



KENYA RURAL ROADS AUTHORITY

TENDER NOTICE

ADDENDUM NO. 2

UPGRADING TO BITUMEN STANDARDS OF VARIOUS ROADS

Reference is made to the Tender Notice that appeared in the Authority's website and The MyGov Issue pullout of the Star Newspaper dated 13th May, 2025 and Addendum No.1 issued on 22nd May, 2025.

The Authority has received numerous requests for clarification on the above referenced procurement and interested bidders are requested to note the following clarifications;

SN	Project	Clarification, Amendment and Response				
1.	RWC 685: Upgrading to Bitumen Standard Of Nyabisabo – Nyakwana -Kegati/ Nyaguta – Nyanderema - Amariba/ Nyaguta – Getungurumu - Riariga & Jnct C893 Omosasa – Getungurumu - Gesere Roads	1. The following clauses under Special Specifications have been amended:				
		• Clause 101 LOCATION OF THE PROJECT ROAD The road links, scope and respective lengths (km) have been revised as follows				
		A. Upgrading				
		S.No	Link Name	Scope	Length(Km)	
		1.	Nyabisabo - Nyakwana – Kegati	New Construction	12.6	
		2.	Nyaguta – Getungurumu – Gesere - Omososa	New Construction	3.0	
		3.	Birongo – Chirchiro – Irondi - Nyanturago	New Construction	6.7	
		4.	Access to Irondi Primary & Dispensary	New Construction	0.5	
		5.	Access to Irondi Secondary	New Construction	0.8	
		6.	Keumbu – Riondonga – Nyanturbo - Ibeno	New Construction	6.7	
		SUB-TOTAL			30.3	
		B. Rehabilitation				
		S.No	Link Name	Scope	Length(Km)	
		1.	Riariga - Getungurumu	Rehabilitation	2.4	
		SUB-TOTAL			2.4	
		C. Accessibility and Motorability				
		S.No	Link Name	Scope	Length(Km)	
		1.	Amariba – Nyanderema - Nyaguta	Improvement to gravel wearing course, construction of drainage structures and approach roads	3.0	
2.	Nyanderema - Nyakwana	1.2				
3.	Chirchiro – Ibacho - Kiamokama	10.0				
4.	Edaraja (Nyanturago) - Chirchiro	2.7				
SUB-TOTAL			16.9			
• Clause 102 EXTENT OF CONTRACT						

Issue Date 12 June, 2023

SN	Project	Clarification, Amendment and Response																																																																
		<p>A. NEW CONSTRUCTION</p> <p>Has been revised to read “on sections that require New Construction to AC standard under Links 1 to 6 captured in Section A above of the project roads”:-</p> <p>B. PAVEMENT REHABILITATION AND OVERLAY</p> <p>Has been added to the revised Extent of Contract (to replace item C. ACCESSIBILITY AND MOTORABILITY)</p> <p>C. ACCESSIBILITY AND MOTORABILITY</p> <p>Has been revised to read “To improve accessibility and motorability, Spot Improvement to Gravel Wearing Course, and construction of major drainage structures under Links 1 to 4 under Section C above of the project roads the following work activities shall be carried out:-”:-</p> <p>• <u>Clause 107 TAKING OVER CERTIFICATE</u></p> <p>The minimum portion of the works for which a certificate will be issued is for the road links shown in the table below when substantially completed</p> <table><tr><th>S/No.</th><th>Link Name</th><th>Scope</th><th>Length(Km)</th></tr><tr><td></td><td colspan="3">A. UPGRADING</td></tr><tr><td>1.</td><td>Nyabisabo - Nyakwana - Kegati</td><td>New Construction</td><td>12.6</td></tr><tr><td>2.</td><td>Nyaguta – Gentungurumu – Gesere - Omososa</td><td>New Construction</td><td>3.0</td></tr><tr><td>3.</td><td>Birongo – Chirchiro – Irondi - Nyanturago</td><td>New Construction</td><td>6.7</td></tr><tr><td>4.</td><td>Access to Irondi Primary & Dispensary</td><td>New Construction</td><td>0.5</td></tr><tr><td>5.</td><td>Access to Irondi Secondary</td><td>New Construction</td><td>0.8</td></tr><tr><td>6.</td><td>Keumbu – Riondonga – Nyanturbo - Ibeno</td><td>New Construction</td><td>6.7</td></tr><tr><td colspan="3">SUB TOTAL</td><td>30.3</td></tr><tr><td></td><td colspan="3">B. REHABILITATION</td></tr><tr><td>1.</td><td>Riariga - Getungurumu</td><td>Rehabilitation</td><td>2.4</td></tr><tr><td colspan="3">SUB TOTAL</td><td>2.4</td></tr><tr><td></td><td colspan="3">C. ACCESSIBILITY & MOTORABILITY</td></tr><tr><td>1.</td><td>Amariba – Nyanderema - Nyaguta</td><td>Improvement to gravel wearing course, construction of drainage structures and approach roads</td><td>3.0</td></tr><tr><td>2.</td><td>Nyanderema - Nyakwana</td><td>Improvement to gravel wearing course, construction of drainage structures and approach roads</td><td>1.2</td></tr><tr><td>3.</td><td>Chirchiro – Ibacho - Kiamokama</td><td>Improvement to gravel wearing course,</td><td>10.0</td></tr></table>	S/No.	Link Name	Scope	Length(Km)		A. UPGRADING			1.	Nyabisabo - Nyakwana - Kegati	New Construction	12.6	2.	Nyaguta – Gentungurumu – Gesere - Omososa	New Construction	3.0	3.	Birongo – Chirchiro – Irondi - Nyanturago	New Construction	6.7	4.	Access to Irondi Primary & Dispensary	New Construction	0.5	5.	Access to Irondi Secondary	New Construction	0.8	6.	Keumbu – Riondonga – Nyanturbo - Ibeno	New Construction	6.7	SUB TOTAL			30.3		B. REHABILITATION			1.	Riariga - Getungurumu	Rehabilitation	2.4	SUB TOTAL			2.4		C. ACCESSIBILITY & MOTORABILITY			1.	Amariba – Nyanderema - Nyaguta	Improvement to gravel wearing course, construction of drainage structures and approach roads	3.0	2.	Nyanderema - Nyakwana	Improvement to gravel wearing course, construction of drainage structures and approach roads	1.2	3.	Chirchiro – Ibacho - Kiamokama	Improvement to gravel wearing course,	10.0
S/No.	Link Name	Scope	Length(Km)																																																															
	A. UPGRADING																																																																	
1.	Nyabisabo - Nyakwana - Kegati	New Construction	12.6																																																															
2.	Nyaguta – Gentungurumu – Gesere - Omososa	New Construction	3.0																																																															
3.	Birongo – Chirchiro – Irondi - Nyanturago	New Construction	6.7																																																															
4.	Access to Irondi Primary & Dispensary	New Construction	0.5																																																															
5.	Access to Irondi Secondary	New Construction	0.8																																																															
6.	Keumbu – Riondonga – Nyanturbo - Ibeno	New Construction	6.7																																																															
SUB TOTAL			30.3																																																															
	B. REHABILITATION																																																																	
1.	Riariga - Getungurumu	Rehabilitation	2.4																																																															
SUB TOTAL			2.4																																																															
	C. ACCESSIBILITY & MOTORABILITY																																																																	
1.	Amariba – Nyanderema - Nyaguta	Improvement to gravel wearing course, construction of drainage structures and approach roads	3.0																																																															
2.	Nyanderema - Nyakwana	Improvement to gravel wearing course, construction of drainage structures and approach roads	1.2																																																															
3.	Chirchiro – Ibacho - Kiamokama	Improvement to gravel wearing course,	10.0																																																															

SN	Project	Clarification, Amendment and Response			
				construction of drainage structures and approach roads	
		4.	Edaraja (Nyanturago) - Chirchiro	Improvement to gravel wearing course, construction of drainage structures and approach roads	2.7
		SUB TOTAL			16.9
		GRAND TOTAL			49.6
		2. Bill 10, 25 and 26 have been added to the BoQ for upgrading works 3. The revised BoQ with revised quantities has been amended and attached as annex 1 and should be used in place of the attached BoQ in the tender document			
2.	RWC686: Upgrading to Bitumen Standard of Oinobmoi Kapkelelwa – Kapkayo - Tenges/ Kapkayo - Kipsaos Roads	1. The VAT component has been amended and updated from 14% to 16% 2. PBRM component is not part of the anticipated upgrading works and has hence been removed from the revised BoQ 3. The rates under APPENDICES A, B and C do not apply; the Contractor shall fill out his rates. The Quantities have not been amended 4. The revised BoQ with revised quantities has been amended and attached as annex 2 and should be used in place of the attached BoQ in the tender document			
3.	RWC687: Upgrading to Bitumen Standard of Jn B66 Kianjai/ Kirindine - Miathene - Mikinduri (C356) Road	1. The tender has no revisions			
4.	RWC688: Upgrading to Bitumen Standard of Kunene/St. Anne (Jn B66) - Kimachia - Kagaene - Mulika - Miomponi Road	1. The tender has no revisions			
5.	RWC689: Upgrading to Bitumen Standard and Maintenance Of Mweiga - Brookside - Kimathi University (D449/D450A)	1. Bill item 24 is not part of the upgrading works and has been removed from the BoQ 2. The revised BoQ with revised quantities has been amended and attached as annex 3 and should be used in place of the attached BoQ in the tender document			

Issue Date 12 June, 2023

SN	Project	Clarification, Amendment and Response																
6.	RWC690: Upgrading To Bitumen Standard of Kagumoini – Gitugi – Chui – Karugia Road	<ol style="list-style-type: none">1. Bill 25 and 26 have been added to the BoQ for upgrading works2. Bill No.7 has been amended to delete the total sum carried forward to grand summary.3. The revised BoQ with revised quantities has been amended and attached as annex 4 and should be used in place of the attached BoQ in the tender document																
7.	RWC691: Upgrading To Bitumen Standards of Karanjee Loop Roads/ Access to Limuru Girls & Limuru (Jnct Equity)/ Access Loop to St. Paul’s Primary School/ Access to Kabuku Primary School/ Maramba Tea Factory -Kamwaki/ Bata Loop - Murengeti Roads	<ol style="list-style-type: none">1. Under Table 1: Technical & Financial Capacity Evaluation the following items have been amended Item 2 Financial Situation: 2.1 Financial Performance Capacity to have a cash flow amount of min. KShs. 100,000,000.00 equivalent working capital Item 3 Experience: 3(c) Value of Current Contract Commitments / Works in Progress with the Procuring Organization The value of pending works with the procuring entity SHALL not exceed KShs. 30,000,000,000.002. Quantities under Bill items 1.15 and 1.17 have been amended as follows Item 1.15 Prime Cost Sum value is Ksh.9,000,000.00<table><tr><th>Item</th><th>Description</th><th>Unit</th><th>Quantity</th></tr><tr><td>1.15</td><td>Allow a Prime Cost Sum of Kshs. 9,000,000.00 for the RE's miscellaneous account to be spent in whole or part as directed by the RE against receipts.</td><td>PC Sum</td><td>1</td></tr></table> Item 1.17 Prime Cost Sum value is Ksh.16,200,000.00<table><tr><th>Item</th><th>Description</th><th>Unit</th><th>Quantity</th></tr><tr><td>1.17</td><td>Allow a Prime Cost Sum of Kshs. 16,200,000.00 for attendance upon the Resident Engineer' staff.</td><td>PC Sum</td><td>1</td></tr></table>3. Quantities under Bill items 26.01 and 26.02 have been removed. Specifications under relocation of services shall be as directed by the Engineer4. The revised BoQ with revised quantities has been attached and should be used in place of the attached BoQ in the tender document5. The GCS base shall be improved with either cement or lime shall be as directed by the Engineer. The revised quantities shall be as indicated in the revised BoQ under Bill 14: Cement or Lime treated subbase and base6. The Public Procurement Capacity Building Levy shall be calculated as 0.03% of subtotal 27. The revised BoQ with revised quantities has been amended and attached as annex 5 and should be used in place of the attached BoQ in the tender document8. <u>Clause 102 EXTENT OF CONTRACT</u> A. NEW CONSTRUCTION Item no. 4 has been revised to read	Item	Description	Unit	Quantity	1.15	Allow a Prime Cost Sum of Kshs. 9,000,000.00 for the RE's miscellaneous account to be spent in whole or part as directed by the RE against receipts.	PC Sum	1	Item	Description	Unit	Quantity	1.17	Allow a Prime Cost Sum of Kshs. 16,200,000.00 for attendance upon the Resident Engineer' staff.	PC Sum	1
Item	Description	Unit	Quantity															
1.15	Allow a Prime Cost Sum of Kshs. 9,000,000.00 for the RE's miscellaneous account to be spent in whole or part as directed by the RE against receipts.	PC Sum	1															
Item	Description	Unit	Quantity															
1.17	Allow a Prime Cost Sum of Kshs. 16,200,000.00 for attendance upon the Resident Engineer' staff.	PC Sum	1															

Issue Date 12th June, 2025

SN	Project	Clarification, Amendment and Response
		<p>“Provision of Soft Stone (G30) or Gravel Sub base of minimum CBR of 60% (CIG60) to a finished thickness of 150mm or as instructed by the Engineer”</p> <p>9. Drawings shall not be part of the tender document</p> <p>10. Price adjustment mechanism under sub clause 13.8.1 shall be applicable for this tender</p> <p>11. The thresholds for advance payment amortization are as indicated under the Schedule of payments highlighted under the Special Conditions of Contracts not the General Conditions of Contract item 14.2.4</p>

That the submission date for the tenders under the above referenced Tender Notice dated 13th May, 2025 **hereby remains as on or before 25th June, 2025 at 11.00 am** as revised under Addendum No. 1 dated 22nd May, 2025.

Interested bidders are required to continually check the Authority’s website: www.kerra.go.ke for any tender addendums or clarifications that may arise before submission date.

Bidders with enquiries are encouraged to do so vide the email address procurement@kerra.go.ke.

All other information remains the same.

Deputy Director (Supply Chain Management)
For. DIRECTOR GENERAL

Issue Date 12th June, 2025

ANNEX 1: REVISED BOQ RWC 685

UPGRADING TO BITUMEN STANDARD OF NYABISABO-NYAKWANA-KEGATI/NYAGUTA-NYANDEREMA-AMARIBA/NYAGUTA-GETUNGURUMU-RIARIGA & JNCT C893 OMOSASA-GETUNGURUMU-GESERE ROADS

Bill No. 1: PRELIMINARIES AND GENERAL ITEMS

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
1.01 (i)	Provide or rent accommodation for Engineer's senior and junior staff (i)Type I	month	36.00	65,000.00	2,340,000.00
1.01 (ii)	Provide or rent accommodation for Engineer's senior and junior staff (ii)Type II	month	72.00	55,000.00	3,960,000.00
1.01 (iii)	Provide or rent accommodation for Engineer's senior and junior staff (iii)Type III	month	108.00	40,000.00	4,320,000.00
1.01 (iv)	Provide or rent accommodation for Engineer's senior and junior staff (iv)Type IV	month	144.00	30,000.00	4,320,000.00
1.01 (v)	Provide or rent accommodation for Engineer's senior and junior staff (v)Type V	month	216.00	21,000.00	4,536,000.00
	Total				19,476,000.00
1.02	E.O item 1.01 for contractor's overhead and profit	%	1.00		
1.03	Provide or rent and maintain Engineer's Representative's office as shown on the drawings or as instructed by the Engineer for use during the duration of the Contract.	LS	1.00		
1.04	Provide or rent and maintain Engineer's Site Laboratory for the duration of the Contract.	LS	1.00		
1.05	Provide and maintain Laboratory equipment, reagents and other items as priced in Appendix 'A' to the Bill of Quantities for use by the Engineer's representative for the duration of the contract.	LS	1.00		
1.06 (A)	Provide and maintain furniture , tools and other items for the Engineers Representative office for the duration of the Contract as priced in Appendix 'B'.	LS	1.00		
1.06 (B)	Provide and maintain survey equipment as priced in Appendix C for the duration of the contract.	LS	1.00		
1.07	Provide with drivers, fuel and maintain one (1) new 4WD fully loaded Station Wagon of minimum diesel engine capacity 3000cc approved by the Engineer for his exclusive use, inclusive of the first 5000km per vehicle month.	Veh-Month	36.00		
1.08	E.O item 1.07 for total aggregated mileage in excess of 5000 km per vehicle month.	Km	90,000.00		
1.09	Provide with drivers, fuel and maintain One (1) new 4WD fully loaded double cabin pick-up of minimum diesel engine capacity 2800cc approved by the Engineer for his exclusive use, inclusive of the first 5000km per vehicle month.	Veh-Month	36.00		
1.10	E.O item 1.09 for total aggregated mileage in excess of 5000 km per vehicle month.	Km	90,000.00		
1.11	Ditto item 1.09, but two (2) new 4WD standard double cabin pick-up of minimum diesel engine capacity 2500cc approved by the Engineer for his exclusive use, inclusive of the first 5000km per vehicle month.	Veh-Month	72.00		
1.12	E.O item 1.11 for total aggregated mileage in excess of 5000 km per vehicle per month.	Km	180,000.00		
1.13	Ditto item 1.09, but two (2)new 4WD Single cabin pick-ups with fibre glass body of minimum diesel engine capacity 2500cc approved by the Engineer for his exclusive use, inclusive of the first 5000km per vehicle month.	Veh-Month	72.00		

Issue Date 12th June, 2025

1.14	E.O item 1.13 for total aggregated mileage in excess of 5000 km per vehicle per month.	Km	180,000.00		
1.15	Allow a Prime Cost Sum of Kshs.10,800,000 for the RE's miscellaneous account to be spent in whole or part as directed by the RE against receipts	PC Sum	1.00		
1.16	E.O. item 1.15 for Contractor's overheads and profits.	%			
1.17	Allow a Prime Cost Sum of Kshs. 27,000,000.00 for attendance upon the Resident Engineer' staff.	PC Sum	1.00		
1.18	E.O. item 1.17 for Contractor's overheads and profits.	%			
1.19	Provide, erect and maintain publicity signs as directed by the Engineer.	No.	22.00		
1.20	Allow for lumpsum of Kshs. 3,000,000.00 for training of Engineer's staff	LS	1.00		
1.21	E.O. item 1.20 for Contractor's overheads and profits.	%			
1.22	Allow for Prime Cost Sum of Kshs. 5,000,000.00 for Geotechnical Investigations	PC Sum	1.00		
1.23	E.O. item 1.20 for Contractor's overheads and profits.	%			

Total Bill 1 Taken to Summary Page

Bill No. 4: SITE CLEARANCE AND TOP SOIL STRIPPING

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
4.01	Clear site on road reserve including removal of trees, hedges, bushes, other vegetation and deleterious organic material, grub up roots and back fill to 100% MDD (AASHTO T99) with approved material in accordance with the specification.	Ha	53.00		
4.02	Remove top soil not exceeding 200mm depth and spread or stockpile for reuse as directed by the engineer.	m ³	107,200.00		
4.03	Allow a Provisional Sum of Kshs.1,000,000 for removal of any structures and obstructions as directed by the engineer. Payment to be on Dayworks basis.	Prov. Sum	1.00		
4.04	E.O. item 4.03 for Contractor's overheads and profits.	%			

Total Bill 4 Taken to Summary Page

Bill No. 5: EARTHWORKS

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
	Note: No separate payment shall be made for the overhaul material. The cost of such shall be included in the rates and/or prices				
5.01	Fill in soft material including benching to shoulders and embankments and compaction to 95% MDD (AASHTO T99) in layers not exceeding 150mm in accordance with the Specification or as instructed by the Engineer	m ³	237,600.00		
5.02	Extra over item 5.01 for compaction of top 300mm Subgrade to 100% MDD (AASHTO T99)	m ³	84,000.00		
5.03	Ditto item 5.01 but in hard material	m ³	54,400.00		
5.04	Cut to spoil in soft material	m ³	51,000.00		
5.05	Ditto item 5.04 but in hard material	m ³	17,000.00		
5.07	Compaction of the top 150mm below formation level in cutting to 100% MDD (AASHTO T99)	m ³	8,400.00		
5.08	Compaction of 150mm original ground below fills to 95% MDD (AASHTO T99)	m ³	48,900.00		

Issue Date 12th June, 2025

5.09	Topsoiling prior to grassing in accordance with the specifications	m ²	60,600.00		
5.10	Grassing over sideslopes in cuts and fills as directed by the engineer	m ²	60,600.00		
Total Bill 5 Taken to Summary Page					

Bill No. 7: EXCAVATION AND FILLING FOR STRUCTURES

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
	Note: No separate payment shall be made for gravel for blinding or hauling to spoil unsuitable excavation materials and the cost of such shall be included in the rates and prices				
7.01	Excavate for structures in soft material	m ³	7,000.00		
7.02	Ditto item 7.01 but in hard material	m ³	300.00		
7.03	Provide, place and compact rockfill below and around structures.	m ³	4,000.00		
7.04	Provide and place 150mm thick stone pitching as directed by the Engineer including cement grouting	m ²	7,500.00		
7.05	Excavate for gabions in soft material.	m ³	2,000.00		
7.06	Provide and place gabion boxes and mattresses where directed by the Engineer.	No.	5,500.00		
7.07	Provide and place rock fill to gabion boxes	m ³	1,000.00		
7.08	Place filter fabric under and/or behind gabion boxes and structures	m ²	5,500.00		
7.09	Provide and backfill approved granular material around new structures, compact to 100% MDD (AASHTO T99) in layers not exceeding 150mm.	m ²	4,000.00		
7.10	Allow for protection of structures pursuant to Section 708 of the specifications	LS	1.00		
7.13	Provide coffer dams as directed by the Engineer.	LS	1.00		
Total Bill 7 Taken to Summary Page					

Bill No. 8: CULVERT AND DRAINAGE WORKS

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
	Note: No separate payments shall be made for gravel for blinding or hauling to spoil unsuitable excavation material and the cost of such be included in rates and prices				
8.01	Excavate for inlet, outfall, mitre and catch water drains in soft material	m ³	1,500.00		
8.02	Ditto item 8.01 but in hard material	m ³	380.00		
8.03	Excavation in soft material for pipe culverts, headwalls, wing walls, apron, toe walls and drop inlets and compaction of excavated ground as specified or as directed by the Engineer.	m ³	2,300.00		
8.04	Ditto item 8.03 but in hard material	m ³	560.00		
8.05	Provide, lay and joint 600mm dia. concrete pipes (precast to BS 5911 Parts 1 & 3) for access roads	m	1,200.00		
8.06	As for item 8.05 but 900mm dia concrete pipes (precast to BS 5911 parts 1 & 3) for cross culverts	m	2,100.00		
8.09	Provide, place and compact class 15/20 concrete to beds, surround and haunches	m ³	2,900.00		
8.10	Provide place and compact class 25/20 concrete for headwalls, wingwalls, aprons and toewalls to pipe culverts including all formwork and the provision and placing of reinforcement as shown in the drawings	m ³	950.00		

Issue Date 12th June, 2025

8.11	Provide and place invert block drains with two course side slabs	m	6,000.00		
8.12	Construct in concrete class 15/20 side drains scour checks as instructed	m ³	20.00		
8.13	Provide and place precast concrete slabs 600mm x 600mm x 100mm and place over open lined drains in trade centres and markets (reinforced with A142 wire mesh reinforcement)	No.	20,000.00		
8.15	Remove existing pipe culverts of any diameter either for re-use or to be discarded as directed by the Engineer	m	350.00		
8.16	Provide and place A142 wire mesh reinforcement	m ²	6,290.00		
8.17	Provide, lay and joint ducts and sleeves including 150mm concrete (C15/20) (insert size in mm) heavy duty PVC class B with 150mm surround (precast to BS 5911 Parts 1 & 3) ducts/sleeves	m	150.00		

Total Bill 8 Taken to Summary Page

Bill No. 9: PASSAGE OF TRAFFIC

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
	Note: No separate payment shall be made for the overhaul material. The cost of such shall be included in the rates and/or prices				
9.01	Construct and maintain diversions in maximum lengths of 5km sections as directed by the Engineer, including 150mm gravel wearing course & all signage, lighting and barriers as directed by the Engineer	km	30		
9.02	Provide, spread, water and compact gravel as directed by the Engineer for maintenance ahead of works.	m ³	56,925		
9.03	Allow for the passage of traffic through and around the works	LS	1		
9.04	Maintenance of existing road including grading, shaping, watering and compaction as directed by the Engineer	km	30		
9.06	Reinstate deviations to original state	km	30		

Total Bill 9 Taken to Summary Page

Bill No. 10: GRADING AND GRAVELLING

	Note: No separate payment shall be made for gravel for blinding or hauling and the cost of such shall be included in the rates and prices				
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
10.01	Provide gravel wearing course, spread and compact to a finished thickness of 150mm to at least 95% M.D.D (AASHTO T-180) and shape to level and tolerance.	m ³	17,800.00		

Total Bill 10 Taken to Summary Page

Bill No. 12: NATURAL MATERIAL BASE AND SUBBASE

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
------	-------------	------	----------	------	--------------

	Note: No separate payment shall be made for the overhaul material. The cost of such shall be included in the rates and/or prices				
12.01	Provide gravel subbase material, haul spread, compact to 95% MDD (AASHTO T180) and shape to level and tolerance	m ³	3,630.00		
12.02	Provide gravel base material, haul spread, compact to 95% MDD (AASHTO T180) and shape to level and tolerance	m ³	52,800.00		
Total Bill 12 Taken to Summary Page					
Bill No. 14: CEMENT AND LIME TREATED MATERIAL					
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
	Note: No separate payment shall be made for the overhaul material. The cost of such shall be included in the rates and/or prices				
14.03	Provide and spread Cement as an improvement agent for sub-base layer	Tonne	220.00		
14.04	Provide and spread cement as an improvement agent for base layers	Tonne	3,509.00		
14.05	Mix and process natural material with improvement agent for pavement layers as instructed by the Engineer or as specified	m ³	56,298.00		
14.06	Protection and curing of cement treated base and sub-base layers	m ²	312,950.00		
Total Bill 14 Taken to Summary Page					
Bill No. 15: BITUMINOUS SURFACE TREATMENT AND SURFACE DRESSING					
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
	Note: No separate payment shall be made for the overhaul of bitumen/chippings as these shall be deemed to have been included in the rates				
15.01	Prepare surface of carriageway and shoulders, provide, heat and spray MC 30 cutback bitumen prime coat	Litres	358,500.00		
15.08	Provide & spray K1-60 as tack coat on carriageway, shoulders and on rumble strips on carriageway, shoulders and on rumble strips at a rate of 0.5-0.8 l/m ²	Litres	239,000.00		
Total Bill 15 Taken to Summary Page					
Bill No. 16: BITUMINOUS MIXES					
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
	NOTE: No haulage will be paid for aggregates, bitumen or the premix. The cost for haulage shall be included in the rates. Rates to be inclusive of fines				
16.01	Provide, place and compact Asphalt Concrete Type II to a 35mm thickness on carriageway and bus bays as directed by the Engineer.	m ³	8,822.00		
16.07	Provide and erect Asphalt Concrete Type II bumps and rumble strips as directed by the Engineer.	m ³	28.00		
Total Bill 16 Taken to Summary Page					

Bill No. 17: CONCRETE WORKS					
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
	Note: No haulage will be paid for aggregates, bitumen or the premix. The cost for haulage shall be included in the rates. Rates to be inclusive of fines				
17.01	Provide, place and compact Class 15(20) concrete blinding as instructed by the Engineer	m ³	900.00		
17.02	Provide, place and compact concrete class 25(20) to aprons, wingwalls, abutments, piers, walls and box culverts as shown in drawings.	m ³	5,425.00		
17.03	Provide, place and compact concrete class 30(20) to aprons, wingwalls, abutments, piers, walls and bridge deck and beams as shown in drawings.	m ³	1,233.00		
17.11	High yield reinforcement steel bars to specifications equal to or less than 16mm diameter bar size	TONNE	310.00		
17.12	High yield bond strength reinforcement steel to specifications greater than 16mm diameter bar size	TONNE	120.00		
17.24	Provide & fix in place vertical formwork to achieve Class U F1 finish	m ²	7,300.00		
17.27	Provide & fix in place vertical formwork to achieve Class U F2 finish	m ²	3,120.00		
17.30	Provide & fix in place vertical formwork to achieve Class U F3 finish	m ²	8,250.00		
Total Bill 17 Taken to Summary Page					
Bill No. 20: ROAD FURNITURE					
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
20.01	Provide Road Reserve Boundary posts	No.	270.00		
20.02	Excavate for, provide & place 250x125mm precast concrete raised or ramped kerbs haunched in 100mm thick class 15/20 concrete base bedding and mortar joined in support to carriageway, busbays and junctions as directed by the Engineer				
	(a) Straight	m	2,000		
	(b) Kerbs radius 12m - 6m	m	2,000		
	(c) Ditto but radius 5m - 1m	m	2,000		
20.04	Provide and erect permanent road signs as instructed by the Engineer in accordance with Special Specifications Clause 2004 as follows:				
	a) Warning signs	No.	20		
	b) Priority, prohibitory and mandatory signs	No.	20		
	c) Standard informatory signs	No.	20		
	d) Non standard informatory signs area				
	i) Less than 1.0 m ²	No.	20		
	ii) More than 1.0 m ² but less than 5 m ²	No.	20		
20.05	Provide, deliver, paint and mark the road as specified or as directed by the Engineer, with white reflectorized thermoplastic paint from an approved supplier.	m ²	7,200		
20.06	As item 20.05 but for yellow reflectorized thermoplastic paint	m ²	3,600		
20.07	Provide and erect concrete posts for guardrails complete with spacers (size and interval) as per specifications or as directed by the Engineer	No.	330		

Issue Date 12th June, 2025

20.08	Provide and erect flex-beam guardrails complete with connections as shown on the drawings or as directed by the Engineer	m	500		
20.09	Provide and erect edge marker posts as directed by the Engineer	No.	100		
20.10	Provide and erect Kilometer marker posts as directed by the Engineer	No.	50		
20.14	Provide and install cat-eyes as directed by the Engineer	No.	660		
20.21	Provide approved reflectorised white paint and mark 0.2 m wide for bus bays as directed by the Engineer.	m ²	30		

Total Bill 20 Taken to Summary Page

Bill No. 21: MISCELLANEOUS BRIDGE/DRIFT WORKS

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
21.01	Provide 100 mm diameter drain pipes and insert heavy duty PVC 100mm diameter as instructed by the Engineer	No.	100		
21.02	Provide diameter weepholes and insert heavy duty PVC 100mm diameter on abutments or as instructed by the Engineer	No.	180		
21.03	Provide and fix hand rails 75 mm diameter on crash barriers, with hold down brackets at not more than 2.5 meter intervals	No.	780		
21.04	Provide and apply bitumen emulsion or cutback bitumen or bitumen/rubber latex emulsion to all structural concrete in contact with fill material or cut soil.	m2	240		
21.05	Provide and place into position handrails to kerbs of bridge deck & ramps as shown on the drawing and as directed by the Engineer.	m	50		
21.06	Provide and place a 0.5-1.0m wide granular material of size 14/20 mm to structural concrete in contact with fill material.	m3	500		
21.07	Provide and place as directed by the Engineer PVC pipes of diameter 75 mm and length 300 mm to form storm drain pipes of the bridge deck	No.	200		
21.08	Provide and fix bearings as directed by the Engineer.	No.	12		

