



**MULTINATIONAL: KENYA - SOUTH SUDAN ROAD CORRIDOR LESSERU-KITALE AND MORPUS-LOKICHAR ROAD UPGRADING PROJECT PHASE 1  
PROJECT ID: P-Z1-DB0-246**

**LOT 2: UPGRADING OF MORPUS – KAINUK (A1) ROAD**

**TENDER NO. KeNHA/2949/2026**

**BIDDING DOCUMENT : VOLUME 3 OF 7 – BILLS OF QUANTITIES**

2026

**Director (Development)  
Kenya National Highways Authority  
P.O. Box 49712  
NAIROBI, 00100**

**Director General  
Kenya National Highways Authority  
P.O. Box 49712  
NAIROBI, 00100**

# Request for Bids

## Works

(Without Prequalification)

**Procurement of:**  
**UPGRADING OF MORPUS – KAINUK (A1) ROAD (54 KM)**

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<b>Employer:</b>	Kenya National Highways Authority
<b>Project:</b>	Multinational: Kenya - South Sudan Road Corridor Lesseru-Kitale and Morpus-Lokichar Road Upgrading Project Phase 1
<b>Contract title:</b>	Lot 2: Upgrading of Morpus - Kainuk Road (54 Km)
<b>Country:</b>	Kenya
<b>Loan No. :</b>	2000200005805 and 2100150043496
<b>OCBI No:</b>	KeNHA/2949/2026
<b>Issued on:</b>	5 <sup>th</sup> May, 2026

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# Bills of Quantities

## Preamble

1. The Bill of Quantities shall be read in conjunction with the Instructions to Bidders, General and Particular Conditions of Contract, Technical Specifications and Drawings.
2. The brief description of the items in the Bill of Quantities is purely for the purpose of identification, and in no way modifies or supersedes the detailed descriptions given in the conditions of Contract and Specifications for the full direction and description of work and materials.
3. The quantities given in the Bill of Quantities are estimated and provisional, and are given to provide a common basis for bidding. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Engineer and valued at the rates and prices bid in the priced Bill of Quantities, where applicable, and otherwise at such rates and prices as the Engineer may fix within the terms of the Contract.
4. There is no guarantee to the Contractor that he will be required to carry out all the quantities of work indicated under any one particular item or group of items in the Bill of Quantities.
5. The price and rates entered in the Bill of Quantities shall, except insofar as it is otherwise provided under the Contract, include all constructional plant to be used, labour, insurance, supervision, compliance testing, materials, erection, maintenance of works, overheads and profits, taxes and duties together with all general risks, liabilities and obligations set out or implied in the Contract, transport, electricity and telephones, water, use and replenishment of all consumables, including those required under the Contract by the Engineer and his staff.
6. A rate or price shall be entered against each item in the priced Bill of Quantities, whether quantities are stated or not. The cost of Items against which the Contractor has failed to enter a rate or price shall be deemed to be covered by other rates and prices entered in the Bill of Quantities.
7. Any entry of "nil" or any other price or rate that shall render the Bid unresponsive in accordance with Clause 29 of the instructions to Bidders, unless deemed justifiably covered elsewhere in the Bills of Quantities, may lead to the entire Bid being rejected
8. The whole cost of complying with the provisions of the Contract shall be included in the Items provided in the priced Bill of Quantities, and where no Items are provided, the cost shall be deemed to be distributed among the rates and prices entered for the related Items of Work.
9. General directions and descriptions of work and materials are not necessarily repeated or summarized in the Bill of Quantities. References to the relevant sections of the Contract documentation shall be made before entering prices against each item in the priced Bill of Quantities.
10. Provisional Sums included and so designated in the Bill of Quantities shall be expended in whole or in part at the direction and discretion of the Engineer in accordance with Clause 13.4 of the Conditions of Contract.
11. The method of measurement of completed work for payment shall be in accordance with *Standard Specification for Road and Bridge Construction* of the Ministry of Transport and Communications, 1986.
12. "Authorized" "Directed" or "Approved" shall mean the authority, direction or approval of the Engineer.
13. Unless otherwise stated, all measurements shall be net taken on the finished work carried out in accordance with the details shown on the drawings or instructed, with no allowance for extra cuts or fills,

waste or additional thickness necessary to obtain the minimum finished thickness or dimensions required in this contract. Any work performed in excess of the requirements of the plans and Specifications will not be paid for, unless ordered in writing by the Engineer.

14. Errors will be corrected by the Employer for any arithmetic errors in computation or summation as follows:

(a) Where there is a discrepancy between amounts in figures and in words, the amount in words will govern; and

(b) where there is a discrepancy between the unit rate and the total amount derived from the multiplication of the unit price and the quantity, the unit rate as quoted will govern, unless in the opinion of the Employer, there is an obviously gross misplacement of the decimal point in the unit price, in which event the total amount as quoted will govern and the unit rate will be corrected.

15. (a) Hard material, in this Contract, shall be defined as the material which, in the opinion of the Engineer, require blasting, or the use of metal wedges and sledge hammers, or the use of compressed air drilling for their removal, and which cannot be extracted by ripping with a dozer tractor of at least 300 BHP /224 kW flywheel power with a single, rear-mounted, hydraulic ripper. Boulders of more than 0.2m<sup>3</sup> occurring in soft material shall be classified as hard material

(b) Soft material shall be all material other than hard material.

16. The Contractor shall be entitled to payments due in respect of:-

(a) Equipment employed on Daywork basis on the rental rates entered by him in the “schedule of Dayworks: Plant”

(b) That Labour (ordinary) employed on daywork basis at the rates entered by him in the “Schedule of Daywork: Labour”

(c) Materials used on daywork at the rates entered by him in the “Schedule of Dayworks: Materials”.

17. Units of Measurement and Abbreviations used herein shall have the following meanings:

<b>Unit</b>	<b>Abbreviation</b>	<b>Unit</b>	<b>Abbreviation</b>
cubic meter	m <sup>3</sup> or cu m	millimetre	mm
hectare	Ha	month	mth
hour	hr.	number	No.
kilogram	Kg	provisional sum	Prov. Sum
kilometre	Km	Prime Cost Sum	P.C. Sum
lump sum	L.sum.	square meter	m <sup>2</sup> or sq m
man month	m mth	square millimetre	mm <sup>2</sup> or sq mm
linear metre	m	vehicle	veh
metric tonne (1,000kg)	T	vehicle month	v mth
litres	ltrs	week	wk

**BILL OF QUANTITIES : LOT 2 -MORPUS - KAINUK**

<b>BILL NO.1 : PRELIMINARY AND SUPERVISORY SERVICES</b>					
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE (KSHS)</b>	<b>AMOUNT (KSHS)</b>
	<b>Accommodation for the Engineer and his Staff</b>				
1.01	Provide and maintain accommodation for the Engineer's senior staff in accordance with the specifications as follows: The rates shall include the cost of providing rental accommodation for the first six months of Construction of the facility to the approval of the Engineer				
	<b>(a) Engineer's senior staff</b>				
	(i) House Type I	No.	1.00		
	(ii) House Type II	No.	4.00		
	<b>(b) Engineer's junior staff</b>				
	(ii) House Type III	No.	4.00		
	(ii) House Type IV	No.	10.00		
	(ii) House Type V	No.	2.00		
	<b>Main Office for the Engineer</b>				
1.02	Construct, furnish and Maintain the Engineer's main office in accordance with the specifications and as directed by the Engineer. The rates shall include the cost of providing rental office space for the first six months of Construction of the facility to the approval of the Engineer. <b>See attached Appendix to Bill No. 1.02</b>	item	1.00		
	<b>Main Laboratory associated equipment and accessories</b>				
1.03	Construct furnish, equip and Maintain Engineer's Main Laboratory in accordance with the Specifications and as directed by the Engineer. The rates shall include all expenses prior to operationalization and handing over of the facility to the approval of the Engineer	No	1.00		
1.04	Provide laboratory equipment and reagents for use by the Engineer's representative for the entire duration <b>See attached Appendix to Bill No. 1.04</b>	item	1.00		
	<b>Survey equipment and accessories</b>				
1.05	Provide and maintain survey equipments and accessories for use by the Engineer's representative for the entire duration of the contract <b>See attached Appendix to Bill No. 1.05</b>	item	1.00		
	<b>Vehicles for the Engineer</b>				
1.06	Provide, fuel, insure and maintain with drivers <b>three (3)</b> new station wagon vehicle of engine capacity min. 3000cc diesel propelled fully loaded as per Cl. 138 of special specs and approved by the Engineer, inclusive of the first 4000km per vehicle month.	Veh.Mth	144.00		
1.07	E.O Item 1.06 for mileages over 4000km per vehicle month.	Km	72,000.00		
1.08	Provide, fuel, insure and maintain with drivers <b>Six (6)</b> new 4WD double cabin pickups of 2500cc -3000cc minimum engine capacity fully loaded as approved by the Engineer, inclusive of the first 4000km per vehicle month.	Veh.Mth	288.00		
1.09	E.O Item 1.08 for mileages over 4000km per vehicle month.	Km	136,800.00		
	<b>C/F TO NEXT PAGE</b>				

