

PROPOSED RESIDENTIAL HOUSE FOR
THE SPEAKER OF THE COUNTY
ASSEMBLY OF KILIFI ON PLOT NO 328
CHEMBE/ KIBABA, KILIFI COUNTY

SPECIFICATIONS AND BILL OF QUANTITIES
FOR ELECTRICAL INSTALLATION WORKS

CLIENT:

COUNTY ASSEMBLY OF KILIFI,
P.O. BOX 332 - 80200
MALINDI.

ARCHITECTS:

WHINTTO ARCHITECTS (K) LTD
P.O. BOX 89253 - 80100,
MOMBASA.

LANDSCAPE ARCHITECTS:

NOOR LANDSCAPE CONSULTANTS LTD,
P.O. BOX 36874 - 00200,
NAIROBI.

QUANTITY SURVEYORS

SHELTA COST SOLUTIONS LTD,
P.O. BOX 12827 - 00400,
NAIROBI.

CIVIL & STRUCTURAL ENG.

UTMOST ENGINEERING CONSULTANTS
P.O. BOX 83660 - 80100,
MOMBASA.

ENVIRONMENTAL EXPERTS

GLOBAL EHS CONSULTING,
P.O. BOX ,
NAIROBI.

SERVICES ENGINEERS

GEDOX ASSOCIATES LTD,
P.O. BOX 64441 - 00620,
NAIROBI.

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INSTRUCTION TO TENDERERS

1. Tenders shall be submitted on the form of tender attached hereto and all blanks in this form and in the schedules attached to the specification shall be completed.
2. No alteration shall be made on the form of tender or in the specification and schedules.
3. The tenderer (whether his tender is accepted or not) and all other recipients of the specification and documents shall treat the details of specification and the documents attached thereto as private and confidential.
4. The employer does not bind himself to accept the lowest or any tender and will not be responsible for or pay for expenses or losses which may be incurred by any tenderer in the preparation of his tender.
5. It will be presumed that the tenderer will have visited the site, and to have taken into consideration any special difficulties and requirements not referred to herein but associated with a new plant being installed to serve new or existing buildings, as the case may be, and to have made allowance for such in this tender.
6. All tenderers shall return tender and all accompanying documents duly completed and enclosed in a sealed envelope marked: -

“TENDER FOR ELECTRICAL INSTALLATION WORKS FOR PROPOSED RESIDENTIAL HOUSE FOR THE SPEAKER OF THE COUNTY ASSEMBLY OF KILIFI ON PLOT NO 328 CHEMBE/ KIBABA, KILIFI COUNTY.”

The tender must be received at the address and the day stated in the covering letter.

Tenders received later than the date specified shall not be considered.

7. All items of additional information, issued to tenderers prior to the time for closing the bids, shall become a part of the Contract Documents and shall be included in the proposals.
8. The tenderer shall, where applicable, provide leaflets and catalogues giving technical and physical details of the fittings being offered by him as an integral part of his bid.
9. Unless otherwise specified in the particular specification, Tenderers shall assume that all fittings required will be Import Duty Paid.

FORM OF TENDER

Dear Sir/Madam

RE: PROPOSED RESIDENTIAL HOUSE FOR THE SPEAKER OF THE COUNTY ASSEMBLY OF KILIFI ON PLOT NO 328 CHEMBE/ KIBABA, KILIFI COUNTY”

Having examined and understood all the drawings, specifications, conditions of contract, Bill of Quantities and all other relevant documents for the above works and having obtained all the necessary information affecting this tender, we the undersigned hereby offer to execute and complete to the satisfaction of the Engineer the whole **Electrical Installation works** herein stated for the sum of Kenya Shillings: -

.....

(KSHS: -)

We undertake, if this tender is accepted to execute a formal Contract Agreement with the Client in the terms shown in tender documents and to submit the name of an approved surety who will be willing to be bound to the client for the said works in an amount equal to 10% of the Contract amount.

We understand and agree that the employer is not bound to accept the lowest or any tender.

Our offer is valid for acceptance within ninety (90) days from the date of this tender.

Signed: Date:

Completion Period:

Name and Address with Official Stamp:

Witness:

Signed:

Address:

Date:

FORM OF BOND

To be used with Agreement and Schedule of Conditions of Building Contract.

KNOW ALL MEN BY THESE PRESENTS that we _____ SURETY)

of _____

ARE BOUND to (MAIN-CONTRACTOR)

of _____

in the sum of Kenya Shillings. _____

_____ (Kshs. _____)

to be paid by us to the said _____ (MAIN-CONTRACTOR)

WHEREAS by an agreement in writing dated _____

(SUB-CONTRACTOR) of _____

Sub-Contracted with the said _____ (MAIN-CONTRACTOR)

to (description of works) _____

in the said agreement particularly described and conformable thereto. NOW THE condition of the above written

bond is such that if the said _____ (SUB-CONTRACTOR),

his/their executors, administrators or assignees shall conform to the said agreement then the above written bond to be void otherwise to remain in full force. Provided always and it is hereby agreed and declared that the liability of us to the said _____ (SURETY)

under the above-written bond shall not in any way be discharged or impaired by reason of or any breach or breaches (willful or otherwise) of the said agreement committed with or without the knowledge or consent of the said _____ (SUB-CONTRACTOR)

by or on behalf of with the knowledge or consent of the said

_____ (MAIN-CONTRACTOR)

In witness whereof we have hereunto set our hands this _____ day of _____

One Thousand Nine Hundred and _____

Witness

Surety. Authorized by power of Attorney.
(No. _____)

Sirs,

DEFINITION OF TERMS

Throughout this document, the following terms shall be interpreted as follows:-

Employer:	COUNTY ASSEMBLY OF KILIFI, P.O. BOX 332 - 80200 <u>MALINDI.</u>
Architect:	WHINTTO ARCHITECTS (K) LTD P.O. BOX 89253 - 80100, <u>MOMBASA</u>
Landscape Architect:	NOOR LANDSCAPE CONSULTANTS LTD, P.O. BOX 36874 - 00200, <u>NAIROBI.</u>
Quantity Surveyor:	SHELTA COST SOLUTIONS LTD, P.O. BOX 12827 - 00400, <u>NAIROBI</u>
Civil/Structural: Engineers.	UTMOST ENGINEERING CONSULTANTS, P.O. BOX 83660 - 80100, <u>MOMBASA</u>
Environmental Expert:	GLOBAL EHS CONSULTING, P.O. BOX, <u>NAIROBI</u>
Services Engineers:	GEDOX ASSOCIATES P.O. BOX 64441 - 00620 <u>NAIROBI</u>

Contractor:

Shall mean the person or persons partnership, company whose Tender for this work has been accepted and Who has signed a Contract Agreement with the Main Contractor of which this document is forming part, and shall include his or their legal personal representatives or successors.

Contract Works:

Shall mean all the portion of the work, materials and articles, whether the same is to be used in the execution of this contract and whether the same may be on site or not.

2. **Site:**

The site of the proposed works is **ON PLOT NO 328 CHEMBE/ KIBABA, KILIFI COUNTY**

3. **Contract**

The successful tenderer will be appointed as a nominated Sub-Contractor to the main contractor under the latest edition of the Agreement and Association of Buildings Sub-contract published by the Kenya Association of Building and Civil Engineering Contractors.

The particular and preliminaries of the Bills of Quantities for the main contract where appropriate shall apply equally to the sub-Contractor who is to examine these sections of the Bills and allow for all costs incurred.

4. **Appendix to the Schedule of conditions of Main contract**

The appendix to the Conditions of Main Contract has been completed as Follows: -

Defects liability period Clause 15,16 and 30	6 months from certified practical completion of works.
Date of possession) clause 21)	In accordance with the Main Contractor's Program
Date of practical) Completion) clause 22)	In accordance with the Main Contractor's Program
Liquidated and Ascertained Damages clause 30 (3).	Shilling Sixty Thousand per week or part thereof
Percentage of certified Value retained clause 30 (3)	10%
Limit of retention fund clause 30 (3)	To be inserted at a sum equivalent of 10% of the contract sum.
Period of final measurement and valuation clause (30(5)	6 months from certified practical completion of the works.
Name of surety in standard form of bond clause 31.	To be inserted at a Tender sum
Amount of surety clause 31	10% of contracts sum

5. **Bond**

All tenderers will submit the name of an approved surety who will be willing to be bound to the main contractor in an amount equal to 10% of the sub-contract amount.

6. **Taxes and Duties**

The tender shall be inclusive of all taxes including import duty, VAT and Withholding taxes.

7. **Firm price contract**

This is a firm price contract and the sub-contractor must allow in his tender for any increase in the cost of labour and/or materials during the currency of the sub-contractor.

No claim for increased costs will be entertained exempting only increased costs arising from fluctuations in Duties. No claim will be allowed for currency fluctuations.

8. **Trade Names**

Where trade names or manufacturer's catalogue numbers are mentioned in the specification, the reference is intended as a guide to the type of article or quality of material required. Alternate brands of equal and approved quality will be acceptable as approved by the Architect and the Engineer.

9. **Time for Completion**

There is need to complete the works in the time stated in the main contracts' document. The sub-Contractor shall make all due preparation safeguard against factors such as labour, shifts fluctuation, weather patterns etc. that might slow his progress and no claims for extras will be considered on account of his failure to do so.

10. **Warranty**
The sub-contractor must furnish the Engineer with general written warranty covering quality of workmanship, materials, and equipment and be compelled and held liable thereby for a five year period after practical completion of the contract, except for latent defects, which shall be warranted for ten years.

The sub-contractor must make good at his own expense, such repairs and replacements as may be required as a consequence of negligent workmanship or defective material. The sub-contractor must also produce such warrants and guarantees as described aforesaid from all manufacturers and/or suppliers of materials or equipment incorporated in the project under this contract.
11. **Samples**
The sub-contractor shall furnish at his own cost any samples materials or workmanship that may be called for by the Engineer for his approval, and any further samples in the case of rejection until such samples are approved by the Engineer, and the Engineer may reject any materials or workmanship not in his opinion up to the approved samples.
12. **Protection**
The sub-contractor shall adequately cover up and protect his own work to prevent injury and also to cover up and protect from damage all parts of the building or premises where work is being performed by him under the contract.
13. **Handing over**
The sub-contractor's work shall be considered complete and the defects liability period shall commence only when the sub-contract works and supporting services have been tested, commissioned and operated to the satisfaction of the Engineer.
14. **Defects After Completion**
Defects Liability Period will be six months from the date of completion of the Sub-contract as certified by the Engineer.
15. **Stamp Charges**
The tenderer shall allow for the payment of all stamp charges in connection with the surety Bond and Sub-contract Agreement.
16. **Payments**
Payment will be made through certificates to the Main Contractor, unless he specifically agrees to forgo this right, in which case direct payment can be made to the sub-contractor. All payment will not become due until materials are delivered to the site.
17. **Damages for Delay**
Liquidated and Ascertained damages as stated in the sub-contract Agreement will be claimed against the sub-contractor for any unauthorised delay in completion. The Sub-contractor will be held liable for the whole or a portion of these damages should he cause delay in completion.
18. **Clear Away on Completion**
The sub-contractor shall, upon completion of the works, at his own expense remove and clear away all plant, equipment, rubbish and unused materials, and shall leave the whole of the works in a clean and tidy state, to the satisfaction of the Engineer.
19. **Site conditions**
The sub-contractor shall be deemed to have visited the site to ascertain all conditions affecting this sub-contract. It is therefore necessary for the tenderer to ascertain for him/herself before filling in the Bill of Qualities.

