liability may be excluded from insurance cover, as described in sub-paragraphs (d)(i), (ii) and (iii) of Sub-Clause 18.3 [Insurance Against Injury to Persons and Damage to Property].

17.2 Contractor's Care of the Works

17.2.1 The Contractor shall take full responsibility for the care of the Works and Goods from the Commencement Date until the Taking-Over Certificate is issued (or is deemed to be issued under Sub-Clause 10.1 [Taking Over of the Works and Sections]) for the Works, when responsibility for the care of the Works shall pass to the Procuring Entity. If a Taking-Over Certificate is issued (or is so deemed to be issued) for any Section or part of the Works, responsibility for the care of the Section or part shall then pass to the Procuring Entity.

17.2.2 After responsibility has accordingly passed to the Procuring Entity, the Contractor shall take responsibility for the care of any work which is outstanding on the date stated in a Taking-Over Certificate, until this outstanding work has been completed.

1723 If any loss or damage happens to the Works, Goods or Contractor's Documents during the period when the Contractor is responsible for their care, from any cause not listed in Sub-Clause 17.3 [Procuring Entity's Risks], the Contractor shall rectify the loss or damage at the Contractor's risk and cost, so that the Works, Goods and Contractor's Documents conform with the Contract.

1724 The Contractor shall be liable for any loss or damage caused by any actions performed by the Contractor after a Taking-Over Certificate has been issued. The Contractor shall also be liable for any loss or damage which occurs after a Taking-Over Certificate has been issued and which arose from a previous event for which the Contractor was liable.

173 Procuring Entity's Risks

The risks referred to in Sub-Clause 17.4 [Consequences of Procuring Entity's Risks] below, insofar as they directly affect the execution of the Works in the Country, are:

- a) war, hostilities (whether war be declared or not), invasion, act of foreign enemies,
- b) rebellion, terrorism, sabotage by persons other than the Contractor's Personnel, revolution, insurrection, military or usurped power, or civil war, within the Country,
- c) riot, commotion or disorder within the Country by persons other than the Contractor's Personnel,
- d) munitions of war, explosive materials, ionizing radiation or contamination by radio-activity, within the Country, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio-activity,
- e) pressure waves caused by aircraft or other aerial devices traveling at sonic or supersonic speeds,
- f) use or occupation by the Procuring Entity of any part of the Permanent Works, except as may be specified in the Contract,
- g) design of any part of the Works by the Procuring Entity's Personnel or by others for whom the Procuring Entity is responsible, and
- h) any operation of the forces of nature which is Unforeseeable or against which an experienced contractor could not reasonably have been expected to have taken adequate preventive precautions.

174 Consequences of Procuring Entity's Risks

174.1 If and to the extent that any of the risks listed in Sub-Clause 17.3 above results in loss or damage to the Works, Goods or Contractor's Documents, the Contractor shall promptly give notice to the Engineer and shall rectify this loss or damage to the extent required by the Engineer.

174.2 If the Contractor suffers delay and/or incurs Cost from rectifying this loss or damage, the Contractor shall give a further notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- b) payment of any such Cost, which shall be included in the Contract Price. In the case of sub-paragraphs (f) and (g) of Sub-Clause 17.3 [Procuring Entity's Risks], Cost plus profit shall be payable.

174.3 After receiving this further notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

175 Intellectual and Industrial Property Rights

175.1 In this Sub-Clause, "infringement" means an infringement (or alleged infringement) of any patent, registered design, copyright, trademark, tradename, trade secret or other intellectual or industrial property right relating to the Works; and "claim" means a claim (or proceedings pursuing a claim) alleging an infringement.

175.2 Whenever a Party does not give notice to the other Party of any claim within 30 days of receiving the claim, the first Party shall be deemed to have waived any right to indemnity under this Sub-Clause.

175.3 The Procuring Entity shall indemnify and hold the Contractor harmless against and from any claim alleging an infringement which is or was:

- a) An unavoidable result of the Contractor's compliance with the Contract, or
- b) A result of any Works being used by the Procuring Entity:

- i) For a purpose other than that indicated by, or reasonably to be inferred from, the
- ii) Contract, or
- iii) in conjunction with anything not supplied by the Contractor, unless such use was disclosed to the Contractor prior to the Base Date or is stated in the Contract.

1754 The Contractor shall indemnify and hold the Procuring Entity harmless against and from any other claim which arises out of or in relation to (i) the manufacture, use, sale or import of any Goods, or (ii) any design for which the Contractor is responsible.

1755 If a Party is entitled to be indemnified under this Sub-Clause, the indemnifying Party may (at its cost) conduct negotiations for the settlement of the claim, and any litigation or arbitration which may arise from it. The other Party shall, at the request and cost of the indemnifying Party, assist in contesting the claim. This other Party (and its Personnel) shall not make any admission which might be prejudicial to the indemnifying Party, unless the indemnifying Party failed to take over the conduct of any negotiations, litigation or arbitration upon being requested to do so by such other Party.

176 Limitation of Liability

1761 Neither Party shall be liable to the other Party for loss of use of any Works, loss of profit, loss of any contractor for any indirect or consequential loss or damage which may be suffered by the other Party in connection with the Contract, other than as specifically provided in Sub-Clause 8.7 [Delay Damages]; Sub-Clause 11.2 [Cost of Remedying Defects]; Sub-Clause 15.4 [Payment after Termination]; Sub-Clause 16.4 [Payment on Termination]; Sub-Clause 17.1 [Indemnities]; Sub-Clause 17.4 (b) [Consequences of Procuring Entity's Risks] and Sub-Clause 17.5 [Intellectual and Industrial Property Rights].

1762 The total liability of the Contractor to the Procuring Entity, under or in connection with the Contract other than under Sub-Clause 4.19 [Electricity, Water and Gas], Sub-Clause 4.20 [Procuring Entity's Equipment and Free- Issue Materials], Sub-Clause 17.1 [Indemnities] and Sub-Clause 17.5 [Intellectual and Industrial Property Rights], shall not exceed the sum resulting from the application of a multiplier (less or greater than one) to the Accepted Contract Amount, as stated in the SCC, or (if such multiplier or other sum is not so stated) the Accepted Contract Amount.

1763 This Sub-Clause shall not limit liability in any case of fraud, deliberate default or reckless misconduct by the defaulting Party.

177 Use of Procuring Entity's Accommodation/Facilities

1771 The Contractor shall take full responsibility for the care of the Procuring Entity provided accommodation and facilities, if any, as detailed in the Specification, from the respective dates of hand-over to the Contract or until cessation of occupation (where hand-over or cessation of occupation may take place after the date stated in the Taking-Over Certificate for the Works).

1772 If any loss or damage happens to any of the above items while the Contractor is responsible for their care arising from any cause whatsoever other than those for which the Procuring Entity is liable, the Contractor shall, at his own cost, rectify the loss or damage to the satisfaction of the Engineer.

18 INSURANCE

18.1 General Requirements for Insurances

18.1.1 In this Clause, "insuring Party" means, for each type of insurance, the Party responsible for effecting and maintaining the insurance specified in the relevant Sub-Clause.

18.1.2 Wherever the Contractor is the insuring Party, each insurance shall be effected with insurers and in terms approved by the Procuring Entity. These terms shall be consistent with any terms agreed by both Parties before the date of the Letter of Acceptance. This agreement of terms shall take precedence over the provisions of this Clause.

18.1.3 Wherever the Procuring Entity is the insuring Party, each insurance shall be effected with insurers and in terms acceptable to the Contractor. These terms shall be consistent with any terms agreed by both Parties before the date of the Letter of Acceptance. This agreement of terms shall take precedence over the provisions of this Clause.

- 18.14 If a policy is required to indemnify joint insured, the cover shall apply separately to each insured as though a separate policy had been issued for each of the joint insured. If a policy indemnifies additional joint insured, namely in addition to the insured specified in this Clause, (i) the Contractor shall act under the policy on behalf of these additional joint insured except that the Procuring Entity shall act for Procuring Entity's Personnel, (ii) additional joint insured shall not be entitled to receive payments directly from the insurer or to have any other direct dealings with the insurer, and (iii) the insuring Party shall require all additional joint insured to comply with the conditions stipulated in the policy.
- 18.15 Each policy insuring against loss or damage shall provide for payments to be made in the currencies required to rectify the loss or damage. Payments received from insurers shall be used for the rectification of the loss or damage.
- 18.16 The relevant insuring Party shall, within the respective periods stated in the SCC (calculated from the Commencement Date), submit to the other Party:
- a) Evidence that the insurances described in this Clause have been effected, and
 - b) copies of the policies for the insurances described in Sub-Clause 18.2 [Insurance for Works and Contractor's Equipment] and Sub-Clause 18.3 [Insurance against Injury to Persons and Damage to Property].
- 18.17 When each premium is paid, the insuring Party shall submit evidence of payment to the other Party. Whenever evidence or policies are submitted, the insuring Party shall also give notice to the Engineer.
- 18.18 Each Party shall comply with the conditions stipulated in each of the insurance policies. The insuring Party shall keep the insurers informed of any relevant changes to the execution of the Works and ensure that insurance is maintained in accordance with this Clause.
- Neither Party shall make any material alteration to the terms of any insurance without the prior approval of the other Party. If an insurer makes (or attempts to make) any alteration, the Party first notified by the insurer shall promptly give notice to the other Party.
- 18.19 The insuring Party fails to effect and keep in force any of the insurances it is required to effect and maintain under the Contract or fails to provide satisfactory evidence and copies of policies in accordance with this Sub- Clause, the other Party may (at its option and without prejudice to any other right or remedy) effect insurance for the relevant coverage and pay the premiums due. The insuring Party shall pay the amount of these premiums to the other Party, and the Contract Price shall be adjusted accordingly.
- 18.1.10 Nothing in this Clause limits the obligations, liabilities or responsibilities of the Contractor or the Procuring Entity, under the other terms of the Contract otherwise. Any amounts not insured or not recovered from the insurers shall be borne by the Contractor and/or the Procuring Entity in accordance with these obligations, liabilities or responsibilities. However, if the insuring Party fails to effect and keep in force an insurance which is available and which it is required to effect and maintain under the Contract, and the other Party neither approves the omission nor effects insurance for the coverage relevant to this default, any moneys which should have been recoverable under this insurance shall be paid by the insuring Party.
- 18.1.11 Payments by one Party to the other Party shall be subject to Sub-Clause 2.5 [Procuring Entity's Claims] or Sub- Clause 20.1[Contractor's Claims], as applicable.
- 18.1.12 The Contractor shall be entitled to place all insurance relating to the Contract (including, but not limited to the insurance referred to Clause 18) with insurers from any eligible source country.

182 Insurance for Works and Contractor's Equipment

- 182.1 The insuring Party shall insure the Works, Plant, Materials and Contractor's Documents for not less than the full reinstatement cost including the costs of demolition, removal of debris and professional fees and profit. This insurance shall be effective from the date by which the evidence is to be submitted under subparagraph (a) of Sub-Clause 18.1 [General Requirements for Insurances], until the date of issue of the Taking-Over Certificate for the Works.
- 182.2 The insuring Party shall maintain this insurance to provide cover until the date of issue of the Performance Certificate, for loss or damage for which the Contractor is liable arising from a cause occurring prior to the issue of the Taking-Over Certificate, and for loss or damage caused by the Contractor in the course of any other operations (including those under Clause 11 [Defects Liability]).

