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CONSTRUCTION OF KALOLENI WATER SUPPLY IN TAITA TAVETA COUNTY.

TENDER No

LOT 3 KALOLENI WATER SUPPLY-SUPPLY OF PIPES IN TAITA TAVETA COUNTY

TECHNICAL SPECIFICATIONS

VOLUME 2.

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STANDARD TECHNICAL SPECIFICATIONS

1.1 GENERAL SPECIFICATIONS

1.1 Introduction

These specifications cover the supply of pipes as listed in the Bills of Quantities and shall be read in conjunction **GCC** and **SCC**.

All references given are intended solely for the convenience of those using the above clauses in the documents, which may, in the opinion of the Project Manager have any bearing on the point in question.

1.1.1 Location

The pipes are to be supplied to Kaloleni in Taita Taveta County

1.2 Standards

In the specifications, Bills of Quantities, and Drawings reference has been made to relevant British Standard Specifications and Codes of Practice- to which the materials and workmanship should comply with. However, the materials and workmanship complying with equivalent Kenya Bureau of Standards (K.B.S) or International Standards Organisation (I.S.O.) Standard for that particular material or workmanship will also be acceptable.

Mixture of different standards in one trade will not be allowed. For instance, if pipes are to be provided to I.S.O Standard, then all the pipes in the works are to be to I.S.O. Standard.

Where the dimension in one standard does not completely correspond to the dimensions of the other standard, which is being used for construction of works, ruling of the Project Manager will be sought and any decision given by the Project Manager will be final and binding upon the contractor.

1.3 Quality of Materials and Workmanship

The materials and workmanship shall be of the best of their respective kinds and shall be to the approval of the Project Manager. In reading of these specifications, the words "to the approval of the Project Manager" shall be deemed to be included in the description of all materials incorporated in the works, whether manufactured or natural, and in the description of all operations for the due execution of the works.

No materials of any description shall be used without prior approval by the Project Manager and any condemned as unfit for use in the works shall be removed immediately from the site, and without recompense to, the contractor. All works or parts thereof shall be in accordance with the latest edition of either Kenya Bureau of Standards (K.B.S.) specification or British Standard (B.S.) specifications and British Codes of Practice (C.P.) as published by British Standards Institution.

All materials shall be of approved manufacture and origin and the best quality of their respective kind, equal to sample and delivered on to the site a sufficient period before they are required to be used in the works to enable the Project Manager to take such samples as he may require for testing or approval, and the contractor shall furnish any information required by the Project Manager as to the quality, weight, strength, description, etc. of the materials. No materials of any description shall be used without prior approval by the Project Manager and any condemned as unfit for use in the works shall be removed immediately from the site by, and without recompense to, the contractor.

1.4 Trade Names

Trade Names and Catalogue Reference are given solely as the guide to the quality and alternative manufacturers of the materials or goods of equivalent quality will be accepted at the discretion of the Project Manager.

1.5 Samples

Samples of all materials shall be deposited with the Project Manager and approved prior to ordering or delivery to site. The Project Manager reserves his right to test any sample to destruction and retain samples until the end of the maintenance period. No payment will be made for samples and the contractor must in the rates of prices allow for costs of samples. All materials delivered to site shall be equal or better in all respect than the samples delivered to the Project Manager.

All sampling of materials on the site must be done by or in the presence of the Project Manager. All other samples will be deemed not to be valid under the contract.

All materials delivered to the site or intended for the works not equal or better than the samples approved by the Project Manager shall be removed and replaced at the contractor's expense.

1.6 Testing

As provided in **clause 36** of the **GCC** and in accordance with the specification quoted for any material used on works of this contract, tests may be called upon by the Project Manager to be carried out at the place of manufacture or on the site. The contractor may assume that the tests will be required on materials whether natural or manufactured to verify their compliance with the specifications. Samples of all such materials and manufactured articles together with all necessary labour, materials, plant and apparatus for sampling and for carrying out of the tests shall be supplied by the contractor at his own expense.

1.7 Programmes for the Execution of Works

- (i) In accordance with **clause 13.1** of **GCC** and **as stated in the SCC**, the contractor upon receiving Project Manager's order to commence shall within 28 days draw up a working programme setting out order in which the works are to be carried out with appropriate dates thereof together with delivery dates for materials. The contractor shall together with his work programme supply an expenditure chart showing monthly anticipated expenditure.

