

APPENDIX I
TENDER NO. KPI/9A.2/07/23-ADMIN/17-18

PART NO."4"

TRADE PREAMBLES

KENYA POWER

PART NO. 4

TRADE PREAMBLES

1.00 GENERALLY

- .01 Unless otherwise stated the whole of the Main Contract Works shall be carried out in accordance with the Ministry of Works (M.O.W.) General Specifications for Building Works 1976 Edition together with any amendments thereto and all references in this Section are to this document.
- .02 The whole of the Works shall be carried out in accordance with the drawings listed in the Schedule of Drawings appearing in these Bills of Quantities and any further drawings issued in amplification thereof.
- .03 This Section shall be known as the Specification and shall be held to include the Special Notes on Page A1 and the General Preliminaries on B1 – 22 of the M.O.W. General Specifications.
- .04 These Trade Preambles are intended to supplement, amplify or amend the Clauses in the M.O.W. General Specification, or select therefrom specific provisions applicable to this Contract.
- .05 These Trade Preambles shall take precedence over the M.O.W. General Specifications.

2.00 SITE COPY

- .01 The Contractor is instructed to purchase two (2) copies of the above General Specification from the Ministry of Lands, Housing & Urban Development - State Department of Public Works and to retain one copy in the site office at all times.

3.00 APPLICATION

- .01 These Trade Preambles shall apply to all Bill items for Building Works contained in the following Bills of Quantities and to any works instructed by the Project Manager including all works covered by P.C. and Provisional Sums and the rates and Lump Sum tenders for all items shall include for complying in all respects with these Trade Preambles and their provision.

4.00 TERMS

- .01 Where the terms “D.R.” occurs in the M.O.W. General Specification this shall be taken to mean the “Project Manager”.
- .02 Where the term “Ministry of Works” occurs in the M.O.W. General Specification this shall be taken to mean the “Employer” or the “Project Manager” whichever is the more appropriate.

5.00 MANUFACTURER’S NAME

- .01 Manufacturer’s names and catalogue references are given solely as a guide to quality and alternative manufacturers of materials or goods of equivalent quality will be accepted at the discretion of the Project Manager.

PART NO. 4 (Ctd.)TRADE PREAMBLES (Ctd.)6.00 DEMOLITIONS

- .01 The Trade Preambles given in Pages C1 – C5 shall apply where appropriate.
- .02 All such work shall where required by the Contract and authorised by the Project Manager to be carried out with maximum precautions for safety and to avoid or minimise damage or disturbances to the adjacent buildings, areas, materials and occupants.
- .03 Every effort shall be made to carry out such work carefully and in such manner and by such means as to ensure the minimum breakage or damage to the works to be so taken down or dismantled and to ensure the maximum recovery of materials arising from these operations.
- .04 All materials so recovered from taking down and dismantling shall become the property of the Employer. Unless otherwise directed by the Project Manager, the Contractor shall hand over to the Employer such items immediately they are taken down or dismantled.
- .05 Such materials may only be reused for incorporation in the works by agreement with the Project Manager.
- .06 The Contractor shall allow for erecting, maintaining and later removing all scaffolding, shoring or temporary works in connection with the demolition works, for making good all work disturbed in all trades and for removing all rubbish from the site as the works proceed.
- .07 Supply, erect and maintain during the cutting of openings, etc. all necessary protection to the existing premises against damage by weather or other causes.
- .08 Allow for laying the dust as far as possible during the demolition by watering with a hose or other means.
- .09 Tenderers are advised to visit the site to ascertain the nature of demolitions and duntakings to be carried out and to clarify with the Project Managers all matters related to the works.

7.00 EXCAVATIONS AND EARTHWORKS

- .01 The Trade Preambles given in Pages D1-D11 shall apply.
- .02 The surface strip excavation of the vegetable top soil shall be 200mm deep over the whole area of the buildings in accordance with Clause 0725 and the excavated material shall be deposited separately in spoil heaps well away from other excavated material in accordance with Clause 0784.
- .03 Excavations for wall foundations shall be taken down to firm ground to the approval of the Project Manager and the bottom well rammed and approved before concreting. The width of the foundation shall comply with Clause 0722 on Page D6.
- .04 The actual depth of the foundation trenches shall be determined on site.

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7.00 EXCAVATIONS AND EARTHWORKS (Ctd.)

- .05 Insecticide treatment shall be "Termidor" or other equal and approved and shall be carried out in accordance with Clause 0827 and 0859. The bottoms of all excavations shall be **treated** with anti-termite insecticide treatment in accordance with the manufacturer's recommended instructions. The Contractor shall provide a Ten-year guarantee for all such treatment from an approved firm.
- .06 Backfilling around foundations is to be carried out with selected excavated or other imported materials in accordance with Clauses 0700 and 0735. The backfilling will be free **from** clay or vegetable soil and well rammed around foundations.
- .07 Disposal of surplus excavated material shall be in accordance with Clauses 0612 and 0782.
- .08 The vegetable soil from the surface strip is to be spread and levelled on site as directed and prepared to receive grass.
- .09 Explosives must not be used without the prior approval of the Project Manager and if authorised must be carried with Clause 0628 as specified.
- .10 Planking and strutting to excavations shall be provided in accordance with Clause 0733 and shall be deemed to be included in the Tender Price and the Tenderer's rate for excavation.
- .11 Disposal of water shall be as specified in Clauses 0770 to 0775.
- .12 Hardcore filling to make up levels under floors shall be in accordance with Clauses 0810 to 0874 and minimum 200mm thick.
- .13 The hardcore filling is to be of clean hard stone broken from 150mm gauge downwards well packed rolled and consolidated to the satisfaction of the Project Manager in accordance with Clauses 0185 and 0868 or 0869 as required.
- .14 The hardcore filling is to be blinded with approved stone quarry dust or approved quality murrum well watered and rammed and finished smooth to receive concrete flooring, all in accordance with Clause 0871 and approved chemical anti-termite treatment applied to surface of hardcore to be executed by the Main Contractor as before described under a written ten year **guarantee**.
- .15 One layer 1000 gauge polythene sheeting is to be laid over the area of the hardcore and through the walls in accordance with Clauses 1105 and 1312. Care must be taken to ensure that the hardcore bed is perfectly smooth before laying the sheeting. Extent of laps shall be minimum 300mm. Labour forming battering faces shall be allowed for.
- .16 The Ground Floor level is to be decided on site but should be an average of **400mm** above existing ground level.
- .17 The whole site and excavations in particular are to be kept free from water and mud by bailing or pumping as required.