Total Bill 21 Taken to Summary Page

Bill No. 22: Schedule of Dayworks

	The rates inserted herein are to include all operational and Maintenance costs, fuel, oil, grease, drivers/operators wages, supervision, overheads and profit. Only time actually employed upon the work will be paid for and the rates should include for idle time, travelling time and overtime. In accordance with clause 2202 (a) of the specifications. Note: All items of plant must be priced.				
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
22.01	Crawler dozers with hydraulic attachmentsto include ripper				
	a) Up to 135 kw rated flywheel power	hrs	20.00		
	b) Over 136 kw rated flywheel power	hrs	20.00		

Issue Date 12th June, 2025

22.02	Motor Grader				
	a) Up to 110kw rated flywheel power	hrs	50.00		
	b) Over 100kw rated flywheel power	hrs	20.00		
22.03	Vibratory Roller				
	a) 6.5 - 8.81 tonne un-ballasted weight	hr	20.00		
	b) Over 8.91 tonne un-ballasted weight	hr	20.00		
22.04	Hand propelled vibrating roller 650 - 1300kg	hrs	40.00		
22.05	Cat 950G wheel loader or equivalent	hrs	40.00		
22.06	10 Tonne tipper lorry	hrs	40.00		
22.07	Small dumpers, 750-1000kg rated payload	hrs	40.00		
22.08	Dual purpose hydraulic excavator with backhoe/loader and a rated bucket capacity of upto 1m3.	hrs	40.00		
22.09	Articulated wheel loader with 1.5-2.0m3 SAE rated bucket capacity	hrs	40.00		
22.1	50mm delivery water pump and motor	hrs	40.00		
22.11	Self propelled water tanker 4,500ls min. capacity with pick-up pump	hrs	40.00		
22.12	Concrete Mixer of 100 - 150litres	hrs	40.00		
22.13	Concrete poker vibrator	hrs	40.00		
	LABOUR				
	The rates inserted herein are to include all costs of labour such as insurance, accommodation, travelling time, over-time, use and maintenance of small tools of trade, supervision, overheads and Profit. Only the actual time engaged upon the work will be paid for.				
22.14	Unskilled Labour	hrs	500.00		
22.15	Artisans	hrs	500.00		
22.16	Office attendants and chainmen	hrs	500.00		
22.17	Watchmen (all round surveillance)	hrs	500.00		
	MATERIALS				
	All materials are to comply with the Specification. The rates inserted herein are to include for delivery to the site, storage, handling, overheads and profit				
22.18	Ordinary Portland Cement 42.5 N	Ton	10.00		
22.19	Hydrated Lime	Ton	10.00		
22.2	Mild Steel(any diameter)	Ton	10.00		
22.21	High Yield Steel (any diameter)	Ton	10.00		
22.22	Fine Aggregate for Concrete	m ³	100.00		
22.23	Coarse Aggregate for Concrete	m ³	100.00		
22.24	Wrot Shuttering Timber	m ²	100.00		
22.25	Rough shuttering timber.	m ²	100.00		
22.26	Bitumen Emulsion KI-60.	Litre	200.00		
22.27	Straight run bitumen Grade 80/100.	Litre	200.00		
22.28	Kerosene	Litre	200.00		
22.29	14/20 mm nominal size surface chips.	m ³	10.00		
22.3	6/10mm nominal size surface chips	m ³	10.00		
22.31	AC Type I Ex-plant	m ³	50.00		
22.32	AC Type II Ex-plant	m ³	50.00		
Total Bill 22 Taken to Summary Page					
BILL No. 25 : HIV/AIDS, Gender & Social Issues, Local Participation					
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)

Issue Date 12th June, 2025

25.01	All for a prime cost sum of KShs 5,000,000 (five Million) for ESIA study and report, Compliance Audits and environmental monitoring.	PC sum	1.00		
25.02	E.O for Item 25.01 for Contractor's Oveheads and Profit	%			
25.03	Allow for engagement of a HIV/AIDS specialist subcontractor to deal with prevention, awareness activities as per programme to be approved by the Engineer	Months	36		
25.04	Allow for the availability of male and female condoms to workers and staff strategically and socially presented for the duration of the contract	No.	2,000		
25.05	Allow for preparation and submmision of monthly reports on HIV/AIDS awareness and prevention activities. Report to be tabled at site meetings.,	Months	36		
25.06	Provide, Instal and maintain HIV/AIDS awareness bill boards with approved message and graphics with maximum area 4m2 fabricated as per specifications of permanent informatory sign boards	No.	4		
25.07	Allow for vedio shows on HIV/AIDS related awareness and prevention matters every 3months	No.	12		
25.08	Allow for production and distribution of HIV/AIDS awareness material as follows:				
	a) T-Shirt printed with approved message and graphics	No.	200		
	b) Ditto (a) above but caps	No.	100		
	c) A1 size weather proved posters	No.	20		
	d) A3 size weather proved posters	No.	100		
	e) 200x150mm stickers with HIV/AIDS awareness/prevention slogan	No.	100		
	f) Key rings with HIV/AIDS awareness/prevention slogan	No.	500		
	g) Ball point pens with HIV/AIDS awareness / prevention slogan.	No.	500		
Total Bill 25 Taken to Summary Page					
BILL No. 26 : Land Acquisition, Axle Load Control, and Relocation of Services					
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
26.03	Allow a Prime Cost Sum of Ksh. 10,000,000 for relocation of services as instructed or directed by the Engineer.	PC Sum	1.00		
26.04	E.O. item 26.03 for Contractor's overheads and profits.	%			
Total Bill 26 Taken to Summary Page					

Issue Date 12th June, 2025

CONTRACT No.: RWC685 UPGRADING TO BITUMEN STANDARD OF NYABISABO-NYAKWANA-KEGATI/NYAGUTA-NYANDEREMA-AMARIBA/NYAGUTA-GETUNGURUMU-RIARIGA & JNCT C893 OMOSASA-GETUNGURUMU-GESERE ROADS		
GRAND SUMMARY OF BILL OF QUANTITIES		
BILL ITEM	DESCRIPTION	AMOUNT (KShs)
1	Preliminaries and General Items	
4	Site Clearance and Top soil stripping	
5	Earthworks	
7	Excavation and Filling for Structures	
8	Culvert and Drainage Works	
9	Passage of Traffic	
10	Grading and Gravelling Works	
12	Natural Material Base and Subbase	
14	Cement and Lime Treated Material	
15	Bituminous Surface Treatment and Surface Dressing	
16	Bituminous Mixes	
17	Concrete Works	
20	Road Furniture	
21	Miscellaneous Bridge/Drift Works	
22	Schedule of Dayworks	
25	HIV/AIDS, Gender & Social Issues, Local Participation	
26	Land Acquisition, Axle Load Control, and Relocation of Services	
A.	Sub-Total (1)	
B.	Add 15% Variation of Price On Sub-Total (1)	
C.	Add 10% Contingency on Sub-Total (1)	
D.	Sub-Total 2 = A + B + C	
E.	Add .03% For PPCBL of sub total (2)	
F.	Add 16% VAT on Sub-Total (2)	
TOTAL CARRIED FORWARD AS BID SUM 1: (D + E + F)		

APPENDIX A					
APPENDIX TO BILL ITEM 1.05:					
PROVIDE AND MAINTAIN FURNITURE AND EQUIPMENT FOR THE ENGINEER'S LABORATORY					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	1. FURNITURE				
A104/1.01	Desk 2.2x0.9 m with chair and lockup drawers	No	2		
A104/1.02	Desk chair (standard)	No	15		
A104/1.03	Stationery cupboard, 1.2 m ³ , lockable	No	2		
A104/1.04	Steel filing cabinet, 4 drawers, lockable	No	2		
A104/1.05	Steel filing cabinet, 2 drawers, lockable	No	2		
A104/1.06	Bookshelf, 3 shelves 1.2 m long (to hold box files)	No	2		
A104/1.07	Table - 6 m ²	No	2		
A104/1.08	Two Plate electric heater	No	1		
A104/1.09	Fire extinguisher, 10 litre capacity, CO ₂ type	No	4		
A104/1.10	Complete first aid kit	No	2		
	EQUIPMENT				
	<i>(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) Standard)</i>				
	2. General Equipment				
A104/2.02	2.49kg. Compaction hammer, drop regulated to 304.8mm	No	2		
A104/2.03	4.535kg compaction hammer drop regulated to 457.2mm	No	2		
A104/2.04	Electric vibrating Kango Hammer fitted with steel tamper(BS 1377) with support frame	No	1		
A104/2.05	Straight edge 300 mm long with handles	No	4		
A104/2.06	Steel Tamper (BS1377) compatible with Kango hammer	No	3		
A104/2.07	Compaction mould 152.4 mm. dia x 116.43 mm complete with base plate and extension collar, 101.6 mm	No	2		
A104/2.08	Galvanized metal tray 1m x 0.5m x 75 mm deep	No	4		
A104/2.09	75mm brush	No	2		
A104/2.10	Semi-automatic balance, 25kg Capacity accurate to 1g, including weights	No	1		
A104/2.11	20mm BS Sieve, 300mm diameter	No	1		
A104/2.12	Stop Clock	No	2		
A104/2.13	Thermostatically controlled electric oven 105-110°C, capacity 0.225 m ³	No	2		
A104/2.14	As above but gas heated	No	1		
A104/2.15	Moisture content tins, 75 mm dia, Cadmium or aluminium plated	No	60		
A104/2.16	Cone penetrometer with gauge and automatically controlled test cup	No	2		
C/Forward to next page					
B/Forward From previous page					
	3. Density (Sand replacement method BS 1377)				
A104/3.01	Metal containers 450mm diameter	No	2		
A104/3.02	Stainless steel tray 305mm diameter	No	2		
A104/3.03	Metal tray with 150 mm diameter hole in the centre, 300mmx300 mm square or equivalent area, 40mm deep	No	2		
A104/3.04	Metal tray with 200mm diameter hole in the centre, 500mm x 500 mm square , 50 mm deep	No	2		
A104/3.05	Steel pegs for fixing tray in position	No	15		

A104/3.06	Sand pouring cylinder, 150 mm diameter	No	2		
A104/3.07	Sand pouring cylinder, 215 mm diameter	No	2		
A104/3.08	Cold steel chisel 20mm x 300mm	No	4		
A104/3.09	Cold steel chisel 10mm x 250mm	No	4		
A104/3.10	1.5kg, 3.5kg hammers and 1kg rubber mallet	Set	1		
A104/3.11	Scoop for removing excavated material from hole, 250 mm long handle	No	6		
A104/3.12	100mm brush, soft	No	3		
A104/3.13	50mm brush, soft	No	3		
A104/3.14	Primus gas stove	No	1		
A104/3.15	Calibrating can 150 mm diameter x 150 mm deep	No	3		
A104/3.16	Ditto but 200 mm diameter x 250 mm deep	No	3		
	4. Density (Nuclear Density method AASHTO T238)				
A104/4.01	Nuclear density gauge (Troxler 3411B or similar approved) complete with 3 no. hole forming device and 3 no. guide	No	1		
	5. CBR (AASHTO T193)				
A104/5.01	CBR mould, 152.4 mm dia x 178 mm high, complete with perforated base plate and extension collar 50.8 mm high that can be fitted to either side of mould	No	50		
A104/5.02	Perforated swell plate 150 mm dia with an adjustable centre post of rust proof metal provided with a lock-nut	No	40		
A104/5.03	2.25 kg split surcharge weight	No	2		
A104/5.04	Set of annular surcharge weights	No	1		
A104/5.05	Solid base plate for CBR mould	No	2		
A104/5.06	Static compaction displacer discs 1 No x 61.4 mm, 1 No x 50.8 mm and 2 No x 38.8 mm thick with handles	set	1		
A104/5.07	Disk lifting handle	No	2		
A104/5.08	Central extruder, complete with 20kN hydraulic jack and accessories	No	1		
C/Forward to next page					
B/Forward From previous page					
A104/5.09	Automatic CBR Proctor Compaction press, 50 tonnes capacity with an adjustable distance between platens of 530mm-250mm, rammer weights and automatic count selector	No	1		
A104/5.10	Set of guards for above press.	No	1		
A104/5.11	50 kN CBR Load frame complete with stabilising bar (electric and hand operated) including proving rings for 10KN, 28KN and 50KN, piston and bracket	No	1		
A104/5.12	Penetration gauge range 0 - 25mm	No	2		
A104/5.13	CBR piston including bracket	No	2		
A104/5.14	Swell measurement tripod complete with gauge calibrated in 0.01 mm divisions	No	2		
A104/5.15	Soaking tank for CBR mould sufficient for 50 moulds	No	1		
	6. Relative Density of Aggregates (BS 812)				
A104/6.01	Wire mesh basket with apertures not greater than 6.5 mm large enough to contain 2.5 kg of aggregate	No	2		
A104/6.02	A stout watertight container in which the basket can be freely suspended	No	2		
A104/6.03	Soft absorbent cloth (tea towel)	No	10		
A104/6.04	Shallow tray of area not less than 0.065 m ²	No	2		

A104/6.05	An airtight container of similar capacity to the basket	No	2		
A104/6.06	Pycnometer of 1 litre capacity	No	4		
A104/6.07	Semi automatic 5 kg 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		
A104/6.08	Hot air drier (electric)	No	2		
	7. Flakiness (BS 812)				
A104/7.01	Thickness gauge (various sizes)	No	2		
	8. Sieve Analysis (BS 1377)				
A104/8.01	BS Sieve 300mm diameter in sizes 75, 63, 50, 37.5, 28, 20, 14, 10, 6.3, 5 and 4 mm, plus lid and receiver	Set	2		
A104/8.02	BS Sieve 200mm diameter in sizes 2, 1, 0.6, 0.5, 0.425, 0.300, 0.150 and 0.075 mm, plus lid and receiver	Set	2		
A104/8.03	Electric sieve shaker	No	1		
A104/8.04	BS sieve 200mm diameter 0.425 and 0.075 mm	set	1		
A104/8.05	1 m x 1 m x 75mm deep galvanized metal tray	No	10		
A104/8.06	Riffle box with 50mm slots (BS 1377)	No	1		
C/Forward to next page					
B/Forward From previous page					
	9. Miscellaneous Equipment				
A104/9.01	Wheel barrow	No	3		
A104/9.02	Dustpan and brush	No	3		
A104/9.03	Shovel	No	4		
A104/9.04	Pick axe with handle	No	4		
A104/9.05	Metal scoop, large (150mm wide)	No	3		
A104/9.06	Metal scoop, medium (100mm wide)	No	4		
A104/9.07	Garden trowel	No	2		
A104/9.08	Steel tray 0.3m x 0.3m x 0.01m deep	No	15		
A104/9.09	Palette knife 200mm long blade	No	3		
A104/9.10	Palette knife 100mm long blade	No	4		
A104/9.11	BS sieve 450mm diameter, 37.5mm	No	1		
A104/9.12	BS sieve 450mm diameter, 20mm	No	1		
A104/9.13	BS sieve 450mm diameter, 5mm	No	1		
A104/9.14	BS sieve 450mm diameter, 0.425mm	No	1		
A104/9.15	BS sieve 450mm diameter, 0.3mm	No	1		
A104/9.16	BS sieve 450mm diameter, 0.075mm	No	1		
A104/9.17	Set of lid and receiver for metal scoop and steel trays	No	2		
A104/9.18	BS Sieve brush	No	2		
A104/9.19	Measuring cylinder set, 25 ml, 100 ml, 500 ml, 1000 ml, 2000 ml	set	2		
A104/9.20	Glass jar capacity 5 litres with lid	No	10		
A104/9.21	200mm x 200mm x 20mm cadmium plated or aluminium tin	No	20		
A104/9.22	Electronic balance capacity 1000 g, accurate to 0.01gm.	No	1		
A104/9.23	Balance 2000 g capacity accuracy to 0.1g (manual), including weights	No	1		
A104/9.24	Balance 50kg capacity accurate to 10gm including weights	No	1		
A104/9.25	Still for producing distilled water	No	1		
A104/9.26	Polythene or glass 20 litres storage vessel with tap at bottom	No	2		
A104/9.27	Stiff broom	No	2		

Issue Date 12th June, 2025

A104/9.28	Vernier calipers, 150mm	No	2		
A104/9.29	Vernier calipers, 250mm	No	2		
C/Forward to next page					
B/Forward From previous page					
A104/9.30	Pestle and mortar	No	2		
A104/9.31	Linear shrinkage mould (BS 1377)	No	6		
A104/9.32	Liquid Limit Device	No	2		
A104/9.33	Average least dimension gauge	No	2		
A104/9.34	Lockable tool box containing: 1 pr"Molegrips", 2 x 150mm screwdriver, 2 x 200 mm screwdriver, 2 x 300 mm screwdriver,(1 standard and 1 Phillips head of each) adjustable spanners 200 mm and 300 mm, 1 pair round nosed pliers, 1 pair general purpose pliers,	No	1		
A104/9.35	Plastic or metal bucket including lid,10 litres capacity	No	6		
A104/9.36	Polythene wash bottle (500 ml)	No	5		
A104/9.37	A4 size clipboard	No	4		
A104/9.38	Thermometer, range -10°C to150°C, glass (BS 593)	No	2		
A104/9.39	Laboratory thermometer, range + 0°C to + 250°C (BS 593)	No	2		
A104/9.40	Maximum and minimum thermometer (BS692)	No	2		
A104/9.41	Rain gauge	No	1		
A104/9.42	Portable dial thermometer + 50°C to +250°C accurate to ± 3%	No	1		
A104/9.43	Ditto with 0.75m long stem	No	1		
A104/9.44	Pocket thermometer + 50°C to +250°C accurate to ± 3% with 0.1 m stem	No	2		
A104/9.45	5 litre capacity steel storage containers with leak and dust proof lids for storage of bitumen samples	No	50		
A104/9.46	Hotplate 200mm diameter with Simmerstat heat control unit.	No	2		
A104/9.47	450mm diameter x 150mm deep metal mason's basin	No	6		
	10. Standard Specifications (<i>Copies of each of the latest editions of the following Standards</i>)				
A104/10.01	BS 598	No	1		
A104/10.02	BS 812	No	1		
A104/10.03	BS 882	No	1		
A104/10.04	BS 1377	No	1		
A104/10.05	BS 1881	No	1		
A104/10.06	BS 1924	No	1		
A104/10.07	Standard Specifications for Transportation Material and Methods of Sampling and Testing (AASHTO) Parts I and II, 14th Edition	Set	1		
A104/10.08	ASTM D1559	No	1		
A104/10.09	Asphalt Institute, Superpave Manual Series No.2(SP-2)	No	1		
A104/10.10	Overseas Road Note 19	No	1		
A104/10.11	BS 5911 Part 1 &3	No	1		
C/Forward to next page					
B/Forward From previous page					
	11. Concrete: Slump and Cube Manufacture (BS 1881)				
A104/10.12	BS 4449	No	1		
A104/11.01	Slump cone, tamping rod and base	set	2		
A104/11.02	Concrete cube mould, 150mm cube	No	30		

Issue Date 12th June, 2025

A104/11.03	Soaking tank for cubes (capacity 50 No.)	No	1		
A104/11.04	Cube tamping bars	No	10		
	12. Concrete: Cube Compression Testing				
A104/12.01	Concrete compression machine to BS1610 Grade A with 300 mm gauge, rectangular platens, capacity 1560 kN with load spacer	No	1		
A104/12.02	Safety guard for above				
A104/12.03	50mm distance piece				
A104/12.04	70mm distance piece				
A104/12.05	Electro-mechanical load pacer, 100 mm or equivalent distance piece				
	13. Aggregate and Chippings				
A104/13.01	Sand equivalent to AASHTO T176 including graduated plastic cylinder, rubber stopper, irrigation tube weighted foot assembly, siphon assembly, 85ml tin box (57mm dia.), 100 mm dia wide mouth funnel, stop clock, mechanical shaker and 10 litre jar	Set	1		
A104/13.02	Beaker 250ml	No	2		
A104/13.03	Aggregate Crushing Value Apparatus, 150 mm nominal diameter , including plunger and base plate	No	2		
A104/13.04	Tamping rod and metal measure for above	Set	4		
A104/13.05	Los Angeles Abrasion to ASTM standards	No	1		
A104/13.06	Set of 12 abrasive charges	No	2		
A104/13.07	Thermometer, 0°C to +50°C	No	2		
A104/13.08	Thermometer, 0°C to +250°C	No	2		
A104/13.09	Reagent grade Silica gel, 500g container	No	50		
	14. Bitumen Spray Test (BS 1707)				
A104/14.1	Transverse distribution of spray test bitumen distributor (depot tray test to BS 1707) or equivalent.	Set	1		
A104/14.02	Steel tray 20 mm deep x0.1m ² (for measuring bitumen spray rates) with purpose made detachable handle 1.5m long.	No.	4		
C/Forward to next page					
B/Forward From previous page					
	16. Bitumen Extraction Test				
	A) Extractor Bottle Method BS 598 Part 2				
A104/16.01	Electronic top pan balance 4kg capacity, sensitive to 0.1gm	No	1		
A104/16.02	Flat bottomed scoop	No	3		
A104/16.03	Steel garden trowel	No	2		
A104/16.04	Large steel spoon	No	2		
A104/16.05	Heat resistant gloves	pair	10		
A104/16.06	Foot pump for pressurising air water assemblies up to a maximum of 700KN/m ² and fitted with flexible hose approximately 1.2m long and connector	No	2		
A104/16.07	Steel bottle 600ml capacity with 49mm rubber stopper	No	2		
A104/16.08	Steel bottle 2500ml capacity with 71mm rubber stopper	No	2		
A104/16.09	Steel bottle 7000ml capacity with 71mm rubber stopper	No	2		
A104/16.10	Flask funnel for fitting to the 700ml steel bottle with rim of funnel retaining sieve 200mm nominal diameter	No	2		

Issue Date 12th June, 2025

A104/16.11	Bottle roller compact bench mounted unit designed to rotate 2 bottles simultaneously about longitudinal axis	No	1		
A104/16.12	Pressure filter complete with cutting tool for making hole in the filter paper	No	1		
A104/16.13	Filter funnel to take 200mm nominal diameter sieves	No	2		
A104/16.14	Centrifuge complying with BS 598	No	1		
A104/16.15	Binder recovery	No	1		
A104/16.16	Volumetric flask 250ml, 500ml, 1000ml and 2000ml capacity	set	2		
A104/16.17	Recovery still for Dichloromethane	No	1		
	B) Hot Extractor Method BS 598 Part 2				
A104/16.18	Hot extractor complete with wire gauze container gasket, cork lid and support assembly	No	2		
A104/16.19	Dean and Stark receiver with condenser to suite Trichloroethylene				
A104/16.20	Gyratory compactor ELE Servo Pac or equivalent with 1 x 100mm and 1 x 150mm moulds	No	1		
A104/16.21	PRD Vibrating hammer compactor complete with 6 moulds, 7 base plates from ELE	No	1		
A104/16.22	Two (2) sets of Tamping foot 102mm diameter and 146mm diameter and shanks to fit the supplied vibratory hammer				
C/Forward to next page					
B/Forward From previous page					
	17. Consumables				
A104/17.01	Paraffin wax	Kg	50		
A104/17.02	Gas	Kg	1600		
A104/17.03	Gunny sack	No	500		
A104/17.04	Plastic bag 900x450x1000 gauge	No	500		
A104/17.05	Plastic bag 450x300x1000 gauge	No	500		
A104/17.06	Filter paper 150mm diameter Whatman No. 5 (Boxes of 100)	No	20		
A104/17.07	Filter paper 400mm diameter Whatman No. 5 (Boxes of 100)	No	20		
A104/17.08	Filter paper 100mm diameter Whatman No. 5 (Boxes of 100)	No	20		
A104/17.09	Filter paper 400mm diameter Whatman No. 54 (Boxes of 100)	No	10		
A104/17.10	Filter paper 270mm diameter with 33 diameter hole at centre Whatman No. 5 (Boxes of 100)	No	15		
A104/17.11	Trichloroethylene (205 Litre Drum)	No	2		
A104/17.12	Dichloromethane	kg	0		
A104/17.13	Cotton waste	kg	50		
A104/17.14	Gas cylinders compatible with supplied stoves	No	10		
A104/17.15	Sodium sulphate	kg	45		
A104/17.16	Sand for density test	kg	250		
C/Forward to item 1.05					

APPENDIX B**APPENDIX TO BILL ITEM 1.06A: PROVIDE, FURNISH AND MAINTAIN THE R.E.'S OFFICE**

DESCRIPTION		UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
1. ENGINEER'S MAIN OFFICE AND FURNITURE					
1	Executive desk 2.2x0.9 m with six lockup drawers	No	2		
2	Desk 2.2x0.9 m with chair and three lockup drawers	No	4		
3	Office tables	No	3		
4	Executive Swivel orthopedic chair adjustable height	No	2		
5	Standard office chairs	No	8		
6	Bench 3m long with cushioned backrest (located as directed)	No	1		
7	Typist's desk	No	1		
8	Typist's chair	No	3		
9	Lockable steel stationery cupboard, 1.2 m ³ , lockable	No	4		
10	Medium size steel filing cabinet, 4 drawers lockable	No	4		
11	Medium size steel filing cabinet, 2 lockable drawers lockable	No	3		
12	Bookshelf, 1.5 m wide 3 shelves (for box files) sliding glass door	No	3		
13	Conference table with 12 chairs	No	1		
14	Waste paper basket	No.	5		
15	Curtains for office and laboratory -for all windows and doors	Set	2		
16	Ordinary 2 hole paper punch	No	2		
17	Heavy duty 2 hole paper punch	No	2		
18	Set of full divided scale (metric 1/1000, 1/2500, 1/500, 1/2000, 1/1250, 1/1500)	No	1		
19	Computer meeting the following specifications or equivalent: Personal computer with 20" screen full multimedia, 1000GB hard disk, 12.0GB RAM, Core i7 processor, complete with all accessories preloaded with latest versions of windows OS, MS Office, Professional and MS Project	No	2		
20	Autocad Civil 3D 2012 and Licences for above computers	No	2		
21	As A103/2.11 but with 15" screen	No	4		
22	Laptop PC with Intel Core i7-350M Processor 15.4" screen, 12GB DDR3 RAM 1000GB 8xDVD+/-RW or simillar approved with Microsoft Windows professional	No	1		
23	Latest HP (A4) Laser Printer with accessories	No	3		
24	Latest HP (A3) Laser Printer with accessories	No	1		
25	UPS 600 VA	No	6		
26	wall clocks, battery powered min size 350mm x 350mm	No	2		
27	Safe for cash and valuables min.size approx. 0.8mx0.5mx0.4m to be concreted in place (wall/floor mounted) complete with lock and keys	No	1		
28	First Aid Kit	No	4		

C/Forward to next page					
B/Forward From previous page					
2 9	Fire Extinguisher	No	4		
3 0	Filing Tray - set of 3no.	set	10		
3 1	Refrigerator minimum capacity 0.2 m ³	No	1		
3 2	Drinking water dispenser, hot/cold	No	1		
3 3	Table - 0.8 m ² surface area	No	1		
3 4	Cupboard, 0.15 m ³ , lockable	No	1		
3 5	Cooker 4 plate electric cooker with oven and grill	No	1		
3 6	A3 Photocopier (approved make), with feeder sorting trays, scanner and print capability	No	1		
3 7	Reams of A4 phocopying paper	No	100		
3 8	Reams of A3 phocopying paper	No	20		
3 9	Electronic scientific calculator, Casio fx 992s or equivalent approved	No	6		
4 0	Stapling machine Ofrex size 50 or similar with 5000 staples	No	6		
4 1	Heavy duty punch and spiral binder, IBICO AG or similar approved	No	2		
4 2	Inkjet Plain Paper Fax Machine with 4MB of memory	No	1		
4 3	Pencil sharpener (desk mounted type)	No	6		
4 4	Digital Camera, 20.1 Megapixel(min), 1920x1080 full HD movie recording, optical steadyShot, sweep panorama, 2.7" LCD screen, minimum 15x digital zoom, multimedia card/SD 8GB memory, 12 scene selection modes, all inclusive.	No	1		
4 5	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		
Total carried to Bill Item 1.06A					

APPENDIX C					
APPENDIX TO BILL ITEM 1.06B ENGINEERS'S SURVEY EQUIPMENT					
ITEM	Description	UNIT	QTY	RATE	AMOUNT (KSHS)
1.01	Digital Total Station reading to 1"accuracy (one second) with the following facilities	No.	1		
	· Inbuilt data logger				
	· Uploading/downloading software				
	· Data transfer cable				
	· Battery (2No)				
	· Battery charger				
	· Tool kit				
	· Two face keyboard				
	· User manual				
	It must have the following inbuilt survey programs as a minimum				
	· Survey				
	· Staking out				
	· Resection/intersection				
	· Traverse				
	· Cogo				
1.02	The following mandatory total station accessories must be included per Total station instrument				
	1No. Heavy duty telescopic tripod(preferably wooden)	No.	1		
	Telescopic plumbing prism pole complete with a prism and prism holder with target and plumbing bubble (length not less than 2.15m)	No.	3		
	Triple prism holder set, in a casing, comprising triple prisms, prisms holder with target, tribrach and a tribrach adaptor	No.	1		
	1No. Survey umbrella	No.	1		
	1No. Telescopic Tripod	No.	1		
1.03	Engineer's Automatic Level Wild NAK 2 or similar with a tripod and the following specifications:-	No.	2		
	· Accuracy of 0.7 mm per 1 km double run				
	· Standard magnification of: 32x				
	· Shortest focusing distance of 1.6m				
	· Compensator setting accuracy of 0.3"				
1.04	Hand held GPS with accuracy of 1 Metre	No.	1		
1.05	Set of two way radio communication with a range of 1 kilometer	set.	1		
1.06	5 M Leveling staff with leveling bubble	No.	4		
1.07	3 M Ranging Rods	No.	10		
1.08	Scientific Calculators FX 912ms or equivalent	No.	3		
1.09	30m. Linen Measuring Tape	No.	6		
1.10	1 M stainless steel straight edge	No.	1		
1.11	3 m tape measure	No.	6		
1.12	Sledge hammer 2kg weight	No.	2		
1.13	Mattock	No.	2		
1.14	Pangas (16'')	No.	4		
1.15	Roll of Tracing Paper	No.	1		
1.16	Graph Paper A3 Size	No.	10		
1.17	Marker Pens	No.	20		
1.18	Reflector Jackets	No.	10		
1.19	Laptop	No.	1		
1.2	Scale Rules	No.	2		

