FRAMEWORK AGREEMENT FOR PAVEMENT MAINTENANCE AND RELATED SERVICES FOR A PERIOD ENDING OF THREE YEARS FOR KENYA AIRPORTS AUTHORITY.

TENDER No. KAA/OT/HQ/0184/2023-2024 BILL OF QUANTITIES (ADDENDUM No. 2)

BILL OF QUANTITIES OF FRAMEWORK AGREEMENT FOR PAVEMENT MAINTENANCE TERM CONTRACT SERVICES AT JKIA AND WILSON AIRPORT.

Item	Description		
		Unit	Rate for JKIA and WAP
	BILL 1: GENERAL		
1.01	Rate for mobilization/demobilization and availability during works of construction equipment for works whose duration is less than 2 days as per schedule below:		
1.01a	Asphalt Paver	Day Rate	
1.01b	Single Steel Drum Compaction Roller > or =18tonnes	Day Rate	
1.01c	Double tandem steel drum roller >/= 18 Tonnes	Day Rate	
1.01d	Sheepsfoot Roller > or = 20 Tonnes	Day Rate	
1.01e	Pneumatic Tiered Roller >/= 20 Tonnes	Day Rate	
1.01f	Bi-axial Pedestrian Roller >/= 6 Tonnes, 13.0/9.0 HP	Day Rate	
1.01g	Plate Compactor – plate size 540x420mm	Day Rate	
1.01h	Motor Grader CAT 12H or Equivalent.	Day Rate	
1.01i	Hydraulic Excavator CAT 322 or Equivalent.	Day Rate	
1.01j	Excavator with Jack hammer attachment CAT 322 or Equivalent	Day Rate	
1.01k	Back hoe Loader CAT 428 or Equivalent	Day Rate	
1.01l	Wheel Loader 4WD Articulated CAT 950 or Equivalent.	Day Rate	
1.01m	Disk concrete cutter	Day Rate	
1.01n	Air compressor	Day Rate	
1.01o	Pressure Bitumen Distributor Min 5000L	Day Rate	
1.01p	Bitumen Hand sprayer	Day Rate	
1.01q	Mechanical broom 74HP	Day Rate	
1.01r	Air Blower	Day Rate	
1.01s	Poker Vibrator 200Hz,2850 rpm	Day Rate	

Item	Description		
		Unit	Rate for JKIA and WAP
1.01t	Concrete Balloon – Rubber/Synthetic Tire-cord	Day Rate	
1.01u	Concrete Pump	Day Rate	
1.01v	Concrete mixer with 400l bucket capacity	Day Rate	
1.01w	Tipper Truck 16-25 Tonnes Gross Capacity	Day Rate	
1.01x	Water Bowser	Day Rate	
1.01y	Crane – 20Tonne capacity	Day Rate	
1.01z	Crane – 100Tonne capacity	Day Rate	
1.01aa	Drill	Day Rate	
1.01bb	High loader	Day Rate	
1.01cc	Asphalt Milling Machine	Day Rate	
1.02	Allow for provision, mobilization, demobilization and maintenance of a containerized office for the engineers site office, including lighting, drinking water, flushable toilet, sockets and internet services.	Day Rate	
1.03	Allow for provision of survey equipment and material for use by the Engineer during construction.	Day rate	
1.04	Capacity building (Kenya based) training of civil engineering staff to ensure progressive career development and adaptability to the modern technology and modes of operation in the following areas; The training must be by an institution approved by ICAO and/or KCAA such as EASA and other state regulatory bodies such as KEBS, EBK, IEK or any other relevant body meeting the description herein.		
1.04a	Tuition fee per person up to a maximum of Ksh 250,000.00 for Airport pavement design, evaluation and maintenance or any other approved course.	Rate/pax	
1.04b	Tuition fee per person up to a max of 100,000.00 as in item 1.04a above.	Rate/pax	
1.04c	Tuition fee per person up to a max of 50,000.00 as in item 1.04a above	Rate/pax	
1.04d	KAA staff Travel Cost – Economy return Air ticket to any major town within the Country (in Kshs).	Pax	

Item	Description		
		Unit	Rate for JKIA and WAP
1.04e	KAA Staff Travel Cost -Local Travel –provide van to accommodate Max 14 pax complete with fuel and driver.	Veh/day	
1.04f	KAA Staff Grade 8 –Allowances Kshs.16,800/day	Pax/Day	
1.04g	KAA Staff Grade 7- Allowance Kshs.14,000/ day	Pax/Day	
1.04h	KAA Staff Grade 6 Allowance Kshs.11,200 / day	Pax/Day	
1.04i	KAA Staff Grade 5 Allowance Kshs.11,200/day	Pax/Day	
1.04j	KAA Staff Grade 4 Allowance Ksh. 6,300 /day	Pax/Day	
1.04k	KAA Casual Allowance Ksh. 4,200 /day	Pax/Day	
1.05	Ditto as in 1.05 but International Training		
1.05a	Tuition fee per person up to a maximum of Ksh 2,000,000.00 for Airport pavement design, evaluation and maintenance or any other approved course.	Rate/pax	
1.05b	Tuition fee per person up to a maximum of Ksh 1,500,000.00 as in item 1.05a above.	Rate/pax	
1.05c	Tuition fee per person up to a maximum of Ksh 1,000,000.00 as in item 1.05a above.	Rate/pax	
1.05d	Tuition fee per person up to a maximum of Ksh 500,000.00 as in item 1.05a above.	Rate/pax	
1.05e	Tuition fee per person up to a maximum of Ksh 250,000.00 as in item 1.05a above.	Rate/pax	
1.05f	KAA staff Travel Cost inclusive of Economy return Air ticket and VISA fees to any foreign country (in USD).	Rate/pax	
1.05g	KAA staff local travel cost within the foreign country	Rate/pax/day	
1.05h	KAA Staff Grade 9 –Allowances 647 USD per day	Pax/Day	
1.05i	KAA Staff Grade 8 – Allowances 647 USD per day	Pax/Day	
1.05j	KAA Staff Grade 7- Allowance 549 USD per day	Pax/Day	
1.05k	KAA Staff Grade 6 Allowance 549 USD per day	Pax/Day	
1.05l	KAA Staff Grade 5 Allowance 549 USD per day	Pax/Day	
1.05m	KAA Staff Grade 4 Allowance 477 USD per day	Pax/Day	
1.06	Prime Cost Sum for removal and reinstatement of services.	PC Sum	500,000.00

Item	Description		
		Unit	Rate for JKIA and WAP
1.06a	Percentage of Prime Cost Sum in Item 1.06 for Contractor's overheads and profits.	%	
1.07	Engineer's site staff communication airtime Kshs. 100,000.	Rate	
1.08	Prime Cost Sum for materials testing.	PC Sum	500,000.00
1.09	Percentage of Prime Cost Sum in Item 1.08 for Contractor's overheads and profits.	%	
1.10	Provide a Total Station to the approval and exclusive use by the Engineer, complete with Prism and Tripod with an accuracy of 0.9 seconds for the duration of the Contract. The TS to be supplied with download software. Upon completion of the Contract, it shall revert to the Contractor.	Day Rate	
1.11	Allow for provision and maintenance of dumpy level survey equipment complete with staff and bubble for exclusive use by the Engineer.	Day Rate	
1.12	Prime Cost Sum for Engineer's miscellaneous account.	PC Sum	500,000.00
1.13	Percentage of Prime Cost Sum in Item 1.12 for Contractor's overheads and profits.	%	
1.14	Prime Cost Sum for off-site materials testing.	PC Sum	500,000.00
1.15	Percentage of Prime Cost Sum in Item 1.14 for Contractor's overheads and profits.	%	
1.16	Provide and erect publicity signs as directed by the engineer in accordance with the standard KAA publicity signboard specifications.	No.	
1.17	Provide, fuel and maintain with driver, comprehensively insured, new 4WD,double cabin vehicle (odometer:0-10,000km)of diesel engine capacity 2,700 - 3000cc or equivalent for the exclusive use of the engineer inclusive of the first 4000km per vehicle month in accordance with clause 138 of the standard specification.	Month	
1.18	E.O.Item 1.17 for mileage over 4,000km per vehicle month.	Km	
1.19	Provide, fuel and maintain with driver, a comprehensively insured, 4WD,station wagon vehicle (odometer:0-10,000km) of minimum diesel engine capacity 2700cc turbo charged or equivalent for the exclusive use of the	Month	