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8.00 CONCRETE WORK

- .01 The Trade Preambles given in Pages F1 – F34 shall apply.
- .02 The whole of the concrete work shall be carried out in accordance with the Structural Engineer's drawings and to his satisfaction.
- .03 The Contractor shall use "Guaranteed Strength" concrete in accordance with the Engineer's requirements.
- .04 Concrete test cube will be required and should be prepared in accordance with the procedure laid down in Clause 282 on Page F15.
- .05 Volume batching of sand and aggregate will be permitted in accordance with Clause 1165. The gauge boxes must be manufactured of steel as directed by the Project Manager and must be kept thoroughly clean at all times and in good repair. Failure to do so may result in the Project Manager directing that all measuring will be by weight batching in accordance with Clause 1167.
- .06 Extreme care must be taken in the storage of all concreting materials on site in accordance with Clauses 1132 and 1134. No materials which have become contaminated or intermixed in any way will be allowed to be used in the works. Special care is necessary to ensure that no soil become mixed with the aggregates or sand.
- .07 All construction joints shall be formed and treated strictly in accordance with Clauses 1360 to 1369 as directed by the Project Manager.
- .08 "Fair faced" concrete finish, if required, will be as defined in Clause 1415.
- .09 Concrete curing to vertical or inclined surfaces shall be carried out by methods 1 and 3 as described in Clause 1385 and as directed by the Project Manager.
- .10 Generally, wall foundations, floor beds and superstructure concrete work shall be in concrete (1:1½ :3 Class 25/20mm) mix reinforced as in the Structural Engineer's drawings.
- .11 Formwork shall be sawn timber of approved quality except where fair face finish is required in which case wrot formwork shall be used. The formwork shall be closely laid to prevent leakage of the cement and water content of the concrete.
- .12 Steps in concrete foundations where required should be of 225mm depth or its multiple and the overlap along the length must not be less than the width of the foundation. The location of any steps required will be decided on site.
- .13 Fabric reinforcement shall be as indicated on the Engineer's drawings and shall be to B.S. 4483 with minimum 300mm side and end laps. Allowance for laps under partitions shall be allowed for.
- .14 The Tenderer shall allow in his tender price for providing reinforcement to concrete works as indicated in the Structural Engineer's drawings.

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8.00 CONCRETEWORK (Ctd.)

- .15 Precast concrete shall be in accordance with the Pages F33 – F34 and in class 20/12mm to Project Manager's details and approval.
- .16 Mild steel reinforcement shall be to B.S. 4499 and high tensile reinforcement to B.S. 4461, all in accordance with the Engineer's Bending Schedules.
- .17 Joints in concrete work where shown on the drawings shall be 12mm thick "Flexcell" fibre-board or other approved joint with exposed surfaces sealed with "Plastic" sealant.

9.00 WALLING

- .01 The Trade Preambles given in Pages G1 – G15 shall apply.
- .02 All foundation walling shall be in natural stones.
- .03 Unless otherwise stated, all load bearing walling shall be in local natural stone. Internal walling may be in solid concrete block walling complying with the Clauses 2220-2346.
- .04 Vertical d.p.c. is to be provided to walling where shown on the drawings or to the Project Manager's and Engineer's instructions.
- .05 If required, louvred block walling shall be in decorative precast concrete louvred blocks to the approval of the Project Manager.
- .06 Substructure walling shall be bedded, jointed and pointed in cement and sand mortar (1:3).
- .07 The mortar to be used for superstructure walling shall be composed of one part cement to one part lime and six parts sand (1:1:6) measured in gauge boxes and thoroughly mixed dry preferably with an approved mechanical mixer or on a clean and approved mixing platform with water added afterwards until all parts are completely incorporated and brought to a proper consistency and used within the hour. No partially or wholly set mortar will be allowed to be re-used or re-mixed. Clauses 2110 to 2136 shall apply.
- .08 All walls 150mm thick and less shall be reinforced with 25mm hoop iron 20 s.w.g. in every alternate course.
- .09 Where walls are built up under existing lintels, beams or roof slabs, care shall be taken to ensure that the top course shall be completely filled up with cement mortar and pinning and keying to the underside of existing surfaces shall be done with approved wedging materials well driven in.
- .10 Where applicable, all new walling is to be cut, toothed and bonded into existing walls and any damages or cracked portions of adjoining walling shall be made good or replaced with new work.
- .11 Damp proof courses to walls shall be Hessian based bitumen felt or other equal and approved not less than 3.9kg per square metre in one layer and shall be laid and bedded in cement mortar as before described to all walling at ground floor level.

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10.00 ASPHALT WORK AND WATERPROOFING

- .01 The Trade Preambles given on Pages J1-J4 shall apply.
- .02 All mastic asphalt work shall be carried out by an approved Sub-contractor in accordance with Clause 2881. Any tanking shall be carried out in accordance with the manufacturer's printed instructions.
- .03 A One year Guarantee for all asphaltic work shall be provided in accordance with Clause 2888.
- .04 Horizontal and vertical asphalt tanking shall be carried out in accordance with Clause 2888.
- .05 Asphalt tanking shall comply with Clause 2824 and 2941.
- .06 Isolating membranes shall comply with Clauses 2852, 2908 and 2943.
- .07 Internal angles at junctions of horizontal and vertical tankings and turning-in of vertical tanking at top edge shall be carried out in accordance with Clauses 2955 and 2956 respectively.
- .08 Preparation of surfaces to receive tankings shall be carried out in accordance with Clauses 2891, 2894, 2896, 2902 and 2912.
- .09 Internal angles at junctions of horizontal and vertical tankings and turning-in of vertical tanking at top edge shall be carried out in accordance with Clauses 2955 and 2956 respectively.
- .10 Preparation of surfaces to receive tanking shall be carried out in accordance with Clauses 2891, 2894, 2896, 2902 and 2912.
- .11 The waterproofing agent to waterproofed cement sand screeds and plasters to swimming pool shall be "Sika-1" waterproofing compound. The concrete used for the construction of the swimming pool shall be mixed with Sika-Plastocrete – N waterproofing compounds. Both "Sika-1" and "Sika Plastocrete – N" waterproofing compounds are available from, several suppliers in Nairobi or other equal and approved compound. The normal rate of application of the "Sika 1" compound is 1 part of "Sika 1" to 10 parts of clean mixing water. The mixing of the "Sika 1" compound and water, cement and sand and the application of the screeds, including the number of coats to be applied shall all be carried out in accordance with the manufacturer's instructions as set out in their latest catalogue. The waterproofing additive shall comply with Clause 7165.
- .12 Construction joints in swimming pool shall have p.v.c. water bars. The water bars shall be fixed in accordance with the manufacturer's printed instructions.

PART NO. 4 (Ctd.)TRADE PREAMBLES (Ctd.)11.00 ROOFING

- .01 The Trade Preambles given in Pages K1-K19 shall apply.
- .02 The roof covering to roofs of sheds, shades, and the like unless otherwise specified in the Bill of quantities shall be 26 gauge pre-painted box profile roof sheeting fixed to mild steel zed purlins using galvanised J-Bolts and plastic washers. The washers and bolts shall comply with Clauses 3223 and 3224 respectively.
- .03 Rainwater down-pipes and fittings shall generally be supplied and fixed in accordance with Clauses 6111-6239.
- .04 All metal flashings, valley gutters and linings shall be of approved gauge pre-painted iron sheet metal made up and fixed in the best approved manner in accordance with Clauses 3620-3696.
- .05 Copings shall be in precast concrete and shall comply with Clauses 1770-1868. The mortar for bedding shall be cement and sand (1:4) and comply with Clauses 210-2136.
- .06 Covering to pitched roofs of public areas and bedroom blocks in hot areas like Mombasa and the like shall be "Harvey Thatch" roof tiles. The tiles and fittings shall comply with Clause 3122. The tiles shall be laid in accordance with the manufacturers printed instructions and to the approval of the Project Manager.
- .07 All verge tile, half tiles and ridge tiles shall be "Harvey Tiles" or other equal and approved tiles to match the roof tiles and shall be laid and fitted in accordance with the manufacturer's printed instructions and to the approval of the Project Manager.
- .08 Softwood tiling battens shall comply with Clause 3102. They shall be fixed to timber rafters in accordance with Clause 3155.
- .09 The polythene underlay shall be 1000 gauge and shall comply with Clause 3115. The underlay shall be laid in accordance with Clause 3152. The nails for fixing underlay shall comply with Clause 3137.
- .10 Matching accessories (ridges, ventilators etc.) shall also be provided to match roof sheets profile.
- .11 Polystyrene or other equal and approved type of filler blocking pieces where applicable shall be provided and secured with adhesive between both flanges of the ridging and the roof sheeting in order to block up the gaps within the corrugations. The Polystyrene shall comply with Clauses 3208.
- .12 All sundry materials for the roofing shall comply with Clauses 3140-3148.