PART B

GENERAL SPECIFICATION FOR ELECTRICAL WORKS

A. GENERAL CLAUSES

2.01 Regulations

This specification covers the requirements of lighting and power installation in Kenya. All apparatus and material supplied and all work carried out shall comply with the Kenya Government Electrical Specifications, GES.1 and GES.2 and local Statutory Regulations. Installations should also be generally in accordance with the requirements of the 16th Edition of the "Regulations of the Electrical Equipment for Buildings" issued by the institution of Electrical Engineers, Which should be used as a " Code of practice" except where they conflict with Kenya Government Legislation regarding electrical installations.

2.02 Standards

Except where otherwise indicated in this Specification the Contract Works and all manufactured items shall comply with the relevant Specification of the British Standards Installation. Such Specification are here in after referred to as "BS". In each case, the latest edition of such Specification shall apply.

Should it be desired to offer equipment covered by other National or International Standards, the approval of the Engineer must be obtained, in Writing, before completion of the tender.

2.03 Records Drawings

The sub-contractor shall mark accurately on one set of drawings the conduit laid during the progress of the work. This information must be made available on site for inspection by the Engineer.

At the completion of the Contract, the Contractor shall supply the engineer with one set of transparent originals, and two complete sets of prints showing the complete installation.

The drawing shall include the location of all apparatus conduits and cable routes and a schematic diagram of the main distribution indicating the phasing of the system.

2.04 Contract Drawings

These drawing form part of this specification and are to be read in conjunction with this specification to enable the sub-contractor to prepare a tender. Where there are any omissions in the bills of quantities, contract drawings supersede the bills of quantities.

These drawings are not intended to be used as working drawings unless they are released for that purpose.

2.05 Working Drawings

The sub-contractor shall prepare the working drawings as may be necessary. These shall be submitted to be Engineer for approval before the execution of the works.

Working drawings, to be prepared by the Sub-contractor, shall be detailed as below but not restricted only to these:-

1. General arrangement of drawings showing plants, M.V. Switchgear, distribution boards, consumer units, fittings, switches, switched sockets outlets etc.
2. Layout drawings of concealed and surface conduits, ducts, trucking etc.
3. Any other drawings that are not called for in the Specification.

Two copies of all working drawings shall be submitted to the Engineer for approval. Thereafter, the Sub-contractor shall submit copies of approved working drawings for distribution to the parties concerned. The sub-contractor shall not be relieved of any of this obligations under the sub-contract or from correction any errors on site or elsewhere found subsequently in the approved working drawings by the Engineer.

2.06 **Labels**

All switchgear, switchfuses, distribution boards, etc., shall be clearly labeled with black on white background engraved labels to indicate the name, purpose and position of the gear. All circuits in distribution boards shall be clearly identified in respect of the number and location of the M.C.B. The charts shall be securely fixed inside the covers of the distribution boards.

2.07 **Galvanizing**

Galvanizing shall be applied by the hot process and shall consist of a smooth clean zinc coating free from defects and be uniform in thickness.

The thickness shall be not less than 610gms of zinc per square meter of surface and tested in accordance with the requirements of B.S 729 where applicable. Sheradiling or other alternative processes shall not be used without approval in writing of the Engineer.

The preparation for galvanizing itself shall not adversely affect the mechanical properties of the coated material. Surfaces which are normally in contact with oil shall not be galvanized or cadmium plated.

All out-door structures, access ladders, platforms, equipment cubicles shall be galvanized.

2.08 **Cleaning and painting**

Having due regard to the destination and climate conditions under which the plant is to operate, extreme care shall be exercised in the manufacture of the equipment to prevent the formation of any corrosion. All equipment shall be cleaned of all dust, oil, grease, dirt, scale and rust by power tool operated metal brush or preferably by shot or grit blasting and then ground smooth where necessary. Unless otherwise approved, they shall then immediately have applied to them two coats of approved primer paint. After inspection any rough surface shall be filled in and smoothed over and further painting in the factory shall be as follows:-

(a) All interior of cubicles, kiosks, boxes etc., containing wiring or other apparatus and internal components of the plant which are dispatched to site in an assembled conditions, shall be finish painted with at least two coats of white enamel. The final coat shall be of white anti-condensation finish, where so specified.

(b) The external surface of the panels shall be finished in grey stove enamel to B.S. shade 631 or other shade as may be approved by the Engineer.

(c) All interior surface of tanks and other oil filled chambers and external surface of piping therein shall be painted finally with an oil resisting coating to the approved by the Engineer.

(d) All wall and floor mounted junction boxes, loose starters, etc., throughout the works shall be finished in grey stove enamel or painted finally with to B.S. 381C shade 631 or other shade as may be approved by the Engineer.

After all erection has been made completed at site, the contractor shall make good all defects in painting and galvanizing which have arisen during transport, storage and erection on site and shall apply undercoat and one finished coat of gloss paint to B.S. 311C shade as may be approved by the Engineer to the external surface of all equipment.

Where galvanized metal work has been damaged it shall either be repaired by cold galvanizing at site or alternatively at the discretion of the Engineer, be returned to the manufacturer for re-galvanizing by the hot process.

2.09 **Lighting and Distribution Boards**

General lighting and power distribution boards shall comply with the B.S. 3817, 5861 and B.S. 214 and shall be of the metal clad pattern, flush mounted, except where otherwise specified on the drawings.

2.10 **Construction**

Enclosures shall be substantially constructed from 16S.W.G. minimum thickness sheet steel having hinged front cover, and shall be vermin and insect proof. Each unit shall house M.C.B.'s and shall be supplied complete with bus-bars, earthing terminal, neutral bar, circuit chart, and blanking plate for any spare ways. The incoming isolator switch shall be integral with the distribution board in consumer Units only.

2.11. **Miniature Circuit Breakers**

All distribution boards shall be supplied with M.C.B.'s manufactured to B.S. 3871 and of a rating as specified on the drawings. The circuit breakers shall incorporate both thermal overload and magnet short circuit tripping, with a trip-free mechanism.

Three phase circuits shall be controlled by integrally manufactured three pole circuit breakers, with one common operating lever. An intertripping mechanism shall ensure isolation of all three poles in the event of an overload or short circuit on any one phase.

2.12 **Earth leakage Circuit Breakers**

If specified or indicated on the Contract drawings the use of E.L.C.B. for isolation of incoming supply in the distribution board shall be of an approved type for flush mounting. The general requirements of the E.L.C.B. are as follows:-

(a) It shall have high sensitivity i.e. it shall operate in 30 milliseconds for a leakage current of 30 milliampere.

(b) Its operation shall not rely on the mains supply for tripping under fault conditions. For example, in the event of a leakage from the live to earth conductor occurring at the same time as break in the neutral supply wire, the breaker shall trip.

2.13. **Labeling**

A circuit chart in each board shall show the name, location and current loading of each circuit connected. Each board shall be fitted with an engraved identification label in black on white, such as "Distribution Board D.I.", etc, and all three phase distribution boards shall be labeled in white on red, "DANGER 415 VOLTS".

B. NON-METALLIC CONDUIT

2.14. **Standards and Installation**

All non-metallic conduits shall be class 'A' heavy gauge, high impact, PVC complying with BS 4606 part 2 type All. The minimum size to be used on the Contract is 20mm external diameter. The required sizes are shown on the Contract drawings. All conduit installation shall be concealed in the walls and floors or in structural slabs.

2.15. **Joints**

Conduit will be joined and terminated utilizing the appropriate rigid PVC compounds as detailed below, or standard conduit entry electrical equipment. Jointing will conform to one of the following techniques:-

No. 1 - Permanent Adhesives - The solvent cement supplied by the conduit manufacturers will be used to produce a rigid sealed connection.

No. 2 - Flexible Adhesive - A non-hardening adhesive supplied by the conduit manufacturers will be used to produce a flexible sealed joint where allowance is necessary for longitudinal movement (e.g. expansion couplers).

2.16. **Bends**

Bends and sets in the conduit will be made in accordance with the manufacturer's instructions. The radius of the bend shall not be less than 2.5 times the outside diameter of the conduit or such greater radius which will facilitate easy drawing in of cables.

2.17. **Expansion**

Adequate allowance shall be made for longitudinal expansion and contraction of the conduit under normal working temperature variations as follows:-

(a) Expansion couplers should be used in straight runs exceeding 6 meters with a loose or flexible type joint (N0.2 above) at the long spout end of the coupler.

(b) Saddles as supplied by the manufacturers shall include a sliding support tolerance for longitudinal expansion.

Special consideration may need to be given to the fixing of accessories where this may prevent natural conduit movements. Over size or slotted fixing holes may be necessary or the introduction of expansion couplers.

2.18. **Support**

Conduits should be supported by saddles, at not more than 900mm intervals. Where working temperatures tend to be high this should be reduced to 600mm.

2.19. **Conduit Boxes and Fittings**

(a) All conduit boxes shall be circular or square pattern of Rigid PVC suitable for plain connections conforming to sheet 62 B.S. 4607 part 2. Boxes for supporting a fitting or accessory shall be fitted with a PVC lid held in position by means of two 2BA round headed screws Boxes shall have metallic screwed inserts.

(b) Circular or square boxes shall be provided at all outlet points, unless otherwise specified and lighting fitting, ceiling switches and other accessories will be screwed to the internal lugs of the boxes. Care must be taken when considering the use of totally enclosed fitting with PVC circular boxes where the temperature within the box is likely to rise above 60 C [140 F]. Special steel insert clips should be used in conjunction with circular boxes where heavy pendants are used.

(c) Looping in boxes of circular P.V.C. pattern to sheet 63B.S. 4607 part 2 may be used in such work as dictated by the structure of the buildings. Conduit entry shall be made by means of P.V.C. bushes.

(d) Adaptable boxes shall be of molded or fabricated PVC of square or oblong shape complete with P.V.C. Lids secured by 2 BA or steel plates round-headed screws. All adaptable boxes and lids of the same size shall be interchangeable. No adaptable box smaller than 75mm x 50mm or larger than 300mm x 300mm shall be employed. Boxes shall be of adequate depth in relation to the size of conduit entering them.