**BILL OF QUANTITIES : LOT 2 -MORPUS - KAINUK**

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE (KSHS)	AMOUNT (KSHS)
	<b>B/F FROM PREVIOUS PAGE</b>				
1.10	Provide, fuel, insure and maintain with drivers <b>Three (3)</b> new 4WD Single cabin pickups of 2500cc -3000cc minimum engine capacity fully loaded as approved by the Engineer, inclusive of the first 4000km per vehicle month.	Veh.Mth	108.00		
1.11	E.O Item 1.10 for mileages over 4000km per vehicle month.	Km	59,400.00		
1.12	Provide fuel, insure and maintain with driver <b>one (1)</b> minimum 3000 c.c. 14- seater minibus or similar approved, the exclusive use of the Engineer, inclusive of the first 4000km per vehicle month.	Veh.mth	48.00		
1.13	E.O Item 1.12 for mileages over 4000km per vehicle month.	Km	36,000.00		
1.14	Allow a prime cost sum for the Engineer's miscellaneous account to be spent in whole or part as directed by the Engineer against receipts	PC Sum	1.00	15,000,000.00	15,000,000.00
1.15	E.O. item 1.14 for the contractor's overheads and profits	%			
1.16	Allow a prime cost sum for attendance upon the Engineer and his staff	PC sum	1.00	15,000,000.00	15,000,000.00
1.17	E.O. item 1.16 for the contractor's overheads and profits	%			
	<b>Project Participant Sign Boards</b>				
1.18	Provide, erect and maintain project publicity sign boards as shown in the drawings and as directed by the Engineer	No	4.00		
1.19	Provide, erect and maintain a project publicity Billboard (12mx10m) as shown in the drawings including printing of display material in 3D as directed by the Engineer	No	3.00		
1.20	Allow a provisional sum for relocation of services as will be directed by the Resident Engineer	Prov. Sum		50,000,000.00	50,000,000.00
1.21	Include percentage of item 1.20 for contractor's overheads and profits	%			
1.22	Prime Cost Sum for implementation of Stakeholder Engagement Plan	PC Sum		5,000,000.00	5,000,000.00
1.23	Extra over item 1.22 for contractor's overheads and profit	%			
1.24	Prime Cost Sum for running of Grievance Redress Mechanism on site	PC Sum		5,000,000.00	5,000,000.00
1.25	Extra over item 1.24 for contractor's overheads and profit	%			
1.26	Provide stage by stage project documentary (Videograph) for the entire duration of the contract on a quarterly basis and as directed by the Engineer.	Sets	15.00		
1.27	Prime Cost Sum for Geotechnical Investigations as instructed by the Engineer	PC Sum	1.00	5,000,000.00	5,000,000.00
1.28	E.O. item 1.27 for the contractor's overheads and profits	%			
1.29	Allow a Prime Cost sum to cover Employer's obligation to pay Dispute Avoidance/Adjudication Board (DAAB)	PC sum		10,000,000.00	10,000,000.00
1.30	E.O. item 1.29 for the contractor's overheads and profits	%			
1.31	Prime Cost Sum for Off-road environmental mitigation measures	PC sum		50,000,000.00	50,000,000.00
1.32	E.O. item 1.31 for the contractor's overheads and profits	%			
1.33	Provisional Sum for enhanced security on Site through out the duration of the Contract as will be directed by the Resident Engineer	Prov. Sum	1.00	30,000,000.00	30,000,000.00
<b>Total for Bill 1 forwarded to summary</b>					



**BILL OF QUANTITIES : LOT 2 -MORPUS - KAINUK**

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE (KSHS)	AMOUNT (KSHS)
<b>BILL NO.5 : EARTHWORKS</b>					
	<b>NOTE:</b>				
	All costs and charges connected with haulage are to be included within the unit rates entered against the items described in this Bill of Quantities				
	<b>Fill in Soft Material</b>				
5.01	Excavate from borrow or cuttings, transport over any distance and fill in the embankment soft material, including watering and compaction	m <sup>3</sup>	2,035,695.00		
	<b>Improved Sub Grade</b>				
5.02	Excavate material, transport over any distance lay, water and compact improved sub grade				
(a)	Subgrade 2 (Min CBR 23%)	m <sup>3</sup>	100,000.00		
(b)	Subgrade 1 (Min CBR 14%)	m <sup>3</sup>	338,000.00		
	<b>Fill in Hard Material</b>				
5.03	Excavate, transport over any distance and fill in hard material	m <sup>3</sup>	463,720.00		
	<b>Spoil in Soft Material</b>				
5.04	Excavate, transport over any distance and stockpile for re-use or spoil in soft material.	m <sup>3</sup>	513,637.00		
	<b>Spoil in Hard Material</b>				
5.05	As Item 5.04 but in hard material	m <sup>3</sup>	51,363.70		
	<b>Scarification and Compaction</b>				
5.06	Scarify, supplying and mixing in water or drying the material, leveling and compacting the existing ground	m <sup>3</sup>	130,200.00		
5.07	Scarify and compact existing upper 300mm below formation in cut to 100% MDD AASHTO T99	m <sup>3</sup>	172,000.00		
5.08	Extra over item 5.01 for Compaction of upper 300mm below formation in fill to 100% MDD AASHTO T99	m <sup>3</sup>	161,570.00		
5.09	Provide 2.5m wide berms from spoil materials including compaction to protect common fills from variation of moisture content as per typical section	m <sup>3</sup>	30,000.00		
	<b>Top Soiling And Grassing</b>				
	<b>Top soiling</b>				
5.10	Provide ,place and compact 75mm topsoil on the slopes of the embankment, all in accordance with the specification	m <sup>3</sup>	70,000.00		
	<b>Grassing</b>				
5.11	Provide and plant sprigs of approved indigenous grass type as directed by the Engineer, including tending, watering, cutting, until grass is firmly established	m <sup>2</sup>	725,500.00		
5.12	<b>Tree planting</b>				
	Planting of approved indigeneous trees , minimum height 1.2m within the road reserve as directed by the Engineer in accordance with the specifications including tendering, watering and protection	No.	20,000.00		
	<b>Existing Pavement Structure</b>				
5.13	Scarify, transport, grade, mix existing pavement layers, transport and reuse as improved subgrade material compacted to 100%MDD (AASHTO T99) as directed by the Engineer.	m <sup>3</sup>	46,992.00		
<b>TOTAL FOR BILL 5 C/F TO SUMMARY</b>					

**BILL OF QUANTITIES : LOT 2 -MORPUS - KAINUK**

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE (KSHS)	AMOUNT (KSHS)
<b>BILL NO.7 : EXCAVATION AND FILLING FOR STRUCTURES</b>					
	<b>Excavation</b>				
7.01	Excavation in soft material to any depth, backfilling and compacting or hauling to spoil excavated material; all in accordance with the specifications and in conformity with the Engineer's instructions.	m <sup>3</sup>	36,336.00		
7.02	Extra over item 7.01 above for excavation in hard material.	m <sup>3</sup>	794.00		
	<b>Selected granular fill material</b>				
7.03	Providing, hauling as necessary and backfilling; all in accordance with the specifications and in conformity with the Engineer's instructions.	m <sup>3</sup>	31,220.00		
	<b>Selected porous filter material</b>				
7.04	Providing, hauling as necessary and place porous filter material; all in accordance with the specifications and in conformity with the Engineer's instructions.	m <sup>3</sup>	7,604.00		
	<b>Stone pitching</b>				
7.05	Provide all materials, select stones and construct 200mm thick dry stone pitching including jointing and grouting , all in accordance with the specifications and in conformity with the Engineer's instructions.	m <sup>2</sup>	27,761.00		
	<b>Excavation for gabions</b>				
7.06	Excavation in soft material to any depth, compaction of the surfaces to receive the gabions, backfilling with the excavated materials or hauling to spoil excavated all in accordance with the specifications and in conformity with the Engineer's instructions.	m <sup>3</sup>	378.00		
7.07	Extra over Item 7.06 for excavation in hard material.	m <sup>3</sup>	50.00		
	<b>Gabion mesh for boxes and mattresses</b>				
7.08	Provide and fix gabion mesh for boxes and mattresses, including diaphragms; all in accordance with the specifications and in conformity with the Engineer's instructions.	m <sup>2</sup>	1,140.00		
	<b>Rockfill to gabions</b>				
7.09	Provide, haul over any distance and place rockfill to gabion boxes and mattresses; all in accordance with the specifications and in conformity with the Engineer's instructions.	m <sup>3</sup>	1,193.00		
	<b>Concrete class 15/20 to gabions</b>				
7.10	Provide 50mm thick concrete class 15/20 to exposed surfaces of the gabion boxes and mattresses in conformity with the Engineer's instructions.	m <sup>3</sup>	59.00		
	<b>Geotextile filter fabric</b>				
7.11	Provide and place geotextile filter fabric (as terram 280g/m or similar approved) in conformity with the Engineer's instructions.	m <sup>2</sup>	25,310.00		
7.12	Rip rap for embankment protection.	m <sup>3</sup>	288.00		
7.13	Excavation and River Training in soft material as directed by the Engineer	m <sup>3</sup>	500.00		
7.14	As item 7.13 above but in hard material	m <sup>3</sup>	50.00		
<b>TOTAL FOR BILL 7 C/F TO SUMMARY</b>					

**BILL OF QUANTITIES : LOT 2 -MORPUS - KAINUK**

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE (KSHS)	AMOUNT (KSHS)
<b>BILL NO.8 : CULVERTS AND DRAINAGE WORKS</b>					
	<b>Note:</b> No separate payments shall be made for gravel for blinding or hauling to spoil unsuitable excavation material and the cost of such shall be included in rates and prices				
	<b>Excavate for Culverts and Subsoil Drains in Soft Material (Provisional)</b>				
8.01	Excavate for culverts and subsoil drains in soft material, compaction of the invert of the excavation and backfilling of the excavated material or removing the excavated material to spoil, compact the invert of the excavation and backfill the excavated material remove surplus or unsuitable material to spoil	m <sup>3</sup>	1,860.00		
8.02	E.O. item 8.01 for excavation in hard material	m <sup>3</sup>	1,860.00		
8.03	<b>Excavate for Access Culverts and Subsoil Drains in Soft Material</b>				
	Excavate for culverts and subsoil drains in soft material, compaction of the invert of the excavation and backfilling of the excavated material or removing the excavated material to spoil, compact the invert of the excavation and backfill the excavated material remove surplus or unsuitable material to spoil	m <sup>3</sup>	4,210.00		
8.04	E.O. item 8.03 for excavation in hard material	m <sup>3</sup>	40.00		
	<b>Excavate for Minor Drainage Structures in Soft Material</b>				
8.05	Excavate for minor drainage structures in soft material, compaction of the invert of the excavation and backfilling of the excavated material or removing the excavated material to spoil, compact the invert of the excavation and backfill the excavated material remove surplus or unsuitable material to spoil	m <sup>3</sup>	1,050.00		
8.06	E.O. item 8.05 for excavation in hard material	m <sup>3</sup>	105.00		
	<b>Excavate for inlet, outfall, mitre and catchwater drains in soft material</b>				
8.07	Excavate for inlet, outfall, side drains, mitre and catchwater drains in soft material and disposal of excavated material to spoil	m <sup>3</sup>	14,280.00		
8.08	Extra over Item 8.07 for excavation in hard material	m <sup>3</sup>	7,140.00		
	<b>Selected Backfill Material</b>				
8.09	Providing, hauling as necessary and backfilling to any depth selected material; all in accordance with the specifications and in conformity with the Engineer's instructions	m <sup>3</sup>	16,110.00		
	<b>Rockfill Below Culverts</b>				
8.10	Providing, hauling as necessary and filling rock below culverts; all in accordance with the specifications and in conformity with the Engineer's instructions	m <sup>3</sup>	300.00		
	<b>Provide, Lay and Joint Pipes</b>				
8.11	Providing, laying and jointing concrete pipe culverts; all in accordance with the specifications and in conformity with the Engineer's instructions as;				
	a) Pipe Diameter - 0.6m	m	2,000.00		
	b) Pipe Diameter - 0.9m	m	1,800.00		
	c) Pipe Diameter - 1.2m	m	250.00		
	<b>Concrete class 15/20 to Beds, Surrounds and Haunches</b>				
8.12	Provide and place concrete class 15/20 to beds, surrounds and haunches; all in accordance with the specifications and in conformity with the Engineer's instructions	m <sup>3</sup>	450.00		
	<b>C/F TO NEXT PAGE</b>				