PART NO. 4 (Ctd.)TRADE PREAMBLES (Ctd.)12.00 CARPENTRY

- .01 The Trade Preambles given in Pages L1-L13 shall apply.
- .02 The timber for carpentry work generally is to be Grade H sawn or wrot cypress or podocarpus of approved moisture content in accordance with Section 3720 and shall be treated with preservative and specified in Clause 3728.
- .03 The lower ends of all structural timber members shall be coated with bitumen before building into foundations, walling etc.
- .04 All structural joints shall be to the design and approval of the Structural Engineer and cut ends shall be treated as described in the foregoing before being put together. All joints shall be bound with hoop iron.
- .05 A Certificate of Treatment shall be provided in accordance with Clause 3730.

13.00 JOINERY

- .01 The Trade Preambles given in Pages M1-M21 shall apply.
- .02 Softwood timber where required is to be Select (Prime Grade) wrot cypress of approved moisture content in accordance with Clause 4032 and treated with preservative as above.
- .03 Hardwood timber generally is to be prime grade mahogany of approved moisture content and treated with preservative as above.
- .04 All items of joinery shall have pencil rounded arises for protection against damage and for bedding frames and cills in cement and mortar.
- .05 Holes for plugs shall be formed by using masonry drills and fitting with proprietary plugs of the correct size, cutting holes with hammer and chisel will not be permitted.
- .06 The joinery fittings are to be made up in the best approved manner in accordance with Clauses 3670-4691 and shall be manufactured to the Project Manager's details.
- .07 Samples of each type of joinery fixtures have to be approved by the Project Manager before manufacturing of further items and the Project Manager shall be given Notice of the workshops where these are to be manufactured so that if required these can be inspected during manufacture and before delivery to the site.
- .08 Doors, door frames, fanlight frames, architraves and beads shall be provided in accordance with the Project Manager's Door Schedule.
- .09 Flush doors shall be solid cored faced on both sides with imported plywood and **hardwood** lipped on all edges and shall comply with Clause 4564 and hung in accordance with Section 4640.
- .10 Glazed panels in doors shall be in accordance with the Project Manager's drawings.

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- .11 Frames, linings, architraves and beads to flush doors shall be in wrot mahogany and shall comply with Clauses 4512 and 4624.
- .12 All door frames shall be fixed to walls using mild steel cramps.
- .13 Ironmongery for the works shall be fitted and fixed in the best approved manner in accordance with Clauses 4850-4898.
- .14 The fixing of ironmongery will be deemed to include for fixing with matching screws including cutting, sinking, boring morticing and fitting the ironmongery, removing before and refixing after painting and labelling and safe-guarding the keys to each lock.
- .15 All ironmongery shall be tested and be fully operative before the handing over of the works.
- .16 Generally all doors shall have ironmongery as indicated in the Door Schedule.
- .17 Joinery fittings to cupboards, drawers and associated ironmongery shall be provided in accordance with the Project Manager's details.
- .18 All ironmongery, veneer and laminated plastic sheeting shall be selected by or be subject to the approval of the Project Manager.
- .19 Veneered blockboard shall comply with Clauses 4065 and 4067 and shall be fixed in accordance with Sections 4160 and 4400.
- .20 Blockboard shall comply with Clauses 4057 and 4056 and shall be fixed in accordance with Section 4400.
- .21 Laminated plastic sheeting shall be "Formica" or other equal and approved plastic sheeting of an approved colour and texture and shall comply with Clause 4079 and shall be fixed in compliance with Clause 4168 and Section 4400.
- .22 Adhesive generally shall comply with Clauses 092 to 4096, 4162 and 4414.
- .23 Shelves shall be 25mm thick blockboard lipped on exposed edges with hardwood lipping, all in accordance with Clause 467 and shall be fixed to metal bearers in accordance with the Project Manager's drawings.

14.00 METALWORK

- .01 The Trade Preambles given in Pages P1-P11 shall apply.
- .02 All windows shall be purpose made large-pane Z-section steel casement glazed.
- .03 All windows shall be in accordance with the Project Manager's Schedule of Windows.
- .04 All steelwork shall be mild steel to B.S. 4360 Grade 43B and B.S. 449.

TRADE PREAMBLES (Ctd.)

14.00 METALWORK (Ctd.)

- .05 All steelwork shall be finished with one coat of zinc chromate and two coats of red oxide paint as specified in Clause 5911 prior to erection.
- .06 Steel and aluminium sections shall conform to Section 5530.
- .07 Fasteners and stays for the steel windows shall be of imported quality brass.
- .08 Aluminium frames shall conform to Clause 5917.
- .09 All aluminium sections shall comply with Clauses 5551 and 5553.
- .10 Aluminium sheets and plates shall comply with Clause 5591.
- .11 Fastenings for aluminium sections shall conform to Clauses 5671, 5618 and 5921.
- .12 All window frames shall have permanent vent slots as described with wire mesh mosquito proofing as Clause 5576.
- .13 Welding to aluminium will conform to Clause 5701.
- .14 All welds shall be neatly executed in accordance with Section 5680.
- .15 Bolts, screws, nuts and washers shall match the material of the section being secured and shall comply with Clauses 5622 and 5625. All holes for fixing screws shall be counter-sunk.
- .16 The fixing of metal windows shall include for assembling parts, bedding and pointing in mastic, building in fixing lugs and plugging, fitting and adjusting handles and fasteners on completion.
- .17 Metal window frames shall be bedded in an approved bedding compound in conformity with Clause 935 and shall be neatly pointed all round on completion with approved pointing sealant in compliance with Clause 5937 and left clean to the approval of the Project **Manager**.
- .18 Plugs shall conform to Clause 5927.

15.00 STRUCTURAL STEELWORK

- .01 The Trade Preambles given in Pages N1-N19 shall comply.
- .02 The Project Manager may require all structural steelwork to be carried out by an approved Sub-Contractor in accordance with Clauses 5002 and 5091.
- .03 All steel sections shall be hot rolled to comply with Clauses 5030 – 5036.
- .04 Steel plates shall comply with Clause 5052.
- .05 Bolts, nuts and washers shall comply with Clauses 5064.
- .06 Rag bolts and nuts shall comply with Clauses 5068.

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15.00 STRUCTURAL STEELWORK (Ctd.)

- .07 Steel plates shall comply with Clause 5052.
- .08 Shop drawings shall be prepared and submitted in accordance with Clause 5147.
- .09 Fabrication of the structural steelwork shall conform to Clauses 5100-5147.
- .10 All welding work shall be carried out in accordance with Clauses 5150-5173.
- .11 Bolting and rivetting shall be carried out in accordance with Clauses 5190-5221.
- .12 All structural steel shall be hot dip galvanised in accordance with Clause 5236 and shop primed in accordance with Clause 5231 before delivery to site.
- .13 Erection shall be carried out in compliance with Clause 5240-5261.
- .14 Testing of all structural steelwork shall be carried out in accordance with Clause 5271.