(e) Conduits shall be terminated at adaptable boxes, fuse-board switches, sockets outlets or other equipment not possessing push-in or threaded spouts, by means of appropriate size female adapter and PVC hexagonal headed Bare Bush. All cemented joints to be made to a depth of not less than the diameter of the conduit being used.

2.20 **Earth Continuity**

Earth continuity shall be provided by a separate insulated conductor drawn into the plastic conduit and rated in accordance with circuit loadings and appropriate regulations, or as mentioned, on the drawings.

Where required under the Regulations, an earth continuity conductor shall be provided for lighting fittings in which case the control switches shall be equipped with an appropriate earth terminal.

2.21. **Arrangement of Conduit Layout**

The conduit system shall be carefully planned and erected to avoid unnecessary bends or changes in direction. Conduits shall be laid in straight horizontal or vertical lines with easy sets. Where several conduits follow similar routes, they shall be laid out from a common center. Where draw-in boxes for right angled change of direction are required in multiple runs, adaptable boxes shall be used for such size as to allow conduits to enter the box without sets. Where conduits are concealed or laid on constructional floors, they shall be secured by fixing as approved by the Engineer. Where it is essential that conduits cross one another in floors, the chases shall be deepened and the conduits set to create the minimum desirable diversion.

Care shall be taken to ensure that there are no obstructions to cables within the conduits caused by the ingress of plaster, concrete, or other matter. Conduit ends must be square and cleaned of burrs.

2.22. **Conduit Draw-in Points**

Conduits for each circuit shall be completely erected before any cable is drawn in. Adequate draw-in points shall be provided. Straight runs shall have draw-in facilities at distance not exceeding 12 metres. Runs incorporating sets of bends shall have draw-in facilities at a distance not exceeding 9 metres. These distances may need to be reduced in difficult situations or with particular cable complexes.

Not more than four easy sets, or two right angle bends or sets may be installed between draw-in points. Solid elbows or tees shall not be accepted.

C. **FINAL SUB-CIRCUIT WIRING**

2.23. **Type**

All power and lighting wiring cables shall be 600/1000 volt grade, single core, P.V.C. insulated, with stranded copper conductors, manufactured in accordance with B.S. 6006. The minimum size of lighting circuits shall be 1.5 sq.mm sizes, 4.0sq.mm on power spur circuits and 2.5sq.mm on ring main circuits.

2.24. **Installation**

Cables forming sub-circuits connected to different sub-distribution boards shall not be drawn into the same conduit or draw-in box. The cables shall be coloured in accordance with Table B4 of the IEE Regulations. Cables used on extra low voltage circuits shall be of distinctive colours other than these colours.

No reduction of the strands forming the conductors shall be allowed at switch or other terminals, but all strands shall be effectively secured by screws, nuts and washers or other approved means.

Cables shall be joined together at the terminals of ceiling boxes and other accessories. Under no circumstances will joints be permitted in the run of the cable.

D. **P.V.C. INSULATED ARMoured CABLES**

2.25. **Type**

These shall be 600/1000 voltage grade to BS.6346 or B.S 6004 having copper wire insulated, P.V.C. sheathed, single wire armoured and P.V.C. sheathed overall. The cores of four core cables shall be distinctively coloured red, yellow, blue and black. The Sub-Contractor shall provide suitable glands and accessories for all armoured cable termination, and where cables are suspended shall provide the necessary rack, cleat or hanger supports and fixing.

Cable supports and racks shall be made by a recognised manufacturer and shall be to the approval of the Consulting Engineer.

All supports and racks shall be arranged as far as is practicable for the easy removal of any single cable in a multi-cable run, without threading cables through supports and racks. The number of types of supports and racks shall be kept to a minimum commensurate with meeting the requirements of the Contract Works.

2.26. **Laying of Cables**

The work of excavating and back-filling of all trenches for cables, is included in this sub-contract and the responsibility for positioning, width and depth of trenches, and for laying and bedding of all cables and protective covers is included with the Electrical Works covered by this Specification. Cables shall be laid in trenches at the following minimum depths.

For M.V. cables in open ground	0.55m
For M.V. cables under roads and pavements	0.85

Where more than one cable is laid in a trench, cables shall be spaced as follows:

Between M.V. cables	0.1m
Between M.V. and telephone cables	0.4m
Between M.V. and L.V. cables	0.4m
Between L.V. and telephone cables	0.4m
Between L.V. cables	0.1m

In straight run trenches cable crossings shall not be permitted except where cables branch from the main run.

At every draw-in point or junction box the cable should be snaked.

Before cables are laid the bottom of the trench shall be evenly graded and cleared of all loose stones, and shall then be covered with an 80mm layer of sand or sifted soil and lightly compacted, and a further 80mm layer shall be placed on top of the cables. The approved cable protection, see Clause 2.27, shall then be laid and the excavated materials in 0.2m layers, each layer being well compacted by hand or mechanical punners before the next layer is filled.

The width of the trench shall be such that a clearance of 80mm shall be provided between outermost cable and the side of the trench. Where cables are disposed in more than one layer, the vertical spacing shall be 0.4. between centres of cables or cable groups, the depth of the trench being made suitable accordingly.

2.27. **Protective Covers**

The protective covers, of approved local manufacture to BS.2484 shall be provided over cables laid in the ground each complete with an interlocking device to prevent lateral displacement. These protective covers shall extend at least 50mm laterally beyond the outside of the outer cable in each group of cables so protected.

2.28. **Cable Position Markers**

These should be placed adjacent to all points where cables change direction, and at all intervals of not more than 30m and at other positions designated by the Architect or the Consulting Engineer.

2.29. **Sealing of Cable Entries**

Where cables enter a building in pipes, or ducts, the mouths of the pipes or ducts shall be effectively sealed by means of close fitting solid impregnated wooden plugs and mixture of compound and transformer oil, or other approved manner.

All cables passing through interior walls or floors shall be effectively sealed to the approval of the Engineer By means of asbestos cement after the cables have been pulled through, in order to prevent the accumulation of moisture and the ingress of debris, sand or vermin. The cost of sealing the cables shall be included in the rates for erection and laying.

2.30. **Protection Against Mechanical Damage**

All cables located in such positions where they are vulnerable to damage by mechanical or other means shall be protected by suitable lengths of steel pipe bushed to prevent damage to the cable.

2.31. **Rating Plates**

Each cable when completely erected shall have permanently attached to it at each end, and in such intermediate positions as may be considered necessary by the Engineer, metal plates upon which is engraved, or stamped, the identification number of cable together with its supplies. This information shall be recorded by the sub-contractor so that it may appear on drawings of the completed installation.

2.32. **Cable Jointing**

The Sub-Contractor shall be wholly responsible for sealing and jointing of all cables supplies and erected under the contract. The cable boxes, loop-boxes and glands for power and L.V. cables on all items of equipment shall be provided under the contract.

Sealing and jointing shall be in accordance with the best current practices and of first class workmanship. Where cable armouring is used as earth continuity conductors the glands shall have the necessary contact surfaces or straps to provide a low resistance path under fault conditions.

The Tender shall include for all cable jointing where appropriate and also all labour, jointing material and compound, together with the use of all jointer's tools and making of the tails to the apparatus terminals.

Generally, cable terminations on switchgear, transformers, joint boxes, outgoing, and incoming circuits on the switch-boards shall be glanded in an approved manner.

E. SOCKET OUTLETS

2.33. **General**

In all areas, general power outlets shall be of the 13 Amp. 3 pin fused plug type complying with BS. 1363. They shall be flush pattern with white or ivory plates unless otherwise specified on the drawings. Where the circuits are supplied from a common feed, two outlets shall form a twin unit in a common box. The earthing terminal of every socket outlet shall be connected to the earth continuity conductor of the final sub-circuit by an appropriately sized insulated copper conductor. Unless otherwise stated they shall be mounted at 300mm above finished floor level.

2.34. **Plugs**

One fused plug top shall be supplied for each socket outlet installed. Fuses shall be 13 Amp unless otherwise specified.

F. FUSED CONNECTION UNITS

2.35. **General**

All fused connection units shall be 13 Amp. with fuse and neon indicator lamp. Boxes shall be flush type with white or ivory copper plates and shall be switched type unless otherwise specified on the drawings.

2.36. **Fuses**

All fused connection units shall be fitted with 13 Amp. fuses, unless otherwise specified.

2.37. **Labeling**

The front plate of each fused connection unit shall, unless otherwise specified, be engraved with the name of the appliance connected to it.

G. LIGHTING SWITCHES

2.38. Type

Lighting switches shall be of the all insulated rocker operating plate switch type to BS. 3676 of ample rating. Switch inserts shall be white set in white or ivory cover plates.

Switches controlling points in bathrooms shall be placed outside the bathroom or consist of a ceiling switch operated by a non-conducting cord, as specified. Switches mounted outdoors shall be of a weather tight pattern.

Switches shall be one way, two ways or intermediate as specified and where a number of switches are mounted together they shall be tilted in a common box.

Ceiling switches shall be white or ivory semi recessed pattern, and shall only be used where specified. Pull cords shall be fitted with shock absorbing springs.

H. LIGHTING FITTINGS

2.39. General

The Sub-Contractor shall supply and fit all lighting fittings of the type indicated on the drawings and in the schedules. All fittings shall be suitable for operation on a 240V, 50Hz supply. Lighting fittings rated other than 240 volts will not be accepted. All lighting fittings shall be supplied with lamps.

2.40. Fluorescent Fittings.

Fluorescent fittings shall generally be of the batten type, with control gear contained within the supporting channel. All fittings shall be supported from conduit boxes, and shall be suspended by two 20mm diameter conduits to give a clearance of 25mm between the top of the fitting and the ceiling. Where fittings are suspended by chains from the ceiling the sub-contractor shall use white flexible cord between the box and the fittings.

The installation of the suspension chain and cord shall be approved on site by the Engineer. In the ceiling, conduit boxes, to BS. 31, shall be fitted with dome covers, to which the suspension conduits shall be joined, so that the lighting fitting hangs vertically below the conduit boxes.

Fitting shall comply with BS. 3820 or class1, indoor normal atmospheres.

All fluorescent fittings shall be fitted with radio interference suppression capacitors and power factor correction capacitors and shall be earthen.

2.41. Reflectors and Diffusers

All reflectors for fluorescent fittings shall be made of sheet metal suitably shaped and stiffened, and shall be of white enamel finish. The diffusers shall be of white enamel finish. The diffusers shall be of white opal type in extruded plastic with external reeding.

2.42. Lamps

All lighting fittings shall be supplied complete with lamps of the type and rating specified. Fluorescent tubes shall be of the "white" type, except where otherwise stated. Pearly type tungsten lamps will be fitted in open fittings.