Issue Date 12th June, 2025

1.21	Drawing Pen (0.25mm)	No.	2		
1.22	Graph paper 1mm(roll)	No.	1		
Total carried to Bill Item 1.06B					

Issue Date 12th June, 2025

ANNEX 2: REVISED BOQ RWC 686

**UPGRADING TO BITUMEN STANDARD OF OINOBOI KAPKELELWA-KAPKAYO-
TENGENS/KAPKAYO-KIPSAOS ROADS**

Connecting Devolved Kenya

BILL NO. 1. PRELIMINARIES AND GENERAL ITEMS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (KSHS)
1.01	Provide or rent accommodation for Engineer's senior and junior staff				
	(i) Type I (1No)	Month	42	65,000	2,730,000.00
	(i) Type II (3No.)	Month	84	55,000	4,620,000.00
	(iii) Type III (5No.)	Month	84	40,000	3,360,000.00
	(iv) Type IV (5No.)	Month	126	30,000	3,780,000.00
	(v) Type V (10No.)	Month	210	21,000	4,410,000.00
	Total	Total Item 1.01			18,900,000.00
1.02	E.O item 1.01 for contractor's overhead and profit	%			
1.03	Provide or rent and maintain Engineer's Representative's office as shown on the drawings or as instructed by the Engineer for use during the duration of the Contract, ownership to revert to the Contractor at the end of the Contract	LUMP SUM	1		
1.04	Provide or rent and maintain Engineer's Site Laboratory for the duration of the Contract, ownership to revert to the Contractor at the end of the Contract	LUMP SUM	1		
1.05	Provide and maintain Laboratory equipment, reagents and other items as priced in Appendix 'A' to the Bill of Quantities for use by the Engineer's representative for the duration of the contract.	LUMP SUM	1		
1.06 A	Provide and maintain furniture , tools and other items for the Engineers office and Engineer's representative houses as priced in Appendix B for the duration of the contract	LUMP SUM	1		
1.06 B	Provide and maintain survey equipment as priced in Appendix C for the duration of the contract	LUMP SUM	1		
1.07	Provide with drivers, fuel and maintain One (1) new 4WD fully loaded station wagons of minimum diesel engine capacity 2400cc approved by the Engineer for his exclusive use, inclusive of the first 5000km per vehicle month. Vehicle to revert to the Contractor at the end of the project.	Veh Month	54		
1.08	EO item 1.07 for total aggregated mileage in excess of 5000km per vehicle month.	km	63,000		
1.09	Provide with drivers, fuel and maintain Two (2) new 4WD fully loaded double cabin pick-ups of minimum diesel engine capacity 2400cc approved by the Engineer for his exclusive use, inclusive of the first 5000km per vehicle month. Vehicle to revert to the Contractor at the end of the project.	Veh Month	84		
1.10	EO item 1.07 for total aggregated mileage in excess of 5000km per vehicle month.	km	126,000		
1.11	Ditto item 1.09, but one (1) new 4WD standard double cabin pick-up of minimum diesel engine capacity 2400cc approved for the exclusive use of the Engineer inclusive of the first 5000km per vehicle month. Vehicles to revert to the Contractor at the end of the project.	veh Month	42		

Issue Date 12th June, 2025

1.12	E.O item 1.09 for total aggregated mileage in excess of 5000 km per vehicle per month.	km	63,000		
1.13	Ditto item 1.09, but two (2) new 4WD Single cabin pick-up with fibre glass body, with cushioned benches of minimum diesel engine capacity 2200cc approved for the exclusive use of the Engineer inclusive of the first 5000km per vehicle month. Vehicle to revert to the Contractor at the end of the project.	veh Month	84		
1.14	E.O item 1.11 for total aggregated mileage in excess of 5000 km per vehicle per month.	km	72,000		
1.15	Allow a Prime Cost Sum of Kshs. 12,600,000 for the RE's miscellaneous account to be spent in whole or part as directed by the RE against receipts.	PC Sum	1		
1.16	E.O. item 1.13 for Contractor's overheads and profits.	% of item			
1.17	Allow a Prime Cost Sum of Kshs 37,800,000.00 for attendance upon the Resident Engineer' staff.	PC Sum	1		
1.18	E.O. item 1.15 for Contractor's overheads and profits.	% of item			
1.19	Provide/Repair/Replace the stickers on 4No. Existing project signboard as directed by the Engineer	No	4		
1.20	Allow a Prime Cost Sum of Kshs 3,000,000.00 for relocation of services	PC Sum	1		
1.21	E.O item 1.17 for Contractor's overheads and profits	% of item			
1.22	Provide and maintain for the duration of the contract a mobile weigh bridge with manufacturers warranty, as specified in Appendix E in a PDF file. The weigh bridge to revert to employer at commencement of the project. Allowances for repairs and maintenance must be included in the quotation	No	1		
1.23	Allow for Prime Cost Sum of Kshs. 5,000,000.00 for training of Engineers	PC Sum	1		
1.24	E.O. item 1.23 for Contractor's overheads and profits	%			
1.25	Allow for Prime Cost Sum of Kshs. 4,000,000.00 for post construction pavement investigation and review	PC Sum	1		
1.26	E.O. item 1.25 for Contractor's overheads and profits.	%			
Bill No. 1 Total Carried Forward to Grand Summary					
BILL NO. 4 : SITE CLEARANCE AND TOP SOIL STRIPPING					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (KSHS)
4.01	Clear site on road reserve including removal of all growths, bushes, hedges, trees, stumps, grub up roots, and other deleterious materials and back-fill	Ha.	13		

Issue Date 12th June, 2025

	and compact to 100% MDD(AASHTO T99) with approved material as directed by the Engineer.				
4.02	Strip top soil upto 0.2m in thickness along alignment or material sites including removal of all grass and other vegetation,transport to spoil and spread or stock pile for re-use as directed by the Engineer.	m ³	24,200		
4.03	Provide Kshs. 1,000,000 for the removal of structures and obstructions as instructed by the Engineer to be paid on dayworks basis	Prov. Sum	1		

Bill No. 4 Total Carried Forward to Grand Summary

BILL NO. 5 : EARTHWORKS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (KSHS)
	NOTE: No separate payment shall be made for the overhaul of material and the cost of such haulage shall be included in the rates and/or prices inserted				
5.01	Fill in soft material including benching of shoulders and embankments and compaction to 95% MDD (AASHTO T99) in layers not exceeding 150mm	m ³	110,750		
5.02	Extra Over Item 5.01 for compaction of the top 300mm subgrade to 100% MDD	m ³	152,000		
5.03	Ditto item 5.01 but in hard material	m ³	11,100		
5.04	Cut to spoil in soft material	m ³	217,000		
5.05	Ditto item 5.04 but in hard material	m ³	108,500		
5.06	Provide improved sub grade material as directed by the Engineer to a compaction of 100% MDD (AASHTO T99)	m ³	149,000		
5.07	Compaction of top 300mm below formation level in cuts to 100% MDD (AASHTO T99)	m ³	134,000		
5.08	Compaction of 150mm original ground below fills to 95% MDD.(AASHTO T99)	m ³	74,000		
5.09	Top-soiling prior to planting grass as directed by the Engineer	m ²	83,000		
5.10	Grassing as directed by the Engineer	m ²	83,000		

Bill No. 5 Total Carried Forward to Grand Summary

BILL NO. 7 : EXCAVATION AND FILLING OF STRUCTURES

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (KSHS)
	These work items covers all excavations and filling operations to bridges, box culverts, retaining walls and other major structures.				
7.01	Excavate to spoil in soft materials.	m ³	12,000		
7.02	As item 7.01 but in hard material.	m ³	3,000		
7.03	Provide,place and compact rockfill below strucures.	m ³	1,000		
7.04	Provide and place 150mm thick stone pitching including grouting as directed by the Engineer.	m ²	20,000		
7.05	Excavate for gabions in soft material.	m ³	10,000		

7.06	Provide and place gabion boxes and mattresses where directed by the Engineer.	m ²	11,000		
7.07	Rockfill to gabions.	m ³	8,000		
7.08	Filter fabric behind gabion boxes.	m ²	6,000		
7.09	Provide and backfill approved material around new box culverts, compact to 100% MDD (AASHTO T99) in layers not exceeding 150mm.	m ³	9,000		
7.10	Allow for protection of structures pursuant to Section 708 of the specifications	LS	1		
7.11	Allow for the provision and removal of cofferdams or other measures for the exclusion of water from site and for protection of works against floods.	LS	1		

Bill No. 7 Total Carried Forward to Grand Summary**BILL NO. 8. CULVERTS AND DRAINAGE WORKS**

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (KSHS)
	Note: <i>No separate payments shall be made for gravel for blinding or hauling to spoil unsuitable excavation materials and the cost of such shall be included in the rates and prices.</i>				
8.01	Excavate for inlet, outfall, mitre and catch water drains in soft material	m ³	12,000		
8.02	As per item 8.01, but for hard material	m ³	3,000		
8.03	Excavation in soft material for pipe culverts, headwalls, wingwalls, apron, toewalls, and drop inlets and compact as directed by the engineer	m ³	15,000		
8.04	As per item 8.03, but for hard material	m ³	3,750		
8.05	Provide, lay and joint 600mm dia. concrete pipes (precast to BS 5911 Parts 1 & 3) for access roads	m	2,500		
8.06	As for item 8.05 but 900mm dia concrete pipes (precast to BS 5911 parts 1 & 3) for cross culverts	m	1,500		
8.07	As for item 8.05 but 1200mm dia concrete pipes (precast to BS 5911 parts 1 & 3) for cross culverts	m	600		
8.08	Provide and place class 15/20 concrete to beds, surround and haunches	m ³	7,500		
8.09	Provide, place and compact class 25(20) concrete for headwalls, wingwalls, aprons, and toewalls to access and cross pipe culverts including all form work and the provision and placing of reinforcement as shown in the drawings	m ³	3,500		
8.10	Provide and place invert block drains with two course side slabs (Provisional)	m	800		
8.11	Construct in concrete class 15(20) side drains scour checks as instructed	m ³	800		
8.12	Provide and place precast concrete slabs 1000mm x 600mm x 50mm and place over open lined drains in trade centres and markets	No.	500		
8.13	Provide subsoil filter drains fabric to isolated wet spots inclusive of artesian cloth, and 14/20mm single size aggregates as directed by the Engineer	m	1,000		

8.14	Remove existing pipe culverts of any diameter either for re-use or to be discarded as directed by the Engineer	m	400		
------	--	---	-----	--	--

Bill No. 8 Total Carried Forward to Grand Summary**BILL NO. 9: PASSAGE OF TRAFFIC**

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (KSHS)
	NOTE: Notwithstanding the provision of Section 9 of the Standard Specification, no extra payments shall be due as all costs shall be deemed to be included in the rates inserted herein				
9.01	Construct and maintain diversions in maximum lengths of 5km sections as directed by the Engineer, including including 150mm wearing course gravel all signage, lighting and barriers	km			
9.02	Provide, spread, water and compact gravel of minimum CBR 30% as directed by the Engineer for maintenance works.	m ³			
9.03	Allow for the passage of traffic through and around the works	LS			
9.04	Grade, water and compact existing road ahead of works	km			

Bill No. 9 Total Carried Forward to Grand Summary**BILL NO. 12 : NATURAL MATERIAL FOR SUBBASE AND BASE**

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (KSHS)
	Note: <i>No overhaul will be paid for separately under these items as it shall be deemed to have been included in the Contractor's rates</i>	-	-	-	-
12.01	Provide gravel Sub-base material, haul, spread, compact to at least 95% M.D.D (AASHTO T-180) and shape to level and tolerance.	m ³	150,000		
12.02	Ditto item 12.01 but for base	m ³	140,000		

Bill No. 12 Total Carried Forward to Grand Summary**BILL NO. 14 : CEMENT OR LIME TREATED SUBBASE AND BASE**

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (KSHS)
	Note: <i>No overhaul will be paid for separately under these items as it shall be deemed to have been included in the Contractor's rates</i>	-	-	-	-
14.01	Provide and spread Lime as an improvement agent for sub-base /base	Tonne	2,900		
14.02	Provide and spread Cement as an improvement agent for sub-base /base	Tonne	7,933		
14.03	Provide and spread Cement as an improvement agent for base	Tonne	10,633		

14.04	Mix and process natural material with improvement agent for pavement layers as instructed by the Engineer or as specified(Mix-in-place method)	m ³	140,000		
14.05	Curing of cement / lime treated base and sub-base layers	m ²	261,500		

Bill No. 14 Total Carried Forward to Grand Summary**BILL NO. 15: BITUMINOUS SURFACE TREATMENT & SURFACE DRESSING TO SHOULDERS**

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (KSHS)
15.01	Prepare surface of road base and shoulders, provide, heat and spray MC 30 cutback bitumen prime coat at 0.8-1.2 Litres/m ² .	Litres	642,200		
15.02	Prepare surface of road base and shoulders, provide, heat and spray K1-60 bitumen emulsion tack coat at 0.5-0.8 Litres/m ² .	Litres	428,200		

Bill No. 15 Total Carried Forward to Grand Summary**BILL NO. 16: BITUMINOUS MIXES**

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (KSHS)
16.01	Provide, lay and compact 35mm Asphalt Concrete Type II wearing course as directed by the Engineer at Bitumen Content of 5.5 - 7.0% by weight of total mix.	m ³	18,600		
16.02	Provide place and compact Asphaltic concrete type I for construction of bumps and rumblesat Bitumen Content of 5.5 - 7.0% by weight of total mix.	m ³	550		

Bill No. 16 Total Carried Forward to Grand Summary**BILL NO. 17. CONCRETE WORKS**

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (KSHS)
	BRIDGES AND BOX CULVERTS				
	Concrete				
17.01	Provide, place and compact Class 15(20) concrete blinding as instructed by the Engineer	m ³	2,000		
17.02	Provide, place and compact concrete class 25(20) to aprons, wingwalls, abutments, piers, walls and slabs for box culverts abd bridges as shown in drawings.	m ³	8,300		
17.03	Provide, place and compact concrete class 30(20) to main beams, cross-beams, deck and approach slabs as shown in drawings.	m ³	1,450		
	<u>Reinforcement: Provide, cut, bend & fix into position steel reinforcement as shown in the drawings or as instructed by the Engineer</u>	-	-	-	
17.11	High yield reinforcement steel bars to BS 4461 equal to or less than 16mm diameter bar size	Tonne	1,254		
17.12	High yield bond strength reinforcement steel to BS 4461 greater than 16mm diameter bar size	Tonne	400		

	<u>Formwork : Provide, erect and afterwards dismantle and remove all the formwork as specified by the Engineer</u>	-	-	-	
17.24	Provide & fix in place formwork to achieve class F1 finish	m ²	22,000		
17.25	Vertical formwork to achieve class F3 finish	m ²	2,000		
17.33	Class 20/20 Roller compacted concrete for road construction 100 mm, incl. A142 Steel reinforcing mesh mats (6mm)	m ³	700		

Bill No. 17 Total Carried Forward to Grand Summary**BILL NO. 20: ROAD FURNITURE**

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (KSHS)
20.01	Provide Road Reserve Boundary posts	No.	300		
20.02	Excavate for, provide & place 250 x 125mm precast concrete raised or ramped kerbs haunched in 100mm thick class 15/20 concrete base bedding and mortar joined in support to carriageway, busbays and junctions as directed by the Engineer.				
	a) Straight kerbs	m	420		
	b) Kerbs radius 12m - 6m	m	100		
	c) Ditto but radius 5m - 1m	m	100		
20.03	As 20.02 but for flush kerbs 100 x 125mm	m	420		
20.04	Provide and erect permanent road signs where instructed by the Resident Engineer and in accordance with Special Specifications Clause 2004 as follows:				
	a) warning signs	No.	60		
	b) Priority prohibitory and mandatory signs	No.	60		
	c) Standard informatory signs	No.	60		
	d) Non standard informantor signs area				
	i) Less than 1.0m ²	No.	60		
	ii) More than 1.0m ² but less than 5m ²	No.	60		
20.05	Provide, deliver, paint and mark the road as specified or as directed by the Engineer, with white reflectionized thermoplastic paint from an approved supplier.	m ²	20,600		
20.06	As item 20.05 but for yellow reflectionized thermoplastic paint	m ²	10,800		
20.07	Provide and erect concre posts for guardrails complete with spacers (size and interval) as per specifications or as directed by the Engineer	No.	900		
20.08	Provide and erect flex-beam guardrails complete with connections as shown on the drawings or as directed by the Engineer	m	900		
20.09	Provide Edge marker posts	No.	180		
20.10	Provide kilometre marker posts as directed by the Engineer	No.	150		

Bill No. 20 Total Carried Forward to Grand Summary					
BILL NO. 21: MISCELLANEOUS BRIDGE WORKS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (KSHS)
21.01	Provide 75-100mm diameter weepholes to suit abutments and structural walls to structures as instructed by the Engineer	No	750		
21.02	Provide 75-100mm diameter weepholes to deck slab and insert 100mm diameter PVC heavy duty 600mm long top sealed with perforated steel grating	No	500		
21.03	Provide and install elastomeric bearings LEB IRHD size 500 x 450 x 54mm thick	No	100		
21.04	Movement joints at abutments and piers including dowels (provisional)	m	120		
21.05	25mm thick flex cell or similar approved low compression joint filler at expansion joint	m	120		
21.06	Providing and placing bitumen emulsion or cutback bitumen or bitumen/rubber latex emulsion to all structural concrete in contact with fill material or cut soil.	m ²	2,000		
21.07	Paraseal or similar approved cold poured polysulphide joint sealant	m	120		
21.08	Provide and place into position handrails to kerbs of bridge deck & ramps as shown on the drawing and as directed by the Engineer.	m	1,250		
21.09	Provide and place into position galvanised flexi-beam guardrails including end pieces, nuts and bolts along the approaches to the bridges as per drawings and as instructed by the Engineer	m	1,250		
21.10	Provide and place a 0.5m wide drainage layer of class 14/20 mm to structural concrete in contact with fill material.	m ³	700		
Bill No. 21 Total Carried Forward to Grand Summary					-
BILL NO. 22: SCHEDULE OF DAYWORKS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (KSHS)
	<u>PLANT</u>				
	<i>The rates inserted herein are to include all operational and Maintenance costs, fuel, oil, grease, drivers/operators wages, supervision, overheads and profit. Only time actually employed upon the work will be paid for and the rates should include for idle time, travelling time and overtime. In accordance with clause 2202 (a) of the specifications. Note: All items of plant must be priced.</i>				
22.01	Crawler dozers with hydraulic attachmentsto include ripper				
	a) Up to 135 kw rated flywheel power	hrs	20		

Issue Date 12th June, 2025

	b) Over 136 kw rated flywheel power	hrs	20		
22.02	Motor Grader				
	a) Up to 110kw rated flywheel power	hrs	20		
	b) Over 100kw rated flywheel power	hrs	20		
22.03	Vibratory Roller				
	a) 6.5 - 8.81 tonne un-ballasted weight	hr	20		
	b) Over 8.91 tonne un-ballasted weight	hr	20		
22.04	Hand propelled vibrating roller 650 - 1300kg	hrs	20		
22.05	Cat 950G wheel loader or equivalent	hrs	20		
22.06	10 Tonne tipper lorry	hrs	20		
22.07	Small dumpers, 750-1000kg rated payload	hrs	20		
22.08	Dual purpose hydraulic excavator with backhoe/loader and a rated bucket capacity of upto 1m ³ .	hrs	20		
22.09	Articulated wheel loader with 1.5-2.0m ³ SAE rated bucket capacity	hrs	20		
22.10	50mm delivery water pump and motor	hrs	20		
22.11	Self propelled water tanker 4,500ls min. capacity with pick-up pump	hrs	20		
22.12	Concrete Mixer of 100 - 150litres	hrs	20		
22.13	Concrete poker vibrator	hrs	20		
	LABOUR				
	<i>The rates inserted herein are to include all costs of labour such as insurance, accomodation, travelling time, over-time, use and maintenance of small tools of trade, supervision, overheads and Profit. Only the actual time engaged upon the work will be paid for.</i>				
22.14	Unskilled Labour	hrs	20		
22.15	Artisans	hrs	20		
22.16	Office attendants and chainmen	hrs	20		
22.17	Watchmen (all round surveillance)	hrs	20		
Bill No. 22 Total Carried Forward to next page					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (KSHS)
Brought forwad from previous page					
	MATERIALS				
	<i>All materials are to comply with the Specification. The rates inserted herein are to include for delivery to the site, storage, handling, overheads and profit</i>				
22.18	Ordinary Portland Cement	Ton	2		
22.19	Hydrated Lime	Ton	2		
22.20	Mild Steel(any diameter)	Ton	2		
22.21	High Yield Steel (any diameter)	Ton	2		
22.22	Fine Aggregate for Concrete	m ³	10		
22.23	Coarse Aggregate for Concrete	m ³	10		
22.24	Wrot Shuttering Timber	m ²	10		
22.25	Rough shuttering timber.	m ²	20		
22.26	Bitumen Emulsion KI-60.	Litre	200		
22.27	Straight run bitumen Grade 80/100.	Litre	200		
22.28	Kerosene	Litre	200		
22.29	14/20 mm nominal size surface chips.	m ³	100		

Issue Date 12th June, 2025

22.30	6/10mm nominal size surface chips	m ³	100		
22.31	AC Type II Ex-plant	m ³	100		
22.32	Class C uPVC pipe 1/4" to 2" diameter including all fittings, connections and accessories complete with pressure testing	m	3,000		
22.33	Class C uPVC pipe 3" to 4" diameter including all fittings, connections and accessories complete with pressure testing	m	2,000		
22.34	Class C uPVC pipe 6" to 8" diameter including all fittings, connections and accessories complete with pressure testing	m	1,000		

Bill No. 22 Total Carried Forward to Grand Summary

BILL NO. 25: ENVIRONMENTAL MITIGATION MEASURES & HIV AIDS CAMPAIGN

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (KSHS)
25.01	All for a prime cost sum of KShs 5,000,000 (five Million) for ESIA study and report, Compliance Audits and environmental monitoring.	PC sum	1		
25.02	E.O for Item 25.01 for Contractor's Overheads and Profit	%			
25.03	Allow for engagement of a HIV/AIDS specialist subcontractor to deal with prevention, awareness activities as per programme to be approved by the Engineer	Months	42		
25.04	Allow for the availability of male and female condoms to workers and staff strategically and socially presented for the duration of the contract	No.	30,000		
25.05	Allow for preparation and submission of monthly reports on HIV/AIDS awareness and prevention activities. Report to be tabled at site meetings.,	Months	42		
25.06	Provide, Instal and maintain HIV/AIDS awareness bill boards with approved message and graphics with maximum area 4m ² fabricated as per specifications of permanent inforamatory sign boards	No.	4		
25.07	Allow for vedio shows on HIV/AIDS related awareness and prevention matters every 3 months	Quarterly	14		
25.08	Allow for production and distribution of HIV/AIDS awareness material as follows:				
	a) T-Shirt printed with approved message and graphics	No.	500		
	b) Ditto (a) above but caps	No.	100		
	c) A1 size weather proved posters	No.	20		
	d) A3 size weather proved posters	No.	100		
	e) 200x150mm stickers with HIV/AIDS awareness/prevention slogan	No.	100		
	f) Key rings with HIV/AIDS awareness/prevention slogan	No.	500		
	g) Ball point pens with HIV/AIDS awareness / prevention slogan.	No.	500		

Bill No. 25 Total Carried Forward to Grand Summary

CONTRACT NO.: RWC 686 UPGRADING TO BITUMEN STANDARD OF OINOBOI KAPKELELWA-KAPKAYO-TENGES/KAPKAYO-KIPSAOS ROADS		
GRAND SUMMARY OF BILL OF QUANTITIES		
BILL ITEM	DESCRIPTION	AMOUNT (KSHS)
1	Preliminaries and General Items	
4	Site Clearance and Top Soil Stripping	
5	Earth Works	
7	Excavation and Filling of Structures	
8	Culverts and Drainage Works	
9	Passage to Traffic	
12	Natural Gravel Base and Subbase	
14	Lime/Cement Improved gravel Subbase and Base	
15	Bituminous Surface Treatment and Surface Dressing	
16	Bituminous Mixes	
17	Concrete Works	
20	Road Furniture	
21	Miscellaneous Bridge works	
22	Schedule of Dayworks.	
25	HIV/AIDS, Gender & Social Issues, Local Participation	
(A)	SUB-TOTAL (1)	
(B)	Add 15% VARIATION OF PRICE of sub total (1)	
(C)	Add 10% CONTIGENCIES of sub total (1)	
(D)	SUB-TOTAL (2) = (A + B + C)	
(E)	Add 0.03% Public Procurement Capacity Building Levy of sub-total (2)	
(F)	Add ...16% VAT of sub-total (2)	
TOTAL CARRIED FORWARD AS BID SUM 1: (D + E + F)		

APPENDIX A					
APPENDIX TO BILL ITEM 1.05:					
PROVIDE AND MAINTAIN FURNITURE AND EQUIPMENT FOR THE ENGINEER'S LABORATORY					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				(KSHS)	(KSHS)
	1. FURNITURE				
A104/1.01	Desk 2.2x0.9 m with chair and lockup drawers	No	2		
A104/1.02	Desk chair (standard)	No	15		
A104/1.03	Stationery cupboard, 1.2 m ³ , lockable	No	2		
A104/1.04	Steel filing cabinet, 4 drawers, lockable	No	2		
A104/1.05	Steel filing cabinet, 2 drawers, lockable	No	2		
A104/1.06	Bookshelf, 3 shelves 1.2 m long (to hold box files)	No	2		
A104/1.07	Table - 6 m ²	No	2		
A104/1.08	Two Plate electric heater	No	72		
A104/1.09	Fire extinguisher, 10 litre capacity, CO ₂ type	No	4		
A104/1.10	Complete first aid kit	No	72		
	EQUIPMENT		36		
	<i>(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) Standard)</i>				
			72		
	2. General Equipment				
A104/2.02	2.49kg. Compaction hammer, drop regulated to 304.8mm	No	2		
A104/2.03	4.535kg compaction hammer drop regulated to 457.2mm	No	2		
A104/2.04	Electric vibrating Kango Hammer fitted with steel tamper(BS 1377) with support frame	No	1		
A104/2.05	Straight edge 300 mm long with handles	No	4		
A104/2.06	Steel Tamper (BS1377) compatible with Kango hammer	No	3		
A104/2.07	Compaction mould 152.4 mm. dia x 116.43 mm complete with base plate and extension collar, 101.6 mm	No	2		
A104/2.08	Galvanized metal tray 1m x 0.5m x 75 mm deep	No	4		
A104/2.09	75mm brush	No	2		
A104/2.10	Semi-automatic balance, 25kg Capacity accurate to 1g, including weights	No	1		
A104/2.11	20mm BS Sieve, 300mm diameter	No	1		
A104/2.12	Stop Clock	No	2		
A104/2.13	Thermostatically controlled electric oven 105-110°C, capacity 0.225 m ³	No	2		
A104/2.14	As above but gas heated	No	1		

A104/2.15	Moisture content tins, 75 mm dia, Cadmium or aluminium plated	No	60		
A104/2.16	Cone penetrometer with gauge and automatically controlled test cup	No	2		
			14		
	C/Forward to next page				
	B/Forward from previous page				
	3. Density (Sand replacement method BS 1377)				
A104/3.01	Metal containers 450mm diameter	No	2		
A104/3.02	Stainless steel tray 305mm diameter	No	2		
A104/3.03	Metal tray with 150 mm diameter hole in the centre, 300mmx300 mm square or equivalent area, 40mm deep	No	2		
A104/3.04	Metal tray with 200mm diameter hole in the centre, 500mm x 500 mm square , 50 mm deep	No	2		
A104/3.05	Steel pegs for fixing tray in position	No	15		
A104/3.06	Sand pouring cylinder, 150 mm diameter	No	2		
A104/3.07	Sand pouring cylinder, 215 mm diameter	No	2		
A104/3.08	Cold steel chisel 20mm x 300mm	No	4		
A104/3.09	Cold steel chisel 10mm x 250mm	No	4		
A104/3.10	1.5kg, 3.5kg hammers and 1kg rubber mallet	Set	1		
A104/3.11	Scoop for removing excavated material from hole, 250 mm long handle	No	6		
A104/3.12	100mm brush, soft	No	3		
A104/3.13	50mm brush, soft	No	3		
A104/3.14	Primus gas stove	No	1		
A104/3.15	Calibrating can 150 mm diameter x 150 mm deep	No	3		
A104/3.16	Ditto but 200 mm diameter x 250 mm deep	No	3		
	5. CBR (AASHTO T193)				
A104/5.01	CBR mould, 152.4 mm dia x 178 mm high, complete with perforated base plate and extension collar 50.8 mm high that can be fitted to either side of mould	No	50		
A104/5.02	Perforated swell plate 150 mm dia with an adjustable centre post of rust proof metal provided with a lock-nut	No	40		
A104/5.03	2.25 kg split surcharge weight	No	2		
A104/5.04	Set of annular surcharge weights	No	1		
A104/5.05	Solid base plate for CBR mould	No	2		
A104/5.06	Static compaction displacer discs 1 No x 61.4 mm, 1 No x 50.8 mm and 2 No x 38.8 mm thick with handles	set	1		
A104/5.07	Disk lifting handle	No	2		
A104/5.08	Central extruder, complete with 20kN hydraulic jack and accessories	No	1		
A104/5.09	Automatic CBR Proctor Compaction press, 50 tonnes capacity with an adjustable	No	1		

	distance between platens of 530mm-250mm, rammer weights and automatic count selector				
A104/5.10	Set of guards for above press.	No	1		
A104/5.11	50 kN CBR Load frame complete with stabilising bar (electric and hand operated) including proving rings for 10KN, 28KN and 50KN, piston and bracket	No	1		
	C/Forward to next page				
	B/Forward From previous page				
A104/5.12	Penetration gauge range 0 - 25mm	No	2		
A104/5.13	CBR piston including bracket	No	2		
A104/5.14	Swell measurement tripod complete with guage calibrated in 0.01 mm divisions	No	2		
A104/5.15	Soaking tank for CBR mould sufficient for 50 moulds	No	1		
	6. Relative Density of Aggregates (BS 812)				
A104/6.01	Wire mesh basket with apertures not greater than 6.5 mm large enough to contain 2.5 kg of aggregate	No	2		
A104/6.02	A stout watertight container in which the basket can be freely suspended	No	2		
A104/6.03	Soft absorbent cloth (tea towel)	No	10		
A104/6.04	Shallow tray of area not less than 0.065 m ²	No	2		
A104/6.05	An airtight container of similar capacity to the basket	No	2		
A104/6.06	Pycnometer of 1 litre capacity	No	4		
A104/6.07	Semi automatic 5 kg 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		
A104/6.08	Hot air drier (electric)	No	2		
	7. Flakiness (BS 812)				
A104/7.01	Thickness gauge (various sizes)	No	2		
	8. Sieve Analysis (BS 1377)				
A104/8.01	BS Sieve 300mm diameter in sizes 75, 63, 50, 37.5, 28, 20, 14, 10, 6.3, 5 and 4 mm, plus lid and receiver	Set	2		
A104/8.02	BS Sieve 200mm diameter in sizes 2, 1, 0.6, 0.5, 0.425, 0.300, 0.150 and 0.075 mm, plus lid and receiver	Set	2		
A104/8.03	Electric sieve shaker	No	1		
A104/8.04	BS sieve 200mm diameter 0.425 and 0.075 mm	set	1		
A104/8.05	1 m x 1 m x 75mm deep galvanized metal tray	No	10		
A104/8.06	Riffle box with 50mm slots (BS 1377)	No	1		