Item	Description		
		Unit	Rate for JKIA and WAP
	engineer inclusive of the first 4000km per vehicle month in accordance with clause 138 of the standard specification.		
1.20	E.O.Item 1.19 for mileage over 4,000km per vehicle month.	Km	
1.21	Provide, fuel and maintain with driver, a comprehensively insured, new 4WD,saloon vehicle (odometer:0-10,000km) of diesel engine capacity 2,700-3000cc or equivalent for the exclusive use of the engineer inclusive of the first 4000km per vehicle month in accordance with clause 138 of the standard specification.	Month	
1.22	E.O.Item 1.21 for mileage over 4,000km per vehicle month.	Km	
1.23	Prime Cost Sum for attendance to the Engineers site staff	PC Sum	500,000.00
1.24	Percentage of Prime Cost Sum in Item 1.23 for Contractor's overheads and profits.	%	
1.25	Prime Cost Sum for provision of equipment for the engineers site office.	PC Sum	500,000.00
1.26	Percentage of Prime Cost Sum in Item 1.25 for Contractor's overheads and profits.	%	
1.27	Prime cost sum for off-road environmental mitigation measures.	PC Sum	100,000.00
1.28	Percentage of Prime Cost Sum in Item 1.27 for Contractor's overheads and profits.	%	
1.29	Allow for provision of communication air to ground base radio for car mounting of range from (118 – 136) MH with frequencies selectable within the range and appropriate antenna, 2 new handheld air to ground radios of same frequencies NB: The Radios Shall be Handed over to the Client on Completion of the Project in good working condition.	Rate	
1.30	Allow for working at night on active aircraft pavements.	Item	
1.31	Allow for sampling and testing of material samples by KeBS or accredited laboratory approved by employer – a certificate shall accompany each material stating compliance with the applicable standards.	PC Sum	200,000.00

Item	Description		
		Unit	Rate for JKIA and WAP
1.32	Percentage of Prime Cost Sum in Item 1.31 for Contractor's overheads and profits.	%	
	BILL 4: SITE CLEARANCE AND TOPSOIL STRIPPING		
	No separate payment shall be made for the overhaul material out of the airport and the cost of such haulage shall be included in the rate and /or prices.		
4.01	Light Bush clearing as directed by the Engineer.	Sq.m	
4.02	Heavy bush clearing as directed by the Engineer.	Sq.m	
4.03	Clear site on road reserve including removal of trees, hedges, bushes, vegetation with approved material in accordance with the specification, and as directed by the engineer.	Ha.	
4.04	Removal of topsoil to a maximum depth of 200mm in accordance with the specification and as directed by the engineer.	Cu.m	
4.05	Hack concrete from bridge deck slab, abutments and wing walls to expose reinforcement as directed.	Cu.m	
4.06	Excavate, remove and dispose cracked pipe culverts of any size.	M	
4.07	Cutting and disposal of trees of girth 1000mm and below	No.	
4.08	Cutting and disposal of trees of girth 1000mm and above	No.	
4.09	Grass cutting to a height below 50mm or as specified.	Sq.m	
	BILL 5: EARTHWORKS.		
	No separate payment shall be made for the overhaul material into or out of the airport and the cost of such haulage shall be included in the rate and /or prices. It is the Contractor's responsibility to identify quarries, borrow pits and spoil areas.		
5.01	Fill in soft material.	Cu.m	
5.02	As in Item 5.01 but in hard material	Cu.m	
5.03	As in Item 5.01 for compaction of top 300mm in fills to 100% MDD (AASHTO T99)	Cu.m	

Item	Description		
		Unit	Rate for JKIA and WAP
5.04	Cut to spoil in soft material.	Cu.m	
5.05	As in Item 5.04 but in hard material.	Cu.m	
5.06	Compact the top 150mm layer of existing ground fills and cuts to 95% MDD (AASHTO T99)	Cu.m	
5.07	Provide place and compact to refusal Rockfill	Cu.m	
5.08	Filter fabric under, over or around rockfill.	Sq.m	
5.09	Top soiling	Sq.m	
5.10	Grassing	Sq.m	
	BILL 7: EXCAVATION AND FILLING FOR STRUCTURES		
7.01	Excavation in soft material for major structures i.e. box culverts and gabion works.	Cu.m	
7.02	As for Item 7.01 but in hard material.	Cu.m	
7.03	Provide and place macaferri or equivalent gabion boxes and mattresses as specified.	Sq.m	
7.04	Provide and place rockfill to gabions.	Cu.m	
7.05	Provide stone pitching as directed by the Engineer.	Sq.m	
7.06	E.O. Item 7.05 for cement grouting as directed by the Engineer.	Sq.m	
7.07	Provide, place and compact rockfill below structures as directed by the Engineer.	Cu.m	
7.08	Provide and place porous material behind wing walls.	Cu.m	
	BILL 8: CULVERTS AND DRAINAGE WORKS		
	No separate payment shall be made for the haulage of surplus or unsuitable excavated material out of the airport and the cost of such haulage shall be included in the rates/prices.		
8.01	Excavate, desilt, grade to shape inlets outfalls, side drains to free flow conditions including cart to spoil any excess grass debris and soils as and where directed by the Engineer.	Cu.m	
8.02	Clean culverts 450mm dia culvert to free flow conditions.	m	

Item	Description		
		Unit	Rate for JKIA and WAP
8.03	Clean culverts 600mm dia culvert to free flow conditions.	m	
8.04	Clean culverts 900mm dia culvert to free flow conditions.	m	
8.05	Clean culverts 1200mm dia culvert to free flow conditions.	m	
8.06	Clean IBD drains to free flow conditions	m	
8.07	Excavate in soft materials for pipe culverts headwalls, wing walls, apron, toe walls and drop inlets.	Cu.m	
8.08	Repair inlet or outlet to existing pipe culverts in Class 25/20 concrete as directed by the Engineer.	Cu.m	
8.09	Provide, lay and joint 600mm inner diameter (ID) precast concrete pipes.	m	
8.10	As in Item 8.09 but 450mm ID.	m	
8.11	As in Item 8.09 but 900mm ID.	m	
8.12	As in Item 8.09 but 1200mm ID.	m	
8.13	Provide place and compact class 15/20 concrete to beds, surrounds and haunches.	Cu.m	
8.14	Provide place and compact class 20/20 concrete to headwalls, wing walls, aprons and culverts including formwork.	Cu.m	
8.15	Provide place and compact class 25/20 concrete to headwalls, wing walls, aprons and culverts including formwork.	Cu.m	
8.16	Provide and place A142 fabric mesh reinforcement	Sq.m	
8.17	Excavate in any material provided and joint 300mm inner diameter half round precast concrete channel with maximum 4 no. courses of precast side slabs of 600x225x75mm as lining for storm water drain including bedding and backfilling with selected material as directed by the Engineer.	m	
8.18	Excavate in any material provided and joint 600x360mm invert block drains (IBD) precast concrete channels with two courses of side slabs of 600x225x75mm as lining on each side for storm water drain including bedding, jointing and backfilling with selected material as directed by the Engineer.	m	

Item	Description		
		Unit	Rate for JKIA and WAP
8.19	Excavate and trim to shape, provide place precast concrete side slabs of 600x225x75mm as lining on each side for storm water drain including bedding jointing and backfilling with selected material as directed by the Engineer.	Sq.m	
8.20	Construct concrete scour checks as specified and directed by the Engineer.	Cu.m	
8.21	Excavate for and construct subsoil drains where directed including backfilling with approved hard material.	Cu.m	
8.22	E.O. Item 8.21 for filter fabric material.	Sq.m	
8.23	Provide and place heavy gauge 100mm dia PVC pipes for weep holes as directed by the Engineer.	m	
8.24	Provide and place heavy gauge 150mm dia PVC pipes for weep holes as directed by the Engineer.	m	
8.25	Provide and place heavy gauge 200mm dia PVC pipes for weep holes as directed by the Engineer.	m	
8.26	Provide and place heavy gauge 300mm dia PVC pipes for weep holes as directed by the Engineer.	m	
	BILL 9: PASSAGE OF TRAFFIC		
9.01	Allow for the passage of traffic through the works.	Km	
9.02	Construct and maintain 7m wide deviation in accordance with the specifications and as directed by the Engineer.	Km	
9.03	Improve existing public road in accordance with the specification and as directed by the engineer.	Km	
9.04	Provide natural gravel of CBR greater than 30%, lay water and compact to 150mm thickness as gravel wearing course on deviation and existing road in accordance with the specifications and as directed by the Engineer.	Cu.m	
9.05	Construct 7m wide access roads, including gravel wearing course, in accordance with the specifications and as directed by the Engineer.	Km	
	BILL 10: GRADING AND GRAVELLING		