- 1823 The insuring Party shall insure the Contractor's Equipment for not less than the full replacement value, including delivery to Site. For each item of Contractor's Equipment, the insurance shall be effective while it is being transported to the Site and until it is no longer required as Contractor's Equipment.
- 1824 Unless otherwise stated in the Particular Conditions, insurances under this Sub-Clause:
- a) Shall be effected and maintained by the Contractor as insuring Party,
 - b) shall be in the joint names of the Parties, who shall be jointly entitled to receive payments from the insurers, payments being held or allocated to the Party actually bearing the costs of rectifying the loss or damage,
 - c) shall cover all loss and damage from any cause not listed in Sub-Clause 17.3 [Procuring Entity's Risks],
 - d) shall also cover, to the extent specifically required in the tendering documents of the Contract, loss or damage to a part of the Works which is attributable to the use or occupation by the Procuring Entity of another part of the Works, and loss or damage from the risks listed in sub-paragraphs (c), (g) and (h) of Sub-Clause 17.3 [Procuring Entity's Risks], excluding (in each case) risks which are not insurable at commercially reasonable terms, with deductibles per occurrence of not more than the amount stated in the SCC (if an amount is not so stated, this sub-paragraph (d) shall not apply), and
 - e) may however exclude loss of, damage to, and reinstatement of:
 - i) a part of the Works which is in a defective condition due to a defect in its design, materials or workmanship (but cover shall include any other parts which are lost or damaged as a direct result of this defective condition and not as described in sub-paragraph (ii) below),
 - ii) a part of the Works which is lost or damaged in order to reinstate any other part of the Works if this other part is in a defective condition due to a defect in its design, materials or workmanship,
 - iii) a part of the Works which has been taken over by the Procuring Entity, except to the extent that the Contractor is liable for the loss or damage, and
 - iv) Goods while they are not in the Country, subject to Sub-Clause 14.5 [Plant and Materials intended for the Works].
- 1825 If, more than one year after the Base Date, the cover described in sub-paragraph (d) above ceases to be available at commercially reasonable terms, the Contractor shall (as insuring Party) give notice to the Procuring Entity, with supporting particulars. The Procuring Entity shall then (i) be entitled subject to Sub-Clause 2.5 [Procuring Entity's Claims] to payment of an amount equivalent to such commercially reasonable terms as the Contractor should have expected to have paid for such cover, and (ii) be deemed, unless he obtains the cover at commercially reasonable terms, to have approved the omission under Sub-Clause 18.1 [General Requirements for Insurances].

183 Insurance against Injury to Persons and Damage to Property

- 183.1 The insuring Party shall insure against each Party's liability for any loss, damage, death or bodily injury which may occur to any physical property (except things insured under Sub-Clause 18.2 [Insurance for Works and Contractor's Equipment]) or to any person (except persons insured under Sub-Clause 18.4 [Insurance for Contractor's Personnel]), which may arise out of the Contractor's performance of the Contract and occurring before the issue of the Performance Certificate.
- 1832 This insurance shall be for a limit per occurrence of not less than the amount stated in the SCC, with no limit on the number of occurrences. If an amount is not stated in the SCC, this Sub-Clause shall not apply. Unless otherwise stated in the Particular Conditions, the insurances specified in this Sub-Clause:
- a) Shall be effected and maintained by the Contractor as insuring Party,
 - b) Shall be in the joint names of the Parties,
 - c) Shall be extended to cover liability for all loss and damage to the Procuring Entity's property (except things insured under Sub-Clause 18.2) arising out of the Contractor's performance of the Contract, and
 - d) May however exclude liability to the extent that it arises from:
 - i) The Procuring Entity's right to have the Permanent Works executed on, over, under, in or through any land, and to occupy this land for the Permanent Works,
 - ii) damage which is an unavoidable result of the Contractor's obligations to execute the Works and remedy any defects, and
 - iii) a cause listed in Sub-Clause 17.3 [Procuring Entity's Risks], except to the extent that cover is available at commercially reasonable terms.

184 Insurance for Contractor's Personnel

- 184.1 The Contract or shall effect and maintain insurance against liability for claims, damages, losses and expenses (including legal fees and expenses) arising from injury, sickness, disease or death of any person employed by the Contractor or any other of the Contractor's Personnel.
- 184.2 The insurance shall cover the Procuring Entity and the Engineer against liability for claims, damages, losses and expenses (including legal fees and expenses) arising from injury, sickness, disease or death of any person employed by the Contractor or any other of the Contractor's Personnel, except that this insurance may exclude losses and claims to the extent that they arise from any act or neglect of the Procuring Entity or of the Procuring Entity's Personnel.
- 184.3 The insurance shall be maintained in full force and effect during the whole time that these personnel are assisting in the execution of the Works. For a Subcontractor's employees, the insurance may be effected by the Subcontractor, but the Contractor shall be responsible for compliance with this Clause.

19. FORCE MAJEURE

191 Definition of Force Majeure

In this Clause, "Force Majeure" means an exceptional event or circumstance:

- a) Which is beyond a Party's control,
- b) Which such Party could not reasonably have provided against before entering into the Contract,
- c) which, having arisen, such Party could not reasonably have avoided or overcome, and
- d) which is not substantially attributable to the other Party.

Force Majeure may include, but is not limited to, exceptional events or circumstances of the kind listed below, so long as conditions (a) to (d) above are satisfied:

- i) war, hostilities (whether war be declared or not), invasion, act of foreign enemies,
- ii) rebellion, terrorism, sabotage by persons other than the Contractor's Personnel, revolution, insurrection, military or usurped power, or civil war,
- iii) riot, commotion, disorder, strike or lockout by persons other than the Contractor's Personnel,
- iv) munitions of war, explosive materials, ionizing radiation or contamination by radio-activity, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio- activity, and
- v) natural catastrophes such as earthquake, hurricane, typhoon or volcanic activity.

192 Notice of Force Majeure

- 192.1 If a Party is or will be prevented from performing its substantial obligations under the Contract by Force Majeure, then it shall give notice to the other Party of the event or circumstances constituting the Force Majeure and shall specify the obligations, the performance of which is or will be prevented. The notice shall be given within 14 days after the Party became aware, or should have become aware, of the relevant event or circumstance constituting Force Majeure.
- 192.2 The Party shall, having given notice, be excused performance of its obligations for so long as such Force Majeure prevents it from performing them.

Notwithstanding any other provision of this Clause, Force Majeure shall not apply to obligations of either Party to make payments to the other Party under the Contract.

193 Duty to Minimize Delay

Each Party shall at all times use all reasonable endeavors to minimize any delay in the performance of the Contract as a result of Force Majeure. A Party shall give notice to the other Party when it ceases to be affected by the ForceMajeure.

194 Consequences of Force Majeure

194.1 If the Contractor is prevented from performing his substantial obligations under the Contract by Force Majeure of which notice has been given under Sub-Clause 19.2 [Notice of Force Majeure], and suffers delay and/or incurs Cost by reason of such Force Majeure, the Contractor shall be entitled subject to Sub-Clause

20.1 [Contractor's Claims] to:

- a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- b) if the event or circumstance is of the kind described in sub-paragraphs (i) to (iv) of Sub-Clause 19.1 [Definition of Force Majeure] and, in sub-paragraphs (ii) to (iv), occurs in the Country, payment of any such Cost, including the costs of rectifying or replacing the Works and/or Goods damaged or destroyed by Force Majeure, to the extent they are not indemnified through the insurance policy referred to in Sub-Clause 18.2 [Insurance for Works and Contractor's Equipment].

194.2 After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

195 Force Majeure Affecting Subcontractor

If any Subcontractor is entitled under any contract or agreement relating to the Works to relief from force majeure on terms additional to or broader than those specified in this Clause, such additional or broader force majeure events or circumstances shall not excuse the Contractor's non-performance or entitle him to relief under this Clause.

196 Optional Termination, Payment and Release

If the execution of substantially all the Works in progress is prevented for a continuous period of 84 days by reason of Force Majeure of which notice has been given under Sub-Clause 19.2 [Notice of Force Majeure], or for multiple periods which total more than 140 days due to the same notified Force Majeure, then either Party may give to the other Party a notice of termination of the Contract. In this event, the termination shall take effect 7 days after the notice is given, and the Contractor shall proceed in accordance with Sub-Clause 16.3 [Cessation of Work and Removal of Contractor's Equipment].

Upon such termination, the Engineer shall determine the value of the work done and issue a Payment Certificate which shall include:

- a) The amounts payable for any work carried out for which a price is stated in the Contract;
- b) The Cost of Plant and Materials ordered for the Works which have been delivered to the Contractor, or of which the Contractor is liable to accept delivery: this Plant and Materials shall become the property of (and be at the risk of) the Procuring Entity when paid for by the Procuring Entity, and the Contractor shall place the same at the Procuring Entity's disposal;
- c) other Cost or liabilities which in the circumstances were reasonably and necessarily incurred by the Contractor in the expectation of completing the Works;
- d) the Cost of removal of Temporary Works and Contractor's Equipment from the Site and their turn of these items to the Contractor's works in his country (or to any other destination at no greater cost); and
- e) the Cost of repatriation of the Contractor's staff and labor employed wholly in connection with the Works at the date of termination.

197 Release from Performance

Notwithstanding any other provision of this Clause, if any event or circumstance outside the control of the Parties (including, but not limited to, Force Majeure) arises which makes it impossible or unlawful for either or both Parties to fulfil its or their contractual obligations or which, under the law governing the Contract, entitles the Parties to be released from further performance of the Contract, then upon notice by either Party to the other Party of such event or circumstance:

- a) The Parties shall be discharged from further performance, without prejudice to the rights of either Party in respect of any previous breach of the Contract, and
- b) The sum payable by the Procuring Entity to the Contractor shall be the same as would have been payable under Sub-Clause 19.6 [Optional Termination, Payment and Release] if the Contract had been terminated under Sub-Clause 19.6.