**BILL OF QUANTITIES : LOT 2 -MORPUS - KAINUK**

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE (KSHS)	AMOUNT (KSHS)
<b>BILL No 9 : PASSAGE OF TRAFFIC</b>					
	<b>Note:</b> All haulage is to be included in the Contractor's rates and prices. There is no separate payment for overhaul.				
	<b>Maintenance of existing Road</b>				
9.01	Maintain the existing road ahead of the works in accordance with clause 903 of the specifications	km	54.00		
	<b>Construction of Deviations</b>				
9.02	Construction and maintenance of sealed 8m deviations in maximum lengths of 10 km sections in accordance with instructions as directed by the Engineer including passage of traffic through the works in accordance with clause 904 and 905 of the specifications	km	54.00		
	<b>Temporary Traffic Signs and Barriers on Deviation Roads</b>				
9.03	Provide, erect and maintain temporary signs, barriers, lights on the deviation roads; all in accordance with the specifications and as instructed by the Engineer	km	54.00		
9.04	Reinstatement of deviations	LS	1.00		
<b>TOTAL FOR BILL 9 C/F TO SUMMARY</b>					







**BILL OF QUANTITIES : LOT 2 -MORPUS - KAINUK**

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE (KSHS)	AMOUNT (KSHS)
<b>BILL NO.15 : BITUMINOUS SURFACE TREATMENT AND SURFACE DRESSING</b>					
	<b>Prime Coat</b>				
15.01	Prepare surface, provide, heat and spray MC-70 prime coat to carriageway, service roads, shoulders, walkways, junctions and accesses; all in accordance with the specifications and as directed by the Engineer. (0.8-1.2 L/m <sup>2</sup> )	Litre	838,020.00		
	<b>K1-60 Tack Coat</b>				
15.02	Provide, heat and spray K1-60 tack coat on roadway, walkways, junctions and accesses; all in accordance with the specifications and as directed by the Engineer (0.3 - 0.8L/m <sup>2</sup> )	Litre	10,000.00		
	<b>80/100 Pen Bitumen as Binder</b>				
15.03	Provide, heat, cut to suit and spray 80/100 Pen. grade bitumen as binder for single seal; all in accordance with the specifications and as directed by the Engineer. (1.2 – 1.4 L/m <sup>2</sup> )	Litre	838,020.00		
	<b>Precoated Chippings for Single Seal</b>				
15.04	Provide, transport, lay and roll 10/14 mm class 1 chippings as first surface dressing seal on carriageway and shoulders; all in accordance with the specifications and as directed by the Engineer. (80-100 m <sup>2</sup> /m <sup>3</sup> )	m <sup>3</sup>	7,760.00		
<b>TOTAL FOR BILL 15 C/F TO SUMMARY</b>					





**BILL OF QUANTITIES : LOT 2 -MORPUS - KAINUK**

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE (KSHS)	AMOUNT (KSHS)
<b>BILL NO.20 : ROAD FURNITURE</b>					
	<b><u>Kilometre marker posts</u></b>				
20.01	Provide and erect kilometre posts as shown in the contract drawing	No	54.00		
	<b><u>Edge marker posts</u></b>				
20.02	Provide and erect edge marker posts as shown in the contract drawing and concreting with concrete class 15/20	No	400.00		
	<b><u>Warning signs</u></b>				
20.03	Provide, excavate for and erect warning signs, including backfill				
	(a) 450 x 900 mm size	No	20.00		
	(b) 600 mm size - Provisional	No	25.00		
	(c) 750 mm size	No	50.00		
	(d) 1000 mm size - Provisional	No	25.00		
	<b><u>Priority signs</u></b>				
20.04	Provide, excavate for and priority signs, including backfill and concreting with concrete class 15/20 to base				
	(a) 750 mm size	No	8.00		
	(b) 1000 mm size	No	10.00		
	<b><u>Prohibitory signs</u></b>				
20.05	Provide, excavate for and erect prohibitory signs diameter 600mm, including backfill and concreting with concrete class 15/20 to base	No	22.00		
	<b><u>Standard informatory signs - All Provisional</u></b>				
20.06	Provide, excavate for and erect information signs, including backfill and concreting with concrete class 15/20 to base				
	(a) 400 mm x 300 mm size	No	15.00		
	(b) 500 mm x 600 mm size	No	15.00		
	(c) 600mm x 600mm	No	20.00		
	<b><u>Non-Standard informatory signs</u></b>				
20.07	Provide, excavate for and erect information signs, including backfill and concreting with concrete class 15/20 to base				
	(a) Non-Standard informatory signs less than 1m <sup>2</sup>	No	12.00		
	(b) As Item 20.07 (a) but equal or more than 1m <sup>2</sup> but less than 2 m <sup>2</sup>	No	10.00		
	(c) As Item 20.12 (a) but equal or more than 2m <sup>2</sup> but less than 5 m <sup>2</sup>	No	8.00		
	(d) As Item 20.12 (a) but equal to or more than 5m <sup>2</sup> - Provisional	No	6.00		
20.08	<b><u>Mandatory signs</u></b>				
	Provide, excavate for and erect mandatory signs, including backfill and concreting with concrete class 15/20 to base	No	20.00		
20.09	<b><u>Gantry signs (Provisional)</u></b>				
	Provide, excavate for and erect Gantry signs, including backfill and concreting with concrete class 25/20 to base	No	5.00		
	<b><u>Road marking in thermoplastic paint</u></b>				
20.10	Prepare road surface, supply approved tack coat and road thermoplastic paint, spray approved tack coat, mark out and paint				
	(a) White paint	m <sup>2</sup>	22,500.00		
	(b) Yellow paint	m <sup>2</sup>	11,300.00		
	<b><u>Reflective road studs (cat's eyes)</u></b>				
20.11	Provide, transport, handle and place approved reflective road studs	No	5,900.00		
<b>C/F TO NEXT PAGE</b>					



**BILL OF QUANTITIES : LOT 2 -MORPUS - KAINUK**

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE (KSHS)	AMOUNT (KSHS)
<b>BILL NO.21 : MISCELLANEOUS BRIDGE WORKS</b>					
21.01	Apply two coats of bituminous water-proofing paint to backs of abutments and wing walls.	m <sup>2</sup>	55,697.12		
21.02	Provide, fit and fix in position true to line and level elastomeric bearings complete with all accessories as per the drawings specifications and as directed by the Engineer.	No.	90.00		
21.03	Provide 75mm diameter PVC weepholes to abutment, wingwalls and retaining wall complete as per drawing and technical specification.	No.	8,548.00		
21.04	Cantilever comb type of expansion joint with structural steel and anchorage assembly complete as per the drawings and specifications including acceptance testing as specified.	m	104.00		
21.05	Provide and fix in position 20mm thick compressible fibre board in expansion joint complete as per the drawings and technical specifications.	m	104.00		
21.06	Provide and fix 150mm dia PVC service ducts on bridge deck as per the drawings.	m	1,100.00		
21.07	Provide and fix 25mm thick mastic joint filler.	m	78.00		
21.08	Provide and fix 25x10mm polysulphide joint sealant.	m	78.00		
21.09	Provide and fix 75x75x8mm equal angles with steel anchors @600mm c/c at deck-abutment joint.	m	78.00		
21.10	Provide 1000mm long, 32mm diameter stainless steel dowel bar welded to 250x250x6mm MS plate, grouted into abutment with 35mm dia PVC sleeve to receive deck girders.	No.	90.00		
21.11	500mm long R25 dowel anchored into approach slab and as shown in details, covered with 30mm PVC class E sleeve.	No.	186.00		
21.12	Provide 50mm dia galvanised steel handrail pipe.	m	457.00		
21.13	Provide 12mm thick shaped steel plate supports to handrail welded to 200x200x12mm steel base plate with 20mm ribbed steel anchor rods,250mm long to detail @1500mm max c/c distance.	No.	378.00		
21.14	Provide 75mm drainage spouts complete as per drawing.	No.	224.00		
21.15	Provide, install 100mm diameter drain ducts including connectors, elbows, and reducers.	m	403.00		
21.16	Provide, install galvanised steel pedestrian walkway handrail as per drawing.	m	13,067.00		
<b>TOTAL FOR BILL 21 C/F TO SUMMARY</b>					