	9. Miscellaneous Equipment				
A104/9.01	Wheel barrow	No	3		
A104/9.02	Dustpan and brush	No	3		
A104/9.03	Shovel	No	4		
A104/9.04	Pick axe with handle	No	4		
A104/9.05	Metal scoop, large (150mm wide)	No	3		
A104/9.06	Metal scoop, medium (100mm wide)	No	4		
A104/9.07	Garden trowel	No	2		
A104/9.08	Steel tray 0.3m x 0.3m x 0.01m deep	No	15		
A104/9.09	Palette knife 200mm long blade	No	3		
A104/9.10	Palette knife 100mm long blade	No	4		
A104/9.11	BS sieve 450mm diameter, 37.5mm	No	1		
A104/9.12	BS sieve 450mm diameter, 20mm	No	1		
A104/9.13	BS sieve 450mm diameter, 5mm	No	1		
A104/9.14	BS sieve 450mm diameter, 0.425mm	No	1		
A104/9.15	BS sieve 450mm diameter, 0.3mm	No	1		
	Page 5 C/Forward to next page				
	B/Forward from previous page				
A104/9.16	BS sieve 450mm diameter, 0.075mm	No	1		
A104/9.17	Set of lid and receiver for metal scoop and steel trays	No	2		
A104/9.18	BS Sieve brush	No	2		
A104/9.19	Measuring cylinder set, 25 ml, 100 ml, 500 ml, 1000 ml, 2000 ml	set	2		
A104/9.20	Glass jar capacity 5 litres with lid	No	10		
A104/9.21	200mm x 200mm x 20mm cadmium plated or aluminium tin	No	20		
A104/9.22	Electronic balance capacity 1000 g, accurate to 0.01gm.	No	1		
A104/9.23	Balance 2000 g capacity accuracy to 0.1g (manual), including weights	No	1		
A104/9.24	Balance 50kg capacity accurate to 10gm including weights	No	1		
A104/9.25	Still for producing distilled water	No	1		
A104/9.26	Polythene or glass 20 litres storage vessel with tap at bottom	No	2		
A104/9.27	Stiff broom	No	2		
A104/9.28	Vernier calipers, 150mm	No	2		
A104/9.29	Vernier calipers, 250mm	No	2		
A104/9.30	Pestle and mortar	No	2		
A104/9.31	Linear shrinkage mould (BS 1377)	No	6		
A104/9.32	Liquid Limit Device	No	2		
A104/9.33	Average least dimension gauge	No	2		
A104/9.34	Lockable tool box containing: 1 pr "Molegrips", 2 x 150mm screwdriver, 2 x 200 mm screwdriver, 2 x 300 mm screwdriver, (1 standard and 1 Phillips head of each) adjustable spanners 200 mm and 300 mm, 1 pair round nosed pliers, 1 pair general purpose pliers,	No	1		
A104/9.35	Plastic or metal bucket including lid, 10 litres capacity	No	6		
A104/9.36	Polythene wash bottle (500 ml)	No	5		

A104/9.37	A4 size clipboard	No	4		
A104/9.38	Thermometer, range -10°C to 150°C, glass (BS 593)	No	2		
A104/9.39	Laboratory thermometer, range + 0°C to + 250°C (BS 593)	No	2		
A104/9.40	Maximum and minimum thermometer (BS692)	No	2		
A104/9.41	Rain gauge	No	1		
A104/9.42	Portable dial thermometer + 50°C to +250°C accurate to $\pm 3\%$	No	1		
A104/9.43	Ditto with 0.75m long stem	No	1		
A104/9.44	Pocket thermometer + 50°C to +250°C accurate to $\pm 3\%$ with 0.1 m stem	No	2		
A104/9.45	5 litre capacity steel storage containers with leak and dust proof lids for storage of bitumen samples	No	50		
A104/9.46	Hotplate 200mm diameter with Simmerstat heat control unit.	No	2		
A104/9.47	450mm diameter x 150mm deep metal mason's basin	No	6		
	C/Forward to next page				
	B/Forward from previous page				
	11. Concrete: Slump and Cube Manufacture (BS 1881)				
A104/11.01	Slump cone, tamping rod and base	set	2		
A104/11.02	Concrete cube mould, 150mm cube	No	30		
A104/11.03	Soaking tank for cubes (capacity 50 No.)	No	1		
A104/11.04	Cube tamping bars	No	10		
	12. Concrete: Cube Compression Testing				
A104/12.01	Concrete compression machine to BS1610 Grade A with 300 mm gauge, rectangular platens, capacity 1560 kN with load spacer	No	1		
A104/12.02	Safety guard for above				
A104/12.03	50mm distance piece				
A104/12.04	70mm distance piece				
A104/12.05	Electro-mechanical load pacer, 100 mm or equivalent distance piece				
	13. Aggregate and Chippings				
A104/13.01	Sand equivalent to AASHTO T176 including graduated plastic cylinder, rubber stopper, irrigation tube weighted foot assembly, siphon assembly, 85ml tin box (57mm dia.), 100 mm dia wide mouth funnel, stop clock, mechanical shaker and 10 litre jar	Set	1		
A104/13.02	Beaker 250ml	No	2		
A104/13.03	Aggregate Crushing Value Apparatus, 150 mm nominal diameter, including plunger and base plate	No	2		
A104/13.04	Tamping rod and metal measure for above	Set	4		

A104/13.05	Los Angeles Abrasion to ASTM standards	No	1		
A104/13.06	Set of 12 abrasive charges	No	2		
A104/13.07	Thermometer, 0°C to +50°C	No	2		
A104/13.08	Thermometer, 0°C to +250°C	No	2		
A104/13.09	Reagent grade Silica gel, 500g container	No	50		
	14. Bitumen Spray Test (BS 1707)				
A104/14.1	Transverse distribution of spray test bitumen distributor (depot tray test to BS 1707) or equivalent.	Set	1		
A104/14.02	Steel tray 20 mm deep x0.1m ² (for measuring bitumen spray rates) with purpose made detachable handle 1.5m long.	No.	4		
	16. Bitumen Extraction Test				
	A) Extractor Bottle Method BS 598 Part 2				
A104/16.01	Electronic top pan balance 4kg capacity, sensitive to 0.1gm	No	1		
A104/16.02	Flat bottomed scoop	No	3		
A104/16.03	Steel garden trowel	No	2		
A104/16.04	Large steel spoon	No	2		
A104/16.05	Heat resistant gloves	pair	10		
A104/16.06	Foot pump for pressurising air water assemblies up to a maximum of 700KN/m ² and fitted with flexible hose approximately 1.2m long and connector	No	2		
C/Forward to next page					
	C/Forward from previous page				
A104/16.07	Steel bottle 600ml capacity with 49mm rubber stopper	No	2		
A104/16.08	Steel bottle 2500ml capacity with 71mm rubber stopper	No	2		
A104/16.09	Steel bottle 7000ml capacity with 71mm rubber stopper	No	2		
A104/16.10	Flask funnel for fitting to the 700ml steel bottle with rim of funnel retaining sieve 200mm nominal diameter	No	2		
A104/16.11	Bottle roller compact bench mounted unit designed to rotate 2 bottles simultaneously about longitudinal axis	No	1		
A104/16.12	Pressure filter complete with cutting tool for making hole in the filter paper	No	1		
A104/16.13	Filter funnel to take 200mm nominal diameter sieves	No	2		
A104/16.14	Centrifuge complying with BS 598	No	1		
A104/16.15	Binder recovery	No	1		
A104/16.16	Volumetric flask 250ml, 500ml, 1000ml and 2000ml capacity	set	2		
A104/16.17	Recovery still for Dichloromethane	No	1		

	B) Hot Extractor Method BS 598 Part 2				
A104/16.18	Hot extractor complete with wire gauze container gasket, cork lid and support assembly	No	2		
A104/16.19	Dean and Stark receiver with condenser to suite Trichloroethylene	No	2		
A104/16.20	Gyratory compactor ELE Servo Pac or equivalent with 1 x 100mm and 1 x 150mm moulds	No	2		
A104/16.21	PRD Vibrating hammer compactor complete with 6 moulds, 7 base plates from ELE	SET	1		
A104/16.22	Two (2) sets of Tamping foot 102mm diameter and 146mm diameter and shanks to fit the supplied vibratory hammer	SET	2		
	17. Consumables				
A104/17.01	Paraffin wax	Kg	50		
A104/17.02	Gunny sack	No	500		
A104/17.03	Plastic bag 900x450x1000 gauge	No	500		
A104/17.04	Plastic bag 450x300x1000 gauge	No	500		
A104/17.05	Filter paper 150mm diameter Whatman No. 5 (Boxes of 100)	No	20		
A104/17.06	Filter paper 400mm diameter Whatman No. 5 (Boxes of 100)	No	20		
A104/17.07	Filter paper 100mm diameter Whatman No. 5 (Boxes of 100)	No	20		
A104/17.08	Filter paper 400mm diameter Whatman No. 54 (Boxes of 100)	No	10		
A104/17.09	Filter paper 270mm diameter with 33 diameter hole at centre Whatman No. 5 (Boxes of 100)	No	15		
A104/17.10	Trichloroethylene (205 Litre Drum)	No	5		
A104/17.11	Dichloromethane	kg	200		
A104/17.12	Cotton waste	kg	50		
A104/17.13	13kg Gas cylinders filled with gas and with compatible gas burners	No	5		
A104/17.14	Sodium sulphate	kg	45		
A104/17.15	Sand for density test	kg	250		
	C/Forward to item 1.05				

APPENDIX B				
APPENDIX TO BILL ITEM 1.06A: PROVIDE, FURNISH AND MAINTAIN THE R.E.'S OFFICE				
DESCRIPTION	UNIT	36	RATE	AMOUNT
		108	(KSHS)	(KSHS)
		180		
1. ENGINEER'S MAIN OFFICE AND FURNITURE		180		
Executive desk 2.2x0.9 m with six lockup drawers	No	360		
Desk 2.2x0.9 m with chair and three lockup drawers	No	4		
Office tables 2.2x0.9 m	No	5		
Executive Swivel orthopaedic chair adjustable height	No	6		
Standard office chairs	No	10		
Typist's desk	No	1		
Typist's chair	No.	1		
Lockable steel stationery cupboard, 1.2 m ³ , lockable	No.	2		
Medium size steel filing cabinet, 4 drawers lockable	No.	72		
Medium size steel filing cabinet, 2 lockable drawers	No.	2		
Bookshelf, 1.5 m wide 3 shelves (for box files) sliding glass door	No.	72		
Conference table with 15 chairs	No.	1		
Waste paper basket	No.	36		
Curtains for office and laboratory -for all windows and doors	Set	2		
Ordinary 2 hole paper punch	No	72		
Heavy duty 2 hole paper punch	No	2		
Computer meeting the following specifications or equivalent: Personal computer with 17" screen full multimedia, 500GB hard disk, 4.0GB RAM, Core i7 processor, complete with all accessories preloaded with latest versions of windows OS, MS Office, Professional and MS Project	No	5		
Autocad Civil 3D 2016 and Licences for above computers	No	1		
Laptop PC with Intel Core i7-4510U Processor 15.4" screen, CPU @ 2.6GHz 8GB RAM 1TB 8xDVD+/-RW approved with Microsoft Windows professional	No	4		
Latest HP (A4) Laser Printer with accessories	No	5		
Latest HP (A3) Laser Colour Printer with accessories	No	1		
UPS 600 VA	No	6		
wall clocks, battery powered min size 350mm x 350mm	No	6		
First Aid Kit	No	4		
Fire Extinguisher	No	4		

Issue Date 12th June, 2025

Filing Tray - set of 3no.	set	10		
Refrigerator minimum capacity 0.2 m ³	No	1		
Drinking water dispenser, hot/cold	No	3		
Table - 0.8 m ² surface area	No	1		
Cupboard, 0.15 m ³ , lockable	No	1		
13 Kg Gas cylinder with three gas burners	No	2		
C/Forward		14		
DESCRIPTION	UNIT	QUANTITY		
B/Forward				
A3 Photocopier (approved make), with feeder sorting trays, scanner and print capability	No	1		
Reams of A4 photocopying paper	No	120		
Reams of A3 photocopying paper	No	24		
Electronic scientific calculator, Casio fx 991ES PLUS or equivalent approved	No	6		
Stapling machine Ofrex size 50 or similar with 5000 staples	No	6		
Heavy duty punch and spiral binder, IBICO AG or similar approved	No	2		
Digital Camera, 16.1 Megapixel(min), 1920x1080 full HD movie recording, optical steadyShot, sweep panorama, 2.7" LCD screen, minimum 5x digital zoom, multimedia card/SD 8GB memory, 12 scene selection modes, all inclusive.	No	2		
Provision of mobile phones for supervision team with the latest android version to the approval of the Engineer.	item	8		
Total carried to Bill Item 1.06A				

APPENDIX C					
APPENDIX TO BILL ITEM 1.06B ENGINEERS'S SURVEY EQUIPMENT					
ITEM	Description	UNIT	QTY	RATE	AMOUNT(Kshs)
1.01	Digital Total Station reading to 1"accuracy (one second) with the following facilities: · Inbuilt data logger · Uploading/downloading software · Data transfer cable · Battery (2No) · Battery charger · Tool kit · Two face keyboard · User manual It must have the following inbuilt survey programs as a minimum · Survey · Staking out · Resection/intersection · Traverse · Cogo	No.	36		
1.02	The following mandatory total station accessories must be included per Total station instrument				
a)	1No. Heavy duty telescopic tripod(preferably wooden)	No.	36		
b)	Telescopic plumbing prism pole complete with a prism and prism holder with target and plumbing bubble (length not less than 2.15m)	No.	0		
c)	· Triple prism holder set, in a casing, comprising triple prisms, prisms holder with target, tribrach and a tribrach adaptor	No.	72		
d)	· Survey umbrella	No.	1		
e)	· 1No.Telescopic Tripod	No.	0		
1.03	Engineer's Automatic Level Wild NAK 2 or similar with a tripod and the following specifications · Accuracy of 0.7 mm per 1 km double run · Standard magnification of: 32x · Shortest focusing distance of 1.6m · Compensator setting accuracy of 0.3"	No.	2		
	Total carried forward to next page				
ITEM	Description	UNIT	QTY		
	Brought Forward				
1.04	Hand held GPS with accuracy of 1 Metre	UNIT	1		
1.05	Set of two way radio communication with a range of 1 kilometer	set.	1		
1.06	5 M Leveling staff with leveling bubble	No.	4		
1.07	3 M Ranging Rods	No.	10		

Issue Date 12th June, 2025

1.08	Scientific Calculators FX 912ms or equivalent	No.	3		
1.09	50m. Linen Measuring Tape	No.	14		
1.10	1m stainless steel straight edge	No.	1		
1.11	3 m tape measure	No.	10		
1.12	Sledge hammer 2kg weight	No.	2		
1.13	Mattock	No.	2		
1.14	Pangas (16'')	No.	10		
1.15	Marker Pens	No.	20		
1.16	Reflector Jackets	No.	30		
1.17	Levelling Survey books	No.	100		
1.18	<i>Provision of Geodetic GNSS receivers comprising of one base and two rovers as per the specifications in Appendix D</i>	No.	1		
	Total carried to Bill Item 1.06B				

Issue Date 12th June, 2025

ANNEX 3: REVISED BOQ RWC 689

**UPGRADING TO BITUMEN STANDARD AND MAINTENANCE OF MWEIGA - BROOKSIDE -
KIMATHI UNIVERSITY (D449/D450A)**

BILL NO. 1. PRELIMINARIES AND GENERAL ITEMS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1.01	Provide or rent accommodation for Engineer's senior and junior staff				
	(i)Type I - 1 No.	Month	24	65,000.00	1,560,000.00
					-
	(i)Type II - 1 No.	Month	24	55,000.00	1,320,000.00
					-
	(iii) Type III - 1 No.	Month	24	40,000.00	960,000.00
					-
	(iv) Type IV - 1 No.	Month	24	30,000.00	720,000.00
					-
	(v) Type V - 1 No.	Month	24	21,000.00	504,000.00
	Total				5,064,000.00
1.02	E.O item 1.01 for contractor's overhead and profit	%			
1.03	Provide or rent and maintain Engineer's Representative's office as shown on the drawings or as instructed by the Engineer for use during the duration of the Contract, ownership to revert to the Contractor at the end of the Contract	LS	1		
1.04	Provide or rent and maintain Engineer's Site Laboratory for the duration of the Contract, ownership to revert to the Contractor at the end of the Contract	LS	1		
1.05	Provide and maintain Laboratory equipment, reagents and other items as priced in Appendix 'A' to the Bill of Quantities for use by the Engineer's representative for the duration of the contract, ownership to revert to the Employer at the end of the Contract.	LS	1		
1.06A	Provide and maintain furniture , tools and other items for the Engineers Representative office for the duration of the Contract as priced in Appendix 'B', ownership to revert to the Employer at the end of Contract.	LS	1		
1.06B	Provide and maintain survey equipment as priced in Appendix C for the duration of the contract, ownership to revert to the Employer at the end of Contract.	LS	1		
1.09	Provide with drivers, fuel and maintain one (1) new 4WD fully loaded double cabin pick-up of minimum diesel engine capacity 2500 CC	Veh Month	60		

	approved by the Engineer for his exclusive use, inclusive of the first 5000km per vehicle month. Vehicle to revert to the Contractor at the end of the project.				
1.10	E.O item 1.09 for total aggregated mileage in excess of 5000 km per vehicle month.	Km	60,000		
1.13	Ditto item 1.09, but one(1) new 4WD Single cabin pick-ups with fibre glass body of minimum diesel engine capacity 2500cc approved by the Engineer for his exclusive use, inclusive of the first 5000km per vehicle month. Vehicle to revert to the Contractor at the end of the project.	Veh Month	24		
1.14	E.O item 1.13 for total aggregated mileage in excess of 5000 km per vehicle per month.	Km	2,400		
1.15	Allow a Prime Cost Sum of Kshs. 3,000,000 for the RE's miscellaneous account to be spent in whole or part as directed by the RE against receipts.	PC Sum	1		
1.16	E.O. item 1.15 for Contractor's overheads and profits.	%			
1.17	Allow a Prime Cost Sum of Kshs. 7,200,000 for attendance upon the Resident Engineer' staff.	PC Sum	1		
1.18	E.O. item 1.17 for Contractor's overheads and profits.	%			
1.19	Provide, erect and maintain publicity signs as directed by the Engineer.	No	6		
1.20	Allow for Prime Cost Sum of Kshs. 2,000,000.00 for training of Engineers	PC Sum	1		
1.21	E.O. item 1.20 for Contractor's overheads and profits.	%			
1.24	Provide and maintain for the duration of the contract a mobile weigh bridge with manufacturers warranty, as specified in Appendix E in a PDF file. The weigh bridge to revert to employer at commencement of the project. Allowances for repairs and maintenance must be included in the quotation	No	1		
Bill No. 1 Total Carried Forward to Grand Summary					
BILL NO. 4 : SITE CLEARANCE AND TOP SOIL STRIPPING					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<i>Note: No separate payments shall be made for gravel for blinding or hauling to spoil unsuitable excavation materials and the cost of such shall be included in the rates and prices</i>				
4.01	Clear site on road reserve including removal of all growths, bushes, hedges, trees, stumps, grub up roots, and other deleterious materials and back-fill and compact to 100% MDD(AASHTO T99) with approved material as directed by the Engineer.	Ha.	20		
4.02	Strip top soil upto 0.2m in thickness along alignment or material sites including removal of all grass and other vegetation, transport to spoil	m ³	48,000		

	and spread or stock pile for re-use as directed by the Engineer.				
4.03	Provide KShs.2,000,000 for the removal of structures and obstructions as instructed by the Engineer to be paid on dayworks basis	Prov. Sum	1		
4.04	E.O. item 4.03 for Contractor's overheads and profits.	%			
4.04	Demolish reinforced or mass concrete structures and cart to spoil or stockpile for re-use as directed by the Engineer	m ³	200		
Bill No. 4 Total Carried Forward to Grand Summary					
BILL NO. 5 : EARTHWORKS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<i>Note: No separate payments shall be made for gravel for blinding or hauling to spoil unsuitable excavation materials and the cost of such shall be included in the rates and prices</i>				
5.01	Fill in soft material including benching of shoulders and embankments and compaction to 95% MDD (AASHTO T99) in layers not exceeding 150mm	m ³	28,200		
5.02	Extra Over Item 5.01 for compaction of the top 300 subgrade to 100% MDD.	m ³	4,050		
5.03	Ditto item 5.01 but in hard material	m ³	4,230		
5.04	Cut to spoil in soft material	m ³	18,450		
5.05	Ditto item 5.04 but in hard material	m ³	1,845		
5.06	Provide improved subgrade material as instructed by the Engineer and compaction to 100% MDD (AASHTO T99)	m ³	7,050		
5.07	Compaction of top 300mm below formation level in cuts to 100% MDD.(AASHTO T99)	m ³	3,900		
5.08	Compaction of 150mm original ground below fills to 95% MDD.(AASHTO T99)	m ³	2,250		
5.09	Top-soiling prior to planting grass as directed by the Engineer	m ²	2,550		
5.10	Grassing as directed by the Engineer	m ²	2,550		
5.11	Provide Rock Fill to swampy areas as directed by Engineer	m ³	300		
5.12	Provide Filter fabric to swamp under, over and around rock fill	m ²	60		
5.14	Scarify existng bituminous pavement material and store for re-use or cart away to spoil	m ³	5,000		
Bill No. 5 Total Carried Forward to Grand Summary					
BILL NO. 7 : EXCAVATION AND FILLING OF STRUCTURES					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<i>Note: No separate payments shall be made for gravel for blinding or hauling to spoil unsuitable</i>				

	<i>excavation materials and the cost of such shall be included in the rates and prices</i>				
7.01	Excavate to spoil in soft materials.	m ³	615		
7.02	As item 7.01 but in hard material.	m ³	45		
7.03	Provide, place and compact rockfill below and around structures.	m ³	350		
7.04	Provide and place 150mm thick stone pitching as directed by the Engineer including cement grouting	m ²	15,500		
	Bill No. 7 Total Carried Forward to Grand Summary				
BILL NO. 8. CULVERTS AND DRAINAGE WORKS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<i>Note: No separate payments shall be made for gravel for blinding or hauling to spoil unsuitable excavation materials and the cost of such shall be included in the rates and prices</i>				
8.01	Excavate for inlet, outfall, mitre and catch water drains in soft material	m ³	2,400		
8.02	As per item 8.01, but for hard material	m ³	100		
8.03	Excavation in soft material for pipe culverts, headwalls, wingwalls, apron, toewalls, and drop inlets and compact as directed by the Engineer	m ³	2,300		
8.04	As per item 8.03, but for hard material	m ³	100		
8.05	Provide, lay and joint 600mm dia. concrete pipes (precast to BS 5911 Parts 1 & 3) for access roads	m	800		
8.06	As for item 8.05 but 900mm dia concrete pipes (precast to BS 5911 parts 1 & 3) for cross culverts	m	850		
8.08	Provide and place class 15/20 concrete to beds, surround and haunches	m ³	400		
8.09	Provide, place and compact class 25(20) concrete for headwalls, wingwalls, aprons, and toewalls to access and cross pipe culverts including all form work and the provision and placing of reinforcement as shown in the drawings	m ³	575		
8.10	Provide and place invert block drains with two course side slabs	m	900		
8.11	Construct in concrete class 15(20) side drains scour checks as instructed	m ³	320		
8.13	Provide subsoil filter drains fabric to isolated wet spots inclusive of artesian cloth, and 14/20mm single size aggregates as directed by the Engineer	m	100		
8.14	Remove existing pipe culverts of any diameter either for re-use or to be discarded as directed by the Engineer	m	380		
8.15	Remove existing invert block drains with two course side slabs or stone pitching and discard as directed by the Engineer	m	1,400		
8.16	Clean existing drainage structures of any description and size	m	960		

Issue Date 12th June, 2025

8.17	Clean and shape existing outfall and mitre drains to free flow conditions	m	600		
8.19	Provide,lay and joint ducts and sleeves including 150mm concrete (C15/20) 300mm heavy duty PVC class B with 150mm surround (precast to BS 5911 Parts 1 & 3) ducts/sleeves	m	250		
	Bill No. 8 Total Carried Forward to Grand Summary				
BILL NO. 9: PASSAGE OF TRAFFIC					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<i>Note: Notwithstanding the provision of Section 9 of the Standard Specification, no extra payments shall be due as all costs shall be deemed to be included in the rates inserted herein</i>				
9.02	Grade, water and compact existing road; provide, spread, water and compact gravel as directed by the Engineer for maintenance ahead of works.	m ³	2,925		
9.03	Allow for the passage of traffic through and around the works	LS	1		
	Bill No. 9 Total Carried Forward to Grand Summary				
BILL NO. 10: GRADING AND GRAVELLING					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
10.01	Provide gravel wearing course, spread and compact to a finished thickness of 150mm to at least 95% M.D.D (AASHTO T-180) and shape to level and tolerance.	m ³	15,225		
10.02	Heavy grading with watering & compaction as instructed by the engineer	m ²	101,500		
	Bill No. 10 Total Carried Forward to Grand Summary				
BILL NO. 12 : NATURAL MATERIAL FOR SUBBASE AND BASE					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<i>Note: No overhaul will be paid for separately under these items as it shall be deemed to have been included in the Contractor's rates</i>	-	-	-	-
12.01	Provide gravel sub-base material, spread, compact to at least 100% M.D.D (AASHTO T-180) and shape to level and tolerance.	m ³	9,000		
12.02	Ditto item 12.01 but for base	m ³	8,000		
	Bill No. 12 Total Carried Forward to Grand Summary				
BILL NO. 14 : CEMENT OR LIME TREATED SUBBASE AND BASE					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT

	Note: No overhaul will be paid for separately under these items as it shall be deemed to have been included in the Contractor's rates				
14.01	Provide and spread Lime as an improvement agent for subbase and base layers	Tonne	500		
14.02	Provide and spread Cement as an improvement agent for sub-base and base layers	Tonne	1,300		
14.03	Mix and process natural material with improvement agent for pavement layers as instructed by the Engineer or as specified	m ³	17,000		
14.04	Protection and curing of cement / lime treated base and sub-base layers	m ²	76,500		
	Bill No. 14 Total Carried Forward to Grand Summary				
BILL NO. 15: BITUMINOUS SURFACE TREATMENT & SURFACE DRESSING TO SHOULDERS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
15.01	Prepare surface of carriageway and shoulders, provide, heat and spray MC 30 cutback bitumen prime coat at 0.8-1.2 Litres/m ² .	Litres	131,000		
15.08	Provide & spray K1-60 as tack coat on carriageway, shoulders and on rumble strips at a rate of 0.5-0.8 l/m ²	Litres	77,000		
15.10	Repair cracks as directed by the Engineer	m	500		
	Bill No. 15 Total Carried Forward to Grand Summary				
BILL NO. 16: BITUMINOUS MIXES					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
16.01	Provide, place and compact Asphalt Concrete Type II to a thickness of 50 mm on carriageway Shoulders and bus bays as directed by the Engineer at Bitumen Content of 5.5 - 7.0% by weight of total mix.	m ³	2,430		
16.06	Provide, place and compact Asphalt Concrete Type I (0/14) for bumps and rumble strips as directed by the Engineer at Bitumen Content of 5.5 - 7.0% by weight of total mix.	m ³	200		
	Bill No. 16 Total Carried Forward to Grand Summary				
BILL NO. 20: ROAD FURNITURE					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
20.01	Provide Road Reserve Boundary posts	No.	80		
20.02	Excavate for, provide & place 250 x 125mm precast concrete raised or ramped kerbs haunched in 100mm thick class 15/20 concrete base bedding and mortar joined in support to				

	carriageway, busbays and junctions as directed by the Engineer.				
	a) Straight kerbs	m	3,000		
	b) Kerbs radius 12m - 6m	m	1,000		
	c) Ditto but radius 5m - 1m	m	1,000		
20.03	As 20.02 but for flush kerbs 100 x 125mm	m	3,000		
20.04	Provide and erect permanent road signs where instructed by the Resident Engineer and in accordance with Special Specifications Clause 2004 as follows:				
	a) warning signs	No.	10		
	b) Priority prohibitory and mandatory signs	No.	10		
	c) Standard informatory signs	No.	10		
	d) Non standard informatory signs area				
	i) Less than 1.0m ²	No.	10		
	ii) More than 1.0m ² but less than 5m ²	No.	5		
20.05	Provide, deliver, paint and mark the road as specified or as directed by the Engineer, with white reflectorized thermoplastic paint from an approved supplier.	m ²	8,000		
20.06	As item 20.05 but for yellow reflectorized thermoplastic paint	m ²	3,000		
20.07	Provide and erect concrete posts for guardrails complete with spacers (size and interval) as per specifications or as directed by the Engineer	No.	250		
20.08	Provide and erect flex-beam guardrails complete with connections as shown on the drawings or as directed by the Engineer	m	1,000		
20.09	Provide Edge marker posts	No.	50		
20.14	Provide and install cat-eyes as directed by the Engineer	No.	1,000		
20.15	Provide, plant, and nurture tree seedlings for a period not less than half the construction period of the project or as directed by the Engineer.	No.	1,000		
Bill No. 20 Total Carried Forward to Grand Summary					
BILL NO. 22: SCHEDULE OF DAYWORKS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<u>PLANT</u>				
	<i>The rates inserted herein are to include all operational and Maintenance costs, fuel, oil, grease, drivers/operators wages, supervision, overheads and profit. Only time actually employed upon the work will be paid for and the rates should include for idle time, travelling time and overtime, In accordance with clause 2202 (a) of the specifications. Note: All items of plant must be priced.</i>				