Item	Description		
		Unit	Rate for JKIA and WAP
	No overhaul out of the airport will be paid separately under this item and the cost for haulage will be deemed to have been included in the rates (METHOD A).		
10.01	Carry out light grading to the existing carriage with watering and compaction to camber, including slope and ditches as instructed by the Engineer.	Sq.m	
10.02	Carry out heavy grading to existing carriageway with watering and compaction to camber, including slope and ditches as instructed by the Engineer.	Sq.m	
10.03	Remove overburden material out of sites and cart away from airport as instructed.	Cu.m	
10.04	Excavate gravel and stockpile within the airport as instructed.	Cu.m	
10.05	Load, haul and dump gravel as instructed.	Cu.m	
10.06	Provide, spread, grade, water and compact approved gravel imported from outside airport facility to specified thickness at 95% MDD.	Cu.m	
	BILL 11: SHOULDERS TO PAVEMENTS		
11.01	Prepare surface of existing shoulders, and accesses, including benching where necessary, water process and compact in accordance with the specifications and as directed by the Engineer to receive gravel.	Sq.m	
11.02	Provide, place, water and compact natural gravel to shoulders and accesses.	Cu.m	
	BILL 12: NATURAL MATERIAL BASE AND BASECOURSE		
	No overhaul into or out of the airport will be paid separately under this item and the cost for haulage will be deemed to have been included in the rates		
12.01	Excavate existing bituminous surfacing or pavement material to spoil or stockpile for reuse as directed by the Engineer.	Cu.m	
12.02	Break or scarify the existing pavement layer, and compact as specified and directed by the Engineer.	Cu.m	
12.03	Excavate by milling existing bituminous surfacing or pavement material to spoil or stockpile for reuse as	Cu.m	

Item	Description		
		Unit	Rate for JKIA and WAP
	directed by the Engineer.		
12.04	Recycle (cold in place) the existing bituminous pavement layer for re-use including addition of approved fresh material and as directed by the Engineer.	Cu.m	
12.05	Recycle (hot in place) the existing bituminous pavement layer for re-use including addition of approved fresh material and as directed by the Engineer.	Cu.m	
12.06	Provide, place,spread,water and compact natural gravel of CBR greater than 30% on repair and reconstruction areas as specified and as directed by the Engineer.	Cu.m	
12.07	Provide, lay and compact hand packed stone material including filling of voids with stone dust as directed by the Engineer.	Cu.m	
	BILL 13: GRADED CRUSHED STONE SUBBASE AND BASE		
13.01	Provide, place, spread and compact Class A Graded Crushed Stone (GCS) to 98% MDD with results not less than 96% MDD	Cu.m	
	BILL 14: CEMENT AND LIME TREATED MATERIAL		
14.01	Provide, transport to site and spread cement on natural gravel or GCS material for base or subbase as specified and as directed by the Engineer at 30-50kg/cu.m.	Tonne	
14.02	As Item 14.01 but lime.	Tonne	
14.03	Allow for mixing in cement and/or lime into natural gravel or GCS.	Cu.m	
14.04	Allow for curing and protection of treated layers as specified.	Sq.m	
	BILL15: BITUMINOUS SURFACE TREATMENT AND DRESSING		
15.01	Prepare surface of carriageway and repair areas, provide and spray MC-30 cut back bitumen at a rate of 0.8-1.2 ltr/sq.m as prime coat.	litre	
15.02	Prepare primed surfaces, provide and spray 80/100 penetration grade bitumen at a spray rate of 1.2 ltr/sq.m as binder for first seal on carriageway shoulder and junctions.	litre	

Item	Description		
		Unit	Rate for JKIA and WAP
15.03	Prepare surface of carriageway and repair areas, provide and spray MC-70 cut back bitumen at a rate of 0.8-1.2 ltr/sq.m as prime coat	litre	
15.04	Prepare surface of repair areas, provide and spray K1-70 bitumen emulsion as tack coat or seal to repair areas at a spray rate of 0.8-1.0 ltr/sq.m.	litre	
15.05	Prepare existing or new bituminous surface, provide and spray 80/100 penetration grade bitumen at a spray rate of 1.0-1.2 ltr/sq.m as binder for single or second seal on carriageway shoulders and junctions.	litre	
15.06	Provide, spread and roll 10/14 mm pre coated chippings at a spread rate of 90-110 sq.m/cu.m for a single seal to carriageway as directed by the Engineer.	Cu.m	
15.07	Provide, spread and roll 6/10 mm pre coated chippings at a spread rate of 110-130 sq.m/cu.m as second seal as directed by the Engineer.	Cu.m	
15.08	Prepare surface of carriageway, provide and spray 80/100 penetration grade bitumen cut back using 5-15% kerosene as tack coat for asphalt concrete wearing course at a spray rate of 0.5-0.7 ltr/sq.m..	litre	
15.09	Prepare surface of repair areas, provide and spray K1-60 bitumen emulsion as tack coat or seal to repair areas at a spray rate of 0.8-1.0 ltr/sq.m.	litre	
15.10	Provide kerosene fuel as a cutter for 80/100 penetration grade bitumen.	litre	
15.11	Provide, spread and roll 0/6 mm chippings (quarry dust) at a spread rate of 150-200 sq.m/cu.m to the seal on repair areas or on repaired areas to allow passage of traffic.	Cu.m	
	BILL 16: BITUMINOUS MIXES		
16.01	Excavate, trim and clean potholes, failed and damaged areas of the carriageway and edges including cart to spoil the excavated materials.	Cu.m	
16.02	Repair transverse or longitudinal cracking on asphalt concrete (crack sealing) as directed by the Engineer.	m	
16.03	Milling the existing bituminous layer to spoil to a maximum depth of 50mm thick.	Sq.m	

Item	Description		
		Unit	Rate for JKIA and WAP
16.04	Milling the existing bituminous layer to spoil to a maximum depth of 100mm thick.	Sq.m	
16.05	Provide, place and compact Asphalt Concrete Type 1 with 5-7% nominal bitumen content by weight to total mix as wearing course on carriageway as directed by the Engineer. Maximum volume 15 cu.m.	Cu.m	
16.06	As in item 16.05 but total volume between 15cu.m-300 cu.m	Cu.m	
16.07	As in item 16.05 but total volume between over 300 cu.m		
16.08	Provide, place and compact Asphalt Concrete Type 1 for bumps and rumble strips as directed by the Engineer.	Cu.m	
16.09	Provide, place and compact Asphalt Concrete Type 1 to repair areas and for regulation to carriageway as directed by the Engineer. Total volume 10cu.m	Cu.m	
16.10	As in item 16.09 but total volume between 10cu.m-50 cu.m	Cu.m	
16.11	As in item 16.10 but total volume between 50 cu.m	Cu.m	
16.12	Provide, place and compact Dense Bituminous Macadam (DBM) with 3.0-4.5% nominal bitumen content by weight to total mix or as base on reconstruction sections as directed by the Engineer. Maximum volume 15cu.m.	Cu.m	
16.13	As in item 16.12 but total volume between 15cu.m-300 cu.m	Cu.m	
16.14	As in item 16.12 but total volume over 300 cu.m	Cu.m	
	Bill 17: CONCRETE WORKS		
	Concrete Provide, place, compact and cure the following classes of concrete as specified.		
17.01	Class 15/20 for blinding	Cu.m	
17.02	Class 20/20 concrete	Cu.m	
17.03	Class 25/20 for concrete	Cu.m	
17.04	Class 30/20 for concrete	Cu.m	