I. FLEXIBLE CORDS

2.43. General

These shall be of 250 volt grade PVC insulated and shall comply with BS.7. Flexible cords shall not be less than 24/.20(23/.0076).

Flexible cords for pendant fittings shall be circular type, heat resistant and white in colour.

J. EARTHING

2.44 **Earthing Electrodes**

Earth electrodes shall be minimum 1.4 metres long by 12mm diameter hard drawn copper rod, and shall be located not less than 3 metres apart at a convenient position 6 metres away from the building. The terminal head of each electrode shall be in a concrete inspection pit, with cover. If the resistance to earth is not satisfactory with one electrode, then additional electrodes or an earth mat shall be provided as directed by the Engineer.

2.45 **Distribution System Earthing**

All distribution boards shall be earthed in accordance with the I.E.E. Regulations. All metal work associated with the regulations currently in force.

2.46 **Testing of Earthing System**

The resistance of the earth continuity system when measured between earthing point and other point in the installation, including all conduit and metal work which may provide a path or earth, shall not exceed 0.5 ohm where steel conduit forms part or the whole part of the system, or 1.0 ohm, if the earth continuity system is composed entirely of copper, copper alloy or aluminium. When the installation is complete the Sub-Contractor shall carry out tests for earth loop impedance, polarity insulation resistance, ring circuit continuity and earth electrode resistance, in the presence of, and to the satisfaction of the Engineer and the K.P.&L. The Sub-Contractor shall rectify all work not giving test results within the limits prescribed.

2.47. **P.M.E. system**

Provision shall be made for P.M.E. System at supply intake (where applicable) and on the isolators of the adjacent building. "P.M.E." means that system whereby the neutral conductor of the supply network is earthed at a prescribed number of points along its route, together with the installation earth continuity conductor, at each consumer's installation, so providing a metallic path for the flow of earth fault currents. The connections between the neutral conductor of the installation shall be made by the supply. Authority at the point of intake only. The connection at the isolators will be made by the Sub-Contractor in the presence of the Engineer after completion of all tests.

2.48. **COMMISSIONING**

All installations shall be tested to the statutory requirements of the Electricity Authority, and commissioned in the presence of and to the satisfaction of the Engineer.

Four copies of tests reports shall be provided within seven days of carrying out the tests; and reports shall include full details of how each test was carried out, and a copy of all readings taken.

PART C

PARTICULAR SPECIFICATION

1. **General**

The Specification contained hereinafter relates to specific electrical installation in the “**PROPOSED RESIDENTIAL HOUSE FOR THE SPEAKER OF THE COUNTY ASSEMBLY OF KILIFI ON PLOT NO 328 CHEMBE/ KIBABA, KILIFI COUNTY**”

The Sub-Contract works shall be carried out in accordance with the current Code of Practice applicable to outside and inside electrical installation in Public buildings and shall comply in all aspects with current regulations enumerated in Part B of this Specification. In carrying out the installation, the Sub-Contractor shall ensure that terminations and outlets for various appliances and machinery are correctly wired and rated.

2. **Extent and Description of Project**

The work to be carried out under this contract includes the supply, delivery, installation, connection, testing, energising and leaving in service condition to the satisfaction of the Engineer of the complete installation as herein described in the specification and related specification and/or on the attached drawings. The installation includes the following items:-

- (a) Supply and installation of distribution board and armoured cable.
- (b) Supply and installation of super high impact gauge PVC conduit concealed in the buildings' roof space for drawing in of cables for lighting fittings.
- (c) Supply and installation of electric cabling to all electrical points
- (d) Supply and installation of all electrical fittings and accessories
- (f) Tiding up of the whole working area.
- (g) Supply and installation of 160mm x 50mm powder coated metal trunking

3. **Commencement of Works**

The Sub-Contractor in submitting his tender shall be deemed to have included for commencing any necessary work on site at such time as to comply with the overall contractor's works program. Safety is paramount and all necessary precautions should be taken into account to avoid accidents.

4. **Incoming Electricity supply**

The Electricity supply for the project will be derived from the existing power supply in the vicinity.

5. **Attendance**

The sub-contractor shall liaise fully with the Main Contractor and all other sub-contractors in ensuring satisfactory completion of all their works. The works shall not be deemed completed until it is fully energized.

6. **Distribution Board.**

The distribution board shall be 4/6-way triple pole and neutral as specified in the contract schematic diagram. It shall be of the miniature circuit break type. The boards shall comply with B.S. 3817, B.S. 5861 AND B.S. 214. The MCBs shall comply with B.S. 3871.

7. **Method of Wiring**

7.1. **General**

Armored cables from the LV switchboard to distribution board shall be properly clipped onto the walls and roof space.

7.2. **Lighting Circuit**

The lighting installation shall be carried out in single core PVC insulated cables drawn into plastic conduit concealed in floor slab, columns and walls, i.e. wiring system A.

8. **Lighting Switches**

The lighting switches shall be single pole 10A ratings, rocker operated microgrid switches. The lighting switches shall be mounted at 1400mm above floor level.

9. **Lighting Fittings**

Fluorescent Bulkhead Fittings

Fluorescent bulkhead lighting fittings shall comply with B.S. 4533, where applicable, and be complete with bi-pin lamp holders, auxiliary apparatus, internal wiring and lamps or tubes,

Fluorescent fittings shall be complete with correctly rated "Switchless start" control gear incorporated in the body of the fitting. Dangerous internal gas pressures shall not develop in capacitors. Discharge lamp circuits shall be effectively suppressed and have an operating power factor of not less than 0.85 lag.

All tungsten lighting fittings and accessories shall comply with B.S. 816.

All lighting fittings shall be protected against the ingress of hydrogen sulphide and the insulation shall not be subjected to excessive heat. Lamp holders not included in fittings shall be of heavy gauge brass screwed to Conduit.

Unless otherwise approved tungsten lighting fittings up to 200 watts capacity shall have Edison Screw lamp sockets, and lighting fittings over 200 watts capacity shall have Giant Edison Screw lamp sockets shall be suitably shrouded.

Fittings shall be rigidly fixed on the surface of ceilings except in the Printing Area where they shall be rigidly suspended from steel trusses by suitable steel rods, conduit or other non-flexible means.

Lighting fittings shall be complete with white fluorescent tubes.

10. **Telephone/Computer cables**

The work to be carried out under this Sub-Contract is for the supply and installation of trunking for drawing in telephone and computer system cables.

The Sub-Contractor shall supply and lay 160mmx50mm 2 compartment powder coated metallic trunking as indicated in the contract drawings

11 **Bonding and Earthing of cable sheaths and Terminations**

At a point near the switchgear termination ends of each power cable not laid in trefoil, bonding the earthing of three and four-core cables shall be by means of a branch earth tape connection from each cable armour clamp to the switchgear earth bar. The surfaces of the armour wire and gland are to be thoroughly cleaned to ensure a first class connection.

Except where otherwise approved, single-core lead covered cables carrying alternating currents shall be run in close trefoil formation so as to keep to a minimum losses and voltage rise in the sheaths. With this arrangement, the cable sheath shall be insulated from the switchgear or other apparatus at both ends and bonded and earthed at one end only at the point of breaking trefoil. The cables having a route length exceeding 30m, shall in addition, have the lead sheaths bonded together (not earthed) at intervals of approximately 30m. After the single cables leave the final trefoil points, the clamps must be carefully insulated.

Unless otherwise approved, the method of bonding the metal sheaths of single-core cables in close trefoil formation shall consist of sheath lead 5mm thickness and approximately 100mm wide, wrapped round the trefoil cable assembly in such manner as to make close contact therewith. The edges of the lead strip shall be made at each side. Free ends of lead shall be left so that connection can be made thereto.

Where required, by means of strip between the lead ends and two other backing strips. Three galvanized steel bolts of not less than 10mm diameter shall be used for the connection of the earth strip to the lead bond. When buried direct in a creosote wooded box which shall be completely filled with bituminous compound.

12. **Testing of complete Installation**

The installation when complete shall pass the following tests:-

1. Insulation resistance between lines and line/neutral
2. Insulation resistance between line and earth and neutral and earth.
3. Earth continuity resistance including all fittings.
4. Test on earth electrode when carried out with earth
(null balance) at any point within the network must not exceed 3 ohms

The result of the test shall be issued to the Engineer who will ascertain whether they conform to the standard

13. **Certificate of completion**

The sub-contractor shall complete commencement, completion and installation test certificate and submit them to the client with a copy to the Engineer on completion of the works.

PART D

SCHEDULES

- (i) The Tenderer shall complete all the schedules. The schedules shall be read in conjunction with the specifications and the drawings.
- (ii) The total prices in the main summary of price schedules shall be deemed to include all obligations under the Contract including and not limited to supply of materials equipment, apparatus, fittings, spares, tools, insurance, delivery to site, storage, installation, testing and commissioning in accordance with this specification.
- (iii) Any prices omitted from any section or part of price schedule shall be deemed to have been included in another item, section or part.
- (iv) All prices shall be duty paid and shall also be inclusive of all taxes current at the time of tendering.

BILL OF QUANTITIES

**PROPOSED RESIDENTIAL HOUSE FOR THE SPEAKER OF THE COUNTY ASSEMBLY OF KILIFI
ON PLOT NO 328 CHEMBE/ KIBABA, KILIFI COUNTY**

BILL OF QUANTITIES FOR ELECTRICAL INSTALLATION

ALL RATES TO BE VAT INCLUSIVE

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
	<u>PRELIMINARIES AND GENERAL CONDITIONS</u>				
A	Provide bond as stated in the published conditions of sub-contract.	Sum	1		
B	Provide insurance as required in the sub contract conditions.	Sum	1		
C	Preparation of working drawings	Sum	1		
D	Preparation of As built drawings "As installed" record drawings.	Sum	1		
E	Printing of paper copies of item C & D above.	Sum	1		
F	Allow for testing and commissining results documentation and preparation of Complete 3No. Sets of handover documents both soft copy and hard copy	Sum	1		
TOTAL CARRIED TO MAIN SUMMARY PAGE					

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
<u>GROUND FLOOR</u>					
Supply, install and set to work the following:-					
A	Lighting points, wired using 3 x 1.5mm ² single core PVC insulated Copper cables drawn in 20mm diameter heavy gauge conduit concealed in floor and roof space for one way switching but excluding the fittings and switches for one/two way switching	NO.	192		
B	13Amps single switched socket outlet point, wired using 3 x 2.5mm ² single core PVC insulated copper cables drawn in 20mm diameter PVC heavy gauge conduits concealed in the floors and roof space but without the outlet plate.	NO	12		
C	Ditto but twin	NO	62		
D	Data/Voice outlet point with a draw-wire left inside 25mm dia. PVC heavy gauge conduits concealed in the floor and walls but without the outlet plate.	NO.	14		
E	TV coaxial cable outlet point with a draw-wire left inside 25mm dia. PVC heavy gauge conduits concealed in the floor and walls but without the outlet plate.	NO.	6		
F	Speaker outlet point with a draw-wire left inside 25mm dia. PVC heavy gauge conduits concealed in the floor and walls but without the outlet plate.	NO.	20		
G	Security alarm outlet point with a draw-wire left inside 25mm dia. PVC heavy gauge conduits concealed in the floor and walls but without the outlet plate.	NO.	52		
TOTAL CARRIED FORWARD TO COLLECTION					