Issue Date 12th June, 2025

22.01	Crawler dozers with hydraulic attachments to include ripper				
	a) Up to 135 kw rated flywheel power	hrs	10		
	b) Over 135 kw rated flywheel power	hrs	10		
22.02	Motor Grader				
	a) Up to 110kw rated flywheel power	hrs	10		
	b) Over 110kw rated flywheel power	hrs	10		
22.03	Vibratory Roller				
	a) 6.5 - 8.81 tonne un-ballasted weight	hr	10		
	b) Over 8.91 tonne un-ballasted weight	hr	10		
22.04	Hand propelled vibrating roller 650 - 1300kg	hrs	10		
22.05	Cat 950G wheel loader or equivalent	hrs	10		
22.06	10 Tonne tipper lorry	hrs	10		
22.07	Small dumpers, 750-1000kg rated payload	hrs	10		
22.08	Dual purpose hydraulic excavator with backhoe/loader and a rated bucket capacity of upto 1m ³ .	hrs	10		
22.09	Articulated wheel loader with 1.5-2.0m ³ SAE rated bucket capacity	hrs	10		
22.10	50mm delivery water pump and motor	hrs	10		
22.11	Self propelled water tanker 4,500ls min. capacity with pick-up pump	hrs	10		
22.12	Concrete Mixer of 100 - 150litres	hrs	10		
22.13	Concrete poker vibrator	hrs	10		
	<u>LABOUR</u>				
	<i>The rates inserted herein are to include all costs of labour such as insurance, accomodation, travelling time, over-time, use and maintenance of small tools of trade. Only the actual time engaged upon the work will be paid for supervision, overheads and Profit.</i>				
22.14	Unskilled Labour	hrs	10		
22.15	Artisans	hrs	10		
22.16	Office attendants and chainmen	hrs	10		
22.17	Watchmen (all round surveillance)	hrs	10		
	TOTAL CARRIED FORWARD TO THE NEXT PAGE				-
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	TOTAL BROUGHT FORWARD				
	<u>MATERIALS</u>				
	<i>All materials are to comply with the Specification. The rates</i>				
	<i>inserted herein are to include for delivery to the site, storage,</i>				
	<i>handling, overheads and profit</i>				
22.18	Ordinary Portland Cement 42.5 N	Ton	5		
22.19	Hydrated Lime	Ton	5		
22.20	Mild Steel(any diameter)	Ton	5		
22.21	High Yield Steel (any diameter)	Ton	5		
22.22	Fine Aggregate for Concrete	m ³	50		

Issue Date 12th June, 2025

22.23	Coarse Aggregate for Concrete	m ³	50		
22.24	Wrot Shuttering Timber	m ²	50		
22.25	Rough shuttering timber.	m ²	50		
22.26	Bitumen Emulsion KI-60.	Litre	100		
22.27	Straight run bitumen Grade 80/100.	Litre	100		
22.28	Kerosene	Litre	100		
22.29	14/20 mm nominal size surface precoated chippings	m ³	50		
22.30	6/10mm nominal size surface precoated chippings	m ³	50		
22.31	AC Type I Ex-plant	m ³	25		
22.32	AC Type II Ex-plant	m ³	25		
22.33	Dense Bitumen Macadam	m ³	25		
	Bill No. 22 Total Carried Forward to Grand Summary				
	BILL NO. 25: ENVIRONMENTAL, HIV/AIDS, AND COVID-19 MITIGATION MEASURES				
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
25.01	Allow for a prime cost sum for of KShs 5,000,000 (five Million) for ESIA study, report, and environmental monitoring.	PC sum	1		
25.02	E.O for Item 25.01 for Contractor's Oveheads and Profit	Item			
25.03	Allow for engagement of a HIV/AIDS and COVID-19 specialist sub contractor to deal with prevention and awareness activities as per programme to be approved by the Engineer	Months	24		
25.04	Provide male and female condoms to workers and staff for the duration of the contract	No.	12,000		
25.05	Allow for preparation and submmision of monthly reports on HIV/AIDS and COVID-19 awareness and prevention activities. Report to be tabled at site meetings.	Months	24		
25.06	Provide, Install and maintain HIV/AIDS and COVID-19 awareness bill boards with approved message and graphics with maximum area 4m ² fabricated as per specifications of permanent informatory sign boards	No.	4		
25.07	Allow for video shows on HIV/AIDS and COVID-19 related awareness and prevention matters every 3 months	Quartely	6		
25.08	Provide HIV/AIDS and COVID-19 awareness material as follows:				
	a) T-Shirt printed with approved message and graphics	No.	500		
	b) Ditto (a) above but caps	No.	100		
	c) A1 size weather proved posters	No.	20		
	d) A3 size weather proved posters	No.	100		
	e) 200x150mm stickers with HIV/AIDS and COVID-19 awareness/prevention slogan	No.	100		
	f) Key rings with HIV/AIDS and COVID-19 awareness/prevention slogan	No.	500		
	g) Ball point pens with HIV/AIDS and COVID-19 awareness prevention slogan.	No.	500		

Issue Date 12th June, 2025

25.09	Provide and maintain handwashing points at strategic locations as directed by the Engineer throughout the construction period.	No.	3		
25.10	Provide and maintain hand sanitizing points at strategic locations as directed by the Engineer throughout the construction period.	No.	3		
25.11	Provide face masks as specified or as shall be directed by the Engineer.	No.	20,000		
Bill No. 25 Total Carried Forward to Grand Summary					
BILL No. 26: LAND ACQUISITION, AXLE LOAD CONTROL, AND RELOCATION OF SERVICES					
Item	Description	Unit	Quantity	Rate	Amount
26.03	Allow a Prime Cost Sum of KShs. 5,000,000.00 for relocation of services as instructed or directed by the Engineer..	PC Sum	1		
26.04	E.O. item 26.03 for Contractor's overheads and profits.	%			
Bill No. 26 Total Carried Forward to Grand Summary					

CONTRACT NO.: RWC 689 UPGRADING TO BITUMEN STANDARD AND MAINTENANCE OF MWEIGA - BROOKSIDE - KIMATHI UNIVERSITY (D449/D450A)		
GRAND SUMMARY OF BILL OF QUANTITIES		
BILL ITEM	DESCRIPTION	AMOUNT(KShs)
1	Preliminaries and General Items	
4	Site Clearance and Top Soil Stripping	
5	Earth Works	
7	Excavation and Filling of Structures	
8	Culverts and Drainage Works	
9	Passage to Traffic	
10	Grading and Graveling	
12	Natural Gravel Base and Subbase	
14	Lime/Cement Improved gravel Subbase and Base	
15	Bituminous Surface Treatment and Surface Dressing	
16	Bituminous Mixes	
20	Road Furniture	
22	Schedule of Dayworks.	
25	HIV/AIDS, Gender & Social Issues, Local Participation	
26	Relocation of Services and Land Acquisition	
(A)	Sub-Total (1)	
(B)	Add 15% Variation of Price On Sub-Total 1	
(C)	Add 10% Contingency on Sub-Total 1	
(D)	Sub-Total 2 = A + B + C + D	
(E)	Add .03% For PPCB Lof sub total (1)	
(F)	Add ...16% VAT of sub-total (2)	
TOTAL CARRIED FORWARD AS BID SUM 1: (D + E + F)		

	APPENDIX A				
APPENDIX TO BILL ITEM 1.05:					
PROVIDE AND MAINTAIN FURNITURE AND EQUIPMENT FOR THE ENGINEER'S LABORATORY					
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
				(KSHS)	(KSHS)
	1. FURNITURE				
A104/1.01	Desk 2.2x0.9 m with chair and lockup drawers	No	2		
A104/1.02	Desk chair (standard)	No	15		
A104/1.03	Stationery cupboard, 1.2 m ³ , lockable	No	2		
A104/1.04	Steel filing cabinet, 4 drawers, lockable	No	2		
A104/1.05	Steel filing cabinet, 2 drawers, lockable	No	2		
A104/1.06	Bookshelf, 3 shelves 1.2 m long (to hold box files)	No	2		
A104/1.07	Table - 6 m ²	No	2		
A104/1.08	Two Plate electric heater	No	1		
A104/1.09	Fire extinguisher, 10 litre capacity, CO ₂ type	No	4		
A104/1.10	Complete first aid kit	No	2		
	EQUIPMENT				
	<i>(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) Standard)</i>				
	2. General Equipment				
A104/2.02	2.49kg. Compaction hammer, drop regulated to 304.8mm	No	2		
A104/2.03	4.535kg compaction hammer drop regulated to 457.2mm	No	2		
A104/2.04	Electric vibrating Kango Hammer fitted with steel tamper(BS 1377) with support frame	No	1		
A104/2.05	Straight edge 300 mm long with handles	No	4		
A104/2.06	Steel Tamper (BS1377) compatible with Kango hammer	No	3		
A104/2.07	Compaction mould 152.4 mm. dia x 116.43 mm complete with base plate and extension collar, 101.6 mm	No	2		
A104/2.08	Galvanized metal tray 1m x 0.5m x 75 mm deep	No	4		
A104/2.09	75mm brush	No	2		
A104/2.10	Semi-automatic balance, 25kg Capacity accurate to 1g, including weights	No	1		
A104/2.11	20mm BS Sieve, 300mm diameter	No	1		

A104/2.12	Stop Clock	No	2		
A104/2.13	Thermostatically controlled electric oven 105-110°C, capacity 0.225 m ³	No	2		
A104/2.14	As above but gas heated	No	1		
A104/2.15	Moisture content tins, 75 mm dia, Cadmium or aluminium plated	No	60		
A104/2.16	Cone penetrometer with gauge and automatically controlled test cup	No	2		
	C/Forward to next page				
	B/Forward from previous page				
	3. Density (Sand replacement method BS 1377)				
A104/3.01	Metal containers 450mm diameter	No	2		
A104/3.02	Stainless steel tray 305mm diameter	No	2		
A104/3.03	Metal tray with 150 mm diameter hole in the centre, 300mmx300 mm square or equivalent area, 40mm deep	No	2		
A104/3.04	Metal tray with 200mm diameter hole in the centre, 500mm x 500 mm square, 50 mm deep	No	2		
A104/3.05	Steel pegs for fixing tray in position	No	15		
A104/3.06	Sand pouring cylinder, 150 mm diameter	No	2		
A104/3.07	Sand pouring cylinder, 215 mm diameter	No	2		
A104/3.08	Cold steel chisel 20mm x 300mm	No	4		
A104/3.09	Cold steel chisel 10mm x 250mm	No	4		
A104/3.10	1.5kg, 3.5kg hammers and 1kg rubber mallet	Set	1		
A104/3.11	Scoop for removing excavated material from hole, 250 mm long handle	No	6		
A104/3.12	100mm brush, soft	No	3		
A104/3.13	50mm brush, soft	No	3		
A104/3.14	Primus gas stove	No	1		
A104/3.15	Calibrating can 150 mm diameter x 150 mm deep	No	3		
A104/3.16	Ditto but 200 mm diameter x 250 mm deep	No	3		
	5. CBR (AASHTO T193)				
A104/5.01	CBR mould, 152.4 mm dia x 178 mm high, complete with perforated base plate and extension collar 50.8 mm high that can be fitted to either side of mould	No	50		
A104/5.02	Perforated swell plate 150 mm dia with an adjustable centre post of rust proof metal provided with a lock-nut	No	40		
A104/5.03	2.25 kg split surcharge weight	No	2		
A104/5.04	Set of annular surcharge weights	No	1		

A104/5.05	Solid base plate for CBR mould	No	2		
A104/5.06	Static compaction displacer discs 1 No x 61.4 mm, 1 No x 50.8 mm and 2 No x 38.8 mm thick with handles	set	1		
A104/5.07	Disk lifting handle	No	2		
A104/5.08	Central extruder, complete with 20kN hydraulic jack and accessories	No	1		
A104/5.09	Automatic CBR Proctor Compaction press, 50 tonnes capacity with an adjustable distance between platens of 530mm-250mm, rammer weights and automatic count selector	No	1		
A104/5.10	Set of guards for above press.	No	1		
A104/5.11	50 kN CBR Load frame complete with stabilising bar (electric and hand operated) including proving rings for 10KN, 28KN and 50KN, piston and bracket	No	1		
	C/Forward to next page				
	B/Forward From previous page				
A104/5.12	Penetration gauge range 0 - 25mm	No	2		
A104/5.13	CBR piston including bracket	No	2		
A104/5.14	Swell measurement tripod complete with guage calibrated in 0.01 mm divisions	No	2		
A104/5.15	Soaking tank for CBR mould sufficient for 50 moulds	No	1		
	6. Relative Density of Aggregates (BS 812)				
A104/6.01	Wire mesh basket with apertures not greater than 6.5 mm large enough to contain 2.5 kg of aggregate	No	2		
A104/6.02	A stout watertight container in which the basket can be freely suspended	No	2		
A104/6.03	Soft absorbent cloth (tea towel)	No	10		
A104/6.04	Shallow tray of area not less than 0.065 m ²	No	2		
A104/6.05	An airtight container of similar capacity to the basket	No	2		
A104/6.06	Pycnometer of 1 litre capacity	No	4		
A104/6.07	Semi automatic 5 kg 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		
A104/6.08	Hot air drier (electric)	No	2		
	7. Flakiness (BS 812)				
A104/7.01	Thickness gauge (various sizes)	No	2		
	8. Sieve Analysis (BS 1377)				

A104/8.01	BS Sieve 300mm diameter in sizes 75, 63, 50, 37.5, 28, 20, 14, 10, 6.3, 5 and 4 mm, plus lid and receiver	Set	2		
A104/8.02	BS Sieve 200mm diameter in sizes 2, 1, 0.6, 0.5, 0.425, 0.300, 0.150 and 0.075 mm, plus lid and receiver	Set	2		
A104/8.03	Electric sieve shaker	No	1		
A104/8.04	BS sieve 200mm diameter 0.425 and 0.075 mm	set	1		
A104/8.05	1 m x 1 m x 75mm deep galvanized metal tray	No	10		
A104/8.06	Riffle box with 50mm slots (BS 1377)	No	1		
	9. Miscellaneous Equipment				
A104/9.01	Wheel barrow	No	3		
A104/9.02	Dustpan and brush	No	3		
A104/9.03	Shovel	No	4		
A104/9.04	Pick axe with handle	No	4		
A104/9.05	Metal scoop, large (150mm wide)	No	3		
A104/9.06	Metal scoop, medium (100mm wide)	No	4		
A104/9.07	Garden trowel	No	2		
A104/9.08	Steel tray 0.3m x 0.3m x 0.01m deep	No	15		
A104/9.09	Palette knife 200mm long blade	No	3		
A104/9.10	Palette knife 100mm long blade	No	4		
A104/9.11	BS sieve 450mm diameter, 37.5mm	No	1		
A104/9.12	BS sieve 450mm diameter, 20mm	No	1		
A104/9.13	BS sieve 450mm diameter, 5mm	No	1		
A104/9.14	BS sieve 450mm diameter, 0.425mm	No	1		
A104/9.15	BS sieve 450mm diameter, 0.3mm	No	1		
	Page 5 C/Forward to next page				
	B/Forward from previous page				
A104/9.16	BS sieve 450mm diameter, 0.075mm	No	1		
A104/9.17	Set of lid and receiver for metal scoop and steel trays	No	2		
A104/9.18	BS Sieve brush	No	2		
A104/9.19	Measuring cylinder set, 25 ml, 100 ml, 500 ml, 1000 ml, 2000 ml	set	2		
A104/9.20	Glass jar capacity 5 litres with lid	No	10		
A104/9.21	200mm x 200mm x 20mm cadmium plated or aluminium tin	No	20		
A104/9.22	Electronic balance capacity 1000 g, accurate to 0.01gm.	No	1		
A104/9.23	Balance 2000 g capacity accuracy to 0.1g (manual), including weights	No	1		
A104/9.24	Balance 50kg capacity accurate to 10gm including weights	No	1		
A104/9.25	Still for producing distilled water	No	1		
A104/9.26	Polythene or glass 20 litres storage vessel with tap at bottom	No	2		
A104/9.27	Stiff broom	No	2		
A104/9.28	Vernier calipers, 150mm	No	2		
A104/9.29	Vernier calipers, 250mm	No	2		
A104/9.30	Pestle and mortar	No	2		
A104/9.31	Linear shrinkage mould (BS 1377)	No	6		

A104/9.32	Liquid Limit Device	No	2		
A104/9.33	Average least dimension gauge	No	2		
A104/9.34	Lockable tool box containing: 1 pr"Molegrips", 2 x 150mm screwdriver, 2 x 200 mm screwdriver, 2 x 300 mm screwdriver,(1 standard and 1 Phillips head of each) adjustable spanners 200 mm and 300 mm, 1 pair round nosed pliers, 1 pair general purpose pliers,	No	1		
A104/9.35	Plastic or metal bucket including lid,10 litres capacity	No	6		
A104/9.36	Polythene wash bottle (500 ml)	No	5		
A104/9.37	A4 size clipboard	No	4		
A104/9.38	Thermometer, range -10°C to150°C, glass (BS 593)	No	2		
A104/9.39	Laboratory thermometer, range + 0°C to + 250°C (BS 593)	No	2		
A104/9.40	Maximum and minimum thermometer (BS692)	No	2		
A104/9.41	Rain gauge	No	1		
A104/9.42	Portable dial thermometer + 50°C to +250°C accurate to $\pm 3\%$	No	1		
A104/9.43	Ditto with 0.75m long stem	No	1		
A104/9.44	Pocket thermometer + 50°C to +250°C accurate to $\pm 3\%$ with 0.1 m stem	No	2		
A104/9.45	5 litre capacity steel storage containers with leak and dust proof lids for storage of bitumen samples	No	50		
A104/9.46	Hotplate 200mm diameter with Simmerstat heat control unit.	No	2		
A104/9.47	450mm diameter x 150mm deep metal mason's basin	No	6		
	C/Forward to next page				
	B/Forward from previous page				
	11. Concrete: Slump and Cube Manufacture (BS 1881)				
A104/11.01	Slump cone, tamping rod and base	set	2		
A104/11.02	Concrete cube mould, 150mm cube	No	30		
A104/11.03	Soaking tank for cubes (capacity 50 No.)	No	1		
A104/11.04	Cube tamping bars	No	10		
	12. Concrete: Cube Compression Testing				
A104/12.01	Concrete compression machine to BS1610 Grade A with 300 mm gauge, rectangular platens, capacity 1560 kN with load spacer	No	1		
A104/12.02	Safety guard for above				
A104/12.03	50mm distance piece				
A104/12.04	70mm distance piece				

A104/12.05	Electro-mechanical load pacer, 100 mm or equivalent distance piece				
	13. Aggregate and Chippings				
A104/13.01	Sand equivalent to AASHTO T176 including graduated plastic cylinder, rubber stopper, irrigation tube weighted foot assembly, siphon assembly, 85ml tin box (57mm dia.), 100 mm dia wide mouth funnel, stop clock, mechanical shaker and 10 litre jar	Set	1		
A104/13.02	Beaker 250ml	No	2		
A104/13.03	Aggregate Crushing Value Apparatus, 150 mm nominal diameter , including plunger and base plate	No	2		
A104/13.04	Tamping rod and metal measure for above	Set	4		
A104/13.05	Los Angeles Abrasion to ASTM standards	No	1		
A104/13.06	Set of 12 abrasive charges	No	2		
A104/13.07	Thermometer, 0°C to +50°C	No	2		
A104/13.08	Thermometer, 0°C to +250°C	No	2		
A104/13.09	Reagent grade Silica gel, 500g container	No	50		
	14. Bitumen Spray Test (BS 1707)				
A104/14.1	Transverse distribution of spray test bitumen distributor (depot tray test to BS 1707) or equivalent.	Set	1		
A104/14.02	Steel tray 20 mm deep x0.1m ² (for measuring bitumen spray rates) with purpose made detachable handle 1.5m long.	No.	4		
	16. Bitumen Extraction Test				
	A) Extractor Bottle Method BS 598 Part 2				
A104/16.01	Electronic top pan balance 4kg capacity, sensitive to 0.1gm	No	1		
A104/16.02	Flat bottomed scoop	No	3		
A104/16.03	Steel garden trowel	No	2		
A104/16.04	Large steel spoon	No	2		
A104/16.05	Heat resistant gloves	pair	10		
A104/16.06	Foot pump for pressurising air water assemblies up to a maximum of 700KN/m ² and fitted with flexible hose approximately 1.2m long and connector	No	2		
C/Forward to next page					
	C/Forward from previous page				
A104/16.07	Steel bottle 600ml capacity with 49mm rubber stopper	No	2		

Issue Date 12th June, 2025

A104/16.08	Steel bottle 2500ml capacity with 71mm rubber stopper	No	2		
A104/16.09	Steel bottle 7000ml capacity with 71mm rubber stopper	No	2		
A104/16.10	Flask funnel for fitting to the 700ml steel bottle with rim of funnel retaining sieve 200mm nominal diameter	No	2		
A104/16.11	Bottle roller compact bench mounted unit designed to rotate 2 bottles simultaneously about longitudinal axis	No	1		
A104/16.12	Pressure filter complete with cutting tool for making hole in the filter paper	No	1		
A104/16.13	Filter funnel to take 200mm nominal diameter sieves	No	2		
A104/16.14	Centrifuge complying with BS 598	No	1		
A104/16.15	Binder recovery	No	1		
A104/16.16	Volumetric flask 250ml, 500ml, 1000ml and 2000ml capacity	set	2		
A104/16.17	Recovery still for Dichloromethane	No	1		
	B) Hot Extractor Method BS 598 Part 2				
A104/16.18	Hot extractor complete with wire gauze container gasket, cork lid and support assembly	No	2		
A104/16.19	Dean and Stark receiver with condenser to suite Trichloroethylene	No	2		
A104/16.20	Gyratory compactor ELE Servo Pac or equivalent with 1 x 100mm and 1 x 150mm moulds	No	2		
A104/16.21	PRD Vibrating hammer compactor complete with 6 moulds, 7 base plates from ELE	SET	1		
A104/16.22	Two (2) sets of Tamping foot 102mm diameter and 146mm diameter and shanks to fit the supplied vibratory hammer	SET	2		
	17. Consumables				
A104/17.01	Paraffin wax	Kg	50		
A104/17.02	Gunny sack	No	500		
A104/17.03	Plastic bag 900x450x1000 gauge	No	500		
A104/17.04	Plastic bag 450x300x1000 gauge	No	500		
A104/17.05	Filter paper 150mm diameter Whatman No. 5 (Boxes of 100)	No	20		
A104/17.06	Filter paper 400mm diameter Whatman No. 5 (Boxes of 100)	No	20		
A104/17.07	Filter paper 100mm diameter Whatman No. 5 (Boxes of 100)	No	20		
A104/17.08	Filter paper 400mm diameter Whatman No. 54 (Boxes of 100)	No	10		

Issue Date 12th June, 2025

A104/17.09	Filter paper 270mm diameter with 33 diameter hole at centre Whatman No. 5 (Boxes of 100)	No	15		
A104/17.10	Trichloroethylene (205 Litre Drum)	No	5		
A104/17.11	Dichloromethane	kg	200		
A104/17.12	Cotton waste	kg	50		
A104/17.13	13kg Gas cylinders filled with gas and with compatible gas burners	No	5		
A104/17.14	Sodium sulphate	kg	45		
A104/17.15	Sand for density test	kg	250		
	C/Forward to item 1.05				

APPENDIX B				
APPENDIX TO BILL ITEM 1.06A: PROVIDE, FURNISH AND MAINTAIN THE R.E.'S OFFICE				
DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
			(KSHS)	(KSHS)
1. ENGINEER'S MAIN OFFICE AND FURNITURE				
Executive desk 2.2x0.9 m with six lockup drawers	No	2		
Desk 2.2x0.9 m with chair and three lockup drawers	No	4		
Office tables 2.2x0.9 m	No	5		
Executive Swivel orthopaedic chair adjustable height	No	6		
Standard office chairs	No	10		
Typist's desk	No	1		
Typist's chair	No.	1		
Lockable steel stationery cupboard, 1.2 m ³ , lockable	No.	2		
Medium size steel filing cabinet, 4 drawers lockable	No.	2		
Medium size steel filing cabinet, 2 lockable drawers	No.	2		
Bookshelf, 1.5 m wide 3 shelves (for box files) sliding glass door	No.	2		
Conference table with 15 chairs	No.	1		
Waste paper basket	No.	10		
Curtains for office and laboratory -for all windows and doors	Set	2		
Ordinary 2 hole paper punch	No	5		
Heavy duty 2 hole paper punch	No	2		
Computer meeting the following specifications or equivalent: Personal computer with 17" screen full multimedia, 500GB hard disk, 4.0GB RAM, Core i7 processor, complete with all accessories preloaded with latest versions of windows OS, MS Office, Professional and MS Project	No	5		
Autocad Civil 3D 2016 and Licences for above computers	No	1		
Laptop PC with Intel Core i7-4510U Processor 15.4" screen, CPU @ 2.6GHz 8GB RAM 1TB 8xDVD+/-RW approved with Microsoft Windows professional	No	4		
Latest HP (A4) Laser Printer with accessories	No	5		
Latest HP (A3) Laser Colour Printer with accessories	No	1		
UPS 600 VA	No	6		
wall clocks, battery powered min size 350mm x 350mm	No	6		
First Aid Kit	No	4		
Fire Extinguisher	No	4		

Issue Date 12th June, 2025

Filing Tray - set of 3no.	set	10		
Refrigerator minimum capacity 0.2 m ³	No	1		
Drinking water dispenser, hot/cold	No	3		
Table - 0.8 m ² surface area	No	1		
Cupboard, 0.15 m ³ , lockable	No	1		
13 Kg Gas cylinder with three gas burners	No	2		
C/Forward				
DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
B/Forward				
A3 Photocopier (approved make), with feeder sorting trays, scanner and print capability	No	1		
Reams of A4 photocopying paper	No	120		
Reams of A3 photocopying paper	No	24		
Electronic scientific calculator, Casio fx 991ES PLUS or equivalent approved	No	6		
Stapling machine Ofrex size 50 or similar with 5000 staples	No	6		
Heavy duty punch and spiral binder, IBICO AG or similar approved	No	2		
Digital Camera, 16.1 Megapixel(min), 1920x1080 full HD movie recording, optical steadyShot, sweep panorama, 2.7" LCD screen, minimum 5x digital zoom, multimedia card/SD 8GB memory, 12 scene selection modes, all inclusive.	No	2		
Provision of mobile phones for supervision team with the latest android version to the approval of the Engineer.	item	8		
Total carried to Bill Item 1.06A				

APPENDIX C					
APPENDIX TO BILL ITEM 1.06B ENGINEERS'S SURVEY EQUIPMENT					
ITEM	Description	UNIT	QTY	RATE	AMOUNT(Kshs)
1.01	Digital Total Station reading to 1"accuracy (one second) with the following facilities: · Inbuilt data logger · Uploading/downloading software · Data transfer cable · Battery (2No) · Battery charger · Tool kit · Two face keyboard · User manual It must have the following inbuilt survey programs as a minimum · Survey · Staking out · Resection/intersection · Traverse · Cogo	No.	0		
1.02	The following mandatory total station accessories must be included per Total station instrument				
a)	1No. Heavy duty telescopic tripod(<i>preferably wooden</i>)	No.	0		
b)	Telescopic plumbing prism pole complete with a prism and prism holder with target and plumbing bubble (<i>length not less than 2.15m</i>)	No.	0		
c)	· Triple prism holder set, in a casing, comprising triple prisms, prisms holder with target, tribrach and a tribrach adaptor	No.	0		
d)	· Survey umbrella	No.	1		
e)	· 1No.Telescopic Tripod	No.	0		
1.03	Engineer's Automatic Level Wild NAK 2 or similar with a tripod and the following specifications · Accuracy of 0.7 mm per 1 km double run · Standard magnification of: 32x · Shortest focusing distance of 1.6m · Compensator setting accuracy of 0.3"	No.	2		
	Total carried forward to next page				
ITEM	Description	UNIT	QTY	RATE	AMOUNT(Kshs)
	Brought Forward				
1.04	Hand held GPS with accuracy of 1 Metre	No.	1		
1.05	Set of two way radio communication with a range of 1 kilometer	set.	1		
1.06	5 M Leveling staff with leveling bubble	No.	4		
1.07	3 M Ranging Rods	No.	10		
1.08	Scientific Calculators FX 912ms or equivalent	No.	3		
1.09	50m. Linen Measuring Tape	No.	5		

Issue Date 12th June, 2025

1.10	1m stainless steel straight edge	No.	1		
1.11	3 m tape measure	No.	10		
1.12	Sledge hammer 2kg weight	No.	2		
1.13	Mattock	No.	2		
1.14	Pangas (16'')	No.	10		
1.15	Marker Pens	No.	20		
1.16	Reflector Jackets	No.	30		
1.17	Levelling Survey books	No.	100		
1.18	Provision of Geodetic GNSS receivers comprising of one base and two rovers as per the specifications in Appendix D	No.	1.00		
1.19	Provide with license and install the latest version of <i>(insert software)</i>	L.S			
	Total carried to Bill Item 1.06B				

APPENDIX D			
S/No.	Item Description	GEODETIC GLOBAL NAVIGATION SATELLITE SYSTEM SPECIFICATIONS (GNSS)	REMARKS
1	Geodetic GNSS Receivers	General Characteristics	
		Geodetic Set enabled for both Static and RTK functions with respective supporting software and accessories	
		Specific Specifications	
		1. Channels: At least 120 enabled for simultaneous signal tracking	
		2. Reception	
		Must be enabled for Multi - Constellation / Frequency i.e current systems e.g. GPS (L1, L2, L2C, L5)	
		GLONASS (L1C/A, L1P, L2C/A); SBAS (EGNOS, WAAS, MSAS, GAGAN, QZSS)	
		Galileo ready: E1, E5A, E5B	
		BeiDou ready (Compass) : B1, B2	
		Must have some multipath mitigation technology embeded	
		Note: Should be configured to recieve new and upcoming constellations (if any)	
		2. Accuracy :	
		Real Time Kinematics (RTK)	
		Horizontal: 8 mm + 1 ppm RMS	
		Vertical: 15 mm + 1 ppm RMS	
		Initialization time: typically < 5 s	
		- Initialisation reliability >99.9%	
		Post Processing Static	
		Horizontal: 3 mm + 0.5 ppm RMS	
		Vertical: 5 mm + 0.5 ppm RMS	
		Baseline Length: ≤ 80 km	
		3. Special functionalties	
		Extended RTK range - base setup	
		- the base receiver to be able to stream RTK data via integrated GSM modem and to support upto 10 rovers simultaniosly	
		- the base to provide WiFi hotspot functionality for better control/setup of the receiver	
		- the base to provide web interface functionality via any smart phone, tablet or computer	
		- the base to provide NTRIP caster and dyndns functions	
		Increased reliability - rover setup	
		- the rover to provide a mode for better performance under difficult condtions (close to buildings, trees and urban areas)	
		- the rover to be able to connect to any CORS GNSS networks or Single stations via internet	

		4. Communications	
		a) I/O	
		· 2x TNC connector (1 for UMTS antenna and 1 for UHF antenna)	
		· 2x LEMO	
		· 1x high speed USB	
		· Integrated GSM/GPRS modem	
		· Integrated Bluetooth class 2	
		· Optional radio modem (2):	
		Internal Rx/Tx: 403473 MHz	
		External Radio: 1W 35W adjustable (at least 12Km range)	
		· Should be configured to log into any upcoming CORS protocol	
		· Should be enabled to use SIM card	
		b) Radio Transmission Protocols (RTK)	
		RTCM2.1, RTCM2.3, RTCM3.0, CMR, CMR+ input and output	
		NMEA0183 output	
		5. Data Storage:	
		· Must be able to store raw data	
		· Must have at least 4 GB internal storage	
		· Optional external microSD storage	
		· Device should mount as a USB external hard drive	
		6. Power Supply	
		· Battery life: at least 5 hours in RTK mode	
		· Must have External power input option	
		· Each set should be supplied with two internal battery packs	
		7. Software	
		Two types of software	
		a) for Static	
		· Permanent licence to be included (protected by USB dongle)	
		· Must be able to process raw data (GPS L1&L2, Glonass L1&L2) from leading brands	
		· Must be able to define datums and compute various transformations	
		· Must be able to do 3D adjustment	
		· Must be able to export/import raw data to RINEX format and process the same. This feature must be inclusive of the total cost	
		b) for RTK	
		Supplier should provide licence free field data collection software that has the following key survey operational features:-	
		▪must provide functions for topo survey	
		▪must provide functions for stakeout	
		▪Operating platform - Windows Mobile 6.5 or equivalent	
		8. Sourcing	