Item	Description		
		Unit	Rate for JKIA and WAP
17.05	Class 40/20 for concrete	Cu.m	
17.06	Class 45/20 for concrete	Cu.m	
	Formwork Provide, erect and afterwards dismantle and remove all the formwork as specified by the Engineer		
17.07	Vertical formwork class F3 finish	Sq.m	
17.08	Horizontal formwork class F3 finish	Sq.m	
	Reinforcement Provide, bend and fix into positions high yield steel bars to BS4461 the following steel reinforcement as directed and as shown on the drawings.		
17.09	Reinforcement bars of high yield strength to BS4461, size 16mm and above.	Tonne	
17.10	Reinforcement bars of high yield strength to BS4461, size 12mm and below.	Tonne	
17.11	Provide and place on 50mm thick sand bed and vibrate, 60mm thick Heavy Duty paving blocks of any pattern on edges as specified.	Sq.m	
17.12	Provide and place on 50mm thick sand bed and vibrate, 80mm thick Heavy Duty paving blocks of any pattern on edges as specified.	Sq.m	
17.13	As item 17.11 but coloured	Sq.m	
17.14	As item 17.12 but coloured	Sq.m	
17.15	Provide and place Standard Heavy Duty paving slabS size 600x600x50mm.	Sq.m	
	BILL 20: ROAD FURNITURE		
20.01	Allow for removal/obliteration of peeling and accumulated rubber on the marked surface of the pavements using suitable equipment and cart away debris and dispose away from airport.	Sq.m	
20.02	Allow for removal/obliteration of unwanted markings on the surface of the pavements using suitable equipment	Sq.m	

Item	Description		
		Unit	Rate for JKIA and WAP
	and cart away debris and dispose away from airport.		
20.03	Prepare surface and repaint(apply) two coats of white/yellow/black/red oxide acrylic airfield pavement marking paint mixed with approved pavement thinner and ballotini beads as directed by Engineer.	Sq.m	
20.04	Prepare surface and apply three coats of white/yellow/black/red acrylic road marking paints to new pavement surfaces mixed with approved pavement thinner and ballotini beads as directed by Engineer.	Sq.m	
20.05	Provide and lay hot applied thermoplastic road marking compound in approved colour and shade with ballotini beads for road marking on bituminous surface using fully automatic extrusion machine and using pre-melter for melting thermoplastic material including cleaning the surface of all dirt, dust, and other foreign matter, complete with demarcation at site/premarking, finishing and managing the traffic movements as instructed by the Engineer	Sq.m	
20.06	Provide and place the appropriate sealant for sealing Joints in concrete works upto a maximum width of 25mm (Elastic jet fuel resistant sealant to ASTM D3581)	m	
20.07	Provide and place Styrofoam at expansion joints upto a maximum width of 25mm for concrete and/or Asphalt and as specified by the Engineer.	m	
20.08	Provide and place white/white,white/red, yellow/yellow,red/red retro reflective road studs as instructed	No.	
20.09	Remove and dispose the damaged existing guard rails as directed by the Engineer.	m	
20.10	Provide and place new flex-beam guard rails complete with pre-cast flex-beam guardrail posts, spacers, nuts, bolts and fittings as directed by the Engineer.	m	
20.11	Provide and place 1500mmx200mmx3mm thickness CHS steel bollards 1200mm above and 300mm embedded below ground. Filled with concrete class 20/20, painted with alternating yellow and black strips 150mm wide place as directed by the Engineer.	No.	

Item	Description	Unit	Rate for JKIA and WAP
20.12	Provide and place night safety retro reflective tape 50mm wide of colors Yellow, white or red glued to bollards as instructed by Engineer.	m	
20.13	Provide and erect permanent road signs where instructed by the Engineer and in accordance with the specifications as follows:		
	(a) Warning signs	No.	
	(b) Priority, prohibitory and mandatory signs	No.	
	(c) Standard informatory signs	No.	
	(d) Nonstandard signs (i) Less than 1.0 sq.m (ii) 1.0 sq.m to 2.0 sq.m (iii) 2.0 sq.m to 4.0 sq.m (iv) 4.0 sq.m to 5.0 sq.m	 No. No. No. No.	
20.14	Excavate for, provide and place 250x125mm class 25/20 precast concrete raised or ramped kerbs haunched in 100mm thick class 15/20 concrete base bedding and mortar joined in support to carriageway as directed by the Engineer.		
	(a) Straight Kerbs	m	
	(b) Kerbs radius: 12m – 6m	m	
	(c) Ditto but radius:5m – 1m	m	
20.15	Ditto 20.11 but flush kerbs:		
	(a) Straight Kerbs	m	
	(b) Kerbs radius: 12m – 6m	m	
	(c) Ditto but radius:5m – 1m	m	
20.16	Excavate holes for fencing posts footing not exceeding 1.50 m deep, average 1.0m deep in hard and soft material; ram base to receive 'Class 20' concrete bases; include carting away.	Cu.m	
20.17	Ditto but for chain-link anchoring posts	Cu.m	

Item	Description		
		Unit	Rate for JKIA and WAP
20.18	Mass concrete; Class 20 in footings	Cu.m	
20.19	Ditto but for chain-link anchoring posts	Cu.m	
20.20	Supply and install precast reinforced intermediate posts size 125 x125mm overall height 2.4m with cranked top of 475mm long as per detailed drawing including labor for 6mm diameter holes and bolts and 8mm galvanized mild steel bars with 12.5 S.W.G. stirrups at 350mm c/c as per detailed drawing to Engineer's approval and satisfaction.	No.	
20.21	Ditto 20.05 but precast reinforced straining posts size 125x125mm all through; overall height 2.4m with cranked top of 475mm long as per detailed drawing including labour for 6mm diameter holes and bolts and 8mm galvanized mild steel bars with 12.5 S.W.G. stirrups at 350mm c/c as per detailed drawing with and including provision to receive struts to detail drawing to Engineer's approval.	No.	
20.22	Ditto 20.05 but precast reinforced straining posts size 150x150mm all through; overall height 2.4m with cranked top of 475mm long as per detailed drawing including labour for 6mm diameter holes and bolts and 8mm galvanized mild steel bars with 12.5 S.W.G. stirrups at 350mm c/c as per detailed drawing with and including provision to receive struts to detail drawing to Engineer's approval.	No.	
20.23	100 x 80mm precast reinforced concrete struts to detail anchor on to concrete base and straining posts at approved level and 45 degrees to the horizontal to detail drawings and Engineer's approval.	No.	
20.24	High tensile galvanized barbed wire 12 1/2 G (2.5mm diameter) threaded through posts secured by galvanized binding wire to Engineer's approval.	m	
20.25	Supply, fabricate and install galvanized heavy duty metal gate overall size 6000 x 2400mm high; in two equal leaves; with and including 100 x 100 x 6mm SHS fixed firmly to the ground in approved concrete base; 8 gauge welded wire mesh covering fixed to 50 x 50 x 4mm SHS and tower locking heavy gauge bolt (including VIRO Cylinder 104); 3 lines of 12.5 gauge barbed wire at the top of each leaf; all as per attached drawings and approval of Project	No.	

Item	Description		
		Unit	Rate for JKIA and WAP
	Manager. Gate to be painted in three coats of approved protective paint.		
20.26	High tensile galvanized straining wire 9.5 Gauge through concrete posts (m/s) including hook bolts.	m	
20.27	Supply materials, fabricate and install galvanized heavy duty metal gate overall size 1000 x 2400mm high pedestrian gate with and including 75 x 75 x 4mm SHS fixed firmly to the ground in approved concrete base; 8 gauge welded wire mesh covering fixed to 50 x 50 x 4mm SHS and tower locking heavy gauge bolt (including VIRO Cylinder 104); 3 lines of 12.5 gauge barbed wire at the top; all as per attached drawings and approval of Project Manager. Gate to be painted in three coats of approved protective paint. Rate inclusive of casting of beam.	No.	
20.28	Supply and fix 2.4m high galvanized chain-link; gauge 9.5; 50x50mm mesh onto precast concrete posts (m/s); fastening with 5 No. lines of galvanized wire (m/s); threaded through and including mesh and hook bolts; secured by binding wire; all as per the drawings.	m	
20.29	Supply and fix 2.4m high galvanized chain-link; gauge 12.5; 50x50mm mesh onto precast concrete posts (m/s); fastening with 5 No. lines of galvanized wire (m/s); threaded through and including mesh and hook bolts; secured by binding wire; all as per the drawings.	m	
20.30	Excavate 150mm by 300 mm for ground beam	Cu.m	
20.31	Mass concrete; Class 20 in ground beam	Cu.m	

BILL OF QUANTITIES OF FRAMEWORK AGREEMENT FOR PAVEMENT MAINTENANCE TERM CONTRACT SERVICES AT MOI INTERNATIONAL AIRPORT.