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
A	9 Way TP&N Distribution Board for flush mounting incorporating 100A DP integral isolator, lockable cover and labeling but without MCB and as Sapphire screwless	NO.	2		
B	9 Way SP&N Consumer unit for flush mounting incorporating 100A DP integral isolator, lockable cover and labeling but without MCB and as Sapphire screwless	NO.	2		
C	4 Way SP&N Consumer unit for flush mounting incorporating 100A DP integral isolator, lockable cover and labeling but without MCB and as Sapphire screwless	NO.	4		
D	6 Way TP&N Distribution Board for flush mounting incorporating 100A DP integral isolator, lockable cover and labeling but without MCB and as Sapphire screwless for swimming pool pumps	NO.	1		
	Miniature circuit breakers (MCBs) rated at 500Vac for above items				
E	10A (SP) as Scheneider	NO.	12		
F	20A (SP) as Scheneider	NO.	8		
G	30A (SP) as Scheneider	NO.	14		
H	30A (TP) as Scheneider	NO.	5		
I	45A TP isolators as Scheneider (Steam room)	NO.	3		
J	Blanking plates for items above	NO.	20		
K	Electric bell circuits of size 3x1.5mm ² single core PVC insulated copper cables drawn in 25mm diameter PVC heavy gauge conduits complete with weather proof bell push marked 'Press' as Hager	NO	2		
L	Cooker circuit included being a cooker connection point, wired using 3 x 6mm ² single core insulated copper cable drawn in 25mm dim. PVC heavy gauge conduits, but for excluding the cooker control connection units.	NO	3		
M	2X6mm + 1x4mm ² ECC Copper cables for Consumer unit in DSQ from DB "A"	LM	140		
N	2X10mm + 1x6mm ² ECC Copper cables for Consumer unit in in guest Wing from DB "A"	LM	120		
O	4C 10mm ² PVC/SWA/PVC Copper cables for To sauna/ Steam Bath	LM	60		
TOTAL CARRIED FORWARD TO COLLECTION					

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
A	4C 25mm ² PVC/SWA/PVC Copper cables distribution of power to DB's	LM	120		
B	Supply and install sub main conduits of size 38mm dia. From DB "A" to CU's and to sauna/steam room	LM	50		
C	Undersink Heater/Water heater/AC outlet point, wired using 3 x 4mm ² single core PVC/SWA/PVC insulated copper cables drawn in 20mm diameter PVC heavy gauge conduits concealed in the floors and roof space but without the outlet plate	NO.	4		
D	Shaver outlet point, wired using 3 x 2.5mm ² single core PVC insulated copper cables drawn in 20mm diameter PVC heavy gauge conduits concealed in the floors and roof space but without the outlet plate	NO.	4		
E	Washing Machine outlet point, wired using 3 x 4MM SQ single core PVC insulated copper cables drawn in 20mm diameter PVC heavy gauge conduits concealed in the floors and roof space but without the outlet plate	NO.	2		
F	Water pump points, wired using 3 x 4MM SQ Single core PVC insulated Copper cables drawn in 32mm diameter heavy gauge conduit concealed in floor and roof space from the flat to ground mounted water tank	NO.	2		
	10 Amps rated moulded plate switches for flush mounting and as CRABTREE				
G	One gang one way as CRABTREE H20S11 /AB	NO.	12		
H	One gang two way as CRABTREE H20S21 /AB	NO.	3		
I	Two gang one way as CRABTREE H20S12 /AB	NO.	2		
J	Two gang two way as CRABTREE H20S22 /AB	NO.	8		
K	Three gang one way as CRABTREE H20S23 /AB	NO.	2		
L	Three gang two way as CRABTREE H20S23 /AB	NO.	4		
M	Four gang two way as CRABTREE H20S23 /AB	NO.	3		
N	2Gx400W Dimmer switch as AB	NO.	6		
TOTAL CARRIED FORWARD TO COLLECTION					

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
	Lighting fittings as shown in the drawings complete with tubes and lamps				
A	Elegant six light chandelier complete with dimmeable lamps as Mantra 0351	NO.	6		
B	A 20 light modern ceiling light comes in a antique brown finish complete with limed white glass shades	NO.	3		
C	Elegant 2 arm wall bracket as Mantra 0358 TYPE A	NO.	10		
D	Imperial two-bulb ceiling fixture finish as EGLO 82741 TYPE B	NO.	18		
E	Belgravia one light flush luninaire with brass finish as EGLO 82741 TYPE C	NO.	32		
F	GU 10 mains voltage die cast eyeball downlight with brass finish as EGLO 90053 TYPE D/H	NO.	84		
G	One light low energy ceiling light in wet areas chrome finish as EGLO 90448 TYPE E	NO.	4		
H	Caspian Polypropylene wall mounted security lights as EGLO 87184 TYPE G	NO.	32		
I	Palmera Wall Lamp with brass finish with adjustable arm mirror light complete with lamp as Eglo cat. No. 87222	NO.	4		
J	1200mm, 2x36W twin waterproof fluorescent fitting with Diffuser as THORN CAT No. LUES236	NO.	4		
K	Art deco wall uplighter with white ceramic as BELFIORE 8342.108 OR EGLO SANIA 91348	NO.	20		
L	4NO. horizontal lights with 2arm support complete with base pendant light for the kitchen as EGLO92165 as (in kitchen)	NO.	4		
M	Step lights as eglo	NO.	12		
TOTAL CARRIED FORWARD TO COLLECTION					

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
A	Electric photocell as THORN CAT NO. QPK	NO.	4		
B	AB Chime type electric bell	NO	2		
C	Speaker Outlet plate as MK	NO.	20		
D	45A rated cooker control unit incorporating a 13A switched socket outlet and fitted with pilot lamps as AB	NO	3		
E	Cooker connection unit capable of terminating 2x10mm ² conductors as Crabtree Cat No. 4506	NO	3		
F	20A double pole switch with neon indicator for water heater as CRABTREE HSO1/AB	NO	10		
G	Adaptable box of size 300x300x75mm made out of 18 gauge and for power and telephone reticulation	No	4		
H	13Amps single switched socket outlet plate and as CRABTREE HO 1/AB	NO	12		
I	13Amps twin switched socket outlet plate and as CRABTREE HO 2 /AB	NO	62		
J	Twin TV/FM outlet plate as brass and as CRABTREE HTV 2/AB	NO.	6		
K	Data/Voice outlet plate as brass and as CRABTREE HTEL1MJ or AB RJ11 TWIN	NO.	14		
L	Single screwless blanking cover in antiques brass finish as AB	NO.	14		
M	Twin screwless blanking cover in antiques brass finish as AB	NO.	8		
TOTAL CARRIED FORWARD TO COLLECTION					

COLLECTION PAGE GROUND FLOOR

ITEM NO.	DESCRIPTION	TOTAL KSHS.
1	TOTAL BROUGHT FORWARD FROM: -	
1	PAGE 2	
2	PAGE 3	
3	PAGE 4	
4	PAGE 5	
5	PAGE 6	
TOTAL CARRIED FORWARD TO SUMMARY PAGE		

FIRST FLOOR ELECTRICAL INSTALLATIONS

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
	Supply, install and set to work the following:-				
A	Lighting points, wired using 3 x 1.5mm ² single core PVC insulated Copper cables drawn in 20mm diameter heavy gauge conduit concealed in floor and roof space for one/two way switching but excluding the fittings and switches.	NO.	128		
B	13Amps single switched socket outlet point, wired using 3 x 2.5mm ² single core PVC insulated copper cables drawn in 20mm diameter PVC heavy gauge conduits concealed in the floors and roof space but without the outlet plate.	NO	16		
C	Ditto but twin	NO	44		
D	Data/Voice outlet point with a draw-wire left inside 25mm dia. PVC heavy gauge conduits concealed in the floor and walls but without the outlet plate.	NO.	10		
E	TV coaxial cable outlet point with a draw-wire left inside 25mm dia. PVC heavy gauge conduits concealed in the floor and walls but without the outlet plate.	NO.	12		
F	Speaker outlet point with a draw-wire left inside 25mm dia. PVC heavy gauge conduits concealed in the floor and walls but without the outlet plate.	NO.	10		
G	Security alarm outlet point with a draw-wire left inside 25mm dia. PVC heavy gauge conduits concealed in the floor and walls but without the outlet plate.	NO.	10		
H	12 Way TP&N Distribution Board for flush mounting incorporating 100A TP integral isolator, lockable cover and labeling but without MCB and as Sapphire screwless	NO.	2		
I	12 Way SP&N Consumer Unit for flush mounting incorporating 100A DP integral isolator, lockable cover and labeling but without MCB and as Sapphire screwless	NO.	2		
J	Cooker circuit included being a cooker connection point, wired using 3 x 6mm ² single core insulated copper cable drawn in 25mm dim. PVC heavy gauge conduits, but for excluding the cooker control connection units.	NO	1		
TOTAL CARRIED FORWARD TO COLLECTION					

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
	Miniature circuit breakers (MCBs) rated at 500Vac for above items				
A	10A (SP) as Schneider	NO.	12		
B	20A (SP) as Schneider	NO.	8		
C	30A (SP) as Schneider	NO.	8		
D	Blanking plates for items above	NO.	4		
E	4C 16mm ² PVC/SWA/PVC Copper cables for DB's on first Floor	LM	60		
F	Supply and install sub main conduits of size 38mm dia. From Distribution Board DB TO CU'S	LM	30		
G	Sub-mains cables drawn in conduit above and size 2C, 10mm ² PVC/SWA/PVC copper cables	LM	60		
H	Water heater outlet point, wired using 3 X 4mm ² single core PVC insulated copper cables drawn in 20mm diameter PVC heavy gauge conduits concealed in the floors and roof space but without the outlet plate	NO.	3		
I	Shaver outlet point, wired using 3 x 2.5mm ² single core PVC insulated copper cables drawn in 20mm diameter PVC heavy gauge conduits concealed in the floors and roof space but without the outlet plate	NO.	5		
	10 Amps rated moulded plate switches for flush mounting and as CRABTREE/MAXIMUS AB				
J	One gang one way as CRABTREE H20S11 /AB	NO.	20		
K	One gang two way as CRABTREE H20S21 /AB	NO.	4		
L	Two gang one way as CRABTREE H20S12 /AB	NO.	2		
M	Two gang two way as CRABTREE H20S22 /AB	NO.	18		
N	Three gang two way as CRABTREE H20S23 /AB	NO.	1		
O	2Gx400W Dimmer switch as MAXIMUS AB	NO.	2		
P	Four gang two way as CRABTREE H20S23 /AB	NO.	1		
TOTAL CARRIED FORWARD TO COLLECTION					