16.00 MECHANICAL SERVICES INSTALLATIONS

- .01 The Trade Preambles given in Pages Q1-Q24 shall apply.
- .02 All the Mechanical Services installations shall be carried out by a nominated and /or domestic Sub-Contractor in accordance with the Drawings, Specifications and Bills of Quantities prepared by the Project Manager's Services Engineers.
- .03 The Main Contractor shall arrange and monitor a Programme for the work of the Sub-Contractor and for all other Sub-Contracts affected by them. The Main Contractor shall ensure that all work and Builder's Work in connection is carried out in a sequence which will allow under-floor drains, piping in ducts, chases and the like leading to or from all sanitary fittings, hot or cold water tanks, gully traps, vent pipes and the nearest manholes to be installed in their correct positions in order to minimise the amount of cutting of holes, chases, floor ducts, etc. as much as possible.
- .04 The Main Contractor shall carry out the Builder's Work in connection with the Sub-Contract including cutting or forming holes and chases and later making good.
- .05 The Trade Preambles on Pages Q4-Q8 will apply to rainwater pipes and gutters.
- .06 Rainwater downpipes and gutters and fittings shall comply with Clause 6121 and shall be fixed in accordance with Sections 6160 and 6190.
- .07 Roof outlets, gutter brackets, fixing and jointing materials shall be in accordance with Section 6140.
- .08 Testing of downpipes and gutters shall be carried out in accordance with Section 6230.

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17.00 ELECTRICAL INSTALLATIONS

- .01 The Trade Preambles given in Pages R1-R4 shall apply.
- .02 The Electrical Installation work shall be executed by Nominated and / or domestic Sub-Contractors in accordance with the Sub-Contract document prepared by the Project Manager's Electrical Services Engineer.
- .03 The Builder's Work in connection with Electrical Installation shall be carried out by the Main Contractor and the Trade Preambles given in Pages R1-R4 relating to this work shall apply.
- .04 The Main Contractor should particularly note the Clause 6906 on Page R1 relating to the Programme and sequence of works.
- .05 All necessary pipe ducts and the like shall be built in as directed by the Project Manager in readiness for the Electrical Sub-Contractor.
- .06 All conduits, junction boxes and other requirements shall be built into the concrete floor and roofing slabs where required and adequate notice shall be given to the Electrical Sub-Contractor and the Project Manager to enable these to be positioned before concreting.

18.00 FLOOR, WALL AND CEILING FINISHES

- .01 The Trade Preambles given on Pages S1-S25 shall apply.
- .02 Finishes generally shall be of the best quality and workmanship and to the approval of the Project Manager.
- .03 If required by the Project Manager a sample panel or panels of any particular finish shall be prepared for his approval and once approved shall form the standard for all similar finishes.
- .04 The joints between different finishes shall be neatly and cleanly executed to the approval of the Project Manager.
- .05 All adjoining surfaces shall be fully protected against any splashing or other damage and such protection shall be afterwards removed and all surfaces made good to the approval of the Project Manager.
- .06 Attention is drawn to Clause 7697 wherein it is specified that the Main Contractor is responsible for preparing all sub-floors, screeds and other backgrounds to the satisfaction of the Sub-Contractor and Project Manager. The Main Contractor must ensure that all such surfaces are smooth level or to required even falls and levels and any cracks or hollows shall be filled with approved levelling compound to the satisfaction of the Sub-Contractor and Project Manager.
- .07 The finishes shall be as per the schedule of finishes appended to these Bills of Quantities.
- .08 Cement and sand screed paving shall be treated with Sodium Silicate in accordance with Clauses 7177 and 7417.
- .09 The internal wall finish shall generally be cement, lime and sand (1:1:6) plaster.

TRADE PREAMBLES (Ctd.)

18.00 FLOOR, WALL AND CEILING FINISHES (Ctd.)

- .10 External wall finishes shall generally be of cement and sand (1:4) render.
- .11 Plastering and rendering shall be carried out in accordance with Clauses 7180-7307.
- .12 Soffits of concrete slabs and staircases shall generally be finished in minimum 12mm thick two-coat lime plaster and three coats plastic emulsion paint.
- .13 Sides and soffits of beams shall **generally** be finished in steel float plaster internally.
- .14 A neat "V"-groove shall be provided to all joints between plaster or render to walls and reinforced concrete element. 25mm x 30 s.w.g. hoop iron ties shall be cast into concrete elements at 500mm centres at all such joints to serve as ties for the walling.
- .15 Where specified "making good" shall include repairing and filling in cracks, interstices, holes etc. using an approved filler, rubbing or sanding down with sand paper or emery paper, **wire** brushing and generally restoring the work to match any similar approved work and preparing for repainting or receiving a new finish.

19.00 GLAZING

- .01 The Trade Preambles given on Pages T1-T6 shall apply.
- .02 All glazing shall be carefully executed by an approved Specialist Sub-Contractor.
- .03 Unless otherwise described, glazing to windows is generally 6mm thick clear sheet glass or obscure glass in accordance with Clauses 8326 and 8335 respectively.
- .04 Glazing shall be carried out in accordance with Clauses 8400-8417.
- .05 Glazing to metal windows and doors shall be carried out in accordance with Clauses 8420-8433 using first quality metal casement putty in accordance with Clause 8371.
- .06 All Puttying shall be neatly executed and all front and back puttying shall be to the full height of the frames and cut off cleanly with a putty knife and left perfectly smooth.
- .07 Glazing to timber doors and frames shall be carried out using hardwood **timber** beads in accordance with Clauses 8440-8461.
- .08 All exposed edges shall be rounded and polished in accordance with Clause 8382.
- .09 Glazing strips, channels and sealant compounds shall conform to Clause 8351.
- .10 Edge clearance and edge cover shall be in accordance with Clauses 8406 and 8407 **respectively**.
- .11 External glazing shall be weather tight in accordance with Clause 8402.

PART NO. 4 (Ctd.)TRADE PREAMBLES (Ctd.)19.00 GLAZING (Ctd.)

- .12 Mirrors shall be supplied and fixed in accordance with Clause 8347 and 8418.
- .13 All broken or damaged glass or mirrors shall be replaced before practical completion and the surrounds redecorated to the Project Manager's approval.

20.00 PAINING AND DECORATING

- .01 The Trade Preambles given in Pages U1-U8 shall apply.
- .02 The whole of the work shall be carried out by an approved painter whose name must be submitted for approval by the Project Manager in accordance with Clauses 8501,
- .03 The paint treatment and colour will be selected by the Project Manager and shall be carried out to the full satisfaction of the Project Manager.
- .04 Samples of primers, paints, varnishes and all other treatments to be used in the works shall be submitted to the Project Manager for approval before commencement.
- .05 All backs of timber frames to doors or other joinery surfaces adjoining masonry, concrete block or clay block walling shall be primed as described in Clauses 8512, 8755 and 8756.
- .06 The metal casement putty to all windows shall be primed with one coat approved aluminium primer as soon as the putty is dry, in preparation for finishes.
- .07 Plastered external wall surfaces generally shall be painted with three coats permaplast paint.
- .08 Internal walls are to be painted with three coats of plastic emulsion paint.
- .09 Ceilings are to be painted with three coats of plastic emulsion paint.
- .10 Surfaces of mahogany veneered flush doors and associated frames shall be primed and finished with three coats of two-pack polyurethane.
- .11 All hardwood timber work is to be varnished with three coats of two pack polyurethane varnish.
- .12 All paint shall be from an approved manufacturer.
- .13 All softwood and blockboard timber surfaces generally are to be painted with two undercoats and one finishing coat gloss oil paint.
- .14 All exposed steelwork shall generally be primed with a plumbatic primer and finished in two undercoats and one finishing coats of gloss oil paint.
- .15 All manhole covers shall be finished in one coat of black bituminous paint.