20. CLAIMS, DISPUTES AND ARBITRATION

20.1 Contractor's Claims

- 20.1.1 If the Contractor considers itself to be entitled to any extension of the Time for Completion and/or any additional payment, under any Clause of these Conditions or otherwise in connection with the Contract, the Contractor shall give Notice to the Engineer, describing the event or circumstance giving rise to the claim. The notice shall be given as soon as practicable, and not later than 30 days after the Contractor became aware, or should have become aware, of the event or circumstance.
- 20.1.2 If the Contractor fails to give notice of a claim within such period of 30 days, the Time for Completion shall not be extended, the Contractor shall not be entitled to additional payment, and the Procuring Entity shall be discharged from all liability in connection with the claim. Otherwise, the following provisions of this Sub-Clause shall apply.
- 20.1.3 The Contractor shall also submit any other notices which are required by the Contract, and supporting particulars for the claim, all as relevant to such event or circumstance.
- 20.1.3 The Contractor shall keep such contemporary records as may be necessary to substantiate any claim, either on the Site or at another location acceptable to the Engineer. Without admitting the Procuring Entity's liability, the Engineer may, after receiving any notice under this Sub-Clause, monitor the record-keeping and/or instruct the Contractor to keep further contemporary records. The Contractor shall permit the Engineer to inspect all these records, and shall (if instructed) submit copies to the Engineer.
- 20.1.4 Within 42 days after the Contractor became aware (or should have become aware) of the event or circumstance giving rise to the claim, or within such other period as may be proposed by the Contractor and approved by the Engineer, the Contractor shall send to the Engineer a fully detailed claim which includes full supporting particulars of the basis of the claim and of the extension of time and/or additional payment claimed. If the event or circumstance giving rise to the claim has a continuing effect:
- a) This fully detailed claim shall be considered as interim;
 - b) The Contractor shall send further interim claims at monthly intervals, giving the accumulated delay and/or amount claimed, and such further particulars as the Engineer may reasonably require; and
 - c) The Contractor shall send a final claim within 30 days after the end of the effects resulting from the event or circumstance, or within such other period as may be proposed by the Contractor and approved by the Engineer.
- 20.1.5 Within 42 days after receiving a Notice of a claim or any further particulars supporting a previous claim, or within such other period as may be proposed by the Engineer and approved by the Contractor, the Engineer shall respond with approval, or with disapproval and detailed comments. He may also request any necessary further particulars, but shall nevertheless give his response on the principles of the claim within the above defined time period.
- 20.1.6 Within the above defined period of 42 days, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) the extension (if any) of the Time for Completion (before or after its expiry) in accordance with Sub-Clause 8.4 [Extension of Time for Completion], and/or (ii) the additional payment (if any) to which the Contractor is entitled under the Contract.
- 20.1.7 Each Payment Certificate shall include such additional payment for any claim as has been reasonably substantiated as due under the relevant provision of the Contract. Unless and until the particulars supplied are sufficient to substantiate the whole of the claim, the Contractor shall only be entitled to payment for such part of the claim as he has been able to substantiate.
- 20.1.8 If the Engineer does not respond within the time frame defined in this Clause, either Party may consider that the claim is rejected by the Engineer and any of the Parties may refer to Arbitration in accordance with Sub-Clause 20.4 [Arbitration].
- 20.1.9 The requirements of this Sub-Clause are in addition to those of any other Sub-Clause which may apply to a claim. If the Contractor fails to comply with this or another Sub-Clause in relation to any claim, any extension of time and/or additional payment shall take account of the extent (if any) to which the failure has prevented or prejudiced proper investigation of the claim, unless the claim is excluded under the second paragraph of Sub-Clause 20.3 (f).

20.2 Amicable Settlement

Where a notice of a claim has been given, both Parties shall attempt to settle the dispute amicably before the commencement of arbitration. However, unless both Parties agree otherwise, the Party giving a notice of a claim in accordance with Sub-Clause 20.1 above should move to commence arbitration after the fifty-sixth day from the day on which a notice of a claim was given, even if no attempt at an amicable settlement has been made.

20.3 Matters that may be referred to arbitration

Notwithstanding anything stated herein the following matters may be referred to arbitration before the practical completion of the Works or abandonment of the Works or termination of the Contract by either party:

- a) The appointment of a replacement Engineer upon the said person ceasing to act.
- b) Whether or not the issue of an instruction by the Engineer is empowered by these Conditions.
- c) Whether or not a certificate has been improperly withheld or is not in accordance with these Conditions.
- e) Any dispute arising in respect of war risks or war damage.
- f) All other matters shall only be referred to arbitration after the completion or alleged completion of the Works or termination or alleged termination of the Contract, unless the Procuring Entity and the Contract or agree otherwise in writing.

20.4 Arbitration

- 204.1 Any claim or dispute between the Parties arising out of or in connection with the Contract not settled amicably in accordance with Sub-Clause 20.3 shall be finally settled by arbitration.
- 204.2 No arbitration proceedings shall be commenced on any claim or dispute where notice of a claim or dispute has not been given by the applying party within ninety days of the occurrence or discovery of the matter or issue giving rise to the dispute.
- 204.3 Notwithstanding the issue of a notice as stated above, the arbitration of such a claim or dispute shall not commence unless an attempt has in the first instance been made by the parties to settle such claim or dispute amicably with or without the assistance of third parties. Proof of such attempt shall be required.
- 204.4 The Arbitrator shall, without prejudice to the generality of his powers, have powers to direct such measurements, computations, tests or valuations as may in his opinion be desirable in order to determine the rights of the parties and assess and award any sums which ought to have been the subject of or included in any certificate.
- 204.5 The Arbitrator shall, without prejudice to the generality of his powers, have powers to open up, review and revise any certificate, opinion, decision, requirement or notice and to determine all matters in dispute which shall be submitted to him in the same manner as if no such certificate, opinion, decision requirement or notice had been given.
- 204.6 The arbitrators shall have full power to open up, review and revise any certificate, determination, instruction, opinion or valuation of the Engineer, relevant to the dispute. Nothing shall disqualify representatives of the Parties and the Engineer from being called as a witness and giving evidence before the arbitrators on any matter whatsoever relevant to the dispute.
- 204.7 Neither Party shall be limited in the proceedings before the arbitrators to the evidence, or to the reasons for dissatisfaction given in its Notice of Dissatisfaction.
- 204.7 Arbitration may be commenced prior to or after completion of the Works. The obligations of the Parties, and the Engineer shall not be altered by reason of any arbitration being conducted during the progress of the Works.
- 204.8 The terms of the remuneration of each or all the members of Arbitration shall be mutually agreed upon by the Parties when agreeing the terms of appointment. Each Party shall be responsible for paying one-half of this remuneration.

205 Arbitration with National Contractors

205.1 if the Contract is with national contractors, arbitration proceedings will be conducted in accordance with the Arbitration Laws of Kenya. In case of any claim or dispute, such claim or dispute shall be notified in writing by either party to the other with a request to submit it to arbitration and to concur in the appointment of an Arbitrator within thirty days of the notice. The dispute shall be referred to the arbitration and final decision of a person to be agreed between the parties. Failing agreement to concur in the appointment of an Arbitrator, the Arbitrator shall be appointed, on the request of the applying party, by the Chairman or Vice Chairman of any of the following professional institutions;

- i) Architectural Association of Kenya
- ii) Institute of Quantity Surveyors of Kenya
- iii) Association of Consulting Engineers of Kenya
- iv) Chartered Institute of Arbitrators (Kenya Branch)
- v) Institution of Engineers of Kenya

205.2 The institution written to first by the aggrieved party shall take precedence over all other institutions.

206 Arbitration with Foreign Contractors

207.1 Arbitration with foreign contractors shall be conducted in accordance with the arbitration rules of the United Nations Commission on International Trade Law (UNCITRAL); or with proceedings administered by the International Chamber of Commerce (ICC) and conducted under the ICC Rules of Arbitration; by one or more arbitrators appointed in accordance with said arbitration rules.

207.2 The place of arbitration shall be a location specified in the **SCC**; and the arbitration shall be conducted in the language for communications defined in Sub-Clause 1.4 [Law and Language].

207 Alternative Arbitration Proceedings

Alternatively, the Parties may refer the matter to the Nairobi Centre for International Arbitration (NCIA) which offers a neutral venue for the conduct of national and international arbitration with commitment to providing institutional support to the arbitral process.

208 Failure to Comply with Arbitrator's Decision

208.1 The award of such Arbitrator shall be final and binding upon the parties.

208.2 In the event that a Party fails to comply with a final and binding Arbitrator's decision, then the other Party may, without prejudice to any other rights it may have, refer the matter to a competent court of law.

10.7 Contract operations continue

Notwithstanding any reference to arbitration herein,

- a) The parties shall continue to perform their respective obligations under the Contract unless they otherwise agree; and
- b) The Procuring Entity shall pay the Contractor any monies due the Contractor.

SECTION IX - SPECIAL CONDITIONS OF CONTRACT

The following Particular Conditions shall supplement the GCC. Whenever there is a conflict, the provisions herein shall prevail over those in the GCC.

Conditions	GCC Clause	Data
Procuring Entity's name and address	1	Kenya Airports Authority P.O Box 19001-00501 Nairobi
Time for Completion	1	12 months from handover
Engineer's name and address	1	General Manager- Projects & Engineering Services Kenya Airports Authority P.O Box 19001-00501 Nairobi
Electronic transmission	1.3	Refer to the invitation to tender.
Time for the Parties entering into a Contract Agreement	1.6	Within 28 days from the end of the stand still period.
Time for access to the Site	2.1	Within seven (7) days from the date of issuance of the commencement letter
Engineer's Authority to make variations.	3.1.2 (b) (ii)	No variations is allowed save as provided under the law.
Performance Security	4.2.2	10% of the Contract Sum
Contractor's Representative's name	4.3	<i>[insert the name of the Contractor's Representative agreed by the Procuring Entity prior to Contract signature]</i>
Working Hours	6.5	Normal working hours shall be as specified in the tender document
Key Personnel names	6.9	<i>[insert the name of each Key Personnel agreed by the Procuring Entity prior to Contract signature]</i>
Commencement of Works	8.1	Within seven days from the date of issuance of the letter of the notification to commence work.
Delay Damages	8.7	Kshs. 450,000 per month up to a maximum of 10% of the contract.
Defects Notification Period		6 months

Conditions	GCC Clause	Data
	13.5.1 (b) (iii)	The percentage rate shall be _____
Time for access to the Site	2.1	No later than the Commencement Day, except for the following parts (if applicable, with detailed description of parts concerned: seven (7) days after Commencement Date.
Engineer's Duties and Authority	3.1(b)(ii)	Variations resulting in an increase of the Accepted Contract Amount in excess of % shall require approval of the Procuring Entity. No variation is allowed under this contract save as provided under the law.
Adjustments for Changes in Cost	13.8.3	<i>No applicable</i>

Sustainable procurement 14.1

Performance Security	4.2	The performance security will be in the form of a "demand bank guarantee" in the amount(s) of _____ insert related figure(s) 10% percent of the Accepted Contract Amount in the same currency(ies) of the Contract Amount.
----------------------	-----	--

Normal working hours 6.5 _____ Hours per day

Delay damages for the Works	8.7 & 14.15(b)	<u>Kshs. 450,000 per month up to a max. of 10% of the contract</u> <i>If Sections are to be used, refer to Table: Summary of Sections below</i>
Maximum amount of delay damages	8.7	10% of the final Contract Price.
Provisional Sums	13.5. (b)(ii)	<i>[If there are Provisional Sums, insert a percentage for adjustment of Provisional Sums]</i> ____ %, otherwise insert "NONE".
Total advance payment	14.2.1	10% Percentage of the Accepted Contract Amount payable in the currencies and proportions in which the Accepted Contract Amount is payable less any provisional sums Not Applicable for this tender.
Repayment amortization rate of advance payment	14.2.4(b)	____ %
Limit of Retention	14.3.2(c)	The limit of Retention Money (if any) shall be 10% _____ —

Conditions	GCC Clause	Data
Plant and Materials	14.S(b)(i)	If Sub-Clause 14.5 applies: Plant and Materials for payment Free on Board — — — — — <i>[list]</i> .
	14.S(c)(i)	Plant and Materials for payment when delivered to the Site _____ <i>[list]</i> .
Minimum Amount of Interim Payment Certificates	14.6	<u>To be agreed</u>
Publishing source of commercial interest rates for financial charges in case of delayed payment	14.8	Three percentage points above the discount rate given by the Central bank of Kenya.
Maximum total liability of the Contractor to the Procuring Entity	17.6	<i>10% of the contract sum</i>
Periods for submission of insurance:	18.1	<i>Within seven (7) days from the date of execution of the contract.</i>
a. evidence of insurance.		<i>Within seven (7) days from the date of execution of the contract</i>
b. relevant policies		<i>Within seven (7) days from the date of execution of the contract</i>
Maximum number of deductibles for insurance of the Procuring Entity's risks	18.2(d)	<i>[Insert maximum amount of deductibles]</i>
Minimum amount of third-party insurance	18.3	<i>10% of the contract</i>
The place of arbitration	20.7.2	The place of arbitration shall be Kenya