- (ii) The programme shall be deemed to have taken into account normal variations in climatic conditions to provide for completion of the works in the order and within the times specified therein.
- (iii) The order in which it is proposed to execute the permanent works shall be subject to adjustment and approval by the Project Manager, and contractor's price shall be held to include for any reasonable and necessary adjustment required by the Project Manager during the course of the works.
- (iv) The contractor shall carry out the contract in accordance with the programme agreed with the Project Manager, but he shall in no manner be relieved by the Project Manager's approval of the programme of his obligations to complete the works in the prescribed order and by the prescribed completion date and he shall from time to time review his progress and make such amendments to his rate or executions of the works as may be necessary to fulfil these obligations.
- (v) Once the proposed programme is approved by the Project Manager, the contractor shall not depart from the programme without the written consent of the Project Manager. In the event of unforeseen difficulties or disturbances arising, which forces the contractor to depart from the approved programme of works, he shall advise the Project Manager in writing of such occurrences without delay and submit proposals for any necessary remedial measures, for which he shall obtain the Project Manager's approval before putting such measures into effect.
- (vi) The contractor shall furnish the Project Manager with a monthly statement of all works done on the contract and of all materials on site.

2 SUPPLY OF UNPLASTICISED POLYVINYL CHLORIDE (uPVC) PIPES

2.1 Quality

All uPVC pipes and fittings shall comply with KS 06-149: Part 2: 1981 (Metric Series).

The uPVC pipe shall be designated by its nominal outside diameter.

2.2 Handling and Storing of Pipes

6.2.1 General

The method of transportation, handling and storing of pipes and fittings shall be in accordance with the manufacturer's recommendations.

Pipes, valves, specials and other materials shall be handled, moved, lifted or lowered with the least possible impact. Handling equipment shall be of approved type. In slinging pipes, only flat slings shall be used and the use of chain slings, hooks or other devices working on scissors or grab principles shall not be permitted. Pipes shall be slung from two or more points as the Project Manager may direct and the slinging, lifting and lowering shall be in the hands of a competent and experienced man. Care shall be taken to keep pipes and fittings clean and free from soil, mud, dirty water, solvents chemicals etc.

Subject to the requirements of inspection before acceptance, protective bolsters, caps or discs on the ends of flanges of pipes or specials shall not be removed until the pipes or specials are about to be lowered into the trench. Every precaution shall be taken to prevent damage to internal linings or external coatings.

Pipes in storage shall be supported clear of the ground on approved supports and adequately braced to prevent rolling. They shall not be stacked more than four tiers high without the approval of the Project Manager.

Materials of different classification shall be stored separately.

All pipes and associated material shall at all times be protected from sun and weather to the satisfaction of the Project Manager.

No valves shall be lifted by the spindle.

No valves, fittings or specials shall be stacked more than one tier high without the permission of the Project Manager, and they shall not be stored in a dirty place or condition and shall not be allowed to become embedded in earth, sand, stone, aggregate, water, fuel, or any other deleterious matter.

Valves and their ancillary equipment shall be protected before and after erection against collapse of earthworks, falls of materials, concrete and cement droppings, wood and other matter.

Shortly before the laying or fixing any valve, pipe or fitting the contractor shall in the presence of the Project Manager or his representative carefully examine each valve, pipe and fittings during loading, unloading, handling, storage and transportation. All damage and all defects revealed by this examination shall be repaired and remedied by the contractor.

2.2.2 Transport of PVC pipes

The full length of the pipe shaft shall rest on the loading area of the lorry. Overhanging of pipes, to prevent sagging and deformation shall be avoided. Rough handling and dragging of pipes and fittings shall be avoided.

2.2.3 Storing of PVC pipes

PVC pipes shall not be stored on each other to a height exceeding 1.5m. Pipes shall be staggered to prevent the sockets to rest on the shaft of the pipes. The first tier shall be placed on a well drained layer of sand. All pipes and fittings shall be protected from sunlight by use of tarpaulins. Grass cover will not be accepted.