Issue Date 12th June, 2025

		The equipment must be sourced from manufacturer's authorized dealers in Kenya who must be capable of training users and commissioning the equipment for full use.	
		9. Warranty	
		Minimum of One year	

Issue Date 12th June, 2025

ANNEX 4: REVISED BOQ RWC 690

Bill No. 1: PRELIMINARIES AND GENERAL ITEMS

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
1.01 (i)	Provide or rent accomodation for Engineer's senior and junior staff (i)Type I	month	24.00	65,000.00	1,560,000.00
1.01 (ii)	Provide or rent accomodation for Engineer's senior and junior staff (ii)Type II	month	24.00	55,000.00	1,320,000.00
1.01 (iii)	Provide or rent accomodation for Engineer's senior and junior staff (iii)Type III	month	24.00	40,000.00	960,000.00
1.01 (iv)	Provide or rent accomodation for Engineer's senior and junior staff (iv)Type IV	month	24.00	30,000.00	720,000.00
1.01 (v)	Provide or rent accomodation for Engineer's senior and junior staff (v)Type V	month	24.00	21,000.00	504,000.00
	Total				5,064,000.00
1.02	E.O item 1.01 for contractor's overhead and profit	%			
1.03	Provide or rent and maintain Engineer's Representative's office as shown on the drawings or as instructed by the Engineer for use during the duration of the Contract.	LS	1.00		
1.04	Provide or rent and maintain Engineer's Site Laboratory for the duration of the Contract.	LS	1.00		
1.05	Provide and maintain Laboratory equipment, reagents and other items as priced in Appendix 'A' to the Bill of Quantities for use by the Engineer's representative for the duration of the contract.	LS	1.00		
1.06 (A)	Provide and maintain furniture , tools and other items for the Engineers Representative office for the duration of the Contract as priced in Appendix 'B'.	LS	1.00		
1.06 (B)	Provide and maintain survey equipment as priced in Appendix C for the duration of the contract.	LS	1.00		
1.07	Provide with drivers, fuel and maintain one (1) new 4WD fully loaded Station Wagon of minimum diesel engine capacity 3000cc approved by the Engineer for his exclusive use, inclusive of the first 5000km per vehicle month.	Veh-Month	24.00		
1.08	E.O item 1.07 for total aggregated mileage in excess of 5000 km per vehicle month.	Km	60,000.00		
1.11	Ditto item 1.09, but one (1) new 4WD standard double cabin pick-up of minimum diesel engine capacity 2500cc approved by the Engineer for his exclusive use, inclusive of the first 5000km per vehicle month.	Veh-Month	24.00		
1.12	E.O item 1.11 for total aggregated mileage in excess of 5000 km per vehicle per month.	Km	60,000.00		
1.13	Ditto item 1.09, but one (1)new 4WD Single cabin pick-ups with fibre glass body of minimum diesel engine capacity 2500cc approved by the Engineer for his exclusive use, inclusive of the first 5000km per vehicle month. engine capacity approved by	Veh-Month	24.00		
1.14	E.O item 1.13 for total aggregated mileage in excess of 5000 km per vehicle per month.	Km	120,000.00		

Issue Date 12th June, 2025

1.15	Allow a Prime Cost Sum of Kshs.7,200,000 for the RE's miscellaneous account to be spent in whole or part as directed by the RE against receipts	PC Sum	1.00		
1.16	E.O. item 1.15 for Contractor's overheads and profits.	%			
1.17	Allow a Prime Cost Sum of Kshs. 18,000,000.00 for attendance upon the Resident Engineer' staff.	PC Sum	1.00		
1.18	E.O. item 1.17 for Contractor's overheads and profits.	%			
1.19	Provide, erect and maintain publicity signs as directed by the Engineer.	No.	4.00		
1.20	Allow for lumpsum of Kshs. 3,000,000.00 for training of Engineer's staff	LS	1.00		
1.21	E.O. item 1.20 for Contractor's overheads and profits.	%			
1.22	Allow for Prime Cost Sum of Kshs. 3,000,000.00 for Geotechnical Investigations	PC Sum	1.00		
1.23	E.O. item 1.20 for Contractor's overheads and profits.	%			

Total Bill 1 Taken to Summary Page

Bill No. 4: SITE CLEARANCE AND TOP SOIL STRIPPING

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
4.01	Clear site on road reserve including removal of trees, hedges, bushes, other vegetation and deleterious organic material, grub up roots and back fill to 100% MDD (AASHTO T99) with approved material in accordance with the specification.	Ha	11.00		
4.02	Remove top soil not exceeding 200mm depth and spread or stockpile for reuse as directed by the engineer.	m ³	23,100.00		
4.03	Allow a Provisional Sum of Kshs.1,000,000 for removal of any structures and obstructions as directed by the engineer. Payment to be on Dayworks basis.	Prov. Sum	1.00		
4.04	E.O. item 4.03 for Contractor's overheads and profits.	%			

Total Bill 4 Taken to Summary Page

-

Bill No. 5: EARTHWORKS

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
	Note: No separate payment shall be made for the overhaul material. The cost of such shall be included in the rates and/or prices				
5.01	Fill in soft material including benching to shoulders and embankments and compaction to 95% MDD (AASHTO T99) in layers not	m ³	13,900.00		

Issue Date 12th June, 2025

	exceeding 150mm in accordance with the Specification or as instructed by the Engineer				
5.02	Extra over item 5.01 for compaction of top 300mm Subgrade to 100% MDD (AASHTO T99)	m ³	31,800.00		
5.03	Ditto item 5.01 but in hard material	m ³	3,500.00		
5.04	Cut to spoil in soft material	m ³	37,000.00		
5.05	Ditto item 5.04 but in hard material	m ³	10,100.00		
5.07	Compaction of the top 150mm below formation level in cutting to 100% MDD (AASHTO T99)	m ³	11,400.00		
5.08	Compaction of 150mm original ground below fills to 95% MDD (AASHTO T99)	m ³	6,800.00		
5.09	Topsoiling prior to grassing in accordance with the specifications	m ²	19,740.00		
5.10	Grassing over sideslopes in cuts and fills as directed by the engineer	m ²	14,000.00		

Total Bill 5 Taken to Summary Page

-

Bill No. 7: EXCAVATION AND FILLING FOR STRUCTURES

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
	Note: No separate payment shall be made for gravel for blinding or hauling to spoil unsuitable excavation materials and the cost of such shall be included in the rates and prices				
7.01	Excavate for structures in soft material	m ³	1,456.00		
7.02	Ditto item 7.01 but in hard material	m ³	156.00		
7.03	Provide, place and compact rockfill below and around structures.	m ³	124.80		
7.04	Provide and place 150mm thick stone pitching as directed by the Engineer including cement grouting	m ²	11,211.28		
7.05	Excavate for gabions in soft material.	m ³	242.42		
7.06	Provide and place gabion boxes and mattresses where directed by the Engineer.	m ²	4,000.00		
7.07	Provide and place rock fill to gabion boxes	m ³	727.27		
7.08	Place filter fabric under and/or behind gabion boxes and structures	m ²	363.64		
7.09	Provide and backfill approved granular material around new structures, compact to 100% MDD (AASHTO T99) in layers not exceeding 150mm.	m ²	2,160.00		
7.10	Allow for protection of structures pursuant to Section 708 of the specifications	LS	1.00		
7.11	Allow for river training in soft material	m ³	18,000.00		
7.12	Extra over Item 7.11 for river training in hard material	m ²	3,600.00		
7.13	Provide coffer dams as directed by the Engineer.	LS	1.00		

Total Bill 7 Taken to Summary Page

Bill No. 8: CULVERT AND DRAINAGE WORKS

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
------	-------------	------	----------	------	--------------

	Note: No separate payments shall be made for gravel for blinding or hauling to spoil unsuitable excavation material and the cost of such be included in rates and prices				
8.01	Excavate for inlet,outfall,mitre and catch water drains in soft material	m ³	500.00		
8.02	Ditto item 8.01 but in hard material	m ³	110.00		
8.03	Excavation in soft material for pipe culverts, headwalls, wing walls, apron, toe walls and drop inlets and compaction of excavated ground as specified or as directed by the Engineer.	m ³	1,200.00		
8.04	Ditto item 8.03 but in hard material	m ³	290.00		
8.05	Provide,lay and joint 600mm dia. concrete pipes (precast to BS 5911 Parts 1 & 3) for access roads	m	1,800.00		
8.06	As for item 8.05 but 900mm dia concrete pipes (precast to BS 5911 parts 1 & 3) for cross culverts	m	300.00		
8.07	As for item 8.05 but 1200mm dia concrete pipes (precast to BS 5911 parts 1 & 3)for cross culverts	m	100.00		
8.08	As for item 8.05 but 450mm dia concrete pipes (precast to BS 5911 parts 1 & 3)for access culverts and sleeves	m	0.00		
8.09	Provide, place and compact class 15/20 concrete to beds, surround and haunches	m ³	1,600.00		
8.10	Provide place and compact class 25/20 concrete for headwalls, wingwalls, aprons and toewalls to pipe culverts including all formwork and the provision and placing of reinforcement as shown in the drawings	m ³	650.00		
8.11	Provide and place invert block drains with two course side slabs	m	1,000.00		
8.12	Construct in concrete class 15/20 side drains scour checks as instructed	m ³	30.00		
8.13	Provide and place precast concrete slabs 600mm x 600mm x 100mm and place over open lined drains in trade centres and markets (reinforced with A142 wire mesh reinforcement)	No.	670.00		
8.14	Provide subsoil filter drains fabric to isolated wet spots inclusive of artesian cloth, and 14/20mm single size aggregates as directed by the Engineer	m	50.00		
8.15	Remove existing pipe culverts of any diameter either for re-use or to be discarded as directed by the Engineer	m	80.00		
8.16	Provide and place A142 wire mesh reinforcement	m ²	4,110.00		
8.17	Provide, lay and joint ducts and sleeves including 150mm concrete (C15/20) (insert size in mm) heavy duty PVC class B with 150mm surround (precast to BS 5911 Parts 1 & 3) ducts/sleeves	m	150.00		
8.20	Excavate for and construct subsoil drains,backfill with approved material where instructed by Engineer	m ³	40.00		
Total Bill 8 Taken to Summary Page					
Bill No. 9: PASSAGE OF TRAFFIC					

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
	Note: No separate payment shall be made for the overhaul material. The cost of such shall be included in the rates and/or prices				
9.01	Construct and maintain diversions in maximum lengths of 5km sections as directed by the Engineer, including including 150mm wearing course gravel all signage, lighting and barriers	km	14		
9.02	Provide, spread, water and compact gravel as directed by the Engineer for maintenance ahead of works.	m ³	16,200		
9.03	Allow for the passage of traffic through and around the works	LS	1		
9.04	Grade, water and compact existing road ahead of works	km	14		

Total Bill 9 Taken to Summary Page

	BILL NO. 10: GRADING AND GRAVELLING WORKS				
--	--	--	--	--	--

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
	Note: No separate payments shall be made for gravel for blinding or hauling and the cost of such shall be included in the rates and prices				
10.01	Provide gravel wearing course, spread and compact to a finished thickness of 150mm to at least 95% M.D.D (AASHTO T-180) and shape to level and tolerance.	m ³	1350		

Total Bill 10 Taken to Summary Page

	Bill No. 12: NATURAL MATERIAL BASE AND SUBBASE				
--	---	--	--	--	--

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
	Note: No separate payment shall be made for the overhaul material. The cost of such shall be included in the rates and/or prices				
12.01	Provide gravel subbase material, haul spread, compact to 95% MDD (AASHTO T180) and shape to level and tolerance	m ³	17,700		

Total Bill 12 Taken to Summary Page

Bill No. 14: CEMENT AND LIME TREATED MATERIAL

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
	Note: No separate payment shall be made for the overhaul material. The cost of such shall be included in the rates and/or prices				
14.01	Provide and spread Lime as an improvement agent for Sub-Base	Tonne	280		

Issue Date 12th June, 2025

14.02	Provide and spread Lime as an improvement agent for Sub-Base and Base	Tonne	238		
14.03	Provide and spread Cement as an improvement agent for sub-base layer	Tonne	280		
14.05	Mix and process natural material with improvement agent for pavement layers as instructed by the Engineer or as specified	m ³	17,630.00		
14.06	Protection and curing of cement / lime treated base and sub-base layers	m ²	96,000.00		

Total Bill 14 Taken to Summary Page

Bill No. 15: BITUMINOUS SURFACE TREATMENT AND SURFACE DRESSING

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
	Note: No separate payment shall be made for the overhaul of bitumen/chippings as these shall be deemed to have been included in the rates				
15.01	Prepare surface of carriageway and shoulders, provide, heat and spray MC 30 cutback bitumen prime coat	Litres	117,600.00		
15.02	Provide & spray K1-60 as tack coat on carriageway, shoulders and on rumble strips	Litres	117,600.00		

Total Bill 15 Taken to Summary Page

Bill No. 16: BITUMINOUS MIXES

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
	NOTE: No haulage will be paid for aggregates, bitumen or the premix. The cost for haulage shall be included in the rates. Rates to be inclusive of fines				
16.01	Provide, place and compact Asphalt Concrete Type II to a 35mm thickness on carriageway and bus bays as directed by the Engineer.	m ³	3,430.00		
16.06	Provide and erect Asphalt Concrete Type I bumps and rumble strips as directed by the Engineer at Bitumen Content of 5.5 - 7.0% by weight of total mix.	m ³	56.00		

Total Bill 16 Taken to Summary Page

-

Bill No. 17: CONCRETE WORKS

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
	Note: No haulage will be paid for aggregates, bitumen or the premix. The cost for haulage shall be included in the rates. Rates to be inclusive of fines				
17.01	Provide, place and compact Class 15(20) concrete blinding as instructed by the Engineer	m ³	93.00		

Issue Date 12th June, 2025

17.02	Provide, place and compact concrete class 25(20) to aprons, wingwalls, abutments, piers, walls and box culverts as shown in drawings.	m ³	900.00		
17.03	Provide, place and compact concrete class 30(20) to aprons, wingwalls, abutments, piers, walls and bridge deck and beams as shown in drawings.	m ³	933.00		
17.11	High yield reinforcement steel bars to specifications equal to or less than 16mm diameter bar size	TONNE	160.00		
17.12	High yield bond strength reinforcement steel to specifications greater than 16mm diameter bar size	TONNE	160.00		
17.13	Supply and install wire mesh grade 460 to BS 4461 size B1131 (10.9Kg/m ²) to top and bottom of approach slabs	Tonne	5.00		
17.24	Provide & fix in place vertical formwork to achieve Class U F1 finish	m ²	3,600.00		
17.25	As item 17.16 but horizontal	m ²	1,650.00		
17.26	As item 17.16 but sloped.	m ²	900.00		
17.28	As item 17.09 but horizontal	m ²	70.00		
17.30	Provide & fix in place vertical formwork to achieve Class U F3 finish	m ²	900.00		

Total Bill 17 Taken to Summary Page

-

Bill No. 20: ROAD FURNITURE

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
20.01	Provide Road Reserve Boundary posts	No.	68		
20.02	Excavate for, provide & place 250x125mm precast concrete raised or ramped kerbs haunched in 100mm thick class 15/20 concrete base bedding and mortar joined in support to carriageway, busbays and junctions as directed by the Engineer				
	(a) Straight	m	1,000		
	(b) Kerbs radius 12m - 6m	m	30		
	(c) Ditto but radius 5m - 1m	m	30		
20.03	As 20.02 but for flush kerbs 100 x 125mm	m	1,000		
20.04	Provide and erect permanent road signs as instructed by the Engineer in accordance with Special Specifications Clause 2004 as follows:				
	a) Warning signs	No.	50		
	b) Priority, prohibitory and mandatory signs	No.	30		
	c) Standard informatory signs	No.	10		
	d) Non standard informatory signs area				
	i) Less than 1.0 m ²	No.	5		
	ii) More than 1.0 m ² but less than 5 m ²	No.	5		
20.05	Provide, deliver, paint and mark the road as specified or as directed by the Engineer, with white reflectorized thermoplastic paint from an approved supplier.	m ²	3,400		
20.06	As item 20.05 but for yellow reflectorized thermoplastic paint	m ²	1,700		

20.07	Provide and erect concrete posts for guardrails complete with spacers (size and interval) as per specifications or as directed by the Engineer	No.	413		
20.08	Provide and erect flex-beam guardrails complete with connections as shown on the drawings or as directed by the Engineer	m	1,500		
20.09	Provide and erect edge marker posts as directed by the Engineer	No.	60		

Total Bill 20 Taken to Summary Page**Bill No. 22: Schedule of Dayworks**

	The rates inserted herein are to include all operational and Maintenance costs, fuel, oil, grease, drivers/operators wages, supervision, overheads and profit. Only time actually employed upon the work will be paid for and the rates should include for idle time, travelling time and overtime. In accordance with clause 2202 (a) of the specifications. Note: All items of plant must be priced.				
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
22.01	Crawler dozers with hydraulic attachmentsto include ripper				
	a) Up to 135 kw rated flywheel power	hrs	10		
	b) Over 136 kw rated flywheel power	hrs	10		
22.02	Motor Grader				
	a) Up to 110kw rated flywheel power	hrs	10		
	b) Over 100kw rated flywheel power	hrs	10		
22.03	Vibratory Roller				
	a) 6.5 - 8.81 tonne un-ballasted weight	hr	10		
	b) Over 8.91 tonne un-ballasted weight	hr	10		
22.04	Hand propelled vibrating roller 650 - 1300kg	hrs	10		
22.05	Cat 950G wheel loader or equivalent	hrs	10		
22.06	10 Tonne tipper lorry	hrs	10		
22.07	Small dumpers, 750-1000kg rated payload	hrs	10		
22.08	Dual purpose hydraulic excavator with backhoe/loader and a rated	hrs	10		
	bucket capacity of upto 1m3.				
22.09	Articulated wheel loader with 1.5-2.0m3 SAE rated bucket capacity	hrs	10		
22.1	50mm delivery water pump and motor	hrs	10		
22.11	Self propelled water tanker 4,500ls min. capacity with pick-up pump	hrs	10		
22.12	Concrete Mixer of 100 - 150litres	hrs	10		
22.13	Concrete poker vibrator	hrs	10		
	LABOUR				
	The rates inserted herein are to include all costs of labour such as insurance, accommodation, travelling time, over-time, use and maintenance of small tools of trade, supervision, overheads and Profit. Only the actual time engaged upon the work will be paid for.				

22.14	Unskilled Labour	hrs	10		
22.15	Artisans	hrs	10		
22.16	Office attendants and chainmen	hrs	10		
22.17	Watchmen (all round surveillance)	hrs	500.00		
	MATERIALS				
	All materials are to comply with the Specification. The rates inserted herein are to include for delivery to the site, storage, handling, overheads and profit				
22.18	Ordinary Portland Cement 42.5 N	Ton	1		
22.19	Hydrated Lime	Ton	1		
22.2	Mild Steel(any diameter)	Ton	1		
22.21	High Yield Steel (any diameter)	Ton	1		
22.22	Fine Aggregate for Concrete	m ³	5		
22.23	Coarse Aggregate for Concrete	m ³	5		
22.24	Wrot Shuttering Timber	m ²	5		
22.25	Rough shuttering timber.	m ²	10		
22.26	Bitumen Emulsion KI-60.	Litre	10		
22.27	Straight run bitumen Grade 80/100.	Litre	10		
22.28	Kerosene	Litre	10		
22.29	14/20 mm nominal size surface chips.	m ³	10		
22.3	6/10mm nominal size surface chips	m ³	10		
22.31	AC Type I Ex-plant	m ³	10		
22.32	AC Type II Ex-plant	m ³	10.00		

Total Bill 22 Taken to Summary Page**BILL No. 25 : HIV/AIDS, Gender & Social Issues, Local Participation**

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
25.01	All for a prime cost sum of KShs 5,000,000 (five Million) for ESIA study and report, Compliance Audits and environmental monitoring.	PC sum	1		
25.02	E.O for Item 25.01 for Contractor's Oveheads and Profit	%			
25.03	Allow for engagement of a HIV/AIDS specialist subcontractor to deal with prevention, awareness activities as per programme to be approved by the Engineer	Months	24		
25.04	Allow for the availability of male and female condoms to workers and staff strategically and socially presented for the duration of the contract	No.	800		
25.05	Allow for preparation and submmision of monthly reports on HIV/AIDS awareness and prevention activities. Report to be tabled at site meetings.,	Months	30		
25.06	Provide, Instal and maintain HIV/AIDS awareness bill boards with approved message and graphics with maximum area 4m2 fabricated as per specifications of permanent infromatory sign boards	No.	2		
25.07	Allow for vedio shows on HIV/AIDS related awareness and prevention matters every 3months	No.	8		
25.08	Allow for production and distribution of HIV/AIDS awareness material as follows:				

Issue Date 12th June, 2025

	a) T-Shirt printed with approved message and graphics	No.	200		
	b) Ditto (a) above but caps	No.	200		
	c) A1 size weather proved posters	No.	200		
	d) A3 size weather proved posters	No.	200		
	e) 200x150mm stickers with HIV/AIDS awareness/prevention slogan	No.	200		
	f) Key rings with HIV/AIDS awareness/prevention slogan	No.	200		
	g) Ball point pens with HIV/AIDS awareness / prevention slogan.	No.	200		

Total Bill 25 Taken to Summary Page

BILL No. 26 : Land Acquisition, Axle Load Control, and Relocation of Services

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
26.03	Allow a Prime Cost Sum of Kshs. 6,000,000.00 for relocation of services as directed or instructed by the Engineer	PC Sum	1.00		
26.04	E.O. item 26.01 for allowance for Contractor's profit and overheads	%			

Total Bill 26 Taken to Summary Page

CONTRACT No. RWC690 UPGRADING TO BITUMEN STANDARD OF KAGUMOINI – GITUGI – CHUI – KARUGIA ROAD		
GRAND SUMMARY OF BILL OF QUANTITIES		
BILL ITEM	DESCRIPTION	AMOUNT (KShs)
1	Preliminaries and General Items	
4	Site Clearance and Top soil stripping	
5	Earthworks	
7	Excavation and Filling for Structures	
8	Culvert and Drainage Works	
9	Passage of Traffic	
10	Grading and Gravelling Works	
12	Natural Material Base and Subbase	
14	Cement and Lime Treated Material	
15	Bituminous Surface Treatment and Surface Dressing	
16	Bituminous Mixes	
17	Concrete Works	
20	Road Furniture	
22	Schedule of Dayworks	
25	HIV/AIDS, Gender & Social Issues, Local Participation	
26	Land Acquisition, Axle Load Control, and Relocation of Services	
A.	Sub-Total (1)	
B.	Add 15% Variation of Price On Sub-Total 1	
C.	Add 10% Contingency on Sub-Total 1	
D.	Sub-Total 2 = A + B + C	
E	Add .03% For PPCBLoF sub total (2)	
F.	Add 16% VAT on Sub-Total 2	
TOTAL CARRIED FORWARD AS BID SUM 1: (D + E + F)		

APPENDIX A					
APPENDIX TO BILL ITEM 1.05:					
PROVIDE AND MAINTAIN FURNITURE AND EQUIPMENT FOR THE ENGINEER'S LABORATORY					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	1. FURNITURE				
A104/1.01	Desk 2.2x0.9 m with chair and lockup drawers	No	2		
A104/1.02	Desk chair (standard)	No	15		
A104/1.03	Stationery cupboard, 1.2 m ³ , lockable	No	2		
A104/1.04	Steel filing cabinet, 4 drawers, lockable	No	2		
A104/1.05	Steel filing cabinet, 2 drawers, lockable	No	2		
A104/1.06	Bookshelf, 3 shelves 1.2 m long (to hold box files)	No	2		
A104/1.07	Table - 6 m ²	No	2		
A104/1.08	Two Plate electric heater	No	1		
A104/1.09	Fire extinguisher, 10 litre capacity, CO ₂ type	No	4		
A104/1.10	Complete first aid kit	No	2		
	EQUIPMENT				
	<i>(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) Standard)</i>				
	2. General Equipment				
A104/2.02	2.49kg. Compaction hammer, drop regulated to 304.8mm	No	2		
A104/2.03	4.535kg compaction hammer drop regulated to 457.2mm	No	2		
A104/2.04	Electric vibrating Kango Hammer fitted with steel tamper(BS 1377) with support frame	No	1		
A104/2.05	Straight edge 300 mm long with handles	No	4		
A104/2.06	Steel Tamper (BS1377) compatible with Kango hammer	No	3		
A104/2.07	Compaction mould 152.4 mm. dia x 116.43 mm complete with base plate and extension collar, 101.6 mm	No	2		
A104/2.08	Galvanized metal tray 1m x 0.5m x 75 mm deep	No	4		
A104/2.09	75mm brush	No	2		
A104/2.10	Semi-automatic balance, 25kg Capacity accurate to 1g, including weights	No	1		
A104/2.11	20mm BS Sieve, 300mm diameter	No	1		
A104/2.12	Stop Clock	No	2		
A104/2.13	Thermostatically controlled electric oven 105-110°C, capacity 0.225 m ³	No	2		
A104/2.14	As above but gas heated	No	1		
A104/2.15	Moisture content tins, 75 mm dia, Cadmium or aluminium plated	No	60		
A104/2.16	Cone penetrometer with gauge and automatically controlled test cup	No	2		

C/Forward to next page					
B/Forward From previous page					
	3. Density (Sand replacement method BS 1377)				
A104/3.01	Metal containers 450mm diameter	No	2		
A104/3.02	Stainless steel tray 305mm diameter	No	2		
A104/3.03	Metal tray with 150 mm diameter hole in the centre, 300mmx300 mm square or equivalent area, 40mm deep	No	2		
A104/3.04	Metal tray with 200mm diameter hole in the centre, 500mm x 500 mm square , 50 mm deep	No	2		
A104/3.05	Steel pegs for fixing tray in position	No	15		
A104/3.06	Sand pouring cylinder, 150 mm diameter	No	2		
A104/3.07	Sand pouring cylinder, 215 mm diameter	No	2		
A104/3.08	Cold steel chisel 20mm x 300mmm	No	4		
A104/3.09	Cold steel chisel 10mm x 250mmm	No	4		
A104/3.10	1.5kg, 3.5kg hammers and 1kg rubber mallet	Set	1		
A104/3.11	Scoop for removing excavated material from hole, 250 mm long handle	No	6		
A104/3.12	100mm brush, soft	No	3		
A104/3.13	50mm brush, soft	No	3		
A104/3.14	Primus gas stove	No	1		
A104/3.15	Calibrating can 150 mm diameter x 150 mm deep	No	3		
A104/3.16	Ditto but 200 mm diameter x 250 mm deep	No	3		
	4. Density (Nuclear Density method AASHTO T238)				
A104/4.01	Nuclear density gauge (Troxler 3411B or similar approved) complete with 3 no. hole forming device and 3 no. guide	No	1		
	5. CBR (AASHTO T193)				
A104/5.01	CBR mould, 152.4 mm dia x 178 mm high, complete with perforated base plate and extension collar 50.8 mm high that can be fitted to either side of mould	No	50		
A104/5.02	Perforated swell plate 150 mm dia with an adjustable centre post of rust proof metal provided with a lock-nut	No	40		
A104/5.03	2.25 kg split surcharge weight	No	2		
A104/5.04	Set of annular surcharge weights	No	1		
A104/5.05	Solid base plate for CBR mould	No	2		
A104/5.06	Static compaction displacer discs 1 No x 61.4 mm, 1 No x 50.8 mm and 2 No x 38.8 mm thick with handles	set	1		
A104/5.07	Disk lifting handle	No	2		
A104/5.08	Central extruder, complete with 20kN hydraulic jack and accessories	No	1		
C/Forward to next page					
B/Forward From previous page					
A104/5.09	Automatic CBR Proctor Compaction press, 50 tonnes capacity with an	No	1		

	adjustable distance between platens of 530mm-250mm, rammer weights and automatic count selector				
A104/5.10	Set of guards for above press.	No	1		
A104/5.11	50 kN CBR Load frame complete with stabilising bar (electric and hand operated) including proving rings for 10KN, 28KN and 50KN, piston and bracket	No	1		
A104/5.12	Penetration gauge range 0 - 25mm	No	2		
A104/5.13	CBR piston including bracket	No	2		
A104/5.14	Swell measurement tripod complete with guage calibrated in 0.01 mm divisions	No	2		
A104/5.15	Soaking tank for CBR mould sufficient for 50 moulds	No	1		
	6. Relative Density of Aggregates (BS 812)				
A104/6.01	Wire mesh basket with apertures not greater than 6.5 mm large enough to contain 2.5 kg of aggregate	No	2		
A104/6.02	A stout watertight container in which the basket can be freely suspended	No	2		
A104/6.03	Soft absorbent cloth (tea towel)	No	10		
A104/6.04	Shallow tray of area not less than 0.065 m ²	No	2		
A104/6.05	An airtight container of similar capacity to the basket	No	2		
A104/6.06	Pycnometer of 1 litre capacity	No	4		
A104/6.07	Semi automatic 5 kg 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		
A104/6.08	Hot air drier (electric)	No	2		
	7. Flakiness (BS 812)				
A104/7.01	Thickness gauge (various sizes)	No	2		
	8. Sieve Analysis (BS 1377)				
A104/8.01	BS Sieve 300mm diameter in sizes 75, 63, 50, 37.5, 28, 20, 14, 10, 6.3, 5 and 4 mm, plus lid and receiver	Set	2		
A104/8.02	BS Sieve 200mm diameter in sizes 2, 1, 0.6, 0.5, 0.425, 0.300, 0.150 and 0.075 mm, plus lid and receiver	Set	2		
A104/8.03	Electric sieve shaker	No	1		
A104/8.04	BS sieve 200mm diameter 0.425 and 0.075 mm	set	1		
A104/8.05	1 m x 1 m x 75mm deep galvanized metal tray	No	10		
A104/8.06	Riffle box with 50mm slots (BS 1377)	No	1		
C/Forward to next page					
B/Forward From previous page					
	9. Miscellaneous Equipment				
A104/9.01	Wheel barrow	No	3		
A104/9.02	Dustpan and brush	No	3		