PART NO. 4 (Ctd.)TRADE PREAMBLES (Ctd.)20.00 PAINTING AND DECORATING (Ctd.)

- .16 All external wall plinths shall be finished in two coats of black bituminous paint.
- .17 Where cracks etc. in walling or plaster are repaired, the whole of the panel or "area affected shall be" repainted to the Project Manager's satisfaction.

21.00 EXTERNAL WORKS

- .01 The external works generally shall be carried out in accordance with the Foregoing Trade Preambles where applicable and the Trade Preambles given on Pages V1-V16 and Access Road 1 - Access Road 13.

22.00 DRAINAGE

- .01 The Trade Preambles on Pages V1-V11 shall apply.
- .02 Attention is drawn to items .01 to .03 of the foregoing Trade Preambles for Plumbing and Engineering Installations.
- .03 All excavations and backfilling in black cotton soil shall be carried out in accordance with Clause 9011, 9140 to 9155 and 9280 to 9298.
- .04 Excavations and backfilling in black cotton soil shall be carried out in accordance with Clause 9149. Selected fill shall be in accordance with Clauses 9103 No. 9195.
- .05 The topsoil shall be excavated, kept separate in spoil heaps, re-excavated and spread and levelled as described in Clauses 0691 and 0784.
- .06 Surplus material after backfilling shall be spread and levelled or otherwise disposed off as described in Clauses 0622 and 0782. Surplus rock shall be used as filling materials where directed or shall be removed from site if so directed.
- .07 Pipes are to be bedded and laid in trenches in accordance with Clause 9162 and 9164.
- .08 Pipes and fittings shall generally be Golden Brown unplasticised polyvinyl chloride (U.P.V.C.) pipes Class 41 to comply with B.S. 4660 (1973/78) and B.S. 3481 (1977). The joints shall be chamfered spigot and ring seal socket with elastomeric sealing ring in accordance with B.S. 2494 and Clauses 9032 and 9221.
- .09 Pipes under buildings, roads and parking areas where specified shall be cast iron spigot and socket pipes to comply with B.S. 4472 and in accordance with Clause 9051.
- .10 Beds and surround to pipes shall be in accordance with Clauses 9160-9199.
- .11 Drain pipes shall generally be bedded and surrounded in granular material in accordance with Clauses 9101, 9173 and 9174. P.V.C. pipes must not be surrounded with concrete.

PART NO. 4 (Ctd.)TRADE PREAMBLES (Ctd.)22.00 DRAINAGE (Ctd.)

- .12 Where directed pipes shall be bedded and surrounded in Type 'C' concrete bed and surround in accordance with Clauses 9132, 9178 and 9183. The concrete bed and surround shall comply with Clauses 9105 and 9167. Where the ground is of low bearing capacity, the concrete bed is to be reinforced in accordance with Clause 9197. The backfilling around pipes having a concrete bed and surround shall be in accordance with Clauses 9285 and 9281.
- .13 Gulley traps shall be bedded and surrounded in accordance with Clause 9199.
- .14 Manholes shall be constructed in accordance with Clauses 9240 to 9261. Cast iron manholes covers and frames shall comply with Clause 9081 and steps irons shall comply with Clauses 9087.
- .15 Concrete blocks for manholes and culvert headwalls shall be built in Group I cement/lime putty/sand mortar (1:1:3 mix) as in Clause 2114. Cement for mortar and internal render to manholes shall be sulphate resisting Portland Cement as Clause 1082. All exposed blockwork shall be rendered with cement and sand (1:5) mortar as Clause 7047.
- .16 Invert block drains and side slabs shall conform to Clause 9072 and shall be laid as specified on the drawings and directed by the Project Manager.
- .17 The banks to both sides of stormwater drains shall be cleared, trimmed and grassed in accordance with Clause 9155.
- .18 Culvert pipes shall be spun concrete pipes of the specified diameter having 'ogee' joints and shall comply with Clauses 9034 and 9072.
- .19 The testing of the drainage shall be carried out in accordance with Clauses 9270-9279.

23.00 ROADS AND PARKING AREA

- .01 The Trade Preambles given in Pages "Access Roads 1" to "Access Roads 13" shall apply to the service yard and road.
- .02 Materials generally shall be in accordance with Clauses 9630 to 9655 and 9730 to 9779.
- .03 Workmanship generally shall be in accordance with Clauses 9670 to 9716 and 9800 to 9895.

PROPOSED CHEMILIL SUBSTATION PERIMETER WALL	
BILL NO. 1	
<u>PRELIMINARIES</u>	
<u>PRELIMINARY PARTICULARS</u>	
A	<u>NAME OF PARTIES</u>
The "Employer" is :	Kenya Power & Lighting Co. Ltd P.O. Box 30099 - 00100 <u>NAIROBI</u>
The term	
The "Project Manager" is :	The Manager, Administration & Property, HR& Administration Kenya Power & Lighting Co. Ltd P.O. Box 30099 - 00101 <u>NAIROBI</u>
The "Project Officer " is :	The Kenya Power Projects Officer Administration & Property, HR& Administration Kenya Power & Lighting Co. Ltd P.O. Box 30099 - 00101 <u>NAIROBI</u>
The "Project Quantity Surveyor"	The Kenya Power Quantity Surveyor, Administration & Property, HR& Administration Kenya Power & Lighting Co. Ltd P.O. Box 30099 - 00101 <u>NAIROBI</u>
B	<u>SITE</u>
The site is located at within the precincts of Kisumu county at Chemilil township and around Chemilli sugar factory.	
The Contractor shall obtain the Project Manager's approval for the siting of all temporary buildings, spoil heaps, temporary paths and storage areas for materials.	
The Contractor shall visit the Site to acquaint himself with its nature and position, the nature of the ground, substrata and other local conditions, position of power and water supplies, access roads or any other limitations, and no claims for extras will be considered on account of lack of knowledge in this respect.	
The Contractor must obtain the Project Manager's approval and directions regarding the use of any materials found on the site.	
C	<u>ACCESS TO SITE</u>
Access to site shall be as directed by the Project Manager.	
Preliminaries	Carried to collection KShs.

A WORKING AND STORAGE SPACE

Working and storage space will be confined to the area designated by the Project Manager within the plot boundary.

B WORKING HOURS

The Work must be carried out to cause the minimum inconvenience to the occupants of the adjoining premises. In particular, no hammering, mechanical drilling or other unduly noisy work may be commenced before 8.00 a.m. or continued after 6.00 p.m. without prior approval of the Project Manager.