Conditions	GCC Clause	Data
Procuring Entity's name and address	1.1.3	Kenya Airports Authority P.O. Box 19001-00501
Engineer's name and address	1.1.3	The said "Engineer" shall be General Manager – Projects and Engineering Services, Kenya Airports Authority, P.O. Box 19001 – 00501, Nairobi, Kenya or any other "Competent Person" appointed by the Employer, and notified to the Contractor, to act in replacement of the Engineer. The "Competent Person" may be an individual(s), a consultancy firm, a Government Agency, or any combination of professionals to be appointed at the discretion of the Employer.
Engineer's Duties and Authority	3.1	The Engineer shall obtain specific approval of the Employer before taking any of the following actions specified in Part I: <ul style="list-style-type: none"> (i) Consenting to the sub-letting of any part of the Works. (ii) Certifying additional cost determined (iii) Determining an extension of time (iv) Issuing a variation except in an emergency situation as reasonably determined by the Engineer. (v) Fixing rates or prices
Subcontractors	4.4	No single subcontract may be for more than 10 percent of the Contract Price nor shall the sum of all subcontracts exceed 25 percent of the Contract price. No one subcontractor may be awarded subcontracts to a total value greater than 10 percent of the Contract Price. All subcontracts greater than 2 percent of the Contract Price are to have the prior consent of the Engineer. The Contractor shall however, not required such consent for purchases of materials or to place contracts for minor details or for any part of the Works of which the manufacturer of supplier is named in the Contract. Any such consent shall not relieve the Contractor from any liability or obligation under the Contract and he shall be responsible for the acts, defaults and neglects of any subcontractor, his agents, servants or workmen as fully as if they were the acts, defaults or neglects of the Contractor, his agents, servants or workmen.
Compliance with Laws	1.1.3	<p>(a) The language governing this Contract shall be English.</p> <p>The "Ruling Language" which shall be used to interpret this Contract shall be English. Communication between the Contractor and Engineer or Engineer's representative shall be in English.</p> <p>(b) The law applicable to this Contract shall be the laws of the Republic of Kenya. Except to the extent otherwise provided by the Contract, the Kenyan courts shall have exclusive jurisdiction to hear and to determine all actions and proceedings in connection with and arising out of the Contract, and the Contractor shall submit to the jurisdiction</p>

of Kenyan courts for the purpose of any such actions and proceedings.

Contractor's General Obligations

- 4.1 (a) Within 28 days after receipt of the Engineer's order to commence the Works, the Contractor shall establish an office at the Site duly equipped for the Contractor's representative and his supervisory personnel.

The Contractor shall maintain this office throughout the Contract period. The said office shall be the legal domicile of the Contractor, and all correspondence sent to this office shall be deemed to have been sent to the Contractor's head office.

- (b) A foreign Contractor or a Kenya-foreign joint venture, if not registered in Kenya under the applicable laws of Kenya, shall undertake registration upon receipt of the letter of acceptance and prior to signing of the Contract.

Performance Security

- 4.2 The Contractor shall obtain a Performance Security within 14 days after receiving the Letter of Acceptance

The Performance Security shall be issued by a Bank incorporated in Kenya. The amount of guarantee shall be 10% of the contract amount.

The bank guarantee, shall be issued either (a) by an established and reputable bank approved by the Employer and located in Kenya or a foreign bank through a correspondent established and reputable bank located in Kenya and approved by the Employer or (b) directly by a foreign bank acceptable to the Employer. The performance security shall normally be in the currency or currencies requested for payment by the Contractor and in the same proportions as those requested for payment in the Contract.

The performance security may, subject to the approval of the Engineer, be adjusted at the end of each period of 12 months to reflect the residual value of the Contract Works.

The performance guarantee shall be valid until a date 28 days after the date of issue of the Taking-Over Certificate. The security shall be returned to the Contractor within 28 days of the expiration.

Programme

- 8.3 The time within which the Programme shall be submitted shall be twenty eight (28) days. This detailed Programme shall be based upon the programme submitted by the Contractor as part of his tender and shall, in no material manner, deviate from the said programme.

The Contractor shall allow in his Programme for the following 11 public holidays per calendar year in Kenya upon which the Contractor shall not be permitted to work.

- a) New Year's Day (1st January)
- b) Good Friday
- c) Easter Monday
- d) Labour Day (1st May)
- e) Madaraka Day (1st June)
- f) Idd-ul-Fitr
- g) Moi Day (10th October)
- h) Mashujaa Day (20th October)
- i) Jamhuri Day (12th December)
- j) Christmas Day (25th December)
- k) Boxing Day (26th December)

The Contractor should also allow per calendar year for a further 4 unspecified public holidays which may be announced by the Government of Kenya with no prior notification, and upon which he shall not be permitted to work.

The Employer shall have the right to withhold payment at any time if the Contractor fails to submit the contractual construction programmes in accordance with sub clause 14.1 above or revise construction programmes due to his negligence, failure or omission.

Cash Flow Estimate to be submitted

The time limit within which a detailed cash flow estimate is to be submitted shall be twenty-eight (28) days. In preparing the estimates, the Contractor shall make provision for Advance payment, repayment of advance, retention, payment for services provided by the Employer and timing implications of sub clause 60 – Certificates and Payments.

Contractor's Superintendence	6.8	The Contractor shall, within seven (7) days of receipt of the Engineer's order to commence the Works, inform the Engineer in writing, the name of the Contractor's representative and the anticipated date of his arrival on Site.
		The Contractor's agent or representative on the Site shall be an Engineer registered as a Professional Engineer by the Engineers Board of Kenya in accordance with the Engineers Act of 2011 and shall be able to read, write and speak English fluently.
Safety procedures	4.8	The formulation and enforcement of an adequate safety program shall be the obligation of the Contractor with respect to all the Works under this Contract, regardless of whether performed by the Contractor or his subcontractors. The Contractor shall, within 14 days after commencement of the Works, meet the Engineer to present and discuss his plan for the establishment of such safety measures as may be necessary to provide against accidents, unsafe acts and so forth. Within 28 days after commencement of the Works, the Contractor shall submit a written safety program to the Engineer covering the overall Works and based on the laws and regulations of Kenya. In addition, he shall prepare special safety programs for blasting and handling of

explosives as stipulated in the General and Special Specifications.

Notwithstanding the foregoing, the Contractor shall observe the following measures with a view to reducing or eliminating adverse environmental effects by the Site Works:

- (i) All queries and borrow pits shall be filled and landscaped to their original state after extraction of construction material
- (ii) Soil erosion due to surface runoff or water from culverts or other drainage structures should be avoided by putting in place proper erosion control measures that shall include, but not limited to grassing, planting of trees, gabions etc.
- (iii) Long traffic diversion roads shall be avoided so as to minimize the effect of dust on the surrounding environment. In any case all diversions shall be kept damp and dust free at the Contractor's expense.
- (iv) Spillage of oils, fuels and lubricants shall be avoided and if spilt, shall be collected and disposed off in such a way as not to adversely affect the environment.
- (v) Rock blasting near settlement areas shall be properly coordinated with the relevant officers of the Government so as to minimize noise pollution and community interference.

(vi) Dumping shall be done only at designated dumping areas and not haphazardly on surroundings.

Insurance

18

The formulation and enforcement of an adequate safety program shall be the obligation of the Contractor with respect to all the Works under this Contract, regardless of whether performed by the Contractor or his subcontractors. The Contractor shall, within 14 days after commencement of the Works, meet the Engineer to present and discuss his plan for the establishment of such safety measures as may be necessary to provide against accidents, unsafe acts and so forth. Within 28 days after commencement of the Works, the Contractor shall submit a written safety program to the Engineer covering the overall Works and based on the laws and regulations of Kenya. In addition, he shall prepare special safety programs for blasting and handling of explosives as stipulated in the General and Special Specifications.

Notwithstanding the foregoing, the Contractor shall observe the following measures with a view to reducing or eliminating adverse environmental effects by the Site Works:

- (i) All queries and borrow pits shall be filled and landscaped to their original state after extraction of construction material

(ii) Soil erosion due to surface runoff or water from culverts or other drainage structures should be avoided by putting in place proper erosion control measures that shall include, but not limited to grassing, planting of trees, gabions etc.

(iii) Long traffic diversion roads shall be avoided so as to minimize the effect of dust on the surrounding environment. In any case all diversions shall be kept damp and dust free at the Contractor's expense.

(iv) Spillage of oils, fuels and lubricants shall be avoided and if spilt, shall be collected and disposed off in such a way as not to adversely affect the environment.

(v) Rock blasting near settlement areas shall be properly coordinated with the relevant officers of the Government so as to minimize noise pollution and community interference.

(vi) Dumping shall be done only at designated dumping areas and not haphazardly on surroundings.

Royalties	7.8	The Contractor shall also be liable for all payments or compensation, if any, that are levied in connection with the dumping of part or all of any such material."
------------------	-----	--

Defects Liability	11	Any work ordered to be executed under this clause shall be done at a time and in a manner as directed by the Engineer so as to interfere as little as possible with the operations of the Employer or of other contractors and no extension(s) of the defects liability period will be allowed for the execution of this Work.
--------------------------	----	--

Provisional Sums	13.5	<p>The Contractor shall also be liable for all payments or compensation, if any, that are levied in connection with the dumping of part or all of any such material."</p> <p>If the Engineer desires to secure final payment to any nominated sub-contractor before final payment is due to the Contractor and if such sub-contractor has satisfactorily indemnified the Contractor against any latent defects, the Engineer may, in an interim certificate, include an amount to cover the said final payment, and thereupon the Contractor shall pay to such nominated sub-contractor the amount so certified. Upon such final payment, the amount named in the Appendix to Form of Tender as Limit of Retention Money shall be reduced by the sum which bears the same ratio to the amount as does the subcontract and sub-contractor shall be discharged from all liability for the Work, materials or goods executed or supplied by such subcontractor under the Contract to which the payment relates</p>
-------------------------	------	---

Advance payment	14.7	In the event that an advance payment is granted, the following shall apply: -
------------------------	------	---

a) On signature of the Contract, the Contractor shall at his request, and without furnishing proof of expenditure, be entitled to an advance of 10% (ten percent) of the original amount of the Contract. The advance shall not be subject to retention money.

b) No advance payment may be made before the Contractor has submitted proof of the establishment of deposit or of a directly liable guarantee satisfactory to the Employer in the amount of the advance payment. The guarantee shall be in the same currency as the advance.

c) Reimbursement of the advance shall be effected by deductions from monthly interim payments.

d) Reimbursement of the lump sum advance shall be made by deductions from the Interim payments and where applicable from the balance owing to the Contractor. Reimbursement shall begin when the amount of the sums due under the Contract reaches 20% of the original amount of the Contract. It shall have been completed by the time 80% of this amount is reached.

The amount to be repaid by way of successive deductions shall be calculated by means of the formula:

$$R = A (x_1 - x_{11}) 80 - 20$$

Where:

R = the amount to be reimbursed

A = the amount of the advance which has been granted

X₁ = the amount of proposed cumulative payments as a percentage of the original amount of the Contract. This figure will exceed 20% but not exceed 80%.

X₁₁ = The amount of the previous cumulative payments as a percentage of the original amount of the Contract. This figure will be below 80% but not less than 20%.

(e) With each reimbursement the counterpart of the directly liable guarantee may be reduced accordingly.