**BILL OF QUANTITIES : LOT 2 -MORPUS - KAINUK**

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE (KSHS)	AMOUNT (KSHS)
<b>BILL NO.22 : DAY WORKS</b>					
	<b>PLANT AND EQUIPMENT</b>				
	The rates inserted herein are to include all operational and maintenance costs, fuel, oil, grease, drivers/operators wages, supervision, overheads and profits. Only time actually employed upon the work will be measured and the rates shall include for idle time, travelling and overtime, in accordance with clause 2202 (a) of the specifications. All items of plant must be priced.				
22.01	<b>Crawler dozers with blade and hydraulic attachment</b>				
	(a) 100 - 135 kw rated flywheel power. D6 or equivalent including blade and ripper	hr.	200.00		
	(b) 136 - 185 kw rated flywheel power. D8 or equivalent including blade and ripper	hr.	200.00		
	(d) 136 - 230 kw rated flywheel power. D8 or equivalent including blade and ripper	hr.	200.00		
22.02	<b>Self-loading wheeled motor scraper of</b>				
	(a) up to 10 m <sup>3</sup> struck capacity. Cat 615 or equivalent	hr.	100.00		
	(b) Up to 15 m <sup>3</sup> struck capacity. Cat 623 or equivalent	hr.	100.00		
22.03	<b>Motor Graders</b>				
	(a) 80 - 110 kw rated flywheel power. Cat 12H or equivalent including blade and rippers	hr.	250.00		
	(b) 111 -170 kw rated flywheel power. Cat 14H or equivalent including blade and rippers	hr.	250.00		
22.04	<b>Rollers - Towed Vibratory Including Tractor</b>				
	(a) 6.5 - 8.8t unballasted weight	hr.	250.00		
	(b) 8.9 - 11.7t unballasted weight	hr.	250.00		
22.05	<b>Rollers - Road Deadweight (steel three wheel)</b>				
	(a) 6.1 - 8.5t unballasted weight	hr.	250.00		
	(b) 8.6 - 10.5t unballasted weight	hr.	250.00		
22.06	<b>Rollers - Rubber Tyred Self-Propelled</b>				
	(a) Upto 1.0t per wheel	hr.	250.00		
	(b) 1.1 - 2.0t per wheel	hr.	250.00		
22.07	<b>Rollers - Vibratory Single Roll Rubber Tyred</b>				
	(a) 8.3 - 10.5t unballasted weight	hr.	250.00		
22.08	<b>Rollers - Vibratory Pedestrian Operated Twin Roller</b>				
	(a) 8.3 - 10.5t unballasted weight	hr.	250.00		
22.09	<b>Vibrating Plate Compactor</b>				
	(a) 114Kg - 200Kg operating weight	hr.	500.00		
22.10	Compressor rated by normal delivery of free air per min. at about 7 kg/cm <sup>2</sup> , capable of 70m <sup>3</sup> of air per min, including all tools and hoses.				
	(a) 6.0 - 7.4m <sup>3</sup> /min	hr.	100.00		
	(b) 7.5 - 19.7m <sup>3</sup> /min	hr.	100.00		
	(b) 19.8 - 22.5m <sup>3</sup> /min	hr.	100.00		
22.11	<b>Cranes - Mobile Rubber Tyred Rough Terrain Type</b>				
	(a) 23 - 40t max working load	hr.	100.00		
22.12	<b>Cranes Excavator Cranes Tracked</b>				
	(a) 20.0 - 28.0t max working load	hr.	100.00		
	(b) 28.1 - 36.0t max working load	hr.	100.00		
	(c) 36.1 - 56.0t max working load	hr.	100.00		
22.13	<b>Small dumper</b>				
	(a) 750-1000kg rated payload.	hr.	200.00		
	<b>C/F TO NEXT PAGE</b>				

**BILL OF QUANTITIES : LOT 2 -MORPUS - KAINUK**

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE (KSHS)	AMOUNT (KSHS)
	<b>B/F FROM PREVIOUS PAGE</b>				
22.14	Excavator - Hydraulic Crawler or Wheel Mounted. Full Circle Slew (Back actor)				
	(a) 14 - 17.0t nominal weight of machine	hr.	200.00		
22.15	Backhoe with bucket width sizes 300 - 900mm. Cat 428 or equivalent	hr.	200.00		
22.16	Pump (inclusive of all hoses) and 50 - 80mm delivery.				
	(a) 50 -76mm delivery	hr.	100.00		
	(b) 77 -101mm delivery	hr.	100.00		
22.17	Pulvimiter/soil stabiliser. Cat RM 250 or equivalent	hr.	170.00		
22.18	Asphalt paving machine, paving width to 4.5m	hr	170.00		
22.19	20T pneumatic tyred, self-propelled roller	hr.	100.00		
22.20	15T self propelled smooth drum vibratory roller	hr.	100.00		
22.21	20T Sheep's foot roller (Cat 815 or equivalent) or heavy grid roller self- propelled.	hr.	170.00		
22.22	Self propelled vibratory roller, smooth drum, of 1000 - 1500 kg unballasted weight.	hr.	50.00		
22.23	Hand compactor, whacker, vibrating plate or equivalent	hr.	200.00		
22.23	<b>Hydraulic Excavator</b>				
	(a) Dual - purpose Hydraulic excavator and a rated bucket capacity of up to 1m <sup>3</sup> . Cat 322 or equivalent	hr.	200.00		
	(b) Rock hammer attachment	hr	100.00		
22.24	<b>Wheel loader 4WD, articulated:</b>				
	(a) 1.5 - 2.0 m <sup>3</sup> SAE rated bucket capacity. Cat 924 or equivalent	hr.	200.00		
	(b) 2.1 - 3.4m <sup>3</sup> SAE rated bucket capacity. Cat 950 or equivalent	hr.	50.00		
22.25	<b>Tracked loader</b>				
	(a) 1 m <sup>3</sup> SAE rated bucket capacity. Cat 933 or equivalent	hr.	50.00		
	(b) 2m <sup>3</sup> SAE rated bucket capacity. Cat 963 or equivalent	hr.	50.00		
22.26	<b>Concrete mixer (wet capacity)</b>				
	(a) upto 100 litres	hr.	170.00		
	(b) 151 - 200 litres	hr.	170.00		
	(c) 201 -300 litres	hr.	170.00		
22.27	Poker vibrator for concrete, diesel.	hr.	200.00		
22.28	(a) Ordinary flat -bed lorry, 8-15 Tonne	hr.	100.00		
	(b) Low loader transporter, minimum load capacity 30T	hr.	50.00		
22.29	<b>Tipper (dump) truck</b>				
	(a) 10 - 15 Tonne load capacity	hr.	150.00		
	(b) 16-25 tonne load capacity	hr.	100.00		
22.30	<b>Van, Pick - up or Similar Utility Vehicle</b>				
	(a) Upto 1.0t Carrying Capacity	hr.	100.00		
	(b) 1.11 - 2.66t Carrying Capacity	hr.	100.00		
22.31	<b>Water tanker/bowser self propelled capacity.</b>				
	(a) 3500 - 4550 Litre Capacity	hr.	200.00		
	(b) 4551 - 7000 Litre Capacity	hr.	200.00		
	(a) 7001 - 12000 Litre Capacity	hr.	400.00		
	<b>C/F TO NEXT PAGE</b>				

**BILL OF QUANTITIES : LOT 2 -MORPUS - KAINUK**

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE (KSHS)	AMOUNT (KSHS)
	<b>B/F FROM PREVIOUS PAGE</b>				
22.32	<b>Pressure bitumen distributor</b>				
	(a) 3500 - 4500 Litre Capacity	hr.	150.00		
	(b) 4501 - 9000 Litre Capacity	hr.	150.00		
22.33	Mechanical broom.	hr.	150.00		
22.34	Mechanical Bitumen handspray unit.	hr.	150.00		
					-
	<b>Asphalt Paver</b>				
22.35	Self-propelled chip spreader or equivalent approved.	hr.	150.00		
22.36	Arc welding kit including power source, welding rods and operator	hr	150.00		
22.37	Crane - mobile rubber tyred rough terrain type, 23-40T working load	hr	150.00		
22.38	(a) Surface planer (cold plane), 0.5m width, 72kw engine	hr	150.00		
	(b) Surface planer (cold plane), 2.1m width, 390kw engine	hr	150.00		
22.39	<b>LABOUR</b>				
	<i>Note: All items of labour must be priced (see clause 2202 (b) of the specifications)</i>				
	(a) Unskilled Labour	hr.	3,000.00		
	(b) Ganger/Leading hand	hr	1,000.00		
	(c) Carpenter/Stone mason	hr.	1,000.00		
	(d) General tradesman (artisan)	hr.	1,000.00		
	(e) Watchman (all round surveillance)	hr.	1,000.00		
	<b>MATERIALS</b>				
	<i>All items of materials must be priced, and in accordance with clause 2202 (c) requirements of the specifications.</i>				
22.40	(a) Ordinary Portland Cement (KS 1725 2001 CEM 1 42.5)	ton.	325.00		
	(b) Hydrated calcium lime	ton	170.00		
22.41	<b>Aggregates for Concrete</b>				
	(a) Sand	m <sup>3</sup>	325.00		
	(b) Coarse (nominal size 10-20)	m <sup>3</sup>	325.00		
22.42	<b>Formwork Timber</b>				
	(a) Class F1 finish	m <sup>2</sup>	200.00		
	(b) Class F3 finish	m <sup>2</sup>	200.00		
22.43	<b>Steel reinforcement - mild steel round bar</b>				
	(a) Up to and including 16mm diameter.	ton.	35.00		
	(b) Over 16mm diameter size.	ton.	35.00		
22.44	<b>Steel reinforcement- high yield deformed bar</b>				
	(a) Up to and including 16mm diameter.	Tonne	35.00		
	(b) Over 16mm diameter size.	Tonne	25.00		
22.45	<b>Class 1 nominal size chippings</b>				
	(a) 14/20 mm	m <sup>3</sup>	100.00		
	(b) 10/14 mm	m <sup>3</sup>	150.00		
	(c) 6/10 mm	m <sup>3</sup>	150.00		
22.46	<b>Bitumen</b>				
	(a) 80/100 penetration grade bitumen	Litres	5,000.00		
	(b) Bitumen cutback MC 30	Litres	500.00		
	(c) Bitumen cutback MC 3000	Litres	500.00		
	(d) 60/70 penetration bitumen	Litres	5,000.00		
	(e) K1-70 emulsion	Litres	1,000.00		
	<b>C/F TO NEXT PAGE</b>				