C DESCRIPTION OF THE WORKS

The Works comprise construction of perimeter wall, gate house, pit latrine and repairs of control room

- a) Construction of perimeter wall
- b) substructure reinforcement Concrete
- c) Superstructures reinforced Concrete
- d) Finishes include, keying, plastered and painted walls and several other finishes.
- e) Chain links fencing including concrete poles

D External Works

Limited to the perimeter wall as described above

Preliminaries

Carried to collection

KShs.

GENERAL MATTERS

SUFFICIENCY OF TENDER

A The Contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of this Tender for the Works and of the rates and prices stated in the Priced Bills of Quantities, which rates and prices shall cover all his obligations under the Contract and all matters and things necessary for the proper completion and maintenance of the Works.

STAMP CHARGES

The Contractor shall allow for the payment of all Stamp Charges in connection with the Surety and Contract Agreement.

DEFINITIONS AND ABBREVIATIONS

Terms used in these Bills of Quantities shall be interpreted as follows:

"Approved"	Shall mean approved by the Project Manager.
"as directed"	Shall mean as directed by the Project Manager.
"B.S."	Shall mean the current British Standard specifications published by the British Standards Institution, 2 Park Street, London W.1., England.
"C.M."	Shall mean Cubic Metres.
"S.M."	Shall mean Square Metres.
"L.M."	Shall mean Linear Metres.
"MM"	Shall mean Millimetres.
"Kg."	Shall mean Kilogramme.
"No."	Shall mean Number.
"M.S" or M/S	Shall mean Measured Separately
Ditto or Do	Shall mean the whole of the preceding description except as qualified in the description in which it occurs.

Preliminaries

Carried to collection

KShs.

MATERIALS AND WORKMANSHIP

A GENERALLY

All materials shall be new unless otherwise directed or permitted by the Project Manager and in all cases where the quality of goods or materials is not described or otherwise specified, is to be the best quality obtainable in the ordinary meaning of the word "best" and not merely a trade signification of that word.

All materials and workmanship shall, unless otherwise specified or described, conform to the appropriate British Standard Institution specification current at the date of tender.

The Contractor shall order all materials to be obtained from overseas immediately after the Contract is signed and shall also order materials to be obtained from local sources as early as necessary to ensure that such materials are on Site when required for use in the Works.

The Contractor shall be responsible for and shall replace or make good at his own expense any materials lost or damaged.

The Works throughout shall be executed by skilled workmen well versed in their respective trades.

B REJECTED WORKMANSHIP OR MATERIALS

Any workmanship or materials not complying with the specific requirements or approved samples or which have been damaged, contaminated or have deteriorated, must immediately be removed from the Site and replaced at the Contractor's expense, as required.

C PROPRIETARY MATERIALS

Where proprietary materials are specified herein-after the contractor may propose the use of materials of other manufacture but equal quality for approval by the Project Manager.

All materials and goods, where specified to be obtained from a particular manufacturer or supplier are to be used or fixed strictly in accordance with their instructions.

Preliminaries

Carried to collection

KShs.



D	<p><u>SAMPLES</u></p> <p>The Contractor shall furnish within the first two weeks of site take over and before work commences and at his own cost, any samples of materials or workmanship that may be called for by the Project Manager for his approval or rejection, and any further samples in case of rejection until such samples are approved by the Project Manager and such samples, when approved, shall be the minimum standard for the work to which they apply. Such approved samples shall be mounted on a sample board erected on site. The sample board shall be of minimum size 2400x1200mm high fabricated in RHS supports & framings minimum size 75x50x3mm secure from tampering with and including all necessary sample mounting bases & roof cover where required and available for quick reference during the entire period of the contract. The approved samples shall be mounted / applied using the correct methodology, edging and finish as per the bill of quantities; all to reflect the high quality workmanship that will be replicated on the permanent works. specific to this contract, the contractor shall be required to provide a sample wall averanging 6M long including expansion joint coping to walls, coping to columns, plaster work, paints works and razer wire, which may form part of the permanent works.</p>	
A	<p><u>CONCRETE TESTS</u></p> <p>Concrete test cubes, will not be required under these works; any concrete works Must be done in the presence of the Project Manager or his/her representative</p>	
B	<p><u>OTHER MATERIAL TESTS</u></p> <p>The Contractor shall allow for providing samples of all other materials such as reinforcement bars, building sand, cement, building stone, concrete blocks, hardcore, etc, that may be requested by the Project Manager or Engineer for testing. He shall allow for the delivery of the same to the testing Laboratory (ies)), pay the testing fees and any other costs that may be required and arrange for test certificates to be sent directly to the Project Manager or Engineer by the testing Laboratory. Under no circumstances will the Contractor be paid for such tests if he does not allow for that here</p>	
Preliminaries	Carried to collection	KShs.

TEMPORARY WORKS

A OFFICE AND SHEDS

The Contractor shall erect and maintain temporary office accommodation for his own use, and ample temporary watertight sheds for the proper storage and protection of materials and for the use of artisans and remove when ordered. Floors of sheds shall be at least 150mm above ground level.

B SANITATION

The Contractor shall provide the necessary latrines for his staff and workmen to the requirements and satisfaction of the Health Authorities and maintain the same in a thoroughly clean and sanitary condition and pay all conservancy fees during the period of the Works and remove when no longer required.

Preliminaries

Carried to collection

KShs.



A PLANT, TOOLS AND SCAFFOLDING

The Contractor shall provide all necessary hoists, tackle, plant, vehicles, tools and appliances of every description for the due and satisfactory completion of the Works and shall remove same on completion.

The Contractor shall provide, erect and maintain all temporary scaffolding, sufficiently strong and efficient for the due performance of the Works, including Sub-Contract works, provide special scaffolding as and when required during the Works and remove on completion and make good.

Such scaffolding shall be constructed of tubular steel or timber of sufficient scantlings and be provided with planked footways and guard-rails to approval.

All such plant, tools and scaffolding shall comply with all regulations whether general or local, in force throughout the period of the contract and shall be altered or adapted during the Contract as may be necessary to comply with any amendments in or additions to such regulations.

Scaffolding is not measured hereinafter, and the Contractor must allow here or in his rates for the above.

B EXISTING AND ADJACENT PROPERTY

The Contractor must take all steps necessary to safeguard existing and adjacent property, make good at his own expense any damage to persons or property caused thereon, and hold the Employer indemnified against any such claim arising.

The Contractor will be held fully responsible for the safety of the existing and adjacent buildings and for any damage caused in consequence of these Works. He must reinstate all damage at his own expense and indemnify the Employer against any loss.

The Contractor must take such steps and exercise such care and diligence as to minimise nuisance from dust, noise or any other cause to the occupiers of the existing and adjacent property.

C LABOUR CAMPS

No labour, with the exception of watchmen may be housed on the site and the Contractor shall allow for all transport and other charges in moving labour to and from site at such hours and by such routes as are permitted by the Authorities. The Contractor shall provide, erect and maintain satisfactory housing for the watchmen and shall remove same on completion of the works.

Preliminaries

Carried to collection

KShs.



A HOARDING

The Contractor shall enclose the Site with a hoarding 2.40 metres high, with openings and gates as required, constructed of substantial timbers to approval and covered with new Galvanised iron corrugated sheeting painted to approval.

B WATCHING AND LIGHTING

The Contractor shall provide at his own risk and cost all watching and lighting as necessary to safeguard the Works, plant and materials against damage and theft.

C TEMPORARY ROADS

The Contractor shall provide where directed all temporary access roads, tracks and paths necessary for the execution of the Works, including making good when no longer in use.