Section X - Contract Forms

Table of Forms

FORM No. 1 - NOTIFICATION OF INTENTION TO AWARD

FORM No. 2 - NOTIFICATION OF AWARD - LETTER OF ACCEPTANCE

FORM No. 3 - CONTRACT AGREEMENT

FORM No. 4 - PERFORMANCE SECURITY [Option 1 - Unconditional Demand Bank Guarantee]

FORM No. 5 - PERFORMANCE SECURITY [Option 2 - Performance Bond]

FORM No. 6 - ADVANCE PAYMENT SECURITY

FORM No. 7 - RETENTION MONEY SECURITY

FORM No. I - Notification of Intention to Award [*This Notification of Intention to Award shall be sent to each Tenderer that submitted a Tender.*] [*Send this Notification to the Tenderer's Authorized Representative named in the Tender Information Form*]

FORMAT

For the attention of Tenderer's Authorized Representative

Name:.....[insert Authorized Representative's name] Address: [insert Authorized Representative's Address] Telephones: [insert Authorized Representative's telephone/fax numbers] Email Address: [insert Authorized Representative's email address]

[IMPORTANT: insert the date that this Notification is transmitted to Tenderers. The Notification must be sent to all Tenderers simultaneously. This means on the same date and as close to the same time as possible.]

Date of Transmission: This Notification is sent by: [email] on [date] (local time)

Procuring Entity: [insert the name of the Procuring Entity] Contract title: [insert the name of the contract]

Country: Kenya, County_____ (if the Procuring Entity is from a County)

This Notification of Intention to Award (Notification) notifies you of our decision to award the above contract. The transmission of this Notification begins the Standstill Period. During the Standstill Period, you may:

- a) Request a debriefing in relation the evaluation of your Tender, and/or
- b) Submit a Procurement-related Complaint in relation to the decision to award the contract.

1. The successful Tenderer

Name: [insert name of successful Tenderer] Address: [insert address of the successful Tenderer] Contract price: [insert contract price of the successful Tender]

2 Other Tenderers: insert names of all Tenderers that submitted a Tender. If the Tender's price was evaluated include the evaluated price as well as the Tender price as read out.]

	Name of Tenderer	Tender price	Evaluated Tender price	Comments (if any)
1				
2				
3				
4				
5				
6				
7				
Etc.				

1. How to request a debriefing

DEADLINE: The deadline to request a debriefing expires at midnight on *[insert date]* (local time).

You may request a debriefing in relation to the results of the evaluation of your Tender. If you decide to request a debriefing your written request must be made within three (3) Business Days of receipt of this Notification of Intention to Award. Provide the contract name, reference number, name of the Tenderer, contact details; and address the request for debriefing as follows:

Attention: *[insert full name of person, if applicable]* **Title/position:** *[insert title/position]* **Procuring Entity:** *[insert name of Procuring Entity]* **Email address:** *[insert email address]*

If your request for a debriefing is received within the 3 Business Days deadline, we will provide the debriefing within five (5) Business Days of receipt of your request. If we are unable to provide the debriefing within this period, the Standstill Period shall be extended by five (5) Business Days after the date that the debriefing is provided. If this happens, we will notify you and confirm the date that the extended Standstill Period will end. The debriefing may be in writing, by phone, video conference call or in person. We shall promptly advise you in writing how the debriefing will take place and confirm the date and time.

If the deadline to request a debriefing has expired, you may still request a debriefing. In this case, we will provide the debriefing as soon as practicable, and normally no later than fifteen (15) Business Days from the date of publication of the Contract Award Notice.

2. How to make a complaint?

Period: Procurement-related Complaint challenging the decision to award shall be submitted by midnight, *[insert date]* (local time).

Provide the contract name, reference number, name of the Tenderer, contact details; and address the Procurement-related Complaint as follows:

Attention: *[insert full name of person, if applicable]*

Title/position: *[insert title/position]* Procuring

Entity: *[insert name of Procuring Entity]* Email

address: *[insert email address]*

At this point in the procurement process, you may submit a Procurement-related Complaint challenging the decision to award the contract. You do not need to have requested, or received, a debriefing before making this complaint. Your complaint must be submitted within the Standstill Period and received by us before the Standstill Period ends.

In summary, there are four essential requirements:

- a) You must be an 'interested party'. In this case, that means a Tenderer who submitted a Tender in this tendering process, and is the recipient of a Notification of Intention to Award.
- b) The complaint can only challenge the decision to award the contract.
- c) You must submit the complaint within the period stated above.
- d) You must include, in your complaint, all of the information necessary to support your case.
- e) The application must be accompanied by the fees set out in the Procurement Regulations, which shall not be refundable (information available from the Public Procurement Authority at www.ppoa.go.ke).

3. Standstill Period

- a) **DEADLINE:** The Standstill Period is due to end at midnight on *[insert date]* (local time).
 - i) The Standstill Period lasts ten (14) Days after the date of transmission of this Notification of Intention to Award.

(ii) The Standstill Period may be extended as stated in Section 4 above.

If you have any questions regarding this Notification please do not hesitate to contact us. On behalf of the Procuring Entity:

Name_____

Title and Position_____

Signature_____

Date_____

FORM NO. 2 - NOTIFICATION OF AWARD

Letter of Acceptance

[letter head paper of the Procuring Entity]

[date]

FORMAT

To: *[name and address of the Contractor]*

This is to notify you that your Tender dated *[date]* for execution of the *[name of the Contract and identification number, as given in the SCC]* for the Accepted Contract Amount *[amount in numbers and words]* *[name of currency]*, as corrected and modified in accordance with the Instructions to Tenderers, is hereby accepted by our Agency.

You are requested to furnish the Performance Security within 30 days in accordance with the Conditions of Contract, using, for that purpose, one of the Performance Security Forms included in Section X, Contract Forms, of the tender document.

We attach a copy of the Contract for your

Authorized Signature:

Name and Title of

Signatory: Name of

Agency:

Attachment: Contract Agreement

FORM NO. 3 – CONTRACT AGREEMENT

THIS AGREEMENT made the _____ day of _____, _____, between _____ of _____ (hereinafter “the Procuring Entity”), of the one part, and _____ of _____ (herein after “the Contractor”), of the other part:

WHEREAS the Procuring Entity desires that the Works known as _____ should be executed by the Contractor, and has accepted a Tender by the Contractor for the execution and completion of these Works and the remedying of any defects therein, The Procuring Entity and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other Contract documents.
 - a) The Letter of Acceptance
 - b) The Letter of Tender
 - c) The addenda Nos _____ (if any)
 - d) The Particular Conditions
 - e) The General Conditions;
 - f) The Specification
 - g) The Drawings; and
 - h) The completed Schedules and any other documents forming part of the contract.
3. In consideration of the payments to be made by the Procuring Entity to the Contractor as specified in this Agreement, the Contractor hereby covenants with the Procuring Entity to execute the Works and to remedy defects therein in conformity in all respects with the provisions of the Contract.
4. The Procuring Entity hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein, the Contract Price 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 hereto have caused this Agreement to be executed in accordance with the laws of Kenya on the day, month and year specified above.

Signed by _____

_____(for the Procuring Entity)

Signedby _____

_____(for the Contractor)

FORM NO. 4 - PERFORMANCE SECURITY
– (Unconditional Demand Bank Guarantee)

[Guarantor letterhead or SWIFT identifier code]

Beneficiary: _____ *[insert name and Address of Procuring*

Entity] **Date:** _____ *[Insert date of issue]*

PERFORMANCE GUARANTEE No.: _____

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

1. We have been informed that _____ (herein after called "the Applicant") has entered into Contract No. _____ dated _____ with the Beneficiary, for the execution of _____ (herein after called "the Contract").
2. Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.
3. At the request of the Applicant, we as Guarantor, here by irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (),¹ such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without the Beneficiary needing to prove or to show grounds for your demand or the sum specified therein.
4. This guarantee shall expire, no later than the Day of 2...², and any demand for payment under it must be received by us at this office indicated above on or before that date.
5. The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed *[six months]* *[one year]*, in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."

[Name of Authorized Official, signature(s) and seals/stamps]

Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.

¹The Guarantor shall insert an amount representing the percentage of the Accepted Contract Amount specified in the Letter of Acceptance, less provisional sums, if any, and denominated either in the currency(cies) of the Contract or a freely convertible currency acceptable to the Beneficiary.

²Insert the date twenty-eight days after the expected completion date as described in GC Clause 11.9. The Procuring Entity should note that in the event of an extension of this date for completion of the Contract, the Procuring Entity would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Procuring Entity might consider adding the following text to the form, at the end of the pen ultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed *[six months]* *[one year]*, in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."

FORM No. 5 - PERFORMANCE SECURITY OPTION 2– (Performance Bond)

[Note: Procuring Entities are advised to use Performance Security–Unconditional Demand Bank Guarantee instead of Performance Bond due to difficulties involved in calling Bond holder to action]

[Guarantor letterhead or SWIFT identifier code]

Beneficiary: _____ *[insert name and Address of Procuring*

Entity] **Date:** _____ *[Insert date of issue]* **PERFORMANCE**

BOND No.: _____

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

1. By this Bond _____ as Principal (hereinafter called “the Contractor”) and _____] as Surety (hereinafter called “the Surety”), are held and firmly bound unto _____] as Oblige (hereinafter called “the Procuring Entity”) in the amount of _____ for the payment of which sum well and truly to be made in the types and proportions of currencies in which the Contract Price is payable, the Contractor and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and everally, firmly by these presents.
- 2 WHEREAS the Contractor has entered into a written Agreement with the Procuring Entity dated the day of, 20____, for _____ in accordance with the documents, plans, specifications, and amendments thereto, which to the extent here in provided for, are by reference made part hereof and are herein after referred to as the Contract.
- 3 NOW, THEREFORE, the Condition of this Obligation is such that, if the Contractor shall promptly and faithfully perform the said Contract (including any amendments thereto), then this obligation shall be null and void; otherwise, it shall remain in full force and effect. Whenever the Contractor shall be, and declared by the Procuring Entity to be, in default under the Contract, the Procuring Entity having performed the Procuring Entity's obligations there under, the Surety may promptly remedy the default, or shall promptly:
 - 1) Complete the Contract in accordance with its terms and conditions; or
 - 2) Obtain a tender or tenders from qualified tenderers for submission to the Procuring Entity for completing the Contract in accordance with its terms and conditions, and upon determination by the Procuring Entity and the Surety of the lowest responsive Tenderers, arrange for a Contract between such Tenderer, and Procuring Entity and make available as work progresses (even though there should be a default or a succession of defaults under the Contract or Contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the Balance of the Contract Price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term “Balance of the Contract Price,” as used in this paragraph, shall mean the total amount payable by Procuring Entity to Contractor under the Contract, less the amount properly paid by Procuring Entity to Contractor; or
 - 3) Pay the Procuring Entity the amount required by Procuring Entity to complete the Contract in accordance with its terms and conditions up to a total not exceeding the amount of this Bond.
- 4 The Surety shall not be liable for a greater sum than the specified penalty of this Bond.
- 5 Any suit under this Bond must be instituted before the expiration of one year from the date of the issuing of the Taking-Over Certificate. No right of action shall accrue on this Bond to or for the use of any person or corporation other than the Procuring Entity named here in or the heirs, executors, administrators, successors, and assigns of the Procuring Entity.