**BILL OF QUANTITIES : LOT 2 -MORPUS - KAINUK**

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE (KSHS)	AMOUNT (KSHS)
<b>BILL NO. 24 : STREET LIGHTING (LED SOLAR)</b>					
	Supply, deliver, install and set to work the following with all accessories as specified:-				
	<b>10 metre Streetlighting installation</b>				
24.01	10m single arm steel galvanised streetlighting column made from Class "B" steel galvanised pipe with all accessories.	No	30.00		
24.02	Ditto but for double arm bracket	No	30.00		
24.03	Supply and insall All in one solar L.E.D street light with the following parameters; i) Solar Panel Power: 18V 140W (High efficiency monocrystalline silicon) ii) Battery Type: High efficiency LiFePO4 Battery iii) Rated capacity for battery: 12.8V 72AH iv) LED Brand: CREE or equivalent v) LED Power: 100W-150 W max vi) Lumen efficacy: 140 lm/W min vii) Lifespan: 50,000hrs viii) Beam Angel: 150x70° ix) Charging Time: 6-8 hours x) Lighting Time(Full Power): 12-14 hours xi) Lighting Time(30% saving mode): 39 hours (3-5 rainy days) xii) Color temperature: 2700-6500K xiii) Discharing temperature: -20 °C to +60 °C xiv) Charging Temperature: 0 °C to +60 °C xv) Storage temperature: -20 °C to +45 °C xvi) Mounting Height: 10-12m xvii) Charge controller: MPPT type The brand to be as Phillips or Approved Equivalent	No	90.00		
24.04	Earthing comprising of a 6mm2 earth lead and 1800mm long by 15mm diameter copper earth electrode with a driving tip and clamp in a 150mm by 150mm by 200mm concrete manhole with removable cover.	No	60.00		-
24.05	Civil works for reinforced concrete 600mm x 600mm x1000mm streetlight pole foundations of C30 concrete rates to include excavation, backfilling etc.	No	60.00		-
24.06	Testing and commissioning of all luminaires and earthing tests on all poles.	Lot	1.00		
<b>TOTAL FOR BILL 24 C/F TO SUMMARY</b>					









**BILL OF QUANTITIES : LOT 2 -MORPUS - KAINUK**

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE (KSHS)	AMOUNT (KSHS)
<b>APPENDIX 1.02</b>					
A102/1.00	Construct and maintain the RE/S office for the entire contract period, rate includes the building, security, water, electricity, gas, cleaning, tea and coffee in accordance with the specifications. Measurement and payments to be done in accordance with clause 141(b) of the standard Specs.	item	1.00		
A102/1.01	Executive desk 2.2x0.9m with six lockup drawers	No	2.00		
A102/1.02	Executive desk 2.2x0.9m with chair and three lockup drawers	No	4.00		
A102/1.03	Office tables	No	3.00		
A102/1.04	Swivel orthopaedic chairs	No	4.00		
A102/1.05	Standard chairs	No	6.00		
A102/1.06	Typist's desk	No	1.00		
A102/1.07	Typist's chair	No	1.00		
A102/1.08	Stationary cupboard, 1.2m3, lockable	No	5.00		
A102/1.09	Steel filing cabinet, 4 lockable drawers	No	5.00		
A102/1.10	Safe for cash and valuables min. size approx. 0.8mx0.5mx.4m to be concreted in place (wall/floor mounted) complete with lock and keys.	No	1.00		
A102/1.11	Bookshelf, 3 shelves 1.2m long with a sliding glass door	No	3.00		
A102/1.12	Conference table with 12 chairs	No	1.00		
A102/1.13	Ceiling fans	No	8.00		
A102/1.14	Air conditioner unit, 12000BTU/hr	No	6.00		
A102/1.15	Curtains for office	set	2.00		
A102/1.16	Desktop computers, Intel Core i7 processor (min 10th generation), min 3.3GHz, min 8GB RAM, 512GB SSD & 1TB HDD, DVD writer; 18.5" TFT flat screen monitor, Windows 11 Operating System. Loaded with Microsoft Office, MS Project and Internet Security anti-virus. Dust covers, mouse and mouse pad	No	6.00		
A102/1.17	Laptop computers ,Intel Core i9 processor (min 10th generation), min 3.0GHz, min 16 GB RAM 1TB SSD, DVD writer; 15.6" complete with all accessories preloaded with latest versions of windows OS, MS Office, Professional and MS Project	No	6.00		
A102/1.18	Latest (A4) Laser Printer with accessories	No	3.00		
A102/1.19	Latest (A3) Laser Printer with accessories	No	1.00		
A102/1.20	Autodesk Civil 3D 2024 and Licences for above computers, for the duration of the contract.	No	6.00		
A102/1.21	HP Colour LaserJet CP5225 or similar wireless all-in-one A4/A3 network colour printer, two-sided printing, colour print speed 20 copies per min. Processor speed 540 MHz; Memory 192 MB random-access memory (RAM).	No	1.00		
A102/1.22	HP_MFP 779dn or equivalent multifunction network laser printer/scanner/photocopier; min 40 copies per minute A4 Colour printing; two-sided printing, paper size A4 - A3. Print speed min. 36 pages/minute colour A4. Processor speed min. 1.2 GHz. 1 no will be assigned and revert to the Employer.	No	2.00		
A102/1.22	UPS 1 KVA with surge protector	No	5.00		
A102/1.23	Reams of A4 and A3 paper and consumables for the printers in quantity sufficient to complete the contract	LS	1.00		
A102/1.24	A3 photocopier (approved make) with feeder sorting trays, accessories and supplies sufficient to complete the project	No	1.00		
A102/1.25	Casio fx-992s or Equivalent Electronic scientific calculator	No	8.00		
A102/1.26	Stapling machine Ofrex size 50 or similar with 5000 staples	No	8.00		
A102/1.27	Heavy duty punch and spiral binde with consumables sufficient to complete the contract	No	1.00		
A102/1.28	Ordinary 2 hole paper punch	No	8.00		
A102/1.29	First Aid Kit	No	2.00		
A102/1.30	Fire Extinguisher	No	3.00		
A102/1.31	Snake Bite Kit	No	2.00		
A102/1.32	Filing Tray	No	10.00		
A102/1.33	Water filters	No	6.00		
A102/1.34	Waste paper basket	No	15.00		
A102/1.35	Refrigerator minimum capacity 0.2m2	No	1.00		
A102/1.36	Table – 0.8m2 surface area	No	1.00		
A102/1.37	3 plate electric cooker with oven and grill	No	1.00		
A102/1.38	Thermos jug 4.5L capacity	No	8.00		
A102/1.39	Digital Camera, 16.1 Megapixel(min), 1920x1080 full HD movie recording, optical steady Shot, sweep panorama, 2.7" LCD screen, minimum 5x digital zoom, multimedia card/SD 8GB memory, 12 scene selection modes, all inclusive.	No	2.00		
A102/1.40	PABX Telephone system including intercom connecting all offices and laboratory. Rate includes headsets, wiring and operational costs. Including High Speed Internet Access using optic fibre or HDSL (High Data Digital Subscriber Line) broadband connection networked to all computers, with annual subscription paid during the entire contract period.	item	1.00		
<b>TOTAL CARRIED TO BILL ITEM 1.02</b>					

**BILL OF QUANTITIES : LOT 2 -MORPUS - KAINUK**

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE (KSHS)	AMOUNT (KSHS)
<b>APPENDIX 1.04</b>					
	<b>1. FURNITURE</b>				
A104/1.01	Meeting table (3.0mx 1.2m) with 6 chairs	No.	1.00		
A104/1.02	Ceiling fans	No.	4.00		
A104/1.03	Air conditioner unit, 12000 BTU/hr	No.	2.00		
A104/1.04	Desk 2.2m x 0.9m with 2 chest of drawers	No.	2.00		
A104/1.05	Office chairs, standard	No	6.00		
A104/1.06	Chairs with arms	No.	8.00		
A104/1.07	Table (1.5mx .75m) with 2 drawers and 2 chairs.	No.	1.00		
A104/1.08	4-drawer Steel lockable filing cabinet	No.	2.00		
A104/1.09	Electronic scientific calculator, 12 figures	No.	4.00		
A104/1.10	Fire extinguisher, 10 litre capacity, CO <sub>2</sub> type	No.	2.00		
A104/1.11	Steel filing cabinet, 4 drawers, lockable	No	2.00		
A104/1.12	Steel filing cabinet, 2 drawers, lockable	No	2.00		
A104/1.13	Bookshelf, 3 shelves 1.2m long (to hold box files)	No	1.00		
A104/1.14	First aid kit	No.	1.00		
A104/1.15	Snake bite kit	No.	1.00		
A104/1.16	Water filters	No.	2.00		
	<b>2. EQUIPMENT</b>				
	<b>NOTE:</b>				
	The following equipment shall be purpose made for use in the Engineer's laboratories and shall comply with the relevant British (BS) or American (AASHTO) Standards				
	<b>i)General Equipment</b>				
A104/2.01	Compaction mould complete with base plate and extension collar, 101.6mm dia.x116.43mm high	No.	4.00		
A104/2.02	2.5kg Compaction rammer, drop regulated to 304.8mm	No.	4.00		
A104/2.03	4.535kg compaction rammer, drop regulated to 457.2mm	No.	4.00		
A104/2.04	Straight edge 300mm long, with handles	No.	6.00		
A104/2.05	Electric vibrating Kango Hammer fitted with steel tamper (BS1377) with support frame	No	1.00		
A104/2.06	Steel Tamper (BS 1377) compatible with Kango hammer	No.	4.00		
A104/2.07	Compaction mould complete with base plate and extension collar, 152.4mm dia.x116.43mm high	No.	4.00		
A104/2.08	Galvanized sample tray 1mx 0.5mx 75mm deep	No.	6.00		
A104/2.09	75mm brush	No.	10.00		
A104/2.10	Semi-automatic Electronic balance , 25kg capacity accurate to 10g, including weights	No.	1.00		
A104/2.11	20mm BS sieve, 300mm diameter	No.	2.00		
A104/2.12	Stop Clock	No.	2.00		
A104/2.13	Thermostatically controlled electric oven 104- 110°C, capacity 0.225m <sup>3</sup>	No.	2.00		
A104/2.14	As above but gas heated	No	1.00		
A104/2.15	Moisture tin, 90mm diameter 20mm deep, cadmium plated or aluminium alloy	No.	100.00		
A104/2.16	Cone penetrometer with gauge and automatically controlled test cup	No.	1.00		
A104/2.17	Test gauge	No.	1.00		
A104/2.18	Penetration test cup	No.	2.00		
A104/2.19	Penetration test cone	No.	3.00		
A104/2.20	Glass comparator	No.	2.00		
A104/2.21	Glass plate	No.	2.00		
A104/2.22	Evaporating Dish 150mm diax45mm depth	No.	4.00		
	<b>C/F TO NEXT PAGE</b>				