D SIGNBOARD

The Signboard and lettering on same for the display of the General and Sub-Contractor's names shall be of an approved size with the Employer's name painted thereon. The Project Manager's name shall be printed in letters not exceeding 100mm in height all to the Project Manager's design. No other signboard or advertising will be permitted.

NOMINATED SUB-CONTRACTORS AND SUPPLIERS

E NOMINATED SUB-CONTRACTORS

The Contractor shall be responsible for Nominated Sub-Contractors in every respect and in particular it shall be the Contractor's responsibility to ensure that each Sub-Contractor commences and completes the work in such manner and is ready on the Site with his materials, labour and special plant at such times so as to conform with the progress Schedule, as specified previously, and so ensure satisfactory progress.

The Contractor shall also accept liability for and bear the cost of General Attendance on Nominated Sub-Contractors which shall be deemed to include for:

Preliminaries

Carried to collection

KShs.



A NOMINATED SUB-CONTRACTORS - CONTINUED

Allowing the use of standing scaffolding, maintenance and alteration of all scaffolding, retention of all scaffolding until such time as all relevant Sub-Contractors' works are complete and removal of all scaffolding on completion. Providing space for office accommodation, and for storage of plant and materials; allowing use of sanitary accommodation; the supply of all necessary water, and lighting; and clearing away all rubbish.

The items for "General Attendance" given herein-after following P.C. Sums in respect of Sub-Contractors' work shall be deemed to include all the above.

The Contractor shall also accept liability for and bear the cost of Special Attendance on Nominated Sub-Contractors which shall include for one or more of the following:

Unloading, storing, hoisting, placing in position, providing power, provision of special scaffolding.

The items of "Special Attendance" given herein-after following P.C. Sums shall include any one or more of the above items as set out in the particular reference.

Cutting away for and making good after the work of Sub-Contractors as may be required will be measured and valued separately by the Surveyor.

B NOMINATED SUPPLIERS

The cost of "Fix only" materials to be obtained from Nominated Suppliers which are covered by prime Cost or Provisional Sums shall include for taking delivery where directed, checking with invoices or indents, reporting and claiming damages for shortages and damaged goods, defraying demurrage signing for as having been received in good order, transporting, unloading, storing, covering and protecting until the time of fixing, unpacking, replacing anything lost or damaged, sorting, assembling, hoisting to required levels and fixing as described.

Before placing any orders with Nominated Sub-Contractors or Nominated Suppliers the Contractors must ascertain that the terms and conditions of the quotations and the dates of delivery of materials or execution of works comply with the terms of Contract and the Progress Schedule.

C PRIME COST RATES

Where description of items include a P.C. rate per unit this rate is to cover the nett supply of the unit only. The Contractor's price must include for the cost of the unit at the rate stated, plus waste, taking delivery, storage, fixing in position, profit and overheads.

The actual nett cost per unit will be adjusted within the Final Account against the P.C. rate stated.

Preliminaries	Carried to collection	KShs.
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A PROTECTION

The Contractor shall cover up and protect from damage, including damage inclement weather, all finished work and unfixed materials, including that of from Sub-Contractors, etc., to the satisfaction of the Project Manager until the completion of the Contract, and carefully preserve all trees or bushes on or near the Site.

B CLEANING

The Contractor shall, upon completing of the Works, at his own expense, remove and clear away all surplus excavated materials, plant, rubbish and unused materials and shall leave the whole of the Site and Works in a clean and tidy state to the satisfaction of the Project Manager, including clearing away and making good all traces of temporary access roads, offices, sheds camps, etc. Particular care shall be taken to leave clean all floors and windows and to remove all rubbish and dirt as it accumulates. The Contractor is to find his own dump and shall pay all charges in connection therewith.

C TRAINING LEVY

The Contractor's attention is drawn to legal Notice No. 237 of October, 1971, which requires payment by the Contractor of Training Levy on all Contracts of more that 50,000/- in value and his Tender must include for all costs arising therefrom.

D VALUE ADDED TAX

The Contractor's attention is drawn to the Finance Act 1993 and subsequent ammendments thereof which requires payment by the Contractor of Value Added Tax (VAT) on construction services rendered.

The Tenderer shall include for all costs arising or resulting therefrom in his rates. A lumpsum addition will not be acceptable.

Preliminaries

Carried to collection

KShs.

COLLECTION

Preliminaries

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" " " P/2

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BILLNO.1
PRELIMINARIES

TO GRAND SUMMARY
AT END OF BILLS

KSHS.

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	<u>PERIMETER WALL CONSTRUCTION</u>				
	BILL NO. 2				
	<u>SUBSTRUCTURES-(PROVISIONAL)</u>				
	<u>ELEMENT NO. 1</u>				
	<u>Site clearance</u>				
A	Clear site off existing live hedge fence, grub up roots & cart away to approved dumping sites by NEMA	180	LM		
B	Remove existing dilapidated chain link fencing and gum poles including 6 no. barbed wire strands, and hand over to the client	180	LM		
C	Carefully remove existing mild steel framed infilled with brc mesh wire gate overall size 5800x2200mm and hand over to the client	1	NO		
C	Allow for facilitation of re-establishing the plot beacons with the relevant authorities	1	ITEM		
D	Clear the site off grass, shrubs and all vegetation and the like; cart away as directed; to approved site.	180	SM		
	<u>Excavations</u>				
	<u>All excavations in marshy black cotton soil</u>				
E	Excavate oversite to remove top vegetable soil average 200mm deep and spread as directed on site.	110	SM		
F	Excavate for foundation strip footing in black cotton soil average depth 1.50m deep.	162	CM		
G	Ditto column pits 0-1.5 mm	97	CM		
F	Excavate for foundation strip footing in black cotton soil depth 1.50m - 3.0 m deep.	60	CM		
G	Ditto column pits ditto	40	CM		
H	Return fill and ram imported red soil around foundations.	78	CM		
J	Load, wheel and cart away from site surplus excavated material and deposit in approved dumping area.	181	CM		
K	Extra over all kinds of excavation for excavating in rock irrespective of class.	50	CM		
	Carried to Collection				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
A	<u>Disposal of water</u> Allow for keeping excavations free from all water by pumping or otherwise.		ITEM		
B	<u>planking and strutting</u> Ditto; for planking and strutting to sides of excavations.		ITEM		
	<u>Concrete Works</u>				
	<u>50 mm plain concrete (1:4:8 - class 15/20mm) blinding including water proofing additives in :</u>				
C	Strip footing	108	SM		
D	Ditto column bases <u>Vibrated Reinforced Concrete class 20/20mm including waterproofing additives in:</u>	65	SM		
E	200mm thick Strip footing	13	CM		
F	300mm Column bases	13	CM		
G	Collumns	8	CM		
H	Ground beam in selected areas as directed	20	CM		
	<u>Reinforcement</u>				
	<u>Supply and fix ribbed bars Reinforcement including bending ,hooks,tying wire,cutting spacersand supporting all in position as decribed</u>				
J	Diameter; 12mm	3,240	KGs		
K	Diameter; 8mm	2,160	KGs		
	<u>Sawn formwork to :</u>				
L	Sides of strip footing	72	SM		
M	Sides of column bases	69	SM		
Carried to Collection					

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
A	Sides of sub columns	104	SM		
	<u>Substructure Walling.</u>				
B	200 mm thick quarry dressed natural stone walling; bedded and jointed in cement sand (1:3) mortar; reinforced with hoop iron at alternate courses	230	SM		
C	Labour and material for construction joints in 12mm thick flexel expansion and 25x25mm expansion sealer	18	LM		
	<u>Bituminous Damp Proof Course bedded and jointed in cement sand mortar 1:3.</u>				
D	200 mm wide.	317	LM		
	<u>Weep Holes</u>				
E	100mm diameter weep holes at appropriate centres of the wall as directed	135	NO		
Carried to Collection					
<u>COLLECTION</u>					
From page PW/1					
From page PW/2					
From page Above					
Total to Collection					



ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	ELEMENT NO. 2				
	<u>Superstructure walling</u>				
A	200 mm thick approved machine cut stone walling; bedded and jointed in cement sand (1:3) mortar; reinforced with hoop iron at alternate courses	315	SM		
	<u>Vibrated reinforced insitu concrete class 25/(20mm) as described in:-</u>				
B	Columns	17	CM		
	<u>Reinforcement (Provisional)</u>				
	<u>Supply and fix ribbed bars Reinforcement including bending ,hooks,tying wire,cutting spacersand supporting all in position as decribed</u>				
C	Diameter; 12mm	1,000	KGs		
D	Diameter; 8mm	700	KGs		
	<u>Sawn formwork to:</u>				
E	Sides of column	181	SM		
F	Labour and material for construction joints in 12mm thick flexel expansion and 25x25mm expansion sealer	22	LM		
G	Extra-over for pointing & keying in recessed horizontal and flush vertical joints external surface; including two coats of black bituminous paint	315	SM		
H	Averaging 25mm facing bricks size 230 x 75 x 60mm thick clay facing bricks to external face of columns fixed in cement adhesive	60	SM		
	<u>Plaster</u>				
	<u>Plaster: 15mm thick: steel trowelled to concrete or blockwork base with and including water proof cement generally to: -</u>				
J	Walls; internal surface	378	SM		
Carried to Collection					

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	<u>Concrete Coping</u>				
A	300mm Wide x 50mm thick (average) twice-weathered and twice-throated pre-cast concrete coping bedded and jointed in cement/sand (1:3) mortar; to double fall	128	LM		
B	Provide and joint in cement :sand (1.3) 450 x 450 mm precast concrete coping weathered and throated on four sides to pier	72	NO		
C	Prepare and apply three coats and one undercoat of first quality exterior paint to crown or equal and approved to the satisfaction of the PM	378	SM		
	<u>Razor wire</u>				
D	Supply and fix Razor wire at the top of the boundarywall conforming to the following specifications:-coil size - 450mm diameter,Blade profile - Ripper Razor Wire,Stretch factor -coil and secured with steel plates at 1M centres (Galvanised)	180	LM		
	<u>GATE</u>				
E	Fabricate and fix branded double-leaf gate overall size 6000x2100mm high in RHS framing size 50x25x3mm thick and G15 M.S. plate panel infills; hung at three points both sides in metal lugs built in 100x100x10mm RHS columns and including 'padbolts,towerbolts and means of securing as 'necessary and apply two coats red-lead oxide primer 'before fixing and two finishing coats of gloss oil paint as "Crown Berger" to the client's approval and satisfaction	1	NO		
F	Ditto; for a 900x1800mm high wicket gate hung at three points .	1	NO		
	<u>Working drawings</u>				
G	Allow for preparation and approval of final set of working drawings in A1 size; using the attached drawings; all by a registered Architect & registered Structural Engineer including all necessary county government's approvals within the first two (2No.) weeks after contract signing	1	No.		
H	Ditto but copies	4	No.		
Carried to Collection					



ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	<u>COLLECTION</u>				
	From page PW/4				
	From page PW/5				
<i>Total to summary</i>					
	<u>Summary</u>				
1	SUBSTRUCTURE (ALL PROVISIONAL)		PW / 3		
2	RC SUPERSTRUCTURE		PW / 5		
Total to Grand Summary					



ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
BILL NO. 3					
<u>CHAIN LINK FENCING</u>					
A	Uproot and clear all existing live fence, bushes and the like load cart away to county approved dumping site	368	LM		
B	Excavate in black cotton soil averaging 1.5m deep x 400mm diameter	30	CM		
C	Supply and erect 125x150mmx averaging 3m high cranked one side precast concrete posts, fitted to receive straining wire (m/s) and mortised in mass concrete (m/s)	137	NO		
D	Extra over ditto for 1.8m long struts every 10m and corner post supports.	82	NO		
E	Mass concrete on excavated holes in 1:3:6 (class Q) including waterproofing additives	40	CM		
F	12.5g high tensile galvanized wire 50kg per roll	2208	LM		
G	20kg x 12.5 g galvanized barbed wire to concrete post or any other equal and approved	1472	LM		
H	Supply and fix heavy gauge (14) chain link to a height of 2400mm all to project manager's approval	884	SM		
<i>Total to Collection</i>					
1	<u>COLLECTION</u> From page Above				
Total to Grand Summary					

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	BILL NO. 4				
	ACCESS ROAD WORKS				
A	Form road by reducing the level to fall of 2.5% including cutting to fill in black cotton soil, including slopes and side ditches.	300	SM		
B	Provide,lay and compact approved gravel material as riding surface to project manager approval	435	CM		
	<u>DRAINAGE</u>				
	<u>CULVERTS AND HEAD WALLS</u>				
C	Excavate in black cotton soil for headwall starting from ground level to a depth not exceeding 1.5m	10	CM		
D	Provide all materials, mix and place 50mm thick concrete as blinding for headwall base (Mix 1:4:8).	8	SM		
E	Vibrated Reinforced Concrete class 20/20mm in;as foundation for headwalls.	1	CM		
F	Provide materials for and erect 200mm thick masonry walling for headwall as per project manager guidance.	25	SM		
G	Provide, mix and place 12mm thick cement and sand rendering to both sides of walls including waterproofing additives.	16	SM		
H	Excavate trench in black cotton soil for culvert starting from ground level to depth not exceeding 1.0m	14	CM		
J	Provide and place 100mm thick concrete bed for the pipes, (mix 1:3:6). Include for all the necessary formwork.	2	CM		
K	Provide, lay and joint 300mm dia. precast concrete ogee pipes on gravel bedding to correct fall	18	LM		
	<i>Carried to Collection</i>				

ITEM	DESCRIPTION	QTY	UNIT	RATE	K.SHS
A	Provide and place 150mm thick concrete surround around pipes, (mix 1;3;6). Including all the necessary formwork.	4	CM		
B	Backfill with imported red soil and compact after laying, jointing and surrounding of the pipes.	6	CM		
Carried to Collection					
<u>COLLECTION</u>					
From page PW/1					
From page Above					
Total to Collection					

PROPOSED CHEMELIL SUBSTATION PERIMETER WALL

GRAND SUMMARY

BILL NO.	DESCRIPTION	Page No.	CONTRACTOR'S USE	OFFICIAL USE
			K.SHS.	K.SHS.
1	PRELIMINARIES	P/15		
2	PERIMETER WALL	PW / 6		
3	CHAINLINK FENCE	CF/1		
4	ACCESS ROAD	AR/2		
	Sub Total Kshs			
	Add: 16 % VAT			
	Total carried to form of tender (KShs.)			

Amount in words: Kenya Shillings

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Contractors Name, Address

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Contractors Stamp, Signature & Date.....

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