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
	Lighting fittings as shown in the drawings complete with tubes and lamps				
A	Elegant six light chandelier complete with dimmeable lamps as Mantra 0351	NO.	2		
B	Elegant five light chandelier complete with dimmeable lamps as Mantra 0358 in bedrooms	NO.	2		
C	A 20 light modern ceiling light comes in a antique brown finish complete with limed white glass shades	NO.	3		
D	Elegant 2 arm wall bracket as Mantra 0358 TYPE A	NO.	6		
E	Savoy Bronzed Wall Light With An Opal Glass Shade Complete With Pull Cord as EGLO 82751 CAT NO. MM75006 TYPE K	NO.	6		
F	Imperial two-bulb ceiling fixture as EGLO 82741 TYPE B	NO.	20		
G	Mestre antique brown and satin glass ceiling light EGLO MESTRE 86713 TYPE C	NO.	55		
H	Palmera Wall Lamp with brass finish with adjustable arm mirror light complete with lamp as Eglo cat. No. 87222	NO.	5		
I	The 1 light low energy modern wall/ceiling light comes in a brushed aluminium finish with white shade In wet areas EGLO 90448 TYPE E	NO.	10		
J	Art deco wall uplighter with white ceramic as BELFIORE 8342.108 OR EGLO SANIA 91348	NO.	12		
K	GU 10 mains voltage die cast eyeball downlight with brass finish as EGLO 90053 TYPE D	NO.	36		
L	Step lights as eglo	NO.	18		
M	40W, 600mm X 600mm LED panel light	NO.	2		
N	1200mm, 2x36W twin waterproof fluorescent fitting with Diffuser as THORN CAT No. LUES236	NO.	2		
TOTAL CARRIED FORWARD TO COLLECTION					

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
A	Electric photocell as THORN CAT NO. QPK	NO.	5		
B	Weather proof 20WLED flood light complete with occupational motion sensor as EGLO/MANTRA	NO.	12		
C	Speaker Outlet plate as MK	NO.	20		
D	20A double pole switch with neon indicator for water heater as CRABTREE HSO1/MAXIMUS AB	NO	12		
E	Adaptable box of size 300x300x75mm made out of 18 gauge and for power and telephone reticulation	No	3		
F	13Amps single switched socket outlet plate and as CRABTREE HSO1/MAXIMUS AB	NO	16		
G	13Amps twin switched socket outlet plate and as CRABTREE HO 2 /MAXIMUS AB	NO	44		
H	Twin TV/FM outlet plate as brass and as CRABTREE HTV 2/AB	NO.	12		
I	Data/Voice outlet plate as brass and as CRABTREE HTEL1MJ or MAXIMUS AB RJ11 TWIN	NO.	10		
J	Single screwless blanking cover in antiques brass finish as MAXIMUS AB	NO.	8		
K	Twin screwless blanking cover in antiques brass finish as MAXIMUS AB	NO.	10		
L	45A rated cooker control unit incorporating a 13A switched socket outlet and fitted with pilot lamps as AB	NO	1		
M	Cooker connection unit capable of terminating 2x10mm ² conductors as Crabtree Cat No. 4506	NO	1		
TOTAL CARRIED FORWARD TO COLLECTION					

COLLECTION FIRST FLOOR

ITEM NO.	DESCRIPTION	TOTAL KSHS.
1 2 3 4	TOTAL BROUGHT FORWARD FROM: - PAGE 8 PAGE 9 PAGE 10 PAGE 11	
TOTAL CARRIED FORWARD TO SUMMARY PAGE		

SITE PLAN AND GATE HSE ELECTRICAL INSTALLATIONS

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
	Supply, install and set to work the following:-				
A	Lighting points, wired using 3 x 1.5mm ² single core PVC insulated Copper cables drawn in 20mm diameter heavy gauge conduit concealed in floor and roof space for one way switching but excluding the fittings and switches for one/two way switching	NO.	62		
B	13Amps single switched socket outlet point, wired using 3 x 2.5mm ² single core PVC insulated copper cables drawn in 20mm diameter PVC heavy gauge conduits concealed in the floors and roof space but without the outlet plate.	NO	6		
C	Ditto but twin	NO	22		
D	Data/Voice outlet point with a draw-wire left inside 25mm diameter. PVC heavy gauge conduits concealed in the floor and walls but without the outlet plate.	NO.	5		
E	Security alarm outlet point with a draw-wire left inside 25mm dia. PVC heavy gauge conduits concealed in the floor and walls but without the outlet plate.	NO.	1		
	<u>LV SWITCHBOARD</u>				
	a) 2No. TP 200A MCCB with shunt trip coil				
	b) 2No. TP 100A MCCB				
	c) 4NO. TP 63A MCCB				
	d) 1NO. TP 200A AMF				
	e) 2NO. 200 A MCCB for AVR input and output protection				
	f) 1No. TP 250A BURSBAR				
	g) 2No. Digital power meter as LOVATO DMK 40				
	h) Set of pilot lights				
	i) 25kVAR power factor correction unit as per drg				
	j) A surge arrestor is a must type 2				
	SPACE FOR				
	j) 1No. KPLC 3phase power METERS & CUT OUT				
	k) Space for sealable CT chamber				
	Appropriate knockouts for incoming and out going cables	item	1		
F	Earthing comprising of copper earth electrode of size 1500mm long x 15mm diameter enclosed by a concrete manhole of size 450x450x450mm with removable concrete cover and a 38mm diameter PVC heavy gauge conduit lead-in duct and bonded to the board using 16mm ² SC cable to approval	NO	1		
G	9 Way SP&N Distribution Board for flush mounting incorporating 100A DP integral isolator, lockable cover and labeling but without MCB and as Sapphire screwless	NO.	2		
TOTAL CARRIED FORWARD TO COLLECTION					

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
	Miniature circuit breakers (MCBs) rated at 500Vac for above items				
A	10A (SP) as Scheneider	NO.	12		
B	20A (SP) as Scheneider	NO.	4		
C	30A (SP) as Scheneider	NO.	4		
D	Blanking plates for items above	NO.	6		
E	Electric bell circuits of size 3x1.5mm ² single core PVC insulated copper cables drawn in 25mm diameter PVC heavy gauge conduits complete with bell push marked Press' as Hager	NO	1		
F	Trenching, shifting, laying of danger/hatari tiles and backfilling for compound lighting	LM	800		
G	Trenching, shifting, laying of danger/hatari tiles and backfilling for boundary lighting	LM	240		
H	2C, 2.5MM ² PVC/SWA/PVC Copper cables for compound and boundary lighting	LM	840		
I	Supply and install sub main conduits of size 38mm dia. From meterboard to Distribution Board DB'A'	LM	200		
J	100mm diameter heavy gauge PVC duct to be laid a minimum of 450mm from each other in the same duct	LM	200		
K	'Heavy duty concrete manhole of size 750x600x600mm with removable concrete cover for road/street	NO	22		
L	Sub-mains cables drawn in conduit above and size 4C, 16mm ² PVC/SWA/PVC copper cables for Swimming pool DB.	LM	60		
M	Sub-mains cables drawn in conduit above and size 4C, 35mm ² PVC/SWA/PVC copper cables for DB 'A'	LM	180		
N	One gang one way as CRABTREE H20S11 /AB	NO.	13		
O	Two gang one way as CRABTREE H20S12 /AB	NO.	2		
P	Three gang one way as CRABTREE H20S23 /AB	NO.	2		
Q	Three gang two way as CRABTREE H20S23 /AB	NO.	1		
R	Water pump points, wired using 2C, 4mm ² PVC/SWA/PVC Copper cables drawn in 32mm diameter heavy gauge conduit concealed in floor and roof space from the flat to ground mounted water tank. Allow for provision of cabling for the float switch as well.	NO.	2		
TOTAL CARRIED FORWARD TO COLLECTION					

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
A	Imperial two-bulb ceiling fixture as EGLO 82741 TYPE B	NO.	6		
B	Enigma energy saving flush luminaire with brass/ chrome finish as EGLO 90448 TYPE E	NO.	6		
C	Caspian Polypropylene wall mounted security lights as EGLO 87184 TYPE G	NO.	6		
D	Unique brass finish with adjustable arm mirror light complete with lamp as Eglo cat. No. 87222	NO.	4		
E	1200mm, 2x36W twin waterproof fluorescent fitting with Diffuser as THORN CAT No. LUES236	NO.	1		
F	Electric photocell as THORN CAT NO. QPK	NO.	12		
G	Lamedo pedestal lantern garden light as EGLO 93481 for compound lighting wired using 2C 2.5mm2 PVC/SWA/PVC copper cables	NO.	52		
H	Modern outdoor steel wall light with black finish and opal glass diffuser EGLO PARK 5 87184 for boundary lighting wired using 2C 2.5mm2 PVC/SWA/PVC copper cables	NO.	62		
I	Ferrotterra lantern mounted on gate pillars as EGLO ferrotterra small cat no. 89565/89566 wired using 2C 2.5mm2 PVC/SWA/PVC copper cables	NO.	2		
J	1000mm Stainless steel modern outdoor post light as Eglo 83279 lighting wired using 2C 2.5mm2 PVC/SWA/PVC copper cables	NO.	60		
K	13Amps single switched socket outlet plate and as CRABTREE HO 1/AB	NO	6		
L	13Amps twin switched socket outlet plate and as CRABTREE HO 2 /AB	NO	22		
M	Data/Voice outlet plate as brass and as CRABTREE HTEL1MJ or AB RJ11 TWIN	NO.	10		
N	Single screwless blanking cover in antiques brass finish as AB	NO.	1		
O	Twin screwless blanking cover in antiques brass finish as AB	NO.	2		
TOTAL CARRIED FORWARD TO COLLECTION					

COLLECTION SITE PLAN AND GATE HOUSE

ITEM NO.	DESCRIPTION	TOTAL KSHS.
1 2 4	TOTAL BROUGHT FORWARD FROM: - PAGE 13 PAGE 14 PAGE 15	
TOTAL CARRIED FORWARD TO SUMMARY PAGE		