**BILL OF QUANTITIES : LOT 2 -MORPUS - KAINUK**

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE (KSHS)	AMOUNT (KSHS)
	<b>B/F FROM PREVIUOS PAGE</b>				
	<b>ii)Density (Sand Replacement method BS 1377)</b>				
A104/3.01	Metal container (450mm dia.)	No.	4.00		
A104/3.02	Stainless steel tray, 305mm diameter 50mm deep	No.	4.00		
A104/3.03	Metal tray with 150mm diameter hole in the centre, 300mm x 300mm square or equivalent area, 400mm deep	No.	3.00		
A104/3.04	Metal tray with 200mm diameter hole in the centre, 500mm x 500mm square, 50mm deep	No.	3.00		
A104/3.05	Steel pegs for fixing tray in position	No.	20.00		
A104/3.06	Sand pouring cylinder, 150mm diameter	No.	5.00		
A104/3.07	Sand pouring cylinder, 215mm diameter	No.	5.00		
A104/3.08	Cold steel chisel 20mm x 300mm long	No.	6.00		
A104/3.09	Cold steel chisel 10mm x 250mm long	No.	6.00		
A104/3.10	2 No. 1.5kg, 2no. 3.5kg mason hammers and 2No. 1kg rubber mallet	Set	3.00		
A104/3.11	Scoop for removing excavated material from hole, 250mm long handle	No.	10.00		
A104/3.12	100mm brush, soft	No.	4.00		
A104/3.13	50mm brush, soft	No.	6.00		
A104/3.14	Primus gas stove	No.	3.00		
A104/3.15	Calibration can 150mm diameter x 150mm deep	No.	4.00		
A104/3.16	Ditto but 200mm diameter x 250mm deep	No.	4.00		
	<b>iii)Density test (Nuclear Density method AASHTO T238)</b>				
A104/4.01	Nuclear density gauge (Troxlter 3411B or similar approved)	No.	1.00		
A104/4.02	Hole forming Device(drill rod)	No.	3.00		
A104/4.03	Guide for above	No.	3.00		
	<b>iv)CBR (AASHTO T193)</b>				
A104/5.01	50 kN CBR Load frame complete with stabilising bar	No.	1.00		
A104/5.02	CBR penetration piston including bracket	No.	2.00		
A104/5.03	Penetration gauge range 0-25mm travel x 0.01 mm divisions	No.	2.00		
A104/5.04	Proving ring for above of 50 kN capacity	No.	2.00		
A104/5.05	Proving ring for above of 28 kN capacity	No.	1.00		
A104/5.06	Proving ring for above of 10 kN capacity	No.	1.00		
A104/5.07	CBR mould, 152.4mm dia. X 178mm high, complete with perforated base plate and extension collar 50.8mm high that can be fitted to either end of the mould	No.	50.00		
A104/5.08	Perforated swell plate 150mm dia. With an adjustable centre post of rustproof metal provided with a lock nut	No.	50.00		
A104/5.09	Swell tripod	No.	50.00		
A104/5.10	Swell dial gauge	No.	50.00		
A104/5.11	2.27kg slotted surcharge weight	No.	15.00		
A104/5.12	2.27kg annular surcharge weight	No.	30.00		
A104/5.13	2.8 kg solid base plate for CBR mould	No.	4.00		
A104/5.14	Central extruder, complete with 29KN hydraulic jack and accessories.	No.	1.00		
A104/5.15	Spacer disc with "T" handle	No.	4.00		
A104/5.16	Soaking tank for CBR mould sufficient to hold at least 100 moulds	No.	2.00		
	<b>C/F TO NEXT PAGE</b>				

**BILL OF QUANTITIES : LOT 2 -MORPUS - KAINUK**

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE (KSHS)	AMOUNT (KSHS)
	<b>B/F FROM PREVIUOS PAGE</b>				
	<b>v)Specific Gravity for Aggregates (BS 812)</b>				
A104/6.01	200mm dia. Wire mesh basket with apertures not greater than 6.5mm large enough to contain 2.5kg of aggregates	No.	1.00		
A104/6.02	A stout watertight container in which the basket can be freely suspended	No.	1.00		
A104/6.03	Soft absorbent cloth (tea towel)	No.	20.00		
A104/6.04	Shallow tray of area not less than 0.065m <sup>2</sup>	No.	4.00		
A104/6.05	An airtight container of similar capacity to the basket	No.	2.00		
A104/6.06	Pycnometer of 1 litre capacity	No.	4.00		
A104/6.07	Electronic automatic 5kg balance accurate to 0.1g to be of size and type to permit the basket containing the sample to be suspended in water (to be supplied with weights)	No.	1.00		
A104/6.08	Well ventilated oven, thermostatically controlled to maintain a temperature of 105°C+-5°C	No.	1.00		
	<b>vi)Sieve Analysis</b>				
A104/7.01	Sieve 300mm diameter : 75, 63, 50, 37.5, 28, 25,19, 20, 14,12.5, 10,9.5, 6.3, 5, 4.75 and 4mm, plus lid and receiver	Set	3.00		
A104/7.02	Sieve 200mm diameter: 2.36, 2, 1.18, 1, 0.6, 0.5, 0.425, 0.300, 0.150 and 0.075mm plus lid and receiver	Set	3.00		
A104/7.03	Electric Sieve shaker	No.	1.00		
A104/7.04	1.2m x 1.2m x 50mm deep galvanized metal tray	No.	15.00		
A104/7.05	Riffle box with 50mm slots	No.	2.00		
	<b>vii)Concrete: Slump and Cube Manufacture (BS 1881)</b>				
A104/8.01	Slump cone, tamping rod and base	Set	3.00		
A104/8.02	Steel rule	No.	2.00		
A104/8.03	Concrete cube mould 150mm cube	No.	20.00		
A104/8.04	Large curing tank (capacity 50 No. Cubes)	No.	1.00		
A104/8.05	Cube tamping rod and spanner for item	No.	3.00		
	<b>viii)Concrete: Cube Compression Testing</b>				
A104/9.01	Concrete compression machine, to BS 1610 Grade A with 300mm gauge, rectangular platens, capacity 1560 kN with load pacer together with 100kN flexural frame with accessories	No.	1.00		
A104/9.02	Set of safety guards	No.	1.00		
A104/9.03	20mm distance piece	No.	1.00		
A104/9.04	50mm distance piece	No.	1.00		
A104/9.05	80mm distance piece	No.	1.00		
A104/9.06	100mm distance piece	No.	1.00		
A104/9.07	Assembly for beam tests	No.	1.00		
A104/9.08	Electro-mechanical load pacer, 100mm or equivalent distance piece	No.	1.00		
	<b>C/F TO NEXT PAGE</b>				

**BILL OF QUANTITIES : LOT 2 -MORPUS - KAINUK**

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE (KSHS)	AMOUNT (KSHS)
	<b>B/F FROM PREVIUOS PAGE</b>				
	<b>ix). Aggregate and Chippings</b>				
A104/9.09	Sand equivalent equipment to AASHTO T176 including a graduated plastic measuring cylinder, rubber stopper, irrigator tube weighed foot assembly, siphon assembly, 85ml tinned box(57mm dia), wide mouth funnel(100mm dia.), stop clock, mechanical shaker and 10 litre jar	Set	1.00		
A104/9.10	Los Angeles Abrasion machine	Set	1.00		
A104/9.11	Standard aggregate crushing value apparatus, supplied complete with cylinder, plunger, base plate, tamping rod and measure.	Set	3.00		
A104/9.12	Aggregate Impact testing machine to determine the aggregate impact value (AIV)	No.	1.00		
A104/9.13	Sodium sulphate test apparatus	No.	10.00		
A104/9.14	Beaker 250ml	No.	2.00		
A104/9.15	Reagent grade silica gel, 500g container	No.	100.00		
A104/9.16	Tamping rod 8mm dia. X 300mm long and metal measure 115mm dia. X 180mm deep for above (BS 812)	No.	1.00		
A104/9.17	Flakiness gauge (BS 812) passing 10.0mm retain 6.3mm	No.	1.00		
A104/9.18	Flakiness gauge (BS 812) passing 14.0mm retain 10.0mm	No.	1.00		
A104/9.19	Flakiness gauge (BS 812) passing 20.0mm retain 14.0mm	No.	1.00		
A104/9.20	Flakiness gauge (BS 812) passing 28.0mm retain 20.0mm	No.	1.00		
A104/9.21	Flakiness gauge (BS 812) passing 37.5mm retain 28.0mm	No.	1.00		
A104/9.22	Flakiness gauge (BS 812) passing 50.0mm retain 37.5mm	No.	1.00		
A104/9.23	Flakiness gauge (BS 812) passing 63.0mm retain 50.0mm	No.	1.00		
	<b>x). Tray Spray and Spread Rate Tests</b>				
A104/10.01	Transverse distribution test of bitumen spray (depot tray test to BS 1707) equipment	No.	1.00		
A104/10.02	Rate of spread of coated chippings Tray and chains	No.	4.00		
A104/10.03	Calibrated spring balance	No.	4.00		
A104/10.04	Steel tray 306x306x38mm(for measuring bitumen spray rate)	No.	10.00		
A104/10.05	Gunny sacks	No.	400.00		
A104/10.06	Plastic bag 900 x 450mm x 1000 gauge	No.	2,000.00		
A104/10.07	Plastic bag 450 x 300mm x 1000 gauge	No.	2,000.00		
A104/10.08	Filter paper 150mm dia. Whatman No. 5 (Boxes of 100)	No.	40.00		
A104/10.09	Filter paper 400mm dia. Whatman No. 5 (Boxes of 100)	No.	20.00		
A104/10.10	Filter paper 100mm dia. Whatman No. 5 (Boxes of 100)	No.	20.00		
A104/10.11	Cotton Waste (or drying cloth)	KG	20.00		
A104/10.12	Filter paper 400mm dia. Whatman No. 54 (Boxes of 100)	No.	10.00		
	<b>xi). Miscellaneous</b>				
A104/11.01	Gas cylinders 13kg	No.	5.00		
A104/11.02	Padlocks	No.	6.00		
A104/11.03	Plastic jerry cans 20 litre capacity	No.	6.00		
A104/11.04	Paper punch	No.	2.00		
A104/11.05	Stapler with pins	No.	2.00		
A104/11.06	Tray lifting callipers	No.	4.00		
A104/11.07	Laboratory dust coats-Brown	No.	16.00		
A104/11.08	Laboratory dust coats-White	No.	6.00		
A104/11.09	Asbestos gloves	No.	16.00		
A104/11.10	Laboratory gumboots(assorted sizes)	No.	16.00		
A104/11.11	Wheel barrow	No.	4.00		
A104/11.12	Dust pan plus brush	No.	4.00		
A104/11.13	Hand shovel	No.	6.00		
A104/11.14	Pick axe with handle	No.	6.00		
A104/11.15	Metal scoop, large (120x190x70mm) cast aluminium handle	No.	4.00		
A104/11.16	Metal scoop, large (70x110x40mm) cast aluminium handle	No.	6.00		
A104/11.17	Garden trowel	No.	4.00		
A104/11.18	Sample tray 306x306x38mm	No.	20.00		
A104/11.19	Spatula 200mm blade	No.	6.00		
A104/11.20	Spatula 100mm blade	No.	6.00		
A104/11.21	BS sieve 450mm dia, 37.5mm	No.	1.00		
A104/11.22	BS sieve 450mm dia, 20mm	No.	1.00		
A104/11.23	BS sieve 450mm dia, 5mm	No.	1.00		
	<b>C/F TO NEXT PAGE</b>				