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

SIGNED ON _____ on behalf of _____

By _____ in the capacity of _____

In the presence of _____

SIGNED ON _____ on behalf of _____

By _____ in the capacity of _____

In the presence of _____

FORM NO. 6 - ADVANCE PAYMENT SECURITY

[Demand Bank Guarantee] [Guarantor letterhead or SWIFT identifier

code] [Guarantor letterhead or SWIFT identifier code]

Beneficiary: _____ [Insert name and Address of Procuring
Entity] Date: _____ [Insert date of issue]

ADVANCE PAYMENT GUARANTEE No.: [Insert guarantee reference number]

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

1. We have been informed that _____ (herein after called "the Applicant") has entered into Contract No. _____ dated _____ with the Beneficiary, for the execution of _____ (herein after called "the Contract").
2. Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum _____ () is to be made against an advance payment guarantee.
3. At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ ()¹ upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating either that the Applicant:
 - a) Has used the advance payment for purposes other than the costs of mobilization in respect of the Works; or
 - b) has failed to repay the advance payment in accordance with the Contract conditions, specifying the amount which the Applicant has failed to repay.
4. A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Beneficiary's bank stating that the advance payment referred to above has been credited to the Applicant on its account number _____ at _____
5. The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Applicant as specified in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that ninety (90) percent of the Accepted Contract Amount, less provisional sums, has been certified for payment, or on the _____ day of _____, 20____, ² whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.
6. The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months] [one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee.

[Name of Authorized Official, signature(s) and seals/stamps]

Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.

¹ The Guarantor shall insert an amount 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 Procuring Entity.

² Insert the expected expiration date of the Time for Completion. The Procuring Entity should note that in the event of an extension of the time for completion of the Contract, the Procuring Entity would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Procuring Entity might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months] [one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."

FORM NO. 7 - RETENTION MONEY SECURITY
[Demand Bank Guarantee]

[Guarantor letterhead]

Beneficiary: _____ *[Insert name and Address of Procuring Entity]*
Date: _____ *[Insert date of issue]*

ADVANCE PAYMENT GUARANTEE No.: _____
[Insert guarantee reference number]

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

1. We have been informed that _____ *[insert name of Contractor, which in the case of a joint venture shall be the name of the joint venture]* (herein after called" the Contractor") has entered into Contract No. _____ *[insert reference number of the contract]* dated _____ with the Beneficiary, for the execution of _____ *[insert name of contract and brief description of Works]* (herein after called" the Contract").
2. Furthermore, we understand that, according to the conditions of the Contract, the Beneficiary retains moneys up to the limit set forth in the Contract ("the Retention Money"), and that when the Taking-Over Certificate has been issued under the Contract and the first half of the Retention Money has been certified for payment, and payment of *[insert the second half of the Retention Money]* is to be made against a Retention Money guarantee.
3. At the request of the Contractor, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of *[insert amount in figures]* _____ *([insert amount in words]* _____ *)*¹ upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or show grounds for your demand or the sum specified therein.
4. A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Beneficiary's bank stating that the second half of the Retention Money as referred to above has been credited to the Contractor on its account number _____ at _____ *[insert name and address of Applicant's bank]*.
5. This guarantee shall expire no later than the..... Day of....., 2...², and any demand for payment under it must be received by us at the office indicated above on or before that date.
6. The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed *[six months]* *[one year]*, in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee.

[Name of Authorized Official, signature(s) and seals/stamps]

Note: All italicized text (including foot notes) is for use in preparing this form and shall be deleted from the final product.

¹The Guarantor shall insert an amount representing the amount of the second half of the Retention Money.

²Insert a date that is twenty-eight days after the expiry of retention period after the actual completion date of the contract. The Procuring Entity should note that in the event of an extension of this date for completion of the Contract, the Procuring Entity would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee.

PART 3 - DRAWINGS

COMMITMENT TO PROVIDE BENEFICIAL OWNERSHIP INFORMATION

I, of P. O. Box being a resident of in the Republic of do hereby make a state as follows: -

THAT I am the Chief Executive Officer/Managing Director/Principal Officer/Director/ Authorized Officer of..... (*Insert name of the Company*) who is a Bidder in respect of Tender No. **KAA/OT/BANISSA/0076/2023-2024 PROPOSED GATE, GATE HOUSE, WASHROOMS AND FENCING OF BANISSA AIRSTRIP - MANDERA COUNTY**

1. and duly authorized and competent to make this statement.
2. THAT I do hereby commit to provide Beneficial Ownership Information in conformity with the Beneficial Ownership Disclosure Form to the procuring entity upon receipt of notification of award in the event we are the successful tenderer in this subject procurement proceeding. I fully understand that failure to furnish the procuring entity with the Beneficial Ownership Information within the period provided for in the letter of award shall invalidate my award and may be considered as refusal to enter into a written contract which is punishable under Section 41(1) (e) of the Public Procurement and Asset Disposal Act, 2015.

Name of the Firm/Company.....

Registered Physical Address of the Company.....

Posta Address.....

Telephone No..... Mobile Number

Email Address

Name of Authorised Signatory.....

Designation

Signatory.....

Date.....

Witnessed by

Signature of Witness.....

Date.....

INSTRUCTIONS TO TENDERERS

For the purposes of this Form, a Beneficial Owner of a Tenderer is any natural person who ultimately owns or controls the legal person (tenderer) or arrangements or a natural person on whose behalf a transaction is conducted, and includes those persons who exercise ultimate effective control over a legal person (Tenderer) or arrangement.

In response to the requirement in your notification of award dated _____ [insert date of notification of award] to furnish additional information on beneficial ownership: [select one option as applicable and delete the options that are not applicable]

Details of all Beneficial Owners		% of shares a person holds in the company Directly or indirectly	% of voting rights a person holds in the company	Directly or indirectly having the right to appoint a majority of the board of the directors or an equivalent governing body of the Tenderer (Yes / No)	directly or indirectly exercises significant influence or control over the tenderer /company (Yes / No)
1.	Full Name	Directly----- % of shares	Directly..... % of voting rights		
	National identity card number or Passport number				
	Personal Identification Number (where applicable)	Indirectly----- % of shares	Indirectly-----% of voting rights		
	Nationality				
	Date of birth [dd/mm/yyyy]				
	Postal address				
	Residential address				
	Telephone number				
	Email address				
	Occupation or profession				
2.	Full Name	Directly----- % of shares	Directly.....% of voting rights		
	National identity card number or Passport number				
	Personal Identification Number (where applicable)	Indirectly----- % of shares	Indirectly-----% of voting rights		
	Nationality				

	Details of all Beneficial Owners		% of shares a person holds in the company Directly or indirectly	% of voting rights a person holds in the company	Directly or indirectly having the right to appoint a majority of the board of the directors or an equivalent governing body of the Tenderer (Yes / No)	directly or indirectly exercises significant influence or control over the tenderer /company (Yes / No)
	Date of birth [dd/mm/yyyy]					
	Postal address					
	Residential address					
	Telephone number					
	Email address					
	Occupation or profession					
3.						
e.t.c						

II) Am fully aware that beneficial ownership information above shall be reported to the Public Procurement Regulatory Authority together with other details in relation to contract awards and shall be maintained in the Government Portal, published and made publicly available pursuant to Regulation 5 of the Companies (Beneficial Ownership Information) (Amendment) Regulations, 2022

III) What is stated to herein above is true to the best of my knowledge, information and belief.

Name of the Tenderer:*[insert complete name of the Tenderer]___

Name of the person duly authorized to sign the Tender on behalf of the Tenderer: ** [insert complete name of person duly authorized to sign the Tender]

Designation of the person signing the Tender: [insert complete title of the person signing the Tender]

Signature of the person named above: [insert signature of person whose name and capacity are shown above]

Date this [insert date of signing] day of..... [Insert month], [insert year]

Bidder Official Stamp/ Company Seal.



CERTIFICATE OF BIDDER'S SITE VISIT

This is to certify that,
(Name of bidder or his representative)

Of the firm,
(Name of firm bidding)

In the company of,
(Name of KAA representative conducting the visit)

Visited the site in regard to: **KAA/OT/BANISSA/0076/2023-2024 PROPOSED GATE, GATE HOUSE, WASHROOMS AND FENCING OF BANISSA AIRSTRIP - MANDERA COUNTY**

Having previously studied the contract documents, I have carefully examined the site and that:

1. I have made myself familiar with the local conditions likely to influence the PROPOSED GATE, GATE HOUSE, WASHROOMS AND FENCING, cost thereof and am fully aware that all scope will be done as per the specifications.
2. I further satisfy that am satisfied with the description of the works shown by the client's representative and that I understand perfectly the works to be provided as specified and implied in the execution of the contract.

On behalf of Bidder

Signed.....

Date.....

On behalf of Client

Signed.....

Date.....

PROPOSED FENCING, GATE HOUSE & WASHROOMS AT BANISA AIRSTRIP

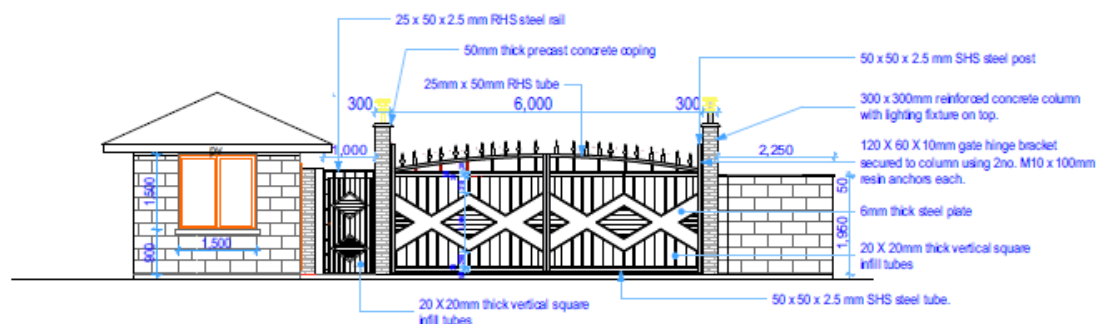
DRAWING LIST - SEPTEMBER 2023

KAA/ES/BANISA/.....

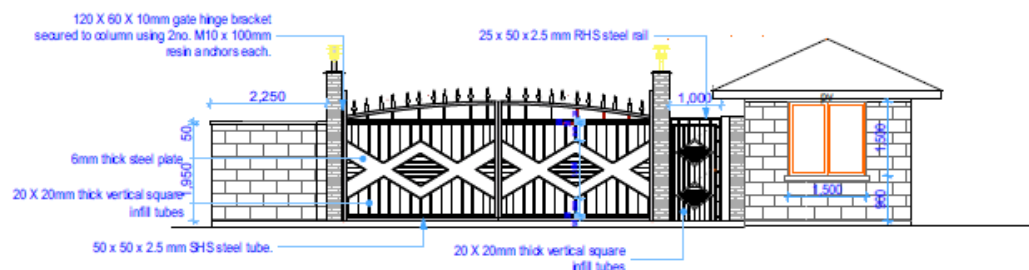
SR.NO	DRG. NOS.	DESCRIPTION	SCALE	SIZE	Com'ts
		Layouts			
	L[01]01	Proposed Airstrip Layout Plan	1:2,500	A1	
	L[01]02	Part - Airstrip Layout Plan	1:1,000	A1	
	L[01]03	Gate House & Gate Layouts	1:100	A3	
	L[01]04	Pit Latrine Layouts	1:100	A3	
		Details			
	A[01]01	Project Signbord Details	AS SHOWN	A3	
	A[01]02	Standard Fence Details	AS SHOWN	A3	
	A[01]03	Wind Sock Details	1:100	A3	

NOTES

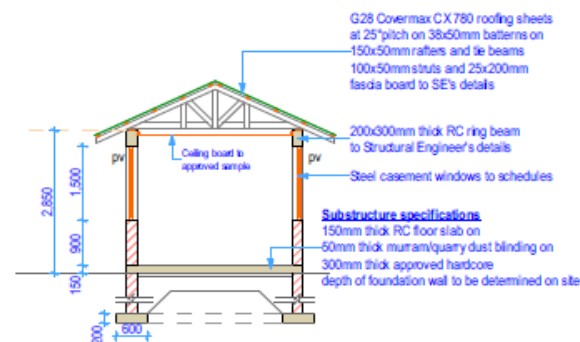
1. This drawing is protected by the Copyright Act and cannot be used or reproduced in part or in whole without author's consent.
2. All dimensions in mm unless stated, shall be read and not measured.
3. Contractor must verify all dimensions and levels before commencing work. Any discrepancies should be reported to the Architect before work is put on hand.
4. P.V denotes a permanent ventilation and must be provided above all doors and windows where indicated.
5. D.P.C denotes (Damp Proof Course) on a layer of bitumen felt to be provided under all walls 150mm above G.L.
6. All drainage crossing the road to be encased in concrete to civil engineer's details.