A104/9.03	Shovel	No	4		
A104/9.04	Pick axe with handle	No	4		
A104/9.05	Metal scoop, large (150mm wide)	No	3		
A104/9.06	Metal scoop, medium (100mm wide)	No	4		
A104/9.07	Garden trowel	No	2		
A104/9.08	Steel tray 0.3m x 0.3m x 0.01m deep	No	15		
A104/9.09	Palette knife 200mm long blade	No	3		
A104/9.10	Palette knife 100mm long blade	No	4		
A104/9.11	BS sieve 450mm diameter, 37.5mm	No	1		
A104/9.12	BS sieve 450mm diameter, 20mm	No	1		
A104/9.13	BS sieve 450mm diameter, 5mm	No	1		
A104/9.14	BS sieve 450mm diameter, 0.425mm	No	1		
A104/9.15	BS sieve 450mm diameter, 0.3mm	No	1		
A104/9.16	BS sieve 450mm diameter, 0.075mm	No	1		
A104/9.17	Set of lid and receiver for metal scoop and steel trays	No	2		
A104/9.18	BS Sieve brush	No	2		
A104/9.19	Measuring cylinder set, 25 ml, 100 ml, 500 ml, 1000 ml, 2000 ml	set	2		
A104/9.20	Glass jar capacity 5 litres with lid	No	10		
A104/9.21	200mm x 200mm x 20mm cadmium plated or aluminium tin	No	20		
A104/9.22	Electronic balance capacity 1000 g, accurate to 0.01gm.	No	1		
A104/9.23	Balance 2000 g capacity accuracy to 0.1g (manual), including weights	No	1		
A104/9.24	Balance 50kg capacity accurate to 10gm including weights	No	1		
A104/9.25	Still for producing distilled water	No	1		
A104/9.26	Polythene or glass 20 litres storage vessel with tap at bottom	No	2		
A104/9.27	Stiff broom	No	2		
A104/9.28	Vernier calipers, 150mm	No	2		
A104/9.29	Vernier calipers, 250mm	No	2		
C/Forward to next page					
B/Forward From previous page					
A104/9.30	Pestle and mortar	No	2		
A104/9.31	Linear shrinkage mould (BS 1377)	No	6		
A104/9.32	Liquid Limit Device	No	2		
A104/9.33	Average least dimension gauge	No	2		
A104/9.34	Lockable tool box containing: 1 pr"Molegrips", 2 x 150mm screwdriver, 2 x 200 mm screwdriver, 2 x 300 mm screwdriver,(1 standard and 1 Phillips head of each) adjustable spanners 200 mm and 300 mm, 1 pair round nosed pliers, 1 pair general purpose pliers,	No	1		
A104/9.35	Plastic or metal bucket including lid,10 litres capacity	No	6		
A104/9.36	Polythene wash bottle (500 ml)	No	5		
A104/9.37	A4 size clipboard	No	4		
A104/9.38	Thermometer, range -10°C to150°C, glass (BS 593)	No	2		

A104/9.39	Laboratory thermometer, range + 0°C to + 250°C (BS 593)	No	2		
A104/9.40	Maximum and minimum thermometer (BS692)	No	2		
A104/9.41	Rain gauge	No	1		
A104/9.42	Portable dial thermometer + 50°C to +250°C accurate to $\pm 3\%$	No	1		
A104/9.43	Ditto with 0.75m long stem	No	1		
A104/9.44	Pocket thermometer + 50°C to +250°C accurate to $\pm 3\%$ with 0.1 m stem	No	2		
A104/9.45	5 litre capacity steel storage containers with leak and dust proof lids for storage of bitumen samples	No	50		
A104/9.46	Hotplate 200mm diameter with Simmerstat heat control unit.	No	2		
A104/9.47	450mm diameter x 150mm deep metal mason's basin	No	6		
	10. Standard Specifications (<i>Copies of each of the latest editions of the following Standards</i>)				
A104/10.01	BS 598	No	1		
A104/10.02	BS 812	No	1		
A104/10.03	BS 882	No	1		
A104/10.04	BS 1377	No	1		
A104/10.05	BS 1881	No	1		
A104/10.06	BS 1924	No	1		
A104/10.07	Standard Specifications for Transportation Material and Methods of Sampling and Testing (AASHTO) Parts I and II, 14th Edition	Set	1		
A104/10.08	ASTM D1559	No	1		
A104/10.09	Asphalt Institute, Superpave Manual Series No.2(SP-2)	No	1		
A104/10.10	Overseas Road Note 19	No	1		
A104/10.11	BS 5911 Part 1 &3	No	1		
C/Forward to next page					
B/Forward From previous page					
	11. Concrete: Slump and Cube Manufacture (BS 1881)				
A104/10.12	BS 4449	No	1		
A104/11.01	Slump cone, tamping rod and base	set	2		
A104/11.02	Concrete cube mould, 150mm cube	No	30		
A104/11.03	Soaking tank for cubes (capacity 50 No.)	No	1		
A104/11.04	Cube tamping bars	No	10		
	12. Concrete: Cube Compression Testing				
A104/12.01	Concrete compression machine to BS1610 Grade A with 300 mm gauge, rectangular platens, capacity 1560 kN with load spacer	No	1		
A104/12.02	Safety guard for above				
A104/12.03	50mm distance piece				
A104/12.04	70mm distance piece				

A104/12.05	Electro-mechanical load pacer, 100 mm or equivalent distance piece				
	13. Aggregate and Chippings				
A104/13.01	Sand equivalent to AASHTO T176 including graduated plastic cylinder, rubber stopper, irrigation tube weighted foot assembly, siphon assembly, 85ml tin box (57mm dia.), 100 mm dia wide mouth funnel, stop clock, mechanical shaker and 10 litre jar	Set	1		
A104/13.02	Beaker 250ml	No	2		
A104/13.03	Aggregate Crushing Value Apparatus, 150 mm nominal diameter , including plunger and base plate	No	2		
A104/13.04	Tamping rod and metal measure for above	Set	4		
A104/13.05	Los Angeles Abrasion to ASTM standards	No	1		
A104/13.06	Set of 12 abrasive charges	No	2		
A104/13.07	Thermometer, 0°C to +50°C	No	2		
A104/13.08	Thermometer, 0°C to +250°C	No	2		
A104/13.09	Reagent grade Silica gel, 500g container	No	50		
	14. Bitumen Spray Test (BS 1707)				
A104/14.1	Transverse distribution of spray test bitumen distributor (depot tray test to BS 1707) or equivalent.	Set	1		
A104/14.02	Steel tray 20 mm deep x0.1m ² (for measuring bitumen spray rates) with purpose made detachable handle 1.5m long.	No.	4		
C/Forward to next page					
B/Forward From previous page					
	16. Bitumen Extraction Test				
	A) Extractor Bottle Method BS 598 Part 2				
A104/16.01	Electronic top pan balance 4kg capacity, sensitive to 0.1gm	No	1		
A104/16.02	Flat bottomed scoop	No	3		
A104/16.03	Steel garden trowel	No	2		
A104/16.04	Large steel spoon	No	2		
A104/16.05	Heat resistant gloves	pair	10		
A104/16.06	Foot pump for pressurising air water assemblies up to a maximum of 700KN/m ² and fitted with flexible hose approximately 1.2m long and connector	No	2		
A104/16.07	Steel bottle 600ml capacity with 49mm rubber stopper	No	2		
A104/16.08	Steel bottle 2500ml capacity with 71mm rubber stopper	No	2		
A104/16.09	Steel bottle 7000ml capacity with 71mm rubber stopper	No	2		
A104/16.10	Flask funnel for fitting to the 700ml steel bottle with rim of funnel retaining sieve 200mm nominal diameter	No	2		

A104/16.11	Bottle roller compact bench mounted unit designed to rotate 2 bottles simultaneously about longitudinal axis	No	1		
A104/16.12	Pressure filter complete with cutting tool for making hole in the filter paper	No	1		
A104/16.13	Filter funnel to take 200mm nominal diameter sieves	No	2		
A104/16.14	Centrifuge complying with BS 598	No	1		
A104/16.15	Binder recovery	No	1		
A104/16.16	Volumetric flask 250ml, 500ml, 1000ml and 2000ml capacity	set	2		
A104/16.17	Recovery still for Dichloromethane	No	1		
	B) Hot Extractor Method BS 598 Part 2				
A104/16.18	Hot extractor complete with wire gauze container gasket, cork lid and support assembly	No	2		
A104/16.19	Dean and Stark receiver with condenser to suite Trichloroethylene				
A104/16.20	Gyratory compactor ELE Servo Pac or equivalent with 1 x 100mm and 1 x 150mm moulds	No	1		
A104/16.21	PRD Vibrating hammer compactor complete with 6 moulds, 7 base plates from ELE	No	1		
A104/16.22	Two (2) sets of Tamping foot 102mm diameter and 146mm diameter and shanks to fit the supplied vibratory hammer				
C/Forward to next page					
B/Forward From previous page					
	17. Consumables				
A104/17.01	Paraffin wax	Kg	50		
A104/17.02	Gas	Kg	1600		
A104/17.03	Gunny sack	No	500		
A104/17.04	Plastic bag 900x450x1000 gauge	No	500		
A104/17.05	Plastic bag 450x300x1000 gauge	No	500		
A104/17.06	Filter paper 150mm diameter Whatman No. 5 (Boxes of 100)	No	20		
A104/17.07	Filter paper 400mm diameter Whatman No. 5 (Boxes of 100)	No	20		
A104/17.08	Filter paper 100mm diameter Whatman No. 5 (Boxes of 100)	No	20		
A104/17.09	Filter paper 400mm diameter Whatman No. 54 (Boxes of 100)	No	10		
A104/17.10	Filter paper 270mm diameter with 33 diameter hole at centre Whatman No. 5 (Boxes of 100)	No	15		
A104/17.11	Trichloroethylene (205 Litre Drum)	No	2		
A104/17.12	Dichloromethane	kg	0		
A104/17.13	Cotton waste	kg	50		
A104/17.14	Gas cylinders compatible with supplied stoves	No	10		
A104/17.15	Sodium sulphate	kg	45		

Issue Date 12th June, 2025

A104/17.16	Sand for density test	kg	250		
C/Forward to item 1.05					

APPENDIX B					
APPENDIX TO BILL ITEM 1.06A: PROVIDE, FURNISH AND MAINTAIN THE R.E.'S OFFICE					
DESCRIPTION		UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	1. ENGINEER'S MAIN OFFICE AND FURNITURE				
1	Executive desk 2.2x0.9 m with six lockup drawers	No	2		
2	Desk 2.2x0.9 m with chair and three lockup drawers	No	4		
3	Office tables	No	3		
4	Executive Swivel orthopeadic chair adjustable height	No	2		
5	Standard office chairs	No	8		
6	Bench 3m long with cushioned backrest (located as directed)	No	1		
7	Typist's desk	No	1		
8	Typist's chair	No	3		
9	Lockable steel stationery cupboard, 1.2 m ³ , lockable	No	4		
10	Medium size steel filing cabinet, 4 drawers lockable	No	4		
11	Medium size steel filing cabinet, 2 lockable drawers lockable	No	3		
12	Bookshelf, 1.5 m wide 3 shelves (for box files) sliding glass door	No	3		
13	Conference table with 12 chairs	No	1		
14	Waste paper basket	No.	5		
15	Curtains for office and laboratory -for all windows and doors	Set	2		
16	Ordinary 2 hole paper punch	No	2		
17	Heavy duty 2 hole paper punch	No	2		
18	Set of full divided scale (metric 1/1000, 1/2500, 1/500, 1/2000, 1/1250, 1/1500)	No	1		
19	Computer meeting the following specifications or equivalent: Personal computer with 20" screen full multimedia, 1000GB hard disk, 12.0GB RAM, Core i7 processor, complete with all accessories preloaded with latest versions of windows OS, MS Office, Professional and MS Project	No	2		
20	Autocad Civil 3D 2012 and Licences for above computers	No	2		
21	As A103/2.11 but with 15" screen	No	4		
22	Laptop PC with Intel Core i7-350M Processor 15.4" screen, 12GB DDR3 RAM 1000GB 8xDVD+/-RW or simillar approved with Microsoft Windows professional	No	1		
23	Latest HP (A4) Laser Printer with accessories	No	3		
24	Latest HP (A3) Laser Printer with accessories	No	1		
25	UPS 600 VA	No	6		
26	wall clocks, battery powered min size 350mm x 350mm	No	2		
27	Safe for cash and valuables min.size approx. 0.8mx0.5mx0.4m to be concreted in place (wall/floor mounted) complete with lock and keys	No	1		
28	First Aid Kit	No	4		
C/Forward to next page					
B/Forward From previous page					
29	Fire Extinguisher	No	4		

Issue Date 12th June, 2025

30	Filing Tray - set of 3no.	set	10		
31	Refrigerator minimum capacity 0.2 m ³	No	1		
32	Drinking water dispenser, hot/cold	No	1		
33	Table - 0.8 m ² surface area	No	1		
34	Cupboard, 0.15 m ³ , lockable	No	1		
35	Cooker 4 plate electric cooker with oven and grill	No	1		
36	A3 Photocopier (approved make), with feeder sorting trays, scanner and print capability	No	1		
37	Reams of A4 photocopying paper	No	100		
38	Reams of A3 photocopying paper	No	20		
39	Electronic scientific calculator, Casio fx 992s or equivalent approved	No	6		
40	Stapling machine Ofrex size 50 or similar with 5000 staples	No	6		
41	Heavy duty punch and spiral binder, IBICO AG or similar approved	No	2		
42	Inkjet Plain Paper Fax Machine with 4MB of memory	No	1		
43	Pencil sharpener (desk mounted type)	No	6		
44	Digital Camera, 20.1 Megapixel(min), 1920x1080 full HD movie recording, optical steadyShot, sweep panorama, 2.7" LCD screen, minimum 15x digital zoom, multimedia card/SD 8GB memory, 12 scene selection modes, all inclusive.	No	1		
45	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		
Total carried to Bill Item 1.06A					

APPENDIX C					
APPENDIX TO BILL ITEM 1.06B ENGINEERS'S SURVEY EQUIPMENT					
ITEM	Description	UNIT	QTY	RATE	AMOUNT (KSHS)
1.01	Digital Total Station reading to 1"accuracy (one second) with the following facilities	No.	1		
	· Inbuilt data logger				
	· Uploading/downloading software				
	· Data transfer cable				
	· Battery (2No)				
	· Battery charger				
	· Tool kit				
	· Two face keyboard				
	· User manual				
	It must have the following inbuilt survey programs as a minimum				
	· Survey				
	· Staking out				
	· Resection/intersection				
	· Traverse				
	· Cogo				
1.02	The following mandatory total station accessories must be included per Total station instrument				
	1No. Heavy duty telescopic tripod(<i>preferably wooden</i>)	No.	1		
	Telescopic plumbing prism pole complete with a prism and prism holder with target and plumbing bubble (<i>length not less than 2.15m</i>)	No.	3		
	Triple prism holder set, in a casing, comprising triple prisms, prisms holder with target, tribrach and a tribrach adaptor	No.	1		
	1No. Survey umbrella	No.	1		
	1No. Telescopic Tripod	No.	1		
1.03	Engineer's Automatic Level Wild NAK 2 or similar with a tripod and the following specifications:-	No.	2		
	· Accuracy of 0.7 mm per 1 km double run				
	· Standard magnification of: 32x				
	· Shortest focusing distance of 1.6m				
	· Compensator setting accuracy of 0.3"				
1.04	Hand held GPS with accuracy of 1 Metre	No.	1		
1.05	Set of two way radio communication with a range of 1 kilometer	set.	1		
1.06	5 M Leveling staff with leveling bubble	No.	4		
1.07	3 M Ranging Rods	No.	10		
1.08	Scientific Calculators FX 912ms or equivalent	No.	3		
1.09	30m. Linen Measuring Tape	No.	6		
1.10	1 M stainless steel straight edge	No.	1		
1.11	3 m tape measure	No.	6		
1.12	Sledge hammer 2kg weight	No.	2		

Issue Date 12th June, 2025

1.13	Mattock	No.	2		
1.14	Pangas (16’)	No.	4		
1.15	Roll of Tracing Paper	No.	1		
1.16	Graph Paper A3 Size	No.	10		
1.17	Marker Pens	No.	20		
1.18	Reflector Jackets	No.	10		
1.19	Laptop	No.	1		
1.2	Scale Rules	No.	2		
1.21	Drawing Pen (0.25mm)	No.	2		
1.22	Graph paper 1mm(roll)	No.	1		
Total carried to Bill Item 1.06B					

Issue Date 12th June, 2025

ANNEX 5: REVISED BOQ RWC 691

**BILL OF QUANTITIES FOR UPGRADING TO BITUMEN STANDARDS OF KARANJEE LOOP
ROADS, ACCESS TO LIMURU GIRLS & LIMURU (JNCT EQUITY), ACCESS LOOP TO ST.
PAUL'S PRIMARY SCHOOL / MARAMBA TEA FACTORY - KAMWAKI/BATA LOOP -
MURENGETI & ACCESS ROADS**

BILL NO. 1. PRELIMINARIES AND GENERAL ITEMS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1.01	Provide or rent accommodation for Engineer's senior and junior staff				
	(i)Type I - 1 No.	Month	36	65,000.00	2,340,000.00
					-
	(i)Type II - 1 No.	Month	36	55,000.00	1,980,000.00
					-
	(iii) Type III - 1 No.	Month	36	40,000.00	1,440,000.00
					-
	(iv) Type IV - 2 No.	Month	72	30,000.00	2,160,000.00
					-
	(v) Type V - 3 No.	Month	108	21,000.00	2,268,000.00
	Total				10,188,000.00
1.02	E.O item 1.01 for contractor's overhead and profit	%			
1.03	Provide or rent and maintain Engineer's Representative's office as shown on the drawings or as instructed by the Engineer for use during the duration of the Contract, ownership to revert to the Contractor at the end of the Contract	LS	1		
1.04	Provide or rent and maintain Engineer's Site Laboratory for the duration of the Contract, ownership to revert to the Contractor at the end of the Contract	LS	1		
1.05	Provide and maintain Laboratory equipment, reagents and other items as priced in Appendix 'A' to the Bill of Quantities for use by the Engineer's representative for the duration of the contract, ownership to revert to the Employer at the end of the Contract.	LS	1		
1.06A	Provide and maintain furniture , tools and other items for the Engineers Representative office for the duration of the Contract as priced in Appendix 'B' , ownership to revert to the Employer at the end of Contract.	LS	1		
1.06B	Provide and maintain survey equipment as priced in Appendix C for the duration of the contract, ownership to revert to the Employer at the end of Contract.	LS	1		

Issue Date 12th June, 2025

1.07	Provide with drivers, fuel and maintain Two (2) new 4WD fully loaded Station Wagon of minimum diesel engine capacity 2800 CC approved by the Engineer for his exclusive use, inclusive of the first 5000km per vehicle month. Vehicle to revert to the Contractor at the end of the project.	Veh Month	36		
1.08	E.O item 1.07 for total aggregated mileage in excess of 5000 km per vehicle month.	Km	50,000		
1.09	Provide with drivers, fuel and maintain one (1) new 4WD fully loaded double cabin pick-up of minimum diesel engine capacity 2500 CC approved by the Engineer for his exclusive use, inclusive of the first 5000km per vehicle month. Vehicle to revert to the Contractor at the end of the project.	Veh Month	36		
1.10	E.O item 1.09 for total aggregated mileage in excess of 5000 km per vehicle month.	Km	50,000		
1.11	Ditto item 1.09, but one (1) new 4WD standard double cabin pick-up of minimum diesel engine capacity 2500 CC approved by the Engineer for his exclusive use, inclusive of the first 5000km per vehicle month. Vehicle to revert to the Contractor at the end of the project.	Veh Month	72		
1.12	E.O item 1.11 for total aggregated mileage in excess of 5000 km per vehicle per month.	Km	50,000		
1.13	Ditto item 1.09, but one (1) new 4WD Single cabin pick-ups with fibre glass body of minimum diesel engine capacity 2500cc approved by the Engineer for his exclusive use, inclusive of the first 5000km per vehicle month. Vehicle to revert to the Contractor at the end of the project.	Veh Month	36		
1.14	E.O item 1.13 for total aggregated mileage in excess of 5000 km per vehicle per month.	Km	50,000		
1.15	Allow a Prime Cost Sum of Kshs. 9,000,000.00 for the RE's miscellaneous account to be spent in whole or part as directed by the RE against receipts.	PC Sum	1		
1.16	E.O. item 1.15 for Contractor's overheads and profits.	%			
1.17	Allow a Prime Cost Sum of Kshs. 16,200,000.00 for attendance upon the Resident Engineer' staff.	PC Sum	1		
1.18	E.O. item 1.17 for Contractor's overheads and profits.	%			
1.19	Provide, erect and maintain publicity signs as directed by the Engineer.	No	24		
1.20	Allow for Prime Cost Sum of Kshs. 1,000,000 for Engineer's training	PC Sum	1		
1.21	E.O. item 1.20 for Contractor's overheads and profits.	%			
	Bill No. 1 Total Carried Forward to Grand Summary				
BILL NO. 4 : SITE CLEARANCE AND TOP SOIL STRIPPING					

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<i>Note: No separate payments shall be made for gravel for blinding or hauling to spoil unsuitable excavation materials and the cost of such shall be included in the rates and prices</i>				
4.01	Clear site on road reserve including removal of all growths, bushes, hedges, trees, stumps, grub up roots, and other deleterious materials and back-fill and compact to 100% MDD(AASHTO T99) with approved material as directed by the Engineer.	Ha.	33		
4.02	Strip top soil upto 0.2m in thickness along alignment or material sites including removal of all grass and other vegetation, transport to spoil and spread or stock pile for re-use as directed by the Engineer.	m ³	64,800		
4.03	Provide KShs. 1,000,000.00 for the removal of structures and obstructions as instructed by the Engineer to be paid on dayworks basis	Prov. Sum	1		
Bill No. 4 Total Carried Forward to Grand Summary					
BILL NO. 5 : EARTHWORKS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<i>Note: No separate payments shall be made for gravel for blinding or hauling to spoil unsuitable excavation materials and the cost of such shall be included in the rates and prices</i>				
5.01	Fill in soft material including benching of shoulders and embankments and compaction to 95% MDD (AASHTO T99) in layers not exceeding 150mm	m ³	84,000		
5.02	Extra Over Item 5.01 for compaction of the top 300 subgrade to 100% MDD.	m ³	50,400		
5.03	Ditto item 5.01 but in hard material	m ³	48,000		
5.04	Cut to spoil in soft material	m ³	84,000		
5.05	Ditto item 5.04 but in hard material	m ³	10,000		
5.06	Provide improved subgrade material as instructed by the Engineer and compaction to 100% MDD (AASHTO T99)	m ³	44,100		
5.07	Compaction of top 300mm below formation level in cuts to 100% MDD.(AASHTO T99)	m ³	25,000		
5.08	Compaction of 150mm original ground below fills to 95% MDD.(AASHTO T99)	m ³	13,000		
5.09	Top-soiling prior to planting grass as directed by the Engineer	m ²	47,000		
5.10	Grassing as directed by the Engineer	m ²	47,000		
Bill No. 5 Total Carried Forward to Grand Summary					
BILL NO. 7 : EXCAVATION AND FILLING OF STRUCTURES					

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<i>Note: No separate payments shall be made for gravel for blinding or hauling to spoil unsuitable excavation materials and the cost of such shall be included in the rates and prices</i>				
7.01	Excavate to spoil in soft materials.	m ³	9,900		
7.02	As item 7.01 but in hard material.	m ³	990		
7.03	Provide,place and compact rockfill below and around structures.	m ³	10,000		
7.04	Provide and place 150mm thick stone pitching as directed by the Engineer including cement grouting	m ²	17,000		
7.05	Excavate for gabions in soft material.	m ³	240		
7.06	Provide and place gabion boxes and mattresses where directed by the Engineer.	m ²	1,100		
7.07	Rockfill to gabions	m ³	200		
7.08	Filter fabric behind gabion boxes and structures	m ²	200		
7.09	Provide and backfill approved material around new structures, compact 100% MDD (AASHTO T99) in layers not exceeding 150mm.	m ³	2,000		
7.10	Allow for protection of structures pursuant to Section 708 of the specifications	LS	1		
	Bill No. 7 Total Carried Forward to Grand Summary				
BILL NO. 8. CULVERTS AND DRAINAGE WORKS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<i>Note: No separate payments shall be made for gravel for blinding or hauling to spoil unsuitable excavation materials and the cost of such shall be included in the rates and prices</i>				
8.01	Excavate for inlet,outfall,mitre and catch water drains in soft material	m ³	3,000		
8.02	As per item 8.01, but for hard material	m ³	300		
8.03	Excavation in soft material for pipe culverts,headwalls, wingwalls, apron,toewalls,and drop inlets and compact as directed by the Engineer	m ³	500		
8.04	As per item 8.03, but for hard material	m ³	50		
8.05	Provide,lay and joint 600mm dia. concrete pipes (precast to BS 5911 Parts 1 & 3) for access roads	m	2,300		
8.06	As for item 8.05 but 900mm dia concrete pipes (precast to BS 5911 parts 1 & 3) for cross culverts	m	180		
8.07	As for item 8.05 but 1200mm dia concrete pipes (precast to BS 5911 parts 1 & 3)for cross culverts	m	20		
8.08	Provide and place class 15/20 concrete to beds, surround and haunches	m ³	1,480		
8.09	Provide, place and compact class 25(20) concrete for headwalls, wingwalls, aprons, and toewalls to access and cross pipe culverts including all form	m ³	1,000		

Issue Date 12th June, 2025

	work and the provision and placing of reinforcement as shown in the drawings				
8.10	Provide and place invert block drains with two course side slabs	m	1,850		
8.11	Construct in concrete class 15(20) side drains scour checks as instructed	m ³	50		
8.14	Remove existing pipe culverts of any diameter either for re-use or to be discarded as directed by the Engineer	m	500		
Bill No. 8 Total Carried Forward to Grand Summary					
BILL NO. 9: PASSAGE OF TRAFFIC					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	NOTE: Notwithstanding the provision of Section 9 of the Standard Specification, no extra payments shall be due as all costs shall be deemed to be included in the rates inserted herein				
9.01	Construct and maintain diversions in maximum lengths of 5km sections as directed by the Engineer, including 150mm wearing course gravel all signage, lighting and barriers	Km	27		
9.02	Grade, water and compact existing road; provide, spread, water and compact gravel as directed by the Engineer for maintenance ahead of works.	Km	81		
9.03	Allow for the passage of traffic through and around the works	LS	1		
Bill No. 9 Total Carried Forward to Grand Summary					
BILL NO. 10: GRADING AND GRAVELLING WORKS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<i>Note: No separate payments shall be made for gravel for blinding or hauling and the cost of such shall be included in the rates and prices</i>				
10.01	Provide gravel wearing course, spread and compact to a finished thickness of 150mm to at least 95% M.D.D (AASHTO T-180) and shape to level and tolerance.	m ³	23,400		
Bill No. 10 Total Carried Forward to Grand Summary					
BILL NO. 12: NATURAL MATERIAL BASE AND SUBBASE					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<i>Note: No separate payment shall be made for the overhaul material. The cost of such shall be included in the rates and/or prices</i>				

Issue Date 12th June, 2025

12.01	Provide, Lay, spread and compact Soft Stone or Gravel for Sub-base as per Drawings and Specifications	m ³	24,150		
BILL NO. 13 : GRADED CRUSHED STONES AND HAND PACKED STONES FOR SUBBASE AND BASE					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
13.02	Provide, Lay, spread and compact Graded Crushed Stone for base as per Drawings and Specifications	m ³	21,735		
13.03	Provide, hand pack stones, apply granular material and compact the layer to refusal as directed by the Engineer. The excess granular material shall be thoroughly swept.	m ³	0		
Bill No. 13 Total Carried Forward to Grand Summary					
BILL NO. 14 : CEMENT OR LIME TREATED SUBBASE AND BASE					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
14.02	Provide and spread Cement as an improvement agent for sub-base and base layers	Tonne	2,500		
14.03	Mix and process GCS, natural material with improvement agent for pavement layers as instructed by the Engineer or as specified	m ³	57,000		
14.04	Protection and curing of cement treated base and sub-base layers	m ²	409,500		
Bill No. 14 Total Carried Forward to Grand Summary					
BILL NO. 15: BITUMINOUS SURFACE TREATMENT & SURFACE DRESSING TO SHOULDERS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
15.01	Prepare surface of carriageway and shoulders, provide, heat and spray MC 30 cutback bitumen prime coat at 0.8-1.2 Litres/m ² .	Litres	148,000		
15.08	Provide & spray K1-60 as tack coat on carriageway, shoulders and on rumble strips at a rate of 0.5-0.8 l/m ²	Litres	89,600		
Bill No. 15 Total Carried Forward to Grand Summary					
BILL NO. 16: BITUMINOUS MIXES					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
16.01	Provide, place and compact Asphalt Concrete Type II to a thickness of 35 mm on carriageway and bus bays as directed by the Engineer at Bitumen Content of 5.5 - 7.0% by weight of total mix.	m ³	4,508		
Bill No. 16 Total Carried Forward to Grand Summary					
BILL NO. 20: ROAD FURNITURE					

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
20.01	Provide Road Reserve Boundary posts	No.	216		
20.02	Excavate for, provide & place 250 x 125mm precast concrete raised or ramped kerbs haunched in 100mm thick class 15/20 concrete base bedding and mortar joined in support to carriageway, busbays and junctions as directed by the Engineer.				
	a) Straight kerbs	m	3,000		
	b) Kerbs radius 12m - 6m	m	500		
	c) Ditto but radius 5m - 1m	m	300		
20.03	As 20.02 but for flush kerbs 100 x 125mm	m	3,000		
20.04	Provide and erect permanent road signs where instructed by the Resident Engineer and in accordance with Special Specifications Clause 2004 as follows:				
	a) warning signs	No.	20		
	b) Priority prohibitory and mandatory signs	No.	20		
	c) Standard informatory signs	No.	20		
	d) Non standard informatory signs area				
	i) Less than 1.0m ²	No.	5		
	ii) More than 1.0m ² but less than 5m ²	No.	5		
20.05	Provide, deliver, paint and mark the road as specified or as directed by the Engineer, with white reflectorized thermoplastic paint from an approved supplier.	m ²	3,080		
20.06	As item 20.05 but for yellow reflectorized thermoplastic paint	m ²	1,540		
20.07	Provide and erect concrete posts for guardrails complete with spacers (size and interval) as per specifications or as directed by the Engineer	No.	100		
20.08	Provide and erect flex-beam guardrails complete with connections as shown on the drawings or as directed by the Engineer	m	100		
20.09	Provide Edge marker posts	No.	20		
20.10	Provide kilometre marker posts as directed by the Engineer	No.	54		
Bill No. 20 Total Carried Forward to Grand Summary					
BILL NO. 22: SCHEDULE OF DAYWORKS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<u>PLANT</u>				
	<i>The rates inserted herein are to include all operational and Maintenance costs, fuel, oil, grease, drivers/operators wages, supervision, overheads and profit. Only time actually employed upon the work will be paid for and the rates should include for idle time, travelling time</i>				