**BILL OF QUANTITIES : LOT 2 -MORPUS - KAINUK**

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE (KSHS)	AMOUNT (KSHS)
	<b>B/F FROM PREVIUOS PAGE</b>				
A104/11.24	BS sieve 450mm dia, 0.425mm	No.	2.00		
A104/11.25	BS sieve 450mm dia, 0.3mm	No.	2.00		
A104/11.26	BS sieve 450mm dia, 0.75mm	No.	2.00		
A104/11.27	Set of lid and receiver for item 212 to item 217	No.	1.00		
A104/11.28	BS sieve brush double ended brass and nylon bristle	No.	4.00		
A104/11.29	Measuring cylinders plastic with sprout 100ml, 250ml, 500ml capacity.	set	3.00		
A104/11.30	Glass jar capacity 5 litres with lid	No.	10.00		
A104/11.31	200mmx200mmx20mm cadmium plated or aluminium tin	No.	50.00		
A104/11.32	Electronic Automatic balance, capacity 1000g accurate to 0.01g	No.	1.00		
A104/11.33	Electronic Automatic balance, capacity 2100g accurate to 0.01g	No.	1.00		
A104/11.34	Electronic Automatic balance, capacity 20kg accurate to 0.01g	No.	1.00		
A104/11.35	Dial -0-gram balance 310g capacity accuracy to 0.1g	No.	1.00		
A104/11.36	Field and laboratory scale with scoop 10000g capacity accurate to 1.0g	No.	1.00		
A104/11.37	Distilled water still	No.	1.00		
A104/11.38	Polythene or glass 20 litre storage vessels with tap at bottom	No.	2.00		
A104/11.39	Set of stiff broom and soft broom with handles	No.	5.00		
A104/11.40	Vernier callipers, 150mm, accurate to 0.1mm	No.	1.00		
A104/11.41	As above but 200mm, accurate to 0.002mm	No.	1.00		
A104/11.42	Pestle and mortar	No.	2.00		
A104/11.43	Linear shrinkage mould (BS 1377)	No.	25.00		
A104/11.44	Average least dimension gauge	No.	2.00		
A104/11.45	Lockable tool box containing: 1pair "Molegrip" 2x150mm screw driver, 2x200mm screw driver, 2x300mm screw driver, (1 std and 1 'Phillips' star head of each), adjustable spanners 200mm and 300mm, 1 pr Round-nosed pliers, 1 pair general purpose pliers	No.	1.00		
A104/11.46	Plastic or metal bucket including lid, 10 litres capacity	No.	10.00		
A104/11.47	Polythene wash bottle	No.	6.00		
A104/11.48	A4 size clipboard	No.	10.00		
A104/11.49	Mercury thermometer, range-1de.cent. To 15deg.cent glass (BS 593)	No.	4.00		
A104/11.50	Minimum and maximum thermometer(BS 692)	No.	2.00		
A104/11.51	Rain gauge	No.	4.00		
A104/11.52	Portable dial thermometer +50oC to +2500C accurate to ±3% with 0.65 long stem	No.	3.00		
A104/11.53	As above but with 1ml long stem	No.	2.00		
A104/11.54	5 litre capacity steel storage container with leak and dustproof lids for storage of bitumen samples	No.	100.00		
A104/11.55	Hotplate 200mm dia. With simmerstat heat control unit	No.	2.00		
A104/11.56	450mm diameter x 150mm deep metallic karais	No.	20.00		
A104/11.57	MOT straight edge with accessories	No.	1.00		
A104/11.58	Metric wedge	No.	1.00		
A104/11.59	Transit case	No.	1.00		
	<b>C/F TO NEXT PAGE</b>				

**BILL OF QUANTITIES : LOT 2 -MORPUS - KAINUK**

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE (KSHS)	AMOUNT (KSHS)
	<b>B/F FROM PREVIUOS PAGE</b>				
	<b>xii). Standard Specification</b> <i>(Copies of each of the latest editions of the following Standards)</i>				
A104/12.01	KS 1725	No.	1.00		
A104/12.02	BS 812, Testing aggregates	No.	1.00		
A104/12.03	BS 882:1992, Specification for aggregates from natural sources for concrete (AMD 13579) (No longer current but cited in Building Regulations)	No.	1.00		
A104/12.04	BS 1377: 1990, Methods of testing soils for Civil engineering purposes	No.	1.00		
A104/12.05	BS 1881: Methods of testing concrete	No.	1.00		
A104/12.06	BS 434-2:2006, Bitumen road emulsions. Code of practice for use of cationic bitumen emulsions on roads and other paved areas	No.	1.00		
A104/12.07	BS EN 1008:2002, Mixing water for concrete	No.	1.00		
A104/12.08	BS 4449:2005, Steel for the reinforcement of concrete - Weldable reinforcing steel - Bar, coil and decoiled product - Specification (+A2:2009)	No.	1.00		
A104/12.09	BS 8666:2005, Scheduling, dimensioning, bending and cutting of steel reinforcement for concrete - Specification (incorporating Amendment No.1)	No.	1.00		
A104/12.10	BS 5911-200:1994: Precast concrete pipes and ancillary concrete products. Unreinforced and reinforced manholes and soakaways of circular cross section (AMD 11031) (AMD 13205) (No longer current but cited in Building Regulations)	No.	1.00		
A104/12.11	BS 8004: Code of practice for foundations	No.	1.00		
A104/12.12	Overseas Road Note 3, (ORN 3), A guide to surface dressing in tropical and sub-tropical countries	No.	1.00		
A104/12.13	Standard Specifications for Transportation Material and Methods of Sampling and Testing (AASHTO) Parts I and II, 14th Edition	No.	1.00		
A104/12.14	Asphalt Institute Standards: MS-2, Mix design methods for asphalt concrete and other hot-mix types		1.00		
	<b>xiii). Marshall Test (ASTM D1559)</b>				
A104/13.01	Petrol driven 100mm dia core cutter with all accessories	No.	1.00		
A104/13.02	Specimen mould + base plate + extension collar	No.	10.00		
A104/13.03	Specimen extractor	No.	2.00		
A104/13.04	Compaction hammer	No.	2.00		
A104/13.05	Compaction pedestal + specimen mould holder	No.	2.00		
A104/13.06	Breaking head mould	No.	1.00		
A104/13.07	Electrical 30 kN Marshall compression testing machine	No.	1.00		
A104/13.08	Suitable electrically operated laboratory mixer, 10 litre capacity	No.	1.00		
A104/13.09	Proving ring 28kN capacity graduated in 0.0025mm	No.	1.00		
A104/13.10	Flow-meter	No.	2.00		
A104/13.11	Suitable mechanical mixer	No.	1.00		
A104/13.12	Water bath at least 150mm deep thermostatically controlled to maintain water at 60°C ± 1°C with a perforated false bottom or equipped with a shelf to support specimen 50mm above the bottom of the bath, with cover	No.	1.00		
A104/13.13	Thermometer (50°C to 25°C) 50mm dia with 180mm stainless steel stem	No.	2.00		
A104/13.14	Bench mounted mixer, 5 litre capacity with isomantle electric heater	No.	2.00		
	<b>C/F TO NEXT PAGE</b>				