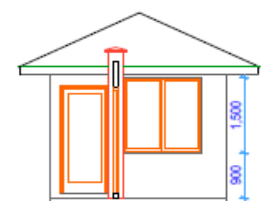
ELEVATION 01



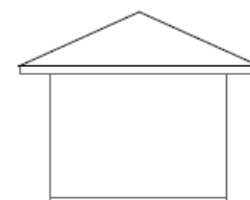
ELEVATION 03



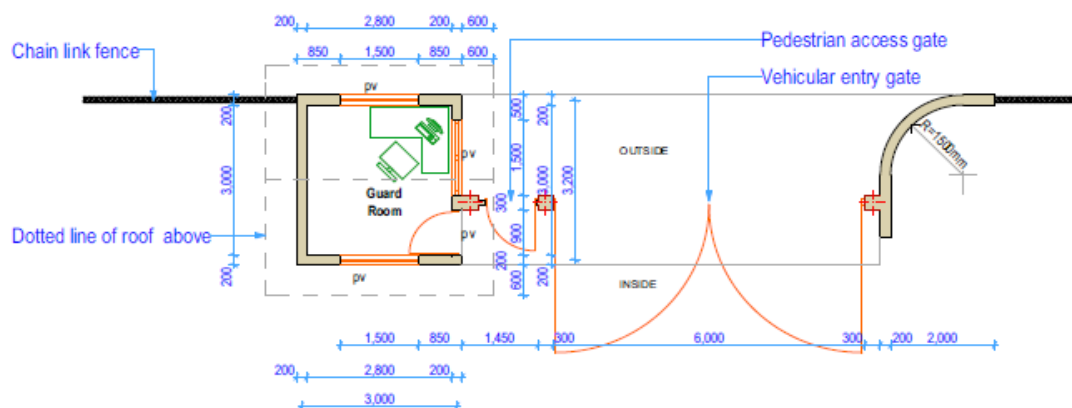
SECTION X-X



ELEVATION 02



ELEVATION 04



FLOOR LAYOUT PLAN



P. O. Box 19001-00501 NAIROBI
Tel: 6611000/6612000
Fax: 822078
E-Mail: info@kaa.go.ke
Website: www.kaa.go.ke

Project:
PROPOSED FENCING, GATEHOUSE & WASHROOMS AT BANISA AIRSTRIP.

Drawing Title:
GATE HOUSE AND GATE LAYOUTS
-PLAN, ELEVATIONS & SECTION

Project No.:

Designed by:
J. Achando

Drawn by:
A. Wako

Checked by:
Eng. J. Wagai

Manager (AD&C)

Approved by:

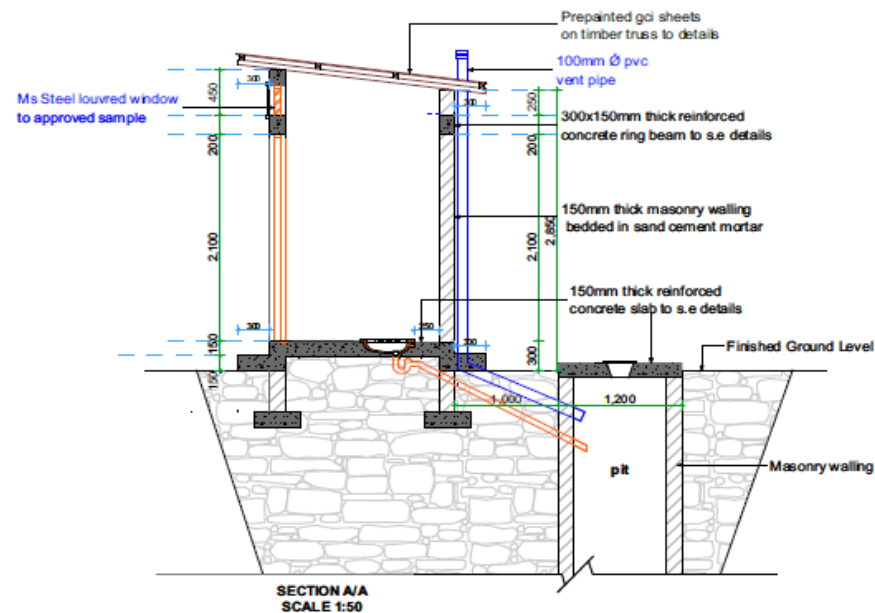
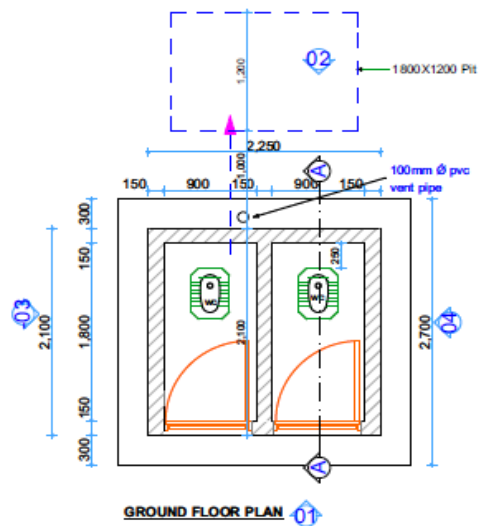
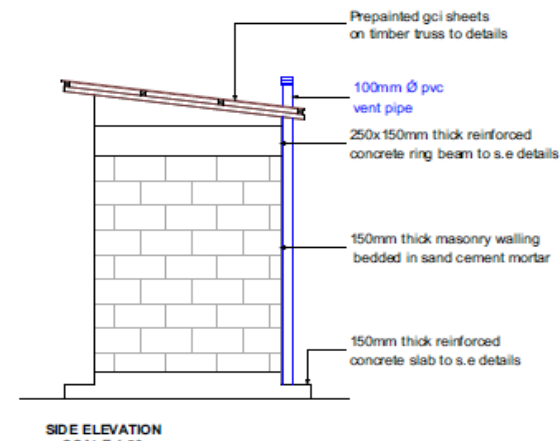
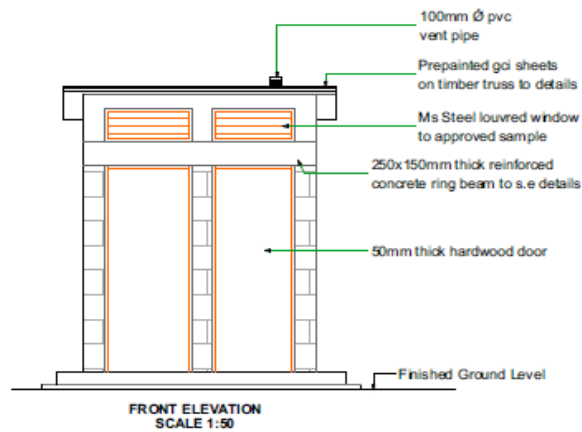
Eng. S. Mochache
Ag. General Manager

Dwg No.
L/01/03

Scale:
1:100 on A3

Date:
Sept. 2023

North:
↑



NOTES

1. This drawing is protected by the Copyright Act and cannot be used or reproduced in part or in whole without author's consent.
2. All dimensions in meters unless stated, should be read and not measured.
3. Contractor must verify all dimensions and levels before commencing work any discrepancies should be reported to the Architect before work is put out hand.
4. P.V. denotes a permanent ventilation and must be provided above all doors and windows where indicated.
5. D.P.C denotes (Damp Proof Course), one layer of bitumen felt to be provided under all walls 150mm above G.L.
6. All drainage crossing the floor to be encased in concrete to civil engineer's details.



P. O. Box 19001-00501 NAIROBI
Tel: 6611000/6612000
Fax: 822078
E-Mail: info@kaa.go.ke
Website: www.kaa.go.ke

Project:
PROPOSED FENCING, GATE HOUSE & WASHROOMS AT BANISA AIRSTRIP.

Drawing Title:
**PROPOSED PIT LATRINE:
FLOOR PLAN, SECTION & ELEVATIONS**

Designed by:
Eng. Z. Ontwenka

Drawn by:
A. Wako

Checked by:
Eng. J. Wajel
Manager, (AD&C)

Approved by:
Eng. S. Mwachia
Ag. General Manager (P&ES)