Item	Description		
		Unit	Rate for MIA
	BILL 1: GENERAL		
1.01	Rate for mobilization/demobilization and availability during works of construction equipment for works whose duration is less than 2 days as per schedule below:		
1.01a	Asphalt Paver	Day Rate	
1.01b	Single Steel Drum Compaction Roller > or =18tonnes	Day Rate	
1.01c	Double tandem steel drum roller >/= 18 Tonnes	Day Rate	
1.01d	Sheepsfoot Roller > or = 20 Tonnes	Day Rate	
1.01e	Pneumatic Tiered Roller >/= 20 Tonnes	Day Rate	
1.01f	Bi-axial Pedestrian Roller >/= 6 Tonnes, 13.0/9.0 HP	Day Rate	
1.01g	Plate Compactor – plate size 540x420mm	Day Rate	
1.01h	Motor Grader CAT 12H or Equivalent.	Day Rate	
1.01i	Hydraulic Excavator CAT 322 or Equivalent.	Day Rate	
1.01j	Excavator with Jack hammer attachment CAT 322 or Equivalent	Day Rate	
1.01k	Back hoe Loader CAT 428 or Equivalent	Day Rate	
1.01l	Wheel Loader 4WD Articulated CAT 950 or Equivalent.	Day Rate	
1.01m	Disk concrete cutter	Day Rate	
1.01n	Air compressor	Day Rate	
1.01o	Pressure Bitumen Distributor Min 5000L	Day Rate	
1.01p	Bitumen Hand sprayer	Day Rate	
1.01q	Mechanical broom 74HP	Day Rate	
1.01r	Air Blower	Day Rate	
1.01s	Poker Vibrator 200Hz,2850 rpm	Day Rate	
1.01t	Concrete Balloon – Rubber/Synthetic Tire-cord	Day Rate	

Item	Description		
		Unit	Rate for MIA
1.01u	Concrete Pump	Day Rate	
1.01v	Concrete mixer with 400l bucket capacity	Day Rate	
1.01w	Tipper Truck 16-25 Tonnes Gross Capacity	Day Rate	
1.01x	Water Bowser	Day Rate	
1.01y	Crane – 20Tonne capacity	Day Rate	
1.01z	Crane – 100Tonne capacity	Day Rate	
1.01aa	Drill	Day Rate	
1.01bb	High loader	Day Rate	
1.01cc	Asphalt Milling Machine	Day Rate	
1.02	Allow for provision, mobilization, demobilization and maintenance of a containerized office for the engineers site office, including lighting, drinking water, flushable toilet, sockets and internet services.	Day Rate	
1.03	Allow for provision of survey equipment and material for use by the Engineer during construction.	Day rate	
1.04	Capacity building (Kenya based) training of civil engineering staff to ensure progressive career development and adaptability to the modern technology and modes of operation in the following areas; The training must be by an institution approved by ICAO and/or KCAA such as EASA and other state regulatory bodies such as KEBS, EBK, IEK or any other relevant body meeting the description herein.		
1.04a	Tuition fee per person up to a maximum of Ksh 250,000.00 for Airport pavement design, evaluation and maintenance or any other approved course.	Rate/pax	
1.04b	Tuition fee per person up to a max of 100,000.00 as in item 1.04a above.	Rate/pax	
1.04c	Tuition fee per person up to a max of 50,000.00 as in item 1.04a above	Rate/pax	
1.04d	KAA staff Travel Cost – Economy return Air ticket to any major town within the Country (in Kshs).	Pax	
1.04e	KAA Staff Travel Cost -Local Travel –provide van to accommodate Max 14 pax complete with fuel and driver.	Veh/day	

Item	Description		
		Unit	Rate for MIA
1.04f	KAA Staff Grade 8 –Allowances Kshs.16,800/day	Pax/Day	
1.04g	KAA Staff Grade 7- Allowance Kshs.14,000/ day	Pax/Day	
1.04h	KAA Staff Grade 6 Allowance Kshs.11,200 / day	Pax/Day	
1.04i	KAA Staff Grade 5 Allowance Kshs.11,200/day	Pax/Day	
1.04j	KAA Staff Grade 4 Allowance Ksh. 6,300 /day	Pax/Day	
1.04k	KAA Casual Allowance Ksh. 4,200 /day	Pax/Day	
1.05	Ditto as in 1.05 but International Training		
1.05a	Tuition fee per person up to a maximum of Ksh 2,000,000.00 for Airport pavement design, evaluation and maintenance or any other approved course.	Rate/pax	
1.05b	Tuition fee per person up to a maximum of Ksh 1,500,000.00 as in item 1.05a above.	Rate/pax	
1.05c	Tuition fee per person up to a maximum of Ksh 1,000,000.00 as in item 1.05a above.	Rate/pax	
1.05d	Tuition fee per person up to a maximum of Ksh 500,000.00 as in item 1.05a above.	Rate/pax	
1.05e	Tuition fee per person up to a maximum of Ksh 250,000.00 as in item 1.05a above.	Rate/pax	
1.05f	KAA staff Travel Cost inclusive of Economy return Air ticket and VISA fees to any foreign country (in USD).	Rate/pax	
1.05g	KAA staff local travel cost within the foreign country	Rate/pax/day	
1.05h	KAA Staff Grade 9 –Allowances 647 USD per day	Pax/Day	
1.05i	KAA Staff Grade 8 – Allowances 647 USD per day	Pax/Day	
1.05j	KAA Staff Grade 7- Allowance 549 USD per day	Pax/Day	
1.05k	KAA Staff Grade 6 Allowance 549 USD per day	Pax/Day	
1.05l	KAA Staff Grade 5 Allowance 549 USD per day	Pax/Day	
1.05m	KAA Staff Grade 4 Allowance 477 USD per day	Pax/Day	
1.06	Prime Cost Sum for removal and reinstatement of services.	PC Sum	500,000.00
1.06a	Percentage of Prime Cost Sum in Item 1.06 for Contractor's overheads and profits.	%	
1.07	Engineer's site staff communication airtime Kshs. 100,000.	Rate	

Item	Description		
		Unit	Rate for MIA
1.08	Prime Cost Sum for materials testing.	PC Sum	500,000.00
1.09	Percentage of Prime Cost Sum in Item 1.08 for Contractor's overheads and profits.	%	
1.10	Provide a Total Station to the approval and exclusive use by the Engineer, complete with Prism and Tripod with an accuracy of 0.9 seconds for the duration of the Contract. The TS to be supplied with download software. Upon completion of the Contract, it shall revert to the Contractor.	Day Rate	
1.11	Allow for provision and maintenance of dumpy level survey equipment complete with staff and bubble for exclusive use by the Engineer.	Day Rate	
1.12	Prime Cost Sum for Engineer's miscellaneous account.	PC Sum	500,000.00
1.13	Percentage of Prime Cost Sum in Item 1.12 for Contractor's overheads and profits.	%	
1.14	Prime Cost Sum for off-site materials testing.	PC Sum	500,000.00
1.15	Percentage of Prime Cost Sum in Item 1.14 for Contractor's overheads and profits.	%	
1.16	Provide and erect publicity signs as directed by the engineer in accordance with the standard KAA publicity signboard specifications.	No.	
1.17	Provide, fuel and maintain with driver, comprehensively insured, new 4WD,double cabin vehicle (odometer:0-10,000km)of diesel engine capacity 2,700 - 3000cc or equivalent for the exclusive use of the engineer inclusive of the first 4000km per vehicle month in accordance with clause 138 of the standard specification.	Month	
1.18	E.O.Item 1.17 for mileage over 4,000km per vehicle month.	Km	
1.19	Provide, fuel and maintain with driver, a comprehensively insured, 4WD,station wagon vehicle (odometer:0-10,000km) of minimum diesel engine capacity 2700cc turbo charged or equivalent for the exclusive use of the engineer inclusive of the first 4000km per vehicle month in accordance with clause 138 of the standard specification.	Month	
1.20	E.O.Item 1.19 for mileage over 4,000km per vehicle month.	Km	

Item	Description		
		Unit	Rate for MIA
1.21	Provide, fuel and maintain with driver, a comprehensively insured, new 4WD,saloon vehicle (odometer:0-10,000km) of diesel engine capacity 2,700-3000cc or equivalent for the exclusive use of the engineer inclusive of the first 4000km per vehicle month in accordance with clause 138 of the standard specification.	Month	
1.22	E.O.Item 1.21 for mileage over 4,000km per vehicle month.	Km	
1.23	Prime Cost Sum for attendance to the Engineers site staff	PC Sum	500,000.00
1.24	Percentage of Prime Cost Sum in Item 1.23 for Contractor's overheads and profits.	%	
1.25	Prime Cost Sum for provision of equipment for the engineers site office.	PC Sum	500,000.00
1.26	Percentage of Prime Cost Sum in Item 1.25 for Contractor's overheads and profits.	%	
1.27	Prime cost sum for off-road environmental mitigation measures.	PC Sum	100,000.00
1.28	Percentage of Prime Cost Sum in Item 1.27 for Contractor's overheads and profits.	%	
1.29	Allow for provision of communication air to ground base radio for car mounting of range from (118 – 136) MH with frequencies selectable within the range and appropriate antenna, 2 new handheld air to ground radios of same frequencies NB: The Radios Shall be Handed over to the Client on Completion of the Project in good working condition.	Rate	
1.30	Allow for working at night on active aircraft pavements.	Item	
1.31	Allow for sampling and testing of material samples by KeBS or accredited laboratory approved by employer – a certificate shall accompany each material stating compliance with the applicable standards.	PC Sum	200,000.00
1.32	Percentage of Prime Cost Sum in Item 1.31 for Contractor's overheads and profits.	%	
	BILL 4: SITE CLEARANCE AND TOPSOIL STRIPPING		
	No separate payment shall be made for the overhaul		

Item	Description		
		Unit	Rate for MIA
	material out of the airport and the cost of such haulage shall be included in the rate and /or prices.		
4.01	Light Bush clearing as directed by the Engineer.	Sq.m	
4.02	Heavy bush clearing as directed by the Engineer.	Sq.m	
4.03	Clear site on road reserve including removal of trees, hedges, bushes, vegetation with approved material in accordance with the specification, and as directed by the engineer.	Ha.	
4.04	Removal of topsoil to a maximum depth of 200mm in accordance with the specification and as directed by the engineer.	Cu.m	
4.05	Hack concrete from bridge deck slab, abutments and wing walls to expose reinforcement as directed.	Cu.m	
4.06	Excavate, remove and dispose cracked pipe culverts of any size.	M	
4.07	Cutting and disposal of trees of girth 1000mm and below	No.	
4.08	Cutting and disposal of trees of girth 1000mm and above	No.	
4.09	Grass cutting to a height below 50mm or as specified.	Sq.m	
	BILL 5: EARTHWORKS.		
	No separate payment shall be made for the overhaul material into or out of the airport and the cost of such haulage shall be included in the rate and /or prices. It is the Contractor's responsibility to identify quarries, borrow pits and spoil areas.		
5.01	Fill in soft material.	Cu.m	
5.02	As in Item 5.01 but in hard material	Cu.m	
5.03	As in Item 5.01 for compaction of top 300mm in fills to 100% MDD (AASHTO T99)	Cu.m	
5.04	Cut to spoil in soft material.	Cu.m	
5.05	As in Item 5.04 but in hard material.	Cu.m	
5.06	Compact the top 150mm layer of existing ground fills and cuts to 95% MDD (AASHTO T99)	Cu.m	
5.07	Provide place and compact to refusal Rockfill	Cu.m	

Item	Description		
		Unit	Rate for MIA
5.08	Filter fabric under, over or around rockfill.	Sq.m	
5.09	Top soiling	Sq.m	
5.10	Grassing	Sq.m	
	BILL 7: EXCAVATION AND FILLING FOR STRUCTURES		
7.01	Excavation in soft material for major structures i.e. box culverts and gabion works.	Cu.m	
7.02	As for Item 7.01 but in hard material.	Cu.m	
7.03	Provide and place macaferri or equivalent gabion boxes and mattresses as specified.	Sq.m	
7.04	Provide and place rockfill to gabions.	Cu.m	
7.05	Provide stone pitching as directed by the Engineer.	Sq.m	
7.06	E.O. Item 7.05 for cement grouting as directed by the Engineer.	Sq.m	
7.07	Provide, place and compact rockfill below structures as directed by the Engineer.	Cu.m	
7.08	Provide and place porous material behind wing walls.	Cu.m	
	BILL 8: CULVERTS AND DRAINAGE WORKS		
	No separate payment shall be made for the haulage of surplus or unsuitable excavated material out of the airport and the cost of such haulage shall be included in the rates/prices.		
8.01	Excavate, desilt, grade to shape inlets outfalls, side drains to free flow conditions including cart to spoil any excess grass debris and soils as and where directed by the Engineer.	Cu.m	
8.02	Clean culverts 450mm dia culvert to free flow conditions.	m	
8.03	Clean culverts 600mm dia culvert to free flow conditions.	m	
8.04	Clean culverts 900mm dia culvert to free flow conditions.	m	
8.05	Clean culverts 1200mm dia culvert to free flow conditions.	m	
8.06	Clean IBD drains to free flow conditions	m	
8.07	Excavate in soft materials for pipe culverts headwalls, wing walls, apron, toe walls and drop inlets.	Cu.m	

Item	Description		
		Unit	Rate for MIA
8.08	Repair inlet or outlet to existing pipe culverts in Class 25/20 concrete as directed by the Engineer.	Cu.m	
8.09	Provide, lay and joint 600mm inner diameter (ID) precast concrete pipes.	m	
8.10	As in Item 8.09 but 450mm ID.	m	
8.11	As in Item 8.09 but 900mm ID.	m	
8.12	As in Item 8.09 but 1200mm ID.	m	
8.13	Provide place and compact class 15/20 concrete to beds, surrounds and haunches.	Cu.m	
8.14	Provide place and compact class 20/20 concrete to headwalls, wing walls, aprons and culverts including formwork.	Cu.m	
8.15	Provide place and compact class 25/20 concrete to headwalls, wing walls, aprons and culverts including formwork.	Cu.m	
8.16	Provide and place A142 fabric mesh reinforcement	Sq.m	
8.17	Excavate in any material provided and joint 300mm inner diameter half round precast concrete channel with maximum 4 no. courses of precast side slabs of 600x225x75mm as lining for storm water drain including bedding and backfilling with selected material as directed by the Engineer.	m	
8.18	Excavate in any material provided and joint 600x360mm invert block drains (IBD) precast concrete channels with two courses of side slabs of 600x225x75mm as lining on each side for storm water drain including bedding, jointing and backfilling with selected material as directed by the Engineer.	m	
8.19	Excavate and trim to shape, provide place precast concrete side slabs of 600x225x75mm as lining on each side for storm water drain including bedding jointing and backfilling with selected material as directed by the Engineer.	Sq.m	
8.20	Construct concrete scour checks as specified and directed by the Engineer.	Cu.m	
8.21	Excavate for and construct subsoil drains where directed	Cu.m	

Item	Description		
		Unit	Rate for MIA
	including backfilling with approved hard material.		
8.22	E.O. Item 8.21 for filter fabric material.	Sq.m	
8.23	Provide and place heavy gauge 100mm dia PVC pipes for weep holes as directed by the Engineer.	m	
8.24	Provide and place heavy gauge 150mm dia PVC pipes for weep holes as directed by the Engineer.	m	
8.25	Provide and place heavy gauge 200mm dia PVC pipes for weep holes as directed by the Engineer.	m	
8.26	Provide and place heavy gauge 300mm dia PVC pipes for weep holes as directed by the Engineer.	m	
	BILL 9: PASSAGE OF TRAFFIC		
9.01	Allow for the passage of traffic through the works.	Km	
9.02	Construct and maintain 7m wide deviation in accordance with the specifications and as directed by the Engineer.	Km	
9.03	Improve existing public road in accordance with the specification and as directed by the engineer.	Km	
9.04	Provide natural gravel of CBR greater than 30%, lay water and compact to 150mm thickness as gravel wearing course on deviation and existing road in accordance with the specifications and as directed by the Engineer.	Cu.m	
9.05	Construct 7m wide access roads, including gravel wearing course, in accordance with the specifications and as directed by the Engineer.	Km	
	BILL 10: GRADING AND GRAVELLING		
	No overhaul out of the airport will be paid separately under this item and the cost for haulage will be deemed to have been included in the rates (METHOD A).		
10.01	Carry out light grading to the existing carriage with watering and compaction to camber, including slope and ditches as instructed by the Engineer.	Sq.m	
10.02	Carry out heavy grading to existing carriageway with watering and compaction to camber, including slope and ditches as instructed by the Engineer.	Sq.m	

Item	Description		
		Unit	Rate for MIA
10.03	Remove overburden material out of sites and cart away from airport as instructed.	Cu.m	
10.04	Excavate gravel and stockpile within the airport as instructed.	Cu.m	
10.05	Load, haul and dump gravel as instructed.	Cu.m	
10.06	Provide, spread, grade, water and compact approved gravel imported from outside airport facility to specified thickness at 95% MDD.	Cu.m	
	BILL 11: SHOULDERS TO PAVEMENTS		
11.01	Prepare surface of existing shoulders, and accesses, including benching where necessary, water process and compact in accordance with the specifications and as directed by the Engineer to receive gravel.	Sq.m	
11.02	Provide, place, water and compact natural gravel to shoulders and accesses.	Cu.m	
	BILL 12: NATURAL MATERIAL BASE AND BASECOURSE		
	No overhaul into or out of the airport will be paid separately under this item and the cost for haulage will be deemed to have been included in the rates		
12.01	Excavate existing bituminous surfacing or pavement material to spoil or stockpile for reuse as directed by the Engineer.	Cu.m	
12.02	Break or scarify the existing pavement layer, and compact as specified and directed by the Engineer.	Cu.m	
12.03	Excavate by milling existing bituminous surfacing or pavement material to spoil or stockpile for reuse as directed by the Engineer.	Cu.m	
12.04	Recycle (cold in place) the existing bituminous pavement layer for re-use including addition of approved fresh material and as directed by the Engineer.	Cu.m	
12.05	Recycle (hot in place) the existing bituminous pavement layer for re-use including addition of approved fresh material and as directed by the Engineer.	Cu.m	
12.06	Provide, place,spread,water and compact natural gravel of CBR greater than 30% on repair and reconstruction areas as specified and as directed by the Engineer.	Cu.m	

Item	Description		
		Unit	Rate for MIA
12.07	Provide, lay and compact hand packed stone material including filling of voids with stone dust as directed by the Engineer.	Cu.m	
	BILL 13: GRADED CRUSHED STONE SUBBASE AND BASE		
13.01	Provide, place, spread and compact Class A Graded Crushed Stone (GCS) to 98% MDD with results not less than 96% MDD	Cu.m	
	BILL 14: CEMENT AND LIME TREATED MATERIAL		
14.01	Provide, transport to site and spread cement on natural gravel or GCS material for base or subbase as specified and as directed by the Engineer at 30-50kg/cu.m.	Tonne	
14.02	As Item 14.01 but lime.	Tonne	
14.03	Allow for mixing in cement and/or lime into natural gravel or GCS.	Cu.m	
14.04	Allow for curing and protection of treated layers as specified.	Sq.m	
	BILL15: BITUMINOUS SURFACE TREATMENT AND DRESSING		
15.01	Prepare surface of carriageway and repair areas, provide and spray MC-30 cut back bitumen at a rate of 0.8-1.2 ltr/sq.m as prime coat.	litre	
15.02	Prepare primed surfaces, provide and spray 80/100 penetration grade bitumen at a spray rate of 1.2 ltr/sq.m as binder for first seal on carriageway shoulder and junctions.	litre	
15.03	Prepare surface of carriageway and repair areas, provide and spray MC-70 cut back bitumen at a rate of 0.8-1.2 ltr/sq.m as prime coat	litre	
15.04	Prepare surface of repair areas, provide and spray K1-70 bitumen emulsion as tack coat or seal to repair areas at a spray rate of 0.8-1.0 ltr/sq.m.	litre	
15.05	Prepare existing or new bituminous surface, provide and spray 80/100 penetration grade bitumen at a spray rate of 1.0-1.2 ltr/sq.m as binder for single or second seal on carriageway shoulders and junctions.	litre	
15.06	Provide, spread and roll 10/14 mm pre coated chippings at	Cu.m	

Item	Description		
		Unit	Rate for MIA
	a spread rate of 90-110 sq.m/cu.m for a single seal to carriageway as directed by the Engineer.		
15.07	Provide, spread and roll 6/10 mm pre coated chippings at a spread rate of 110-130 sq.m/cu.m as second seal as directed by the Engineer.	Cu.m	
15.08	Prepare surface of carriageway, provide and spray 80/100 penetration grade bitumen cut back using 5-15% kerosene as tack coat for asphalt concrete wearing course at a spray rate of 0.5-0.7 ltr/sq.m..	litre	
15.09	Prepare surface of repair areas, provide and spray K1-60 bitumen emulsion as tack coat or seal to repair areas at a spray rate of 0.8-1.0 ltr/sq.m.	litre	
15.10	Provide kerosene fuel as a cutter for 80/100 penetration grade bitumen.	litre	
15.11	Provide, spread and roll 0/6 mm chippings (quarry dust) at a spread rate of 150-200 sq.m/cu.m to the seal on repair areas or on repaired areas to allow passage of traffic.	Cu.m	
	BILL 16: BITUMINOUS MIXES		
16.01	Excavate, trim and clean potholes, failed and damaged areas of the carriageway and edges including cart to spoil the excavated materials.	Cu.m	
16.02	Repair transverse or longitudinal cracking on asphalt concrete (crack sealing) as directed by the Engineer.	m	
16.03	Milling the existing bituminous layer to spoil to a maximum depth of 50mm thick.	Sq.m	
16.04	Milling the existing bituminous layer to spoil to a maximum depth of 100mm thick.	Sq.m	
16.05	Provide, place and compact Asphalt Concrete Type 1 with 5-7% nominal bitumen content by weight to total mix as wearing course on carriageway as directed by the Engineer. Maximum volume 15 cu.m.	Cu.m	
16.06	As in item 16.05 but total volume between 15cu.m-300 cu.m	Cu.m	
16.07	As in item 16.05 but total volume between over 300 cu.m		
16.08	Provide, place and compact Asphalt Concrete Type 1 for bumps and rumble strips as directed by the Engineer.	Cu.m	

Item	Description	Unit	Rate for MIA
16.09	Provide, place and compact Asphalt Concrete Type 1 to repair areas and for regulation to carriageway as directed by the Engineer. Total volume 10cu.m	Cu.m	
16.10	As in item 16.09 but total volume between 10cu.m-50 cu.m	Cu.m	
16.11	As in item 16.10 but total volume between 50 cu.m	Cu.m	
16.12	Provide, place and compact Dense Bituminous Macadam (DBM) with 3.0-4.5% nominal bitumen content by weight to total mix or as base on reconstruction sections as directed by the Engineer. Maximum volume 15cu.m.	Cu.m	
16.13	As in item 16.12 but total volume between 15cu.m-300 cu.m	Cu.m	
16.14	As in item 16.12 but total volume over 300 cu.m	Cu.m	
	Bill 17: CONCRETE WORKS		
	Concrete Provide, place, compact and cure the following classes of concrete as specified.		
17.01	Class 15/20 for blinding	Cu.m	
17.02	Class 20/20 concrete	Cu.m	
17.03	Class 25/20 for concrete	Cu.m	
17.04	Class 30/20 for concrete	Cu.m	
17.05	Class 40/20 for concrete	Cu.m	
17.06	Class 45/20 for concrete	Cu.m	
	Formwork Provide, erect and afterwards dismantle and remove all the formwork as specified by the Engineer		
17.07	Vertical formwork class F3 finish	Sq.m	
17.08	Horizontal formwork class F3 finish	Sq.m	
	Reinforcement Provide, bend and fix into positions high yield steel bars to BS4461 the following steel reinforcement as directed and as shown on the drawings.		

Item	Description		
		Unit	Rate for MIA
17.09	Reinforcement bars of high yield strength to BS4461, size 16mm and above.	Tonne	
17.10	Reinforcement bars of high yield strength to BS4461, size 12mm and below.	Tonne	
17.11	Provide and place on 50mm thick sand bed and vibrate, 60mm thick Heavy Duty paving blocks of any pattern on edges as specified.	Sq.m	
17.12	Provide and place on 50mm thick sand bed and vibrate, 80mm thick Heavy Duty paving blocks of any pattern on edges as specified.	Sq.m	
17.13	As item 17.11 but coloured	Sq.m	
17.14	As item 17.12 but coloured	Sq.m	
17.15	Provide and place Standard Heavy Duty paving slabS size 600x600x50mm.	Sq.m	
	BILL 20: ROAD FURNITURE		
20.01	Allow for removal/obliteration of peeling and accumulated rubber on the marked surface of the pavements using suitable equipment and cart away debris and dispose away from airport.	Sq.m	
20.02	Allow for removal/obliteration of unwanted markings on the surface of the pavements using suitable equipment and cart away debris and dispose away from airport.	Sq.m	
20.03	Prepare surface and repaint(apply) two coats of white/yellow/black/red oxide acrylic airfield pavement marking paint mixed with approved pavement thinner and ballotini beads as directed by Engineer.	Sq.m	
20.04	Prepare surface and apply three coats of white/yellow/black/red acrylic road marking paints to new pavement surfaces mixed with approved pavement thinner and ballotini beads as directed by Engineer.	Sq.m	
20.05	Provide and lay hot applied thermoplastic road marking compound in approved colour and shade with ballotini beads for road marking on bituminous surface using fully automatic extrusion machine and using pre-melter for melting thermoplastic material including cleaning the surface of all dirt, dust, and other foreign matter,	Sq.m	

Item	Description	Unit	Rate for MIA
	complete with demarcation at site/premarking, finishing and managing the traffic movements as instructed by the Engineer		
20.06	Provide and place the appropriate sealant for sealing Joints in concrete works upto a maximum width of 25mm (Elastic jet fuel resistant sealant to ASTM D3581)	m	
20.07	Provide and place Styrofoam at expansion joints upto a maximum width of 25mm for concrete and/or Asphalt and as specified by the Engineer.	m	
20.08	Provide and place white/white,white/red, yellow/yellow,red/red retro reflective road studs as instructed	No.	
20.09	Remove and dispose the damaged existing guard rails as directed by the Engineer.	m	
20.10	Provide and place new flex-beam guard rails complete with pre-cast flex-beam guardrail posts, spacers, nuts, bolts and fittings as directed by the Engineer.	m	
20.11	Provide and place 1500mmx200mmx3mm thickness CHS steel bollards 1200mm above and 300mm embedded below ground. Filled with concrete class 20/20, painted with alternating yellow and black strips 150mm wide place as directed by the Engineer.	No.	
20.12	Provide and place night safety retro reflective tape 50mm wide of colors Yellow, white or red glued to bollards as instructed by Engineer.	m	
20.13	Provide and erect permanent road signs where instructed by the Engineer and in accordance with the specifications as follows:		
	(a) Warning signs	No.	
	(b) Priority, prohibitory and mandatory signs	No.	
	(c) Standard informatory signs	No.	
	(d) Nonstandard signs (i) Less than 1.0 sq.m (ii) 1.0 sq.m to 2.0 sq.m (iii) 2.0 sq.m to 4.0 sq.m	 No. No. No.	

Item	Description	Unit	Rate for MIA
	(iv) 4.0 sq.m to 5.0 sq.m	No.	
20.14	Excavate for, provide and place 250x125mm class 25/20 precast concrete raised or ramped kerbs haunched in 100mm thick class 15/20 concrete base bedding and mortar joined in support to carriageway as directed by the Engineer.		
	(a) Straight Kerbs	m	
	(b) Kerbs radius: 12m – 6m	m	
	(c) Ditto but radius:5m – 1m	m	
20.15	Ditto 20.11 but flush kerbs:		
	(a) Straight Kerbs	m	
	(b) Kerbs radius: 12m – 6m	m	
	(c) Ditto but radius:5m – 1m	m	
20.16	Excavate holes for fencing posts footing not exceeding 1.50 m deep, average 1.0m deep in hard and soft material; ram base to receive 'Class 20' concrete bases; include carting away.	Cu.m	
20.17	Ditto but for chain-link anchoring posts	Cu.m	
20.18	Mass concrete; Class 20 in footings	Cu.m	
20.19	Ditto but for chain-link anchoring posts	Cu.m	
20.20	Supply and install precast reinforced intermediate posts size 125 x125mm overall height 2.4m with cranked top of 475mm long as per detailed drawing including labor for 6mm diameter holes and bolts and 8mm galvanized mild steel bars with 12.5 S.W.G. stirrups at 350mm c/c as per detailed drawing to Engineer’s approval and satisfaction.	No.	
20.21	Ditto 20.05 but precast reinforced straining posts size 125x125mm all through; overall height 2.4m with cranked top of 475mm long as per detailed drawing including labour for 6mm diameter holes and bolts and 8mm galvanized mild steel bars with 12.5 S.W.G. stirrups at 350mm c/c as per detailed drawing with and including provision to receive struts to detail drawing to Engineer's approval.	No.	
20.22	Ditto 20.05 but precast reinforced straining posts size 150x150mm all through; overall height 2.4m with cranked	No.	

Item	Description	Unit	Rate for MIA
	top of 475mm long as per detailed drawing including labour for 6mm diameter holes and bolts and 8mm galvanized mild steel bars with 12.5 S.W.G. stirrups at 350mm c/c as per detailed drawing with and including provision to receive struts to detail drawing to Engineer's approval.		
20.23	100 x 80mm precast reinforced concrete struts to detail anchor on to concrete base and straining posts at approved level and 45 degrees to the horizontal to detail drawings and Engineer's approval.	No.	
20.24	High tensile galvanized barbed wire 12 1/2 G (2.5mm diameter) threaded through posts secured by galvanized binding wire to Engineer's approval.	m	
20.25	Supply, fabricate and install galvanized heavy duty metal gate overall size 6000 x 2400mm high; in two equal leaves; with and including 100 x 100 x 6mm SHS fixed firmly to the ground in approved concrete base; 8 gauge welded wire mesh covering fixed to 50 x 50 x 4mm SHS and tower locking heavy gauge bolt (including VIRO Cylinder 104); 3 lines of 12.5 gauge barbed wire at the top of each leaf; all as per attached drawings and approval of Project Manager. Gate to be painted in three coats of approved protective paint.	No.	
20.26	High tensile galvanized straining wire 9.5 Gauge through concrete posts (m/s) including hook bolts.	m	
20.27	Supply materials, fabricate and install galvanized heavy duty metal gate overall size 1000 x 2400mm high pedestrian gate with and including 75 x 75 x 4mm SHS fixed firmly to the ground in approved concrete base; 8 gauge welded wire mesh covering fixed to 50 x 50 x 4mm SHS and tower locking heavy gauge bolt (including VIRO Cylinder 104); 3 lines of 12.5 gauge barbed wire at the top; all as per attached drawings and approval of Project Manager. Gate to be painted in three coats of approved protective paint. Rate inclusive of casting of beam.	No.	
20.28	Supply and fix 2.4m high galvanized chain-link; gauge 9.5; 50x50mm mesh onto precast concrete posts (m/s); fastening with 5 No. lines of galvanized wire (m/s); threaded through and including mesh and hook bolts; secured by binding wire; all as per the drawings.	m	

Item	Description		
		Unit	Rate for MIA
20.29	Supply and fix 2.4m high galvanized chain-link; gauge 12.5; 50x50mm mesh onto precast concrete posts (m/s); fastening with 5 No. lines of galvanized wire (m/s); threaded through and including mesh and hook bolts; secured by binding wire; all as per the drawings.	m	
20.30	Excavate 150mm by 300 mm for ground beam	Cu.m	
20.31	Mass concrete; Class 20 in ground beam	Cu.m	

BILL OF QUANTITIES OF FRAMEWORK