**BILL OF QUANTITIES : LOT 2 -MORPUS - KAINUK**

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE (KSHS)	AMOUNT (KSHS)
	<b>B/F FROM PREVIUOS PAGE</b>				
	<b>xiv). Bitumen Extraction Test</b>				
	<b>(a) Cold extraction Bottle Roller Method, BS 598:102</b>				
A104/14.01	Electronic top pan balance 4kg capacity	No.	1.00		
A104/14.02	Flat bottomed scoop	No.	3.00		
A104/14.03	Steel garden trowel	No.	2.00		
A104/14.04	Large steel spoon	No.	2.00		
A104/14.05	Heat resistant gloves	pair	10.00		
A104/14.06	Foot pump for pressurizing air –water assemblies upto a maximum of 700kN/m2 and fitted with flexible hose approximately 1.2m long and connector	No.	2.00		
A104/14.07	Steel bottle 600ml capacity with 50mm dia rubber stopper	No.	2.00		
A104/14.08	Steel bottle 2500ml capacity with 70mm dia rubber stopper	No.	2.00		
A104/14.09	Steel bottle 7000ml capacity with 70mm dia rubber stopper	No.	2.00		
A104/14.10	Flask funnel for fitting to the 700ml steel bottle with the rim of the funnel retaining sieve 200mm nominal diameter	No.	1.00		
A104/14.11	Bottle roller compact bench mounted unit designed to rotate two bottles simultaneously about the longitudinal axis	No.	1.00		
A104/14.12	Pressure filter complete with cutting tool for making a hole in the filter paper	No.	1.00		
A104/14.13	Filter funnel to take 200mm nominal diameter sieves	No.	2.00		
A104/14.14	Continuous flow centrifuge	No.	1.00		
A104/14.15	Binder recovery apparatus	No.	1.00		
A104/14.16	Volumetric flask 250ml, 500ml, 100ml and 2000ml capacity each	No.	2.00		
A104/14.17	Recovery still for Dichloromethane	No.	1.00		
A104/15.01	Hot extractor complete with steel pot with gasket and gauze container, dean and stark receiver, Liebig condenser and a box of filter paper – Whatman No. 5x400mm dia or equivalent	No.	2.00		
	<b>(b) Hot Extraction Method, BS 598</b>				
	<b>COMPACTORS</b>				
	<b>BS EN 12697-31</b>				
A104/16.01	Gyratory compactor ELE SERVO PAC or equivalent with 1 No 100mm and 1 No 150mm dia mould including all accessories and parts complete for use in testing	No.	1.00		
	<b>BS EN 12697-32</b>				
A104/17.01	Percentage Refusal Density (PRD) Vibrating hammer compactor complete with shanks, tampers (small and large), 6 split moulds, 7 base plates from ELE or equivalent	No.	1.00		
	<b>xv). Consumables</b>				
A104/18.01	Paraffin wax	kg	50.00		
A104/18.02	Gas	kg	500.00		
A104/18.03	Gunny sack	No.	250.00		
A104/18.04	Plastic bag 900 x 450mm x 1000 gauge	No.	1,000.00		
A104/18.05	Plastic bag 450 x 300mm x 1000 gauge	No.	1,000.00		
A104/18.06	Filter paper 150mm dia., Whatman No. 5 (Boxes of 100)	No.	40.00		
A104/18.07	Filter paper 400mm dia., Whatman No. 5 (Boxes of 100)	No.	20.00		
A104/18.08	Filter paper 100mm dia., Whatman No. 5 (Boxes of 100)	No.	20.00		
A104/18.09	Filter paper 400mm dia., Whatman No. 54 (Boxes of 100)	No.	5.00		
A104/18.10	Filter paper 270mm dia., 33mm with dia. Hole in centre, Whatman No 5 (Box of 100)	No.	15.00		
A104/18.11	Trichloroethylene	kg	2,000.00		
A104/18.12	Dichloromethane	kg	1,000.00		
A104/18.13	Cotton waste	kg	200.00		
A104/18.14	Gas cylinders compatible with supplied stoves	No.	15.00		
<b>TOTAL CARRIED TO BILL ITEM 1.04</b>					-

**BILL OF QUANTITIES : LOT 2 -MORPUS - KAINUK**

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE (KSHS)	AMOUNT (KSHS)
<b>APPENDIX 1.05</b>					
A105/1.01	Total station of approved type with ancillary equipment such as batteries, rapid charger, etc	No	1.00		
A105/1.02	Tripods wild GST/20 or equivalent	No.	6.00		
A105/1.03	Levels wild NAK2 or equivalent	No.	2.00		
A105/1.04	Metal (Aluminium) levelling stave (5m)-foldable	No.	4.00		
A105/1.05	Steel tape 50m	No.	4.00		
A105/1.06	Steel tape 25m	No.	6.00		
A105/1.07	Fibre glass tapes 50m	No.	5.00		
A105/1.08	Trumeter or equivalent wheeled measuring metre	No.	1.00		
A105/1.09	Ranging rods 2.5m	No.	10.00		
A105/1.10	Ranging rods 2.5m (metal, joinable)	No.	10.00		
A105/1.11	Optical squares	No.	4.00		
A105/1.12	Spare batteries	No.	4.00		
A105/1.13	Rapid charger	No.	1.00		
A105/1.14	Reflectors with mounts	No	6.00		
A105/1.15	Triple prism mount with reflectors	No.	2.00		
A105/1.16	Tribrachs	No.	4.00		
A105/1.17	Steel hammer (4kg)	No.	4.00		
A105/1.18	Spirit level for staves	No.	4.00		
A105/1.19	Metal pocket rulers (5m)	No.	12.00		
A105/1.20	Surveying umbrella	No.	2.00		
A105/1.21	Reflective road safety vests	No.	15.00		
A105/1.22	Drawing boards (field book frames A4)	No.	10.00		
A105/1.23	Laser distance meter- 120m range	No.	2.00		
A105/1.24	Survey rise and fall field books	No.	200.00		
	<b>TOTAL CARRIED TO BILL ITEM 1.05</b>				

**BILL OF QUANTITIES : LOT 2 -MORPUS - KAINUK**

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE (KSHS)	AMOUNT (KSHS)
<b>SUMMARY OF PROVISIONAL AND PRIME COST SUMS</b>					
<b>Miscellaneous Accounts</b>					
1.14	Allow a prime cost sum for the Engineer's miscellaneous account to be spent in whole or part as directed by the Engineer against receipts		PC Sum	15,000,000.00	15,000,000.00
<b>Attendance upon the Engineer and his staff</b>					
1.16	Allow a prime cost sum for attendance upon the Engineer and his staff		PC sum	15,000,000.00	15,000,000.00
<b>Relocation of Utilities</b>					
1.20	Allow a provisional sum for relocation of services as will be directed by the Resident Engineer		Prov. Sum	50,000,000.00	50,000,000.00
<b>Stakeholder Engagement</b>					
1.22	Prime Cost Sum for implementation of Stakeholder Engagement Plan		PC Sum	5,000,000.00	5,000,000.00
<b>Grievance Redress Mechanism</b>					
1.24	Prime Cost Sum for running of Grievance Redress Mechanism on site		PC Sum	5,000,000.00	5,000,000.00
1.27	Prime Cost Sum for Geotechnical Investigations as instructed by the Engineer		PC Sum	5,000,000.00	5,000,000.00
<b>Dispute Avoidance/Adjudication Board (DAAB)</b>					
1.29	Allow a Prime Cost sum to cover Employer's obligation to pay DAAB		PC sum	10,000,000.00	10,000,000.00
1.31	Prime Cost Sum for Off-road environmental mitigation measures		PC sum	50,000,000.00	50,000,000.00
1.33	Provisional Sum for enhanced security on Site through out the duration of the Contract as will be directed by the Resident Engineer		Prov. Sum	30,000,000.00	30,000,000.00
4.06	Provisional sum for the removal of other structures, fences and obstructions as directed		Prov. Sum	1,500,000.00	1,500,000.00
25.03	Allow a PC sum for HIV AIDS training		PC sum	2,500,000.00	2,500,000.00
26.03	Allow a PC Sum for Road Safety Training		PC Sum	1,500,000.00	1,500,000.00
28.01	Allow Provisional sum for Construction of 8m wide <b>access roads</b> including a 300mm subgrade, 250mm natural gravel subbase, 150mm 3% cement improved natural gravel base, and 50mm Asphalt Concrete, drainage, landscaping, slope protection and street lighting etc complete as per the typical drawing, standard specifications and Engineers instructions.		Prov. Sum	50,000,000.00	50,000,000.00
28.02	Allow a Provisional sum for rehabilitation of Health Centre at a location as instructed by the Engineer.		Prov. Sum	100,000,000.00	100,000,000.00
28.04	Allow a Provisional sum for construction of modern motorcycle (Bodaboda) sheds along the project road.		Prov. Sum	5,000,000.00	5,000,000.00
28.05	Allow a Provisional sum for construction of Road Side market sheds and ECO toilets in towns or any location as instructed by the Engineer.		Prov. Sum	20,000,000.00	20,000,000.00
28.06	Allow a Provisional sum for rehabilitation of an Education Facility at a location as instructed by the Engineer.		Prov. Sum	100,000,000.00	100,000,000.00
<b>Sub-Total = Provisional Sums and PC Sums</b>					<b>465,500,000.00</b>

**BILL OF QUANTITIES : LOT 2 -MORPUS - KAINUK**

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE (KSHS)	AMOUNT (KSHS)
<b><u>SUMMARY OF BILLS OF QUANTITIES:</u></b>					
<b>BILL NO.</b>	<b>DESCRIPTION</b>				<b>AMOUNT (KSHS)</b>
1	PRELIMINARY AND SUPERVISORY SERVICES				
4	SITE CLEARANCE AND TOP SOIL STRIPPING				
5	EARTHWORKS				
7	EXCAVATION AND FILLING FOR STRUCTURES				
8	CULVERTS AND DRAINAGE WORKS				
9	PASSAGE OF TRAFFIC				
12	NATURAL MATERIAL BASE AND SUBBASE				
13	GRADED CRUSHED STONE BASE				
14	CEMENT AND LIME TREATED MATERIALS				
15	BITUMINOUS SURFACE TREATMENT AND SURFACE				
16	BITUMINOUS MIXES				
17	CONCRETE WORKS				
20	ROAD FURNITURE				
21	MISCELLANEOUS BRIDGE WORKS				
22	DAY WORKS				
24	STREET LIGHTING				
25	HIV/AIDS AWARENESS CAMPAIGN				
26	ROAD SAFETY AWARENESS CAMPAIGN				
27	BRIDGE REHABILITATION WORKS				
28	SOCIO-ECONOMIC OFF ROAD WORKS				
<b>A</b>	<b>SUB TOTAL= (Work Done)</b>				
<b>B</b>	<b>Provisional &amp; PC Sums</b>				<b>465,500,000.00</b>
<b>C</b>	<b>Sub- Total = (Work Done - PC Sums)</b>				
<b>D</b>	<b>ADD 15% OF SUB TOTAL (C) ABOVE FOR VARIATION OF PRICE (FINANCIAL CONTINGENCIES)</b>				
<b>E</b>	<b>ALLOW 5% OF SUB TOTAL (C) ABOVE FOR PHYSICAL CONTINGENCIES</b>				
<b>F</b>	<b>GRAND TOTAL {F = A+D+E}</b>				