SERVANTS QUARTERS (DSQ) ELECTRICAL INSTALLATIONS

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
	Supply, install and set to work the following:-				
A	Lighting points, wired using 3 x 1.5mm ² single core PVC insulated Copper cables drawn in 20mm diameter heavy gauge conduit concealed in floor and roof space for one way switching but excluding the fittings and switches for one/two way switching	NO.	12		
B	13Amps single switched socket outlet point, wired using 3 x 2.5mm ² single core PVC insulated copper cables drawn in 20mm diameter PVC heavy gauge conduits concealed in the floors and roof space but without the outlet plate.	NO	4		
C	Ditto but twin	NO	10		
D	Data/Voice outlet point with a draw-wire left inside 25mm dia. PVC heavy gauge conduits concealed in the floor and walls but without the outlet plate.	NO.	3		
E	TV coaxial cable outlet point with a draw-wire left inside 25mm dia. PVC heavy gauge conduits concealed in the floor and walls but without the outlet plate.	NO.	1		
F	Security alarm outlet point with a draw-wire left inside 25mm dia. PVC heavy gauge conduits concealed in the floor and walls but without the outlet plate.	NO.	3		
TOTAL CARRIED FORWARD TO COLLECTION					

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
A	6 Way SP&N Distribution Board for flush mounting incorporating 100A DP integral isolator, lockable cover and labeling but without MCB and as Sapphire screwless Miniature circuit breakers (MCBs) rated at 500Vac for above items	NO.	1		
B	10A (SP) as Schneider	NO.	1		
C	20A (SP) as Schneider	NO.	1		
D	30A (SP) as Schneider	NO.	1		
E	Blanking plates for items above	NO.	1		
F	Electric bell circuits of size 3x1.5mm ² single core PVC insulated copper cables drawn in 25mm diameter PVC heavy gauge conduits complete with bell push marked 'Press' as	NO	1		
G	2X10mm + 1x6mm ² ECC Copper cables for Consumer unit in in guest Wing from DB "A"	LM	140		
H	Supply and install sub main conduits of size 38mm dia. From DB "A" to CU	LM	20		
I	Undersink Heater/Water heater outlet point, wired using 3 x 4mm ² single core PVC/SWA/PVC insulated copper cables drawn in 20mm diameter PVC heavy gauge conduits concealed in the floors and roof space but without the outlet plate	NO.	1		
TOTAL CARRIED FORWARD TO COLLECTION					

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
A	Shaver outlet point, wired using 3 x 2.5mm ² single core PVC insulated copper cables drawn in 20mm diameter PVC heavy gauge conduits concealed in the floors and roof space but without the outlet plate 10 Amps rated moulded plate switches for flush mounting and as CRABTREE	NO.	1		
B	One gang one way as CRABTREE H20S11 /AB	NO.	2		
C	One gang two way as CRABTREE H20S21 /AB	NO.	2		
D	Two gang two way as CRABTREE H20S22 /AB Lighting fittings as shown in the drawings complete with tubes and lamps	NO.	2		
E	Imperial two-bulb ceiling fixture finish as EGLO 82741 TYPE B	NO.	6		
F	Belgravia one light flush luninaire with brass finish as EGLO 82741 TYPE C	NO.	3		
G	One light low energy ceiling light in wet areas chrome finish as EGLO 90448 TYPE E	NO.	1		
H	Caspian Polypropylene wall mounted security lights as EGLO 87184 TYPE G	NO.	4		
I	Palmera Wall Lamp with brass finish with adjustable arm mirror light complete with lamp as Eglo cat. No. 87222	NO.	1		
J	1200mm, 2x36W twin waterproof fluorescent fitting with Diffuser as THORN CAT No. LUES236	NO.	1		
TOTAL CARRIED FORWARD TO COLLECTION					

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
A	Electric photocell as THORN CAT NO. QPK	NO.	2		
B	AB Chime type electric bell	NO	1		
C	20A double pole switch with neon indicator for water heater as CRABTREE HSO1/AB	NO	2		
D	Adaptable box of size 300x300x75mm made out of 18 gauge and for power and telephone reticulation	No	1		
E	13Amps single switched socket outlet plate and as CRABTREE HO 1/AB	NO	0		
F	13Amps twin switched socket outlet plate and as CRABTREE HO 2 /AB	NO	10		
G	Twin TV/FM outlet plate as brass and as CRABTREE HTV 2/AB	NO.	1		
H	Data/Voice outlet plate as brass and as CRABTREE HTEL1MJ or AB RJ11 TWIN	NO.	3		
I	Single screwless blanking cover in antiques brass finish as AB	NO.	14		
J	Twin screwless blanking cover in antiques brass finish as AB	NO.	8		
TOTAL CARRIED FORWARD TO COLLECTION					

COLLECTION SITE DSQ

ITEM NO.	DESCRIPTION	TOTAL KSHS.
1	TOTAL BROUGHT FORWARD FROM: -	
1	PAGE 17	
2	PAGE 18	
3	PAGE 19	
4	PAGE 20	
TOTAL CARRIED FORWARD TO SUMMARY PAGE		

PAVILION ELECTRICAL INSTALLATIONS

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
	Supply, install and set to work the following:-				
A	Lighting points, wired using 3 x 1.5mm ² single core PVC insulated Copper cables drawn in 20mm diameter heavy gauge conduit concealed in floor and roof space for one way switching but excluding the fittings and switches for one/two way switching	NO.	10		
B	13Amps single switched socket outlet point, wired using 3 x 2.5mm ² single core PVC insulated copper cables drawn in 20mm diameter PVC heavy gauge conduits concealed in the floors and roof space but without the outlet plate.	NO	2		
C	Ditto but twin	NO	5		
D	Data/Voice outlet point with a draw-wire left inside 25mm dia. PVC heavy gauge conduits concealed in the floor and walls but without the outlet plate.	NO.	2		
E	TV coaxial cable outlet point with a draw-wire left inside 25mm dia. PVC heavy gauge conduits concealed in the floor and walls but without the outlet plate.	NO.	1		
F	Speaker outlet point with a draw-wire left inside 25mm dia. PVC heavy gauge conduits concealed in the floor and walls but without the outlet plate.	NO.	4		
G	Security alarm outlet point with a draw-wire left inside 25mm dia. PVC heavy gauge conduits concealed in the floor and walls but without the outlet plate.	NO.	1		
TOTAL CARRIED FORWARD TO COLLECTION					

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
A	6 Way SP&N Distribution Board for flush mounting incorporating 63A DP integral isolator, lockable cover and labeling but without MCB and as Sapphire screwless Miniature circuit breakers (MCBs) rated at 500Vac for above items	NO.	1		
B	10A (SP) as Schneider	NO.	1		
C	30A (SP) as Schneider	NO.	1		
D	20A (SP) as Schneider	NO.	2		
E	Blanking plates for items above	NO.	1		
F	Electric bell circuits of size 3x1.5mm ² single core PVC insulated copper cables drawn in 25mm diameter PVC heavy gauge conduits complete with bell push marked 'Press' as	NO	1		
G	Cooker circuit included being a cooker connection point, wired using 3x6mm ² Single core copper cable drawn in 25mm dim. PVC heavy gauge conduits, but for excluding the cooker control connection units.	NO	1		
H	2C, 10MM ² PVC/SWA/PVC Copper cables for Consumer unit in Pavillion from DB "A	LM	140		
I	Supply and install sub main conduits of size 38mm dia. From AB to CU's and to sauna/steam room	LM	20		
J	Undersink Heater/Water heater outlet point, wired using 3 x 4mm ² single core PVC/SWA/PVC insulated copper cables drawn in 20mm diameter PVC heavy gauge conduits concealed in the floors and roof space but without the outlet plate	NO.	1		
TOTAL CARRIED FORWARD TO COLLECTION					

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
	10 Amps rated moulded plate switches for flush mounting and as CRABTREE				
A	One gang one way as CRABTREE H20S11 /AB	NO.	4		
B	One gang two way as CRABTREE H20S21 /AB	NO.	1		
C	Three gang two way as CRABTREE H20S23 /AB	NO.	2		
	Lighting fittings as shown in the drawings complete with tubes and lamps				
D	Elegant six light chandelier complete with dimmeable lamps as Mantra 0351	NO.	1		
E	Elegant 2 arm wall bracket as Mantra 0358 TYPE A	NO.	2		
F	Imperial two-bulb ceiling fixture finish as EGLO 82741 TYPE B	NO.	2		
G	One light low energy ceiling light in wet areas chrome finish as EGLO 90448 TYPE E	NO.	3		
H	Caspian Polypropylene wall mounted security lights as EGLO 87184 TYPE G	NO.	4		
TOTAL CARRIED FORWARD TO COLLECTION					

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
A	Electric photocell as THORN CAT NO. QPK	NO.	1		
B	AB Chime type electric bell	NO	1		
C	Speaker Outlet plate as MK	NO.	4		
D	45A rated cooker control unit incorporating a 13A switched socket outlet and fitted with pilot lamps as AB	NO	1		
E	Cooker connection unit capable of terminating 2x10mm ² conductors as Crabtree Cat No. 4506	NO	1		
F	20A double pole switch with neon indicator for water heater as CRABTREE HSO1/AB	NO	3		
G	Adaptable box of size 300x300x75mm made out of 18 gauge and for power and telephone reticulation	No	1		
H	13Amps single switched socket outlet plate and as CRABTREE HO 1/AB	NO	2		
I	13Amps twin switched socket outlet plate and as CRABTREE HO 2 /AB	NO	5		
J	Twin TV/FM outlet plate as brass and as CRABTREE HTV 2/AB	NO.	1		
K	Data/Voice outlet plate as brass and as CRABTREE HTEL1MJ or AB RJ11 TWIN	NO.	2		
L	Single screwless blanking cover in antiques brass finish as AB	NO.	8		
M	Twin screwless blanking cover in antiques brass finish as AB	NO.	4		
TOTAL CARRIED FORWARD TO COLLECTION					

COLLECTION PAGE FOR PAVILION

ITEM NO.	DESCRIPTION	TOTAL KSHS.
1 2 3 4	TOTAL BROUGHT FORWARD FROM: - PAGE 22 PAGE 23 PAGE 24 PAGE 25	
TOTAL CARRIED FORWARD TO SUMMARY PAGE		