	<i>and overtime, In accordance with clause 2202 (a) of the specifications. Note: All items of plant must be priced.</i>				
22.01	Crawler dozers with hydraulic attachments to include ripper				
	a) Up to 135 kw rated flywheel power	hrs	10		
	b) Over 135 kw rated flywheel power	hrs	4		
22.02	Motor Grader				
	a) Up to 110kw rated flywheel power	hrs	5		
	b) Over 110kw rated flywheel power	hrs	5		
22.03	Vibratory Roller				
	a) 6.5 - 8.81 tonne un-ballasted weight	hr	5		
	b) Over 8.91 tonne un-ballasted weight	hr	5		
22.04	Hand propelled vibrating roller 650 - 1300kg	hrs	5		
22.05	Cat 950G wheel loader or equivalent	hrs	5		
22.06	10 Tonne tipper lorry	hrs	5		
22.07	Small dumpers, 750-1000kg rated payload	hrs	5		
22.08	Dual purpose hydraulic excavator with backhoe/loader and a rated bucket capacity of upto 1m ³ .	hrs	5		
22.09	Articulated wheel loader with 1.5-2.0m ³ SAE rated bucket capacity	hrs	5		
22.10	50mm delivery water pump and motor	hrs	5		
22.11	Self propelled water tanker 4,500ls min. capacity with pick-up pump	hrs	5		
22.12	Concrete Mixer of 100 - 150litres	hrs	5		
22.13	Concrete poker vibrator	hrs	5		
	<u>LABOUR</u>				
	<i>The rates inserted herein are to include all costs of labour such as insurance, accomodation, travelling time, over-time, use and maintenance of small tools of trade. Only the actual time engaged upon the work will be paid for supervision, overheads and Profit.</i>				
22.14	Unskilled Labour	hrs	10		
22.15	Artisans	hrs	10		
22.16	Office attendants and chainmen	hrs	10		
22.17	Watchmen (all round surveillance)	hrs	10		
	TOTAL CARRIED FORWARD TO THE NEXT PAGE				-
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	TOTAL BROUGHT FORWARD				
	<u>MATERIALS</u>				
	<i>All materials are to comply with the Specification. The rates</i>				
	<i>inserted herein are to include for delivery to the site, storage,</i>				
	<i>handling, overheads and profit</i>				
22.18	Ordinary Portland Cement 42.5 N	Ton	1		

Issue Date 12th June, 2025

22.19	Hydrated Lime	Ton	1		
22.20	Mild Steel(any diameter)	Ton	1		
22.21	High Yield Steel (any diameter)	Ton	1		
22.22	Fine Aggregate for Concrete	m ³	1		
22.23	Coarse Aggregate for Concrete	m ³	5		
22.24	Wrot Shuttering Timber	m ²	5		
22.25	Rough shuttering timber.	m ²	5		
22.26	Bitumen Emulsion KI-60.	Litre	5		
22.27	Straight run bitumen Grade 80/100.	Litre	5		
22.28	Kerosene	Litre	5		
22.29	14/20 mm nominal size surface precoated chippings	m ³	5		
22.30	6/10mm nominal size surface precoated chippings	m ³	5		
22.31	AC Type I Ex-plant	m ³	5		
22.32	AC Type II Ex-plant	m ³	5		
22.33	Dense Bitumen Macadam	m ³	5		
	Bill No. 22 Total Carried Forward to Grand Summary				

BILL NO. 25: ENVIRONMENTAL, HIV/AIDS, AND COVID-19 MITIGATION MEASURES

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
25.01	Allow for a prime cost sum for of KShs 2,000,000 (Two Million) for ESIA study, report, and environmental monitoring.	PC sum	1		
25.02	E.O for Item 25.01 for Contractor's Oveheads and Profit	Item			
25.03	Allow for engagement of a HIV/AIDS and COVID-19 specialist sub contractor to deal with prevention and awareness activities as per programme to be approved by the Engineer	Months	36		
25.04	Provide male and female condoms to workers and staff for the duration of the contract	No.	10,000		
25.05	Allow for preparation and submmision of monthly reports on HIV/AIDS and COVID-19 awareness and prevention activities. Report to be tabled at site meetings.	Months	36		
25.06	Provide, Install and maintain HIV/AIDS and COVID-19 awareness bill boards with approved message and graphics with maximum area 4m ² fabricated as per specifications of permanent informatory sign boards	No.	4		
25.07	Allow for video shows on HIV/AIDS and COVID-19 related awareness and prevention matters every 3 months	Quartely	12		
25.08	Provide HIV/AIDS and COVID-19 awareness material as follows:				
	a) T-Shirt printed with approved message and graphics	No.	90		
	b) Ditto (a) above but caps	No.	90		
	c) A1 size weather proved posters	No.	90		
	d) A3 size weather proved posters	No.	90		

Issue Date 12th June, 2025

	e) 200x150mm stickers with HIV/AIDS and COVID-19 awareness/prevention slogan	No.	90		
	f) Key rings with HIV/AIDS and COVID-19 awareness/prevention slogan	No.	90		
	g) Ball point pens with HIV/AIDS and COVID-19 awareness prevention slogan.	No.	90		
25.09	Provide and maintain handwashing points at strategic locations as directed by the Engineer throughout the construction period.	No.	20		
25.10	Provide and maintain hand sanitizing points at strategic locations as directed by the Engineer throughout the construction period.	No.	20		
25.11	Provide face masks as specified or as shall be directed by the Engineer.	No.	5,000		
Bill No. 25 Total Carried Forward to Grand Summary					
BILL No. 26: LAND ACQUISITION, AXLE LOAD CONTROL, AND RELOCATION OF SERVICES					
Item	Description	Unit	Quantity	Rate	Amount
26.03	Allow a Prime Cost Sum of KShs. 5,000,000.00 for relocation of services as instructed or directed by the Engineer.	PC Sum	1		
26.04	E.O. item 26.03 for Contractor's overheads and profits.	%			
Bill No. 26 Total Carried Forward to Grand Summary					

GRAND SUMMARY OF BILL OF QUANTITIES UPGRADING TO BITUMEN STANDARDS OF KARANJEE LOOP ROADS, ACCESS TO LIMURU GIRLS & LIMURU (JNCT EQUITY), ACCESS LOOP TO ST. PAUL'S PRIMARY SCHOOL / MARAMBA TEA FACTORY - KAMWAKI/BATA LOOP - MURENGETI & ACCESS ROADS		
BILL ITEM	DESCRIPTION	AMOUNT(KShs)
1	Preliminaries and General Items	
4	Site Clearance and Top Soil Stripping	
5	Earth Works	
7	Excavation and Filling of Structures	
8	Culverts and Drainage Works	
9	Passage to Traffic	
10	Grading and Gravelling Works	
13	Graded Crushed Stone and Handpacked Stone for Subbase and Base	
14	Cement or Lime Treated Subbase and Base	
15	Bituminous Surface Treatment and Surface Dressing	
16	Bituminous Mixes	
20	Road Furniture	
22	Schedule of Dayworks.	
25	HIV/AIDS, Gender & Social Issues, Local Participation	
26	Relocation of Services and Land Acquisition	
(A)	SUB-TOTAL (1)	
(B)	Add 15% VARIATION OF PRICE of sub total (1)	
(C)	Add 5% CONTINGENCIES of sub total (1)	
(D)	SUB-TOTAL (2) = (A + B + C)	
(E)	Add 0.03% For PPCBL of sub total (2)	
(F)	Add ...16% VAT of sub-total (2)	
TOTAL CARRIED FORWARD AS BID SUM 1: (D + E + F)		

APPENDIX A					
APPENDIX TO BILL ITEM 1.05:					
PROVIDE AND MAINTAIN FURNITURE AND EQUIPMENT FOR THE ENGINEER'S LABORATORY					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	1. FURNITURE				
A104/1.01	Desk 2.2x0.9 m with chair and lockup drawers	No	2		
A104/1.02	Desk chair (standard)	No	15		
A104/1.03	Stationery cupboard, 1.2 m ³ , lockable	No	2		
A104/1.04	Steel filing cabinet, 4 drawers, lockable	No	2		
A104/1.05	Steel filing cabinet, 2 drawers, lockable	No	2		
A104/1.06	Bookshelf, 3 shelves 1.2 m long (to hold box files)	No	2		
A104/1.07	Table - 6 m ²	No	2		
A104/1.08	Two Plate electric heater	No	1		
A104/1.09	Fire extinguisher, 10 litre capacity, CO ₂ type	No	4		
A104/1.10	Complete first aid kit	No	2		
	EQUIPMENT				
	<i>(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) Standard)</i>				
	2. General Equipment				
A104/2.02	2.49kg. Compaction hammer, drop regulated to 304.8mm	No	2		
A104/2.03	4.535kg compaction hammer drop regulated to 457.2mm	No	2		
A104/2.04	Electric vibrating Kango Hammer fitted with steel tamper(BS 1377) with support frame	No	1		
A104/2.05	Straight edge 300 mm long with handles	No	4		
A104/2.06	Steel Tamper (BS1377) compatible with Kango hammer	No	3		
A104/2.07	Compaction mould 152.4 mm. dia x 116.43 mm complete with base plate and extension collar, 101.6 mm	No	2		
A104/2.08	Galvanized metal tray 1m x 0.5m x 75 mm deep	No	4		
A104/2.09	75mm brush	No	2		
A104/2.10	Semi-automatic balance, 25kg Capacity accurate to 1g, including weights	No	1		
A104/2.11	20mm BS Sieve, 300mm diameter	No	1		
A104/2.12	Stop Clock	No	2		
A104/2.13	Thermostatically controlled electric oven 105-110°C, capacity 0.225 m ³	No	2		
A104/2.14	As above but gas heated	No	1		
A104/2.15	Moisture content tins, 75 mm dia, Cadmium or aluminium plated	No	60		
A104/2.16	Cone penetrometer with gauge and automatically controlled test cup	No	2		

C/Forward to next page					
B/Forward From previous page					
	3. Density (Sand replacement method BS 1377)				
A104/3.01	Metal containers 450mm diameter	No	2		
A104/3.02	Stainless steel tray 305mm diameter	No	2		
A104/3.03	Metal tray with 150 mm diameter hole in the centre, 300mmx300 mm square or equivalent area, 40mm deep	No	2		
A104/3.04	Metal tray with 200mm diameter hole in the centre, 500mm x 500 mm square , 50 mm deep	No	2		
A104/3.05	Steel pegs for fixing tray in position	No	15		
A104/3.06	Sand pouring cylinder, 150 mm diameter	No	2		
A104/3.07	Sand pouring cylinder, 215 mm diameter	No	2		
A104/3.08	Cold steel chisel 20mm x 300mmm	No	4		
A104/3.09	Cold steel chisel 10mm x 250mmm	No	4		
A104/3.10	1.5kg, 3.5kg hammers and 1kg rubber mallet	Set	1		
A104/3.11	Scoop for removing excavated material from hole, 250 mm long handle	No	6		
A104/3.12	100mm brush, soft	No	3		
A104/3.13	50mm brush, soft	No	3		
A104/3.14	Primus gas stove	No	1		
A104/3.15	Calibrating can 150 mm diameter x 150 mm deep	No	3		
A104/3.16	Ditto but 200 mm diameter x 250 mm deep	No	3		
	4. Density (Nuclear Density method AASHTO T238)				
A104/4.01	Nuclear density gauge (Troxler 3411B or similar approved) complete with 3 no. hole forming device and 3 no. guide	No	1		
	5. CBR (AASHTO T193)				
A104/5.01	CBR mould, 152.4 mm dia x 178 mm high, complete with perforated base plate and extension collar 50.8 mm high that can be fitted to either side of mould	No	50		
A104/5.02	Perforated swell plate 150 mm dia with an adjustable centre post of rust proof metal provided with a lock-nut	No	40		
A104/5.03	2.25 kg split surcharge weight	No	2		
A104/5.04	Set of annular surcharge weights	No	1		
A104/5.05	Solid base plate for CBR mould	No	2		
A104/5.06	Static compaction displacer discs 1 No x 61.4 mm, 1 No x 50.8 mm and 2 No x 38.8 mm thick with handles	set	1		
A104/5.07	Disk lifting handle	No	2		
A104/5.08	Central extruder, complete with 20kN hydraulic jack and accessories	No	1		
C/Forward to next page					
B/Forward From previous page					
A104/5.09	Automatic CBR Proctor Compaction press, 50 tonnes capacity with an	No	1		

	adjustable distance between platens of 530mm-250mm, rammer weights and automatic count selector				
A104/5.10	Set of guards for above press.	No	1		
A104/5.11	50 kN CBR Load frame complete with stabilising bar (electric and hand operated) including proving rings for 10KN, 28KN and 50KN, piston and bracket	No	1		
A104/5.12	Penetration gauge range 0 - 25mm	No	2		
A104/5.13	CBR piston including bracket	No	2		
A104/5.14	Swell measurement tripod complete with guage calibrated in 0.01 mm divisions	No	2		
A104/5.15	Soaking tank for CBR mould sufficient for 50 moulds	No	1		
	6. Relative Density of Aggregates (BS 812)				
A104/6.01	Wire mesh basket with apertures not greater than 6.5 mm large enough to contain 2.5 kg of aggregate	No	2		
A104/6.02	A stout watertight container in which the basket can be freely suspended	No	2		
A104/6.03	Soft absorbent cloth (tea towel)	No	10		
A104/6.04	Shallow tray of area not less than 0.065 m ²	No	2		
A104/6.05	An airtight container of similar capacity to the basket	No	2		
A104/6.06	Pycnometer of 1 litre capacity	No	4		
A104/6.07	Semi automatic 5 kg 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		
A104/6.08	Hot air drier (electric)	No	2		
	7. Flakiness (BS 812)				
A104/7.01	Thickness gauge (various sizes)	No	2		
	8. Sieve Analysis (BS 1377)				
A104/8.01	BS Sieve 300mm diameter in sizes 75, 63, 50, 37.5, 28, 20, 14, 10, 6.3, 5 and 4 mm, plus lid and receiver	Set	2		
A104/8.02	BS Sieve 200mm diameter in sizes 2, 1, 0.6, 0.5, 0.425, 0.300, 0.150 and 0.075 mm, plus lid and receiver	Set	2		
A104/8.03	Electric sieve shaker	No	1		
A104/8.04	BS sieve 200mm diameter 0.425 and 0.075 mm	set	1		
A104/8.05	1 m x 1 m x 75mm deep galvanized metal tray	No	10		
A104/8.06	Riffle box with 50mm slots (BS 1377)	No	1		
C/Forward to next page					
B/Forward From previous page					
	9. Miscellaneous Equipment				
A104/9.01	Wheel barrow	No	3		
A104/9.02	Dustpan and brush	No	3		

A104/9.03	Shovel	No	4		
A104/9.04	Pick axe with handle	No	4		
A104/9.05	Metal scoop, large (150mm wide)	No	3		
A104/9.06	Metal scoop, medium (100mm wide)	No	4		
A104/9.07	Garden trowel	No	2		
A104/9.08	Steel tray 0.3m x 0.3m x 0.01m deep	No	15		
A104/9.09	Palette knife 200mm long blade	No	3		
A104/9.10	Palette knife 100mm long blade	No	4		
A104/9.11	BS sieve 450mm diameter, 37.5mm	No	1		
A104/9.12	BS sieve 450mm diameter, 20mm	No	1		
A104/9.13	BS sieve 450mm diameter, 5mm	No	1		
A104/9.14	BS sieve 450mm diameter, 0.425mm	No	1		
A104/9.15	BS sieve 450mm diameter, 0.3mm	No	1		
A104/9.16	BS sieve 450mm diameter, 0.075mm	No	1		
A104/9.17	Set of lid and receiver for metal scoop and steel trays	No	2		
A104/9.18	BS Sieve brush	No	2		
A104/9.19	Measuring cylinder set, 25 ml, 100 ml, 500 ml, 1000 ml, 2000 ml	set	2		
A104/9.20	Glass jar capacity 5 litres with lid	No	10		
A104/9.21	200mm x 200mm x 20mm cadmium plated or aluminium tin	No	20		
A104/9.22	Electronic balance capacity 1000 g, accurate to 0.01gm.	No	1		
A104/9.23	Balance 2000 g capacity accuracy to 0.1g (manual), including weights	No	1		
A104/9.24	Balance 50kg capacity accurate to 10gm including weights	No	1		
A104/9.25	Still for producing distilled water	No	1		
A104/9.26	Polythene or glass 20 litres storage vessel with tap at bottom	No	2		
A104/9.27	Stiff broom	No	2		
A104/9.28	Vernier calipers, 150mm	No	2		
A104/9.29	Vernier calipers, 250mm	No	2		
C/Forward to next page					
B/Forward From previous page					
A104/9.30	Pestle and mortar	No	2		
A104/9.31	Linear shrinkage mould (BS 1377)	No	6		
A104/9.32	Liquid Limit Device	No	2		
A104/9.33	Average least dimension gauge	No	2		
A104/9.34	Lockable tool box containing: 1 pr"Molegrips", 2 x 150mm screwdriver, 2 x 200 mm screwdriver, 2 x 300 mm screwdriver,(1 standard and 1 Phillips head of each) adjustable spanners 200 mm and 300 mm, 1 pair round nosed pliers, 1 pair general purpose pliers,	No	1		
A104/9.35	Plastic or metal bucket including lid,10 litres capacity	No	6		
A104/9.36	Polythene wash bottle (500 ml)	No	5		
A104/9.37	A4 size clipboard	No	4		
A104/9.38	Thermometer, range -10°C to150°C, glass (BS 593)	No	2		

A104/9.39	Laboratory thermometer, range + 0°C to + 250°C (BS 593)	No	2		
A104/9.40	Maximum and minimum thermometer (BS692)	No	2		
A104/9.41	Rain gauge	No	1		
A104/9.42	Portable dial thermometer + 50°C to +250°C accurate to $\pm 3\%$	No	1		
A104/9.43	Ditto with 0.75m long stem	No	1		
A104/9.44	Pocket thermometer + 50°C to +250°C accurate to $\pm 3\%$ with 0.1 m stem	No	2		
A104/9.45	5 litre capacity steel storage containers with leak and dust proof lids for storage of bitumen samples	No	50		
A104/9.46	Hotplate 200mm diameter with Simmerstat heat control unit.	No	2		
A104/9.47	450mm diameter x 150mm deep metal mason's basin	No	6		
	10. Standard Specifications (<i>Copies of each of the latest editions of the following Standards</i>)				
A104/10.01	BS 598	No	1		
A104/10.02	BS 812	No	1		
A104/10.03	BS 882	No	1		
A104/10.04	BS 1377	No	1		
A104/10.05	BS 1881	No	1		
A104/10.06	BS 1924	No	1		
A104/10.07	Standard Specifications for Transportation Material and Methods of Sampling and Testing (AASHTO) Parts I and II, 14th Edition	Set	1		
A104/10.08	ASTM D1559	No	1		
A104/10.09	Asphalt Institute, Superpave Manual Series No.2(SP-2)	No	1		
A104/10.10	Overseas Road Note 19	No	1		
A104/10.11	BS 5911 Part 1 &3	No	1		
C/Forward to next page					
B/Forward From previous page					
	11. Concrete: Slump and Cube Manufacture (BS 1881)				
A104/10.12	BS 4449	No	1		
A104/11.01	Slump cone, tamping rod and base	set	2		
A104/11.02	Concrete cube mould, 150mm cube	No	30		
A104/11.03	Soaking tank for cubes (capacity 50 No.)	No	1		
A104/11.04	Cube tamping bars	No	10		
	12. Concrete: Cube Compression Testing				
A104/12.01	Concrete compression machine to BS1610 Grade A with 300 mm gauge, rectangular platens, capacity 1560 kN with load spacer	No	1		
A104/12.02	Safety guard for above				
A104/12.03	50mm distance piece				
A104/12.04	70mm distance piece				

A104/12.05	Electro-mechanical load pacer, 100 mm or equivalent distance piece				
	13. Aggregate and Chippings				
A104/13.01	Sand equivalent to AASHTO T176 including graduated plastic cylinder, rubber stopper, irrigation tube weighted foot assembly, siphon assembly, 85ml tin box (57mm dia.), 100 mm dia wide mouth funnel, stop clock, mechanical shaker and 10 litre jar	Set	1		
A104/13.02	Beaker 250ml	No	2		
A104/13.03	Aggregate Crushing Value Apparatus, 150 mm nominal diameter , including plunger and base plate	No	2		
A104/13.04	Tamping rod and metal measure for above	Set	4		
A104/13.05	Los Angeles Abrasion to ASTM standards	No	1		
A104/13.06	Set of 12 abrasive charges	No	2		
A104/13.07	Thermometer, 0°C to +50°C	No	2		
A104/13.08	Thermometer, 0°C to +250°C	No	2		
A104/13.09	Reagent grade Silica gel, 500g container	No	50		
	14. Bitumen Spray Test (BS 1707)				
A104/14.1	Transverse distribution of spray test bitumen distributor (depot tray test to BS 1707) or equivalent.	Set	1		
A104/14.02	Steel tray 20 mm deep x0.1m ² (for measuring bitumen spray rates) with purpose made detachable handle 1.5m long.	No.	4		
C/Forward to next page					
B/Forward From previous page					
	16. Bitumen Extraction Test				
	A) Extractor Bottle Method BS 598 Part 2				
A104/16.01	Electronic top pan balance 4kg capacity, sensitive to 0.1gm	No	1		
A104/16.02	Flat bottomed scoop	No	3		
A104/16.03	Steel garden trowel	No	2		
A104/16.04	Large steel spoon	No	2		
A104/16.05	Heat resistant gloves	pair	10		
A104/16.06	Foot pump for pressurising air water assemblies up to a maximum of 700KN/m ² and fitted with flexible hose approximately 1.2m long and connector	No	2		
A104/16.07	Steel bottle 600ml capacity with 49mm rubber stopper	No	2		
A104/16.08	Steel bottle 2500ml capacity with 71mm rubber stopper	No	2		
A104/16.09	Steel bottle 7000ml capacity with 71mm rubber stopper	No	2		
A104/16.10	Flask funnel for fitting to the 700ml steel bottle with rim of funnel retaining sieve 200mm nominal diameter	No	2		

A104/16.11	Bottle roller compact bench mounted unit designed to rotate 2 bottles simultaneously about longitudinal axis	No	1		
A104/16.12	Pressure filter complete with cutting tool for making hole in the filter paper	No	1		
A104/16.13	Filter funnel to take 200mm nominal diameter sieves	No	2		
A104/16.14	Centrifuge complying with BS 598	No	1		
A104/16.15	Binder recovery	No	1		
A104/16.16	Volumetric flask 250ml, 500ml, 1000ml and 2000ml capacity	set	2		
A104/16.17	Recovery still for Dichloromethane	No	1		
	B) Hot Extractor Method BS 598 Part 2				
A104/16.18	Hot extractor complete with wire gauze container gasket, cork lid and support assembly	No	2		
A104/16.19	Dean and Stark receiver with condenser to suite Trichloroethylene				
A104/16.20	Gyratory compactor ELE Servo Pac or equivalent with 1 x 100mm and 1 x 150mm moulds	No	1		
A104/16.21	PRD Vibrating hammer compactor complete with 6 moulds, 7 base plates from ELE	No	1		
A104/16.22	Two (2) sets of Tamping foot 102mm diameter and 146mm diameter and shanks to fit the supplied vibratory hammer				
C/Forward to next page					
B/Forward From previous page					
	17. Consumables				
A104/17.01	Paraffin wax	Kg	50		
A104/17.02	Gas	Kg	1600		
A104/17.03	Gunny sack	No	500		
A104/17.04	Plastic bag 900x450x1000 gauge	No	500		
A104/17.05	Plastic bag 450x300x1000 gauge	No	500		
A104/17.06	Filter paper 150mm diameter Whatman No. 5 (Boxes of 100)	No	20		
A104/17.07	Filter paper 400mm diameter Whatman No. 5 (Boxes of 100)	No	20		
A104/17.08	Filter paper 100mm diameter Whatman No. 5 (Boxes of 100)	No	20		
A104/17.09	Filter paper 400mm diameter Whatman No. 54 (Boxes of 100)	No	10		
A104/17.10	Filter paper 270mm diameter with 33 diameter hole at centre Whatman No. 5 (Boxes of 100)	No	15		
A104/17.11	Trichloroethylene (205 Litre Drum)	No	2		
A104/17.12	Dichloromethane	kg	0		
A104/17.13	Cotton waste	kg	50		
A104/17.14	Gas cylinders compatible with supplied stoves	No	10		
A104/17.15	Sodium sulphate	kg	45		

Issue Date 12th June, 2025

A104/17.16	Sand for density test	kg	250		
C/Forward to item 1.05					

APPENDIX B					
APPENDIX TO BILL ITEM 1.06A: PROVIDE, FURNISH AND MAINTAIN THE R.E.'S OFFICE					
DESCRIPTION		UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	1. ENGINEER'S MAIN OFFICE AND FURNITURE				
1	Executive desk 2.2x0.9 m with six lockup drawers	No	2		
2	Desk 2.2x0.9 m with chair and three lockup drawers	No	4		
3	Office tables	No	3		
4	Executive Swivel orthopeadic chair adjustable height	No	2		
5	Standard office chairs	No	8		
6	Bench 3m long with cushioned backrest (located as directed)	No	1		
7	Typist's desk	No	1		
8	Typist's chair	No	3		
9	Lockable steel stationery cupboard, 1.2 m ³ , lockable	No	4		
10	Medium size steel filing cabinet, 4 drawers lockable	No	4		
11	Medium size steel filing cabinet, 2 lockable drawers lockable	No	3		
12	Bookshelf, 1.5 m wide 3 shelves (for box files) sliding glass door	No	3		
13	Conference table with 12 chairs	No	1		
14	Waste paper basket	No.	5		
15	Curtains for office and laboratory -for all windows and doors	Set	2		
16	Ordinary 2 hole paper punch	No	2		
17	Heavy duty 2 hole paper punch	No	2		
18	Set of full divided scale (metric 1/1000, 1/2500, 1/500, 1/2000, 1/1250, 1/1500)	No	1		
19	Computer meeting the following specifications or equivalent: Personal computer with 20" screen full multimedia, 1000GB hard disk, 12.0GB RAM, Core i7 processor, complete with all accessories preloaded with latest versions of windows OS, MS Office, Professional and MS Project	No	2		
20	Autocad Civil 3D 2012 and Licences for above computers	No	2		
21	As A103/2.11 but with 15" screen	No	4		
22	Laptop PC with Intel Core i7-350M Processor 15.4" screen, 12GB DDR3 RAM 1000GB 8xDVD+/-RW or simillar approved with Microsoft Windows professional	No	1		
23	Latest HP (A4) Laser Printer with accessories	No	3		
24	Latest HP (A3) Laser Printer with accessories	No	1		
25	UPS 600 VA	No	6		
26	wall clocks, battery powered min size 350mm x 350mm	No	2		
27	Safe for cash and valuables min.size approx. 0.8mx0.5mx0.4m to be concreted in place (wall/floor mounted) complete with lock and keys	No	1		
28	First Aid Kit	No	4		
C/Forward to next page					
B/Forward From previous page					
29	Fire Extinguisher	No	4		

Issue Date 12th June, 2025

30	Filing Tray - set of 3no.	set	10		
31	Refrigerator minimum capacity 0.2 m ³	No	1		
32	Drinking water dispenser, hot/cold	No	1		
33	Table - 0.8 m ² surface area	No	1		
34	Cupboard, 0.15 m ³ , lockable	No	1		
35	Cooker 4 plate electric cooker with oven and grill	No	1		
36	A3 Photocopier (approved make), with feeder sorting trays, scanner and print capability	No	1		
37	Reams of A4 photocopying paper	No	100		
38	Reams of A3 photocopying paper	No	20		
39	Electronic scientific calculator, Casio fx 992s or equivalent approved	No	6		
40	Stapling machine Ofrex size 50 or similar with 5000 staples	No	6		
41	Heavy duty punch and spiral binder, IBICO AG or similar approved	No	2		
42	Inkjet Plain Paper Fax Machine with 4MB of memory	No	1		
43	Pencil sharpener (desk mounted type)	No	6		
44	Digital Camera, 20.1 Megapixel(min), 1920x1080 full HD movie recording, optical steadyShot, sweep panorama, 2.7" LCD screen, minimum 15x digital zoom, multimedia card/SD 8GB memory, 12 scene selection modes, all inclusive.	No	1		
45	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		
Total carried to Bill Item 1.06A					

APPENDIX C					
APPENDIX TO BILL ITEM 1.06B ENGINEERS'S SURVEY EQUIPMENT					
ITEM	Description	UNIT	QTY	RATE	AMOUNT (KSHS)
1.01	Digital Total Station reading to 1"accuracy (one second) with the following facilities	No.	1		
	· Inbuilt data logger				
	· Uploading/downloading software				
	· Data transfer cable				
	· Battery (2No)				
	· Battery charger				
	· Tool kit				
	· Two face keyboard				
	· User manual				
	It must have the following inbuilt survey programs as a minimum				
	· Survey				
	· Staking out				
	· Resection/intersection				
	· Traverse				
	· Cogo				
1.02	The following mandatory total station accessories must be included per Total station instrument				
	1No. Heavy duty telescopic tripod(<i>preferably wooden</i>)	No.	1		
	Telescopic plumbing prism pole complete with a prism and prism holder with target and plumbing bubble (<i>length not less than 2.15m</i>)	No.	3		
	Triple prism holder set, in a casing, comprising triple prisms, prisms holder with target, tribrach and a tribrach adaptor	No.	1		
	1No. Survey umbrella	No.	1		
	1No.Telescopic Tripod	No.	1		
1.03	Engineer's Automatic Level Wild NAK 2 or similar with a tripod and the following specifications:-	No.	2		
	· Accuracy of 0.7 mm per 1 km double run				
	· Standard magnification of: 32x				
	· Shortest focusing distance of 1.6m				
	· Compensator setting accuracy of 0.3"				
1.04	Hand held GPS with accuracy of 1 Metre	No.	1		
1.05	Set of two way radio communication with a range of 1 kilometer	set.	1		
1.06	5 M Leveling staff with leveling bubble	No.	4		
1.07	3 M Ranging Rods	No.	10		
1.08	Scientific Calculators FX 912ms or equivalent	No.	3		
1.09	30m. Linen Measuring Tape	No.	6		
1.10	1 M stainless steel straight edge	No.	1		
1.11	3 m tape measure	No.	6		
1.12	Sledge hammer 2kg weight	No.	2		

Issue Date 12th June, 2025

1.13	Mattock	No.	2		
1.14	Pangas (16’)	No.	4		
1.15	Roll of Tracing Paper	No.	1		
1.16	Graph Paper A3 Size	No.	10		
1.17	Marker Pens	No.	20		
1.18	Reflector Jackets	No.	10		
1.19	Laptop	No.	1		
1.2	Scale Rules	No.	2		
1.21	Drawing Pen (0.25mm)	No.	2		
1.22	Graph paper 1mm(roll)	No.	1		
Total carried to Bill Item 1.06B					