Dwg No.
LPD104

Scale:
1:50

Date:
Sept. 2023



CLIENT:
 **KENYA AIRPORTS AUTHORITY (KAA)**

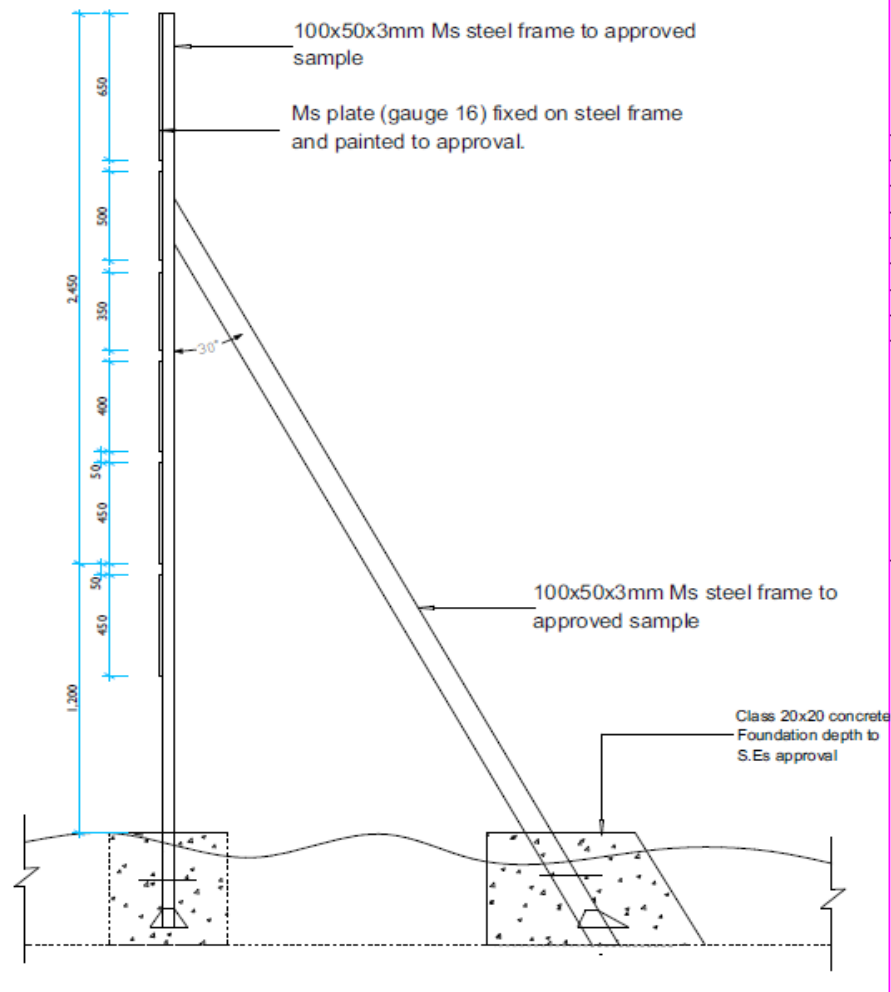
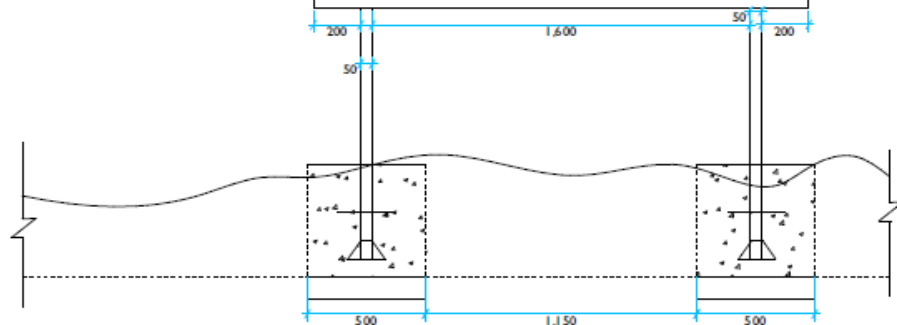
PROJECT:
PROPOSED FENCING, GATE HOUSE AND WASHROOMS AT BANISA AIRSTRIP
PROJECT No:

EMPLOYER: MANAGING DIRECTOR - KAA
P. O. BOX 19001 -00501
NAIROBI

ENGINEER: GENERAL MANAGER (P & ES) - KAA
P. O. BOX 19001 -00501
NAIROBI

CONTRACTOR:

SUB-CONTRACTOR:



NOTES

1. This drawing is protected by the Copyright Act and cannot be used or reproduced in part or in whole without author's consent.
2. All dimensions in mm unless stated, should be read and not measured.
3. Contractor must verify all dimensions and levels before commencing work. Any discrepancies should be reported to the Architect before work is put at hand.
4. P.V denotes a permanent ventilation and must be provided above all doors and windows where indicated.
5. D.P.C denotes (Damp Proof Course), one layer of bitumen felt to be provided under all walls 150mm above G.L.
6. All drainage crossing the Road to be encased in concrete to civil engineer's detail.



P. O. Box 19001-00501 NAIROBI
Tel: 6611000/6612000
Fax: 622078
E-Mail: info@kaa.go.ke
Website: www.kaa.go.ke

Project:
PROPOSED FENCING, GATE HOUSE & WASHROOMS AT MARSABIT AIRSTRIP.

Drawing Title:
SITE SIGNBOARD DETAILS

PROPOSED FENCING, GATE HOUSE AND WASHROOMS AT BANISA AIRSTRIP

Designed by:
Eng. J. Wagai

Drawn by:
A. Wako

Checked by:
Eng. J. Wagai
Manager (ADC)

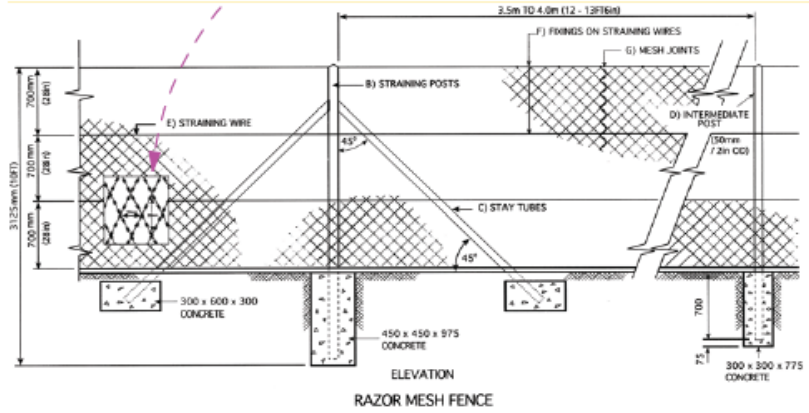
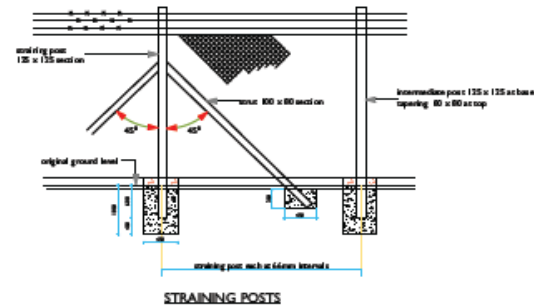
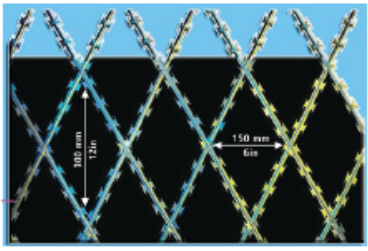
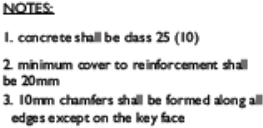
Approved by:
Eng. S. Mochache
Ag. General Manager (P&ES)

Dwg Sept. 2022
A[01]01

Scale:
1:100 on A3


Date
Sept. 2023

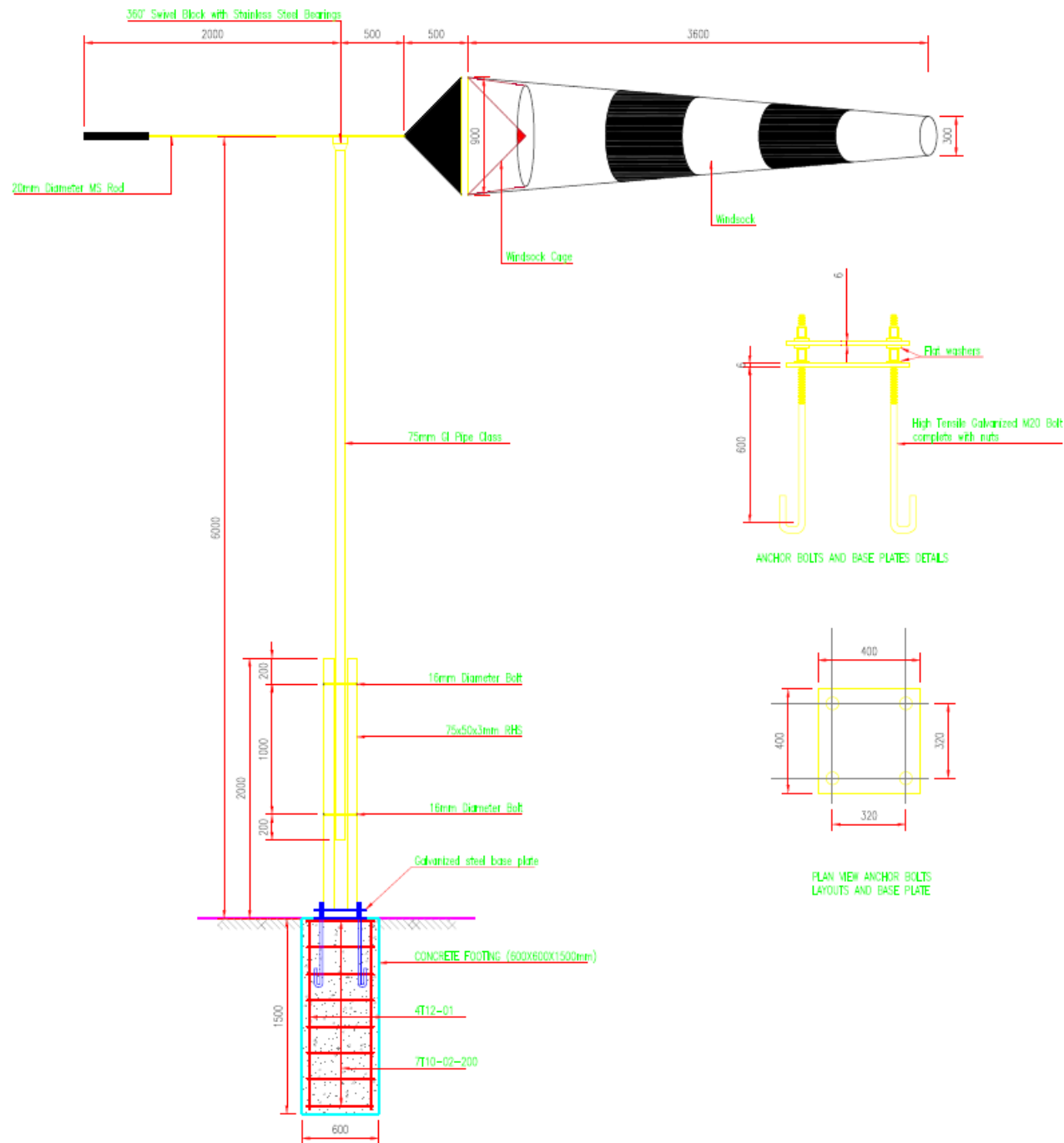




1. The drawing is protected by the Copyright Act and can not be used or reproduced in part or in whole without our author's consent.
2. All dimensions in mm unless stated; should be rounded in cm if measured.
3. Contractors must verify all dimensions and levels before commencing work; any discrepancies should be noted to the Architect before we write up to hand.
4. P.V drains or permanent ventilation and must be provided above all roofs and windows unless indicated.
5. D.P.C (dimpled Dimple Proof Coating), one layer of bitumen felt to be provided under all walls 500mm above G.L.
6. All drainage creating the flow and to be enclosed in concrete to suit engineer's details.



Date: Sept. 2023	North: 
---------------------	--



NOTES

1. all dimensions are in mm unless stated otherwise
2. all dimension must be verified before commencement of any work any discrepancies should be reported immediately to the engineer before any work commences
3. all structural elements to structural engineer's details
4. concrete cover to be 50mm
5. depth of excavation for mast base to be determined on site
6. Buoys, windsock and fragile GRP must or equivalent to K.C.A.A.'S approval.
7. Location of Windsock Mast to K.C.A.A.'S approval
8. Mast base concrete class to be C25/20

REVISIONS

No.	DATE	DETAILS
01	08-06-2023	WINDSOCK DETAILS



P. O. Box 19001-00501 NAIROBI
 Tel: 6611000/6612000
 Fax: 822078
 E-Mail: info@kaa.go.ke
 Website www.kaa.go.ke

PROJECT:
 PROPOSED REHABILITATION
 WORKS AT BANISA AIRSTRIP

DRAWING TITLE
 WINDSOCK DETAILS

Approved by
 Eng. S. Mwachae
 Ag. General Manager (P&ES)

Design by:
 Eng. Z. Ontwenka

Drawn by:
 A. Wako

Checked by:
 Eng J. Wagai
 Manager, ADC

Dwg No.
 A(01)03

Date:
 Sept. 2023

Scale:
 1:100 on A3