BASEMENT ELECTRICAL INSTALLATIONS

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
	Supply, install and set to work the following:-				
A	Lighting points, wired using 3 x 1.5mm ² single core PVC insulated Copper cables drawn in 20mm diameter heavy gauge conduit concealed in floor and roof space for one way switching but excluding the fittings and switches for one/two way switching	NO.	30		
B	13Amps single switched socket outlet point, wired using 3 x 2.5mm ² single core PVC insulated copper cables drawn in 20mm diameter PVC heavy gauge conduits concealed in the floors and roof space but without the outlet plate.	NO	4		
C	Ditto but twin	NO	10		
D	Data/Voice outlet point with a draw-wire left inside 25mm dia. PVC heavy gauge conduits concealed in the floor and walls but without the outlet plate.	NO.	3		
E	TV coaxial cable outlet point with a draw-wire left inside 25mm dia. PVC heavy gauge conduits concealed in the floor and walls but without the outlet plate.	NO.	4		
F	Speaker outlet point with a draw-wire left inside 25mm dia. PVC heavy gauge conduits concealed in the floor and walls but without the outlet plate.	NO.	12		
G	Security alarm outlet point with a draw-wire left inside 25mm dia. PVC heavy gauge conduits concealed in the floor and walls but without the outlet plate.	NO.	3		
H	8 Way SP&N Consumer Unit for flush mounting incorporating 100A DP integral isolator, lockable cover and labeling but without MCB and as Sapphire screwless	NO.	1		
	Miniature circuit breakers (MCBs) rated at 500Vac for above items				
I	10A (SP) as Schneider	NO.	2		
J	30A (SP) as Schneider	NO.	2		
K	20A (SP) as Schneider	NO.	2		
L	Blanking plates for items above	NO.	1		
TOTAL CARRIED FORWARD TO COLLECTION					

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
A	Cooker circuit included being a cooker connection point, wired using 3x6mm ² Single core copper cable drawn in 25mm dim. PVC heavy gauge conduits, but for excluding the cooker control connection units.	NO	1		
B	2C, 10MM ² PVC/SWA/PVC Copper cables for Consumer unit in DSQ from DB "A"	LM	40		
C	Supply and install sub main conduits of size 38mm dia. From DB "A" to CU's and to sauna/steam room	LM	50		
D	Undersink Heater/Water heater outlet point, wired using 3 x 4mm ² single core PVC/SWA/PVC insulated copper cables drawn in 20mm diameter PVC heavy gauge conduits concealed in the floors and roof space but without the outlet plate	NO.	1		
	10 Amps rated moulded plate switches for flush mounting and as CRABTREE				
E	One gang one way as CRABTREE H20S11 /AB	NO.	3		
F	One gang two way as CRABTREE H20S21 /AB	NO.	1		
G	Three gang two way as CRABTREE H20S23 /AB	NO.	2		
	Lighting fittings as shown in the drawings complete with tubes and lamps				
H	Elegant 2 arm wall bracket as Mantra 0358 TYPE A	NO.	6		
I	Imperial two-bulb ceiling fixture finish as EGLO 82741 TYPE B	NO.	8		
J	150 dia LED surface mount downlights	NO.	20		
TOTAL CARRIED FORWARD TO COLLECTION					

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
A	Electric photocell as THORN CAT NO. QPK	NO.	1		
B	Speaker Outlet plate as MK	NO.	12		
C	45A rated cooker control unit incorporating a 13A switched socket outlet and fitted with pilot lamps as AB	NO	1		
D	Cooker connection unit capable of terminating 2x10mm ² conductors as Crabtree Cat No. 4506	NO	1		
E	20A double pole switch with neon indicator for water heater as CRABTREE HSO1/AB	NO	3		
F	Adaptable box of size 300x300x75mm made out of 18 gauge and for power and telephone reticulation	No	1		
G	13Amps single switched socket outlet plate and as CRABTREE HO 1/AB	NO	4		
H	13Amps twin switched socket outlet plate and as CRABTREE HO 2 /AB	NO	10		
I	Twin TV/FM outlet plate as brass and as CRABTREE HTV 2/AB	NO.	4		
J	Data/Voice outlet plate as brass and as CRABTREE HTEL1MJ or AB RJ11 TWIN	NO.	3		
K	Single screwless blanking cover in antiques brass finish as AB	NO.	8		
L	Twin screwless blanking cover in antiques brass finish as AB	NO.	4		
TOTAL CARRIED FORWARD TO COLLECTION					

COLLECTION PAGE FOR BASEMENT/BAR

ITEM NO.	DESCRIPTION	TOTAL KSHS.
1 2 3	TOTAL BROUGHT FORWARD FROM: - PAGE 27 PAGE 28 PAGE 29	
TOTAL CARRIED FORWARD TO SUMMARY PAGE		

GAZEBO/ABLUTION BLOCK ELECTRICAL INSTALLATIONS

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
	Supply, install and set to work the following:-				
A	Lighting points, wired using 3 x 1.5mm ² single core PVC insulated Copper cables drawn in 20mm diameter heavy gauge conduit concealed in floor and roof space for one way switching but excluding the fittings and switches for one/two way switching	NO.	32		
B	13Amps single switched socket outlet point, wired using 3 x 2.5mm ² single core PVC insulated copper cables drawn in 20mm diameter PVC heavy gauge conduits concealed in the floors and roof space but without the outlet plate.	NO	4		
C	Ditto but twin	NO	10		
D	Data/Voice outlet point with a draw-wire left inside 25mm dia. PVC heavy gauge conduits concealed in the floor and walls but without the outlet plate.	NO.	2		
E	TV coaxial cable outlet point with a draw-wire left inside 25mm dia. PVC heavy gauge conduits concealed in the floor and walls but without the outlet plate.	NO.	1		
F	Speaker outlet point with a draw-wire left inside 25mm dia. PVC heavy gauge conduits concealed in the floor and walls but without the outlet plate.	NO.	4		
G	Security alarm outlet point with a draw-wire left inside 25mm dia. PVC heavy gauge conduits concealed in the floor and walls but without the outlet plate.	NO.	1		
H	6 Way SP&N Distribution Board for flush mounting incorporating 63A DP integral isolator, lockable cover and labeling but without MCB and as Sapphire screwless	NO.	2		
	Miniature circuit breakers (MCBs) rated at 500Vac for above items				
I	10A (SP) as Scheneider	NO.	2		
J	30A (SP) as Scheneider	NO.	2		
K	20A (SP) as Scheneider	NO.	2		
L	Blanking plates for items above	NO.	4		
TOTAL CARRIED FORWARD TO COLLECTION					

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
A	2C, 10MM2 PVC/SWA/PVC Copper cables for Consumer unit in Gazebo and Ablution Block	LM	220		
B	Supply and install sub main conduits of size 38mm dia. From AB to CU's	LM	60		
C	Undersink Heater/Water heater/Hand drier outlet point, wired using 3 x 4mm2 single core PVC/SWA/PVC insulated copper cables drawn in 20mm diameter PVC heavy gauge conduits concealed in the floors and roof space but without the outlet plate	NO.	1		
	10 Amps rated moulded plate switches for flush mounting and as CRABTREE				
D	One gang one way as CRABTREE H20S11 /AB	NO.	7		
E	One gang two way as CRABTREE H20S21 /AB	NO.	3		
F	Three gang two way as CRABTREE H20S23 /AB	NO.	2		
	Lighting fittings as shown in the drawings complete with tubes and lamps				
G	Elegant 2 arm wall bracket as Mantra 0358 TYPE A	NO.	2		
H	Imperial two-bulb ceiling fixture finish as EGLO 82741 TYPE B	NO.	8		
I	One light low energy ceiling light in wet areas chrome finish as EGLO 90448 TYPE E	NO.	6		
J	Caspian Polypropylene wall mounted security lights as EGLO 87184 TYPE G	NO.	10		
K	1200MM LED Fluorescent fitting as Robus	NO.	6		
TOTAL CARRIED FORWARD TO COLLECTION					

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
A	Electric photocell as THORN CAT NO. QPK	NO.	1		
B	Speaker Outlet plate as MK	NO.	4		
C	20A double pole switch with neon indicator for water heater as CRABTREE HSO1/AB	NO	3		
D	Adaptable box of size 300x300x75mm made out of 18 gauge and for power and telephone reticulation	No	1		
E	13Amps single switched socket outlet plate and as CRABTREE HO 1/AB	NO	4		
F	13Amps twin switched socket outlet plate and as CRABTREE HO 2 /AB	NO	10		
G	Twin TV/FM outlet plate as brass and as CRABTREE HTV 2/AB	NO.	1		
H	Data/Voice outlet plate as brass and as CRABTREE HTEL1MJ or AB RJ11 TWIN	NO.	2		
I	Single screwless blanking cover in antiques brass finish as AB	NO.	8		
J	Twin screwless blanking cover in antiques brass finish as AB	NO.	4		
TOTAL CARRIED FORWARD TO COLLECTION					

COLLECTION PAGE FOR GAZEBO AND ABLUTION BLOCK

ITEM NO.	DESCRIPTION	TOTAL KSHS.
1 3 4	TOTAL BROUGHT FORWARD FROM: - PAGE 31 PAGE 32 PAGE 33	
TOTAL CARRIED FORWARD TO SUMMARY PAGE		

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
	<u>SECURITY ALARM SYSTEM FOR WHOLE HOUSE</u>				
A	Passive infrared motion sensor	NO	18		
B	Aritech vibration sensors	NO	20		
C	Aritech vibration analyzer	NO	4		
D	Magnetic door contact	NO	12		
E	Flasher unit/Siren 25watts	NO	2		
F	12 volts Battery	NO	1		
G	Siren box complete with temper proof switch	NO	1		
H	Cable multi-strand 8 core	ROLLS	4		
I	Programable Control Panel with possibility of isolating any detector or arming of any detector	NO	1		
J	Remote Panic kit	NO	3		
K	Panic buttons	NO	14		
L	Alarm Key Pad	NO	2		
M	Conventional heat detectors Model No. MFR730	No.	4		
N	Any other materials for completing the works, Specify	item	item		
TOTAL CARRIED SUMMARY PAGE					

PROPOSED RESIDENTIAL HOUSE DEVELOPMENT FOR KILIFI COUNTY SPEAKER

EXECUTIVE SUMMARY PAGE

ITEM NO.	DESCRIPTION	TOTAL KSHS.
	TOTAL BROUGHT FORWARD FROM: -	
1	PRELIMINARIES AND GENERAL CONDITIONS	
2	GROUND FLOOR	
3	FIRST FLOOR	
4	SITE PLAN AND COMPOUND LIGHTING	
5	SERVANTS QUARTER	
6	PAVILLION	
7	BASEMENT/BAR THEATRE	
8	GAZEBO AND ABLUTION BLOCK	
9	SECURITY ALARM INSTALLATION	
10	FIRE ALARM DETECTION AND ALARM SYSTEM	
11	PC SUM FOR SATELITE DISH INSTALLATION	98,500.00
12	PROVISIONAL SUM FOR SOLAR LIGHTING	350,000.00
13	PC SUM FOR CCTV INSTALLATION AT GATE HSE AND COMPOUND	400,000.00
14	PC SUM FOR 1 NO.100KVA GENERATOR	1,850,850.00
15	PC SUM FOR 1 NO. 100KVA AVR	1,200,000.00
16	PROVISIONAL SUM FOR POWER SUPPLY	300,000.00
17	CONTINGENCY	1,200,000.00
TOTAL CARRIED TO FORM OF TENDER		

Total in words:

Name of Contractor:

Address:

Telephone:.....

Pin. No. Vat Reg. No.

Signature:

Official Stamp/Date: