Kenya Power

PROPOSED CONCRETE PAVING AND ASSOCIATED DRAINAGE WORK WORKS AT KIGANJO STORES- NYERI.

PART NO."1"

TRADE PREAMBLES

KENYA POWER

PART NO. 1

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. 1 (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 downtakings 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.

TRADE PREAMBLES (Ctd.)

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 a 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 murram well watered and rammed and finished smooth to receive concrete flooring, all in accordanc 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.

TRADE PREAMBLES (Ctd.)

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.

TRADE PREAMBLES (Ctd.)

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.

TRADE PREAMBLES (Ctd.)

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. 1 (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 wi 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. 1 (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 mansonry 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.

PART NO. 1 (Ctd.)

TRADE PREAMBLES (Ctd.)

13.00 JOINERY (Ctd.)

.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.

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.

TRADE PREAMBLES (Ctd.)

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, gulley 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.

TRADE PREAMBLES (Ctd.)

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 elemer 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 8420-84 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. 1 (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 PAINTING 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. 1 (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 - 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 be bedded and laid in trenches in accordance with Clause 9162 and 9164.

.08 Pipes and fittings shall generally be Golden Brown unplasticised polyvinly 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 elastoneric 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. 1 (Ctd.)

TRADE PREAMBLES (Ctd.)

22.00 DRAINAGE (Ctd.)

.12 Where dire[1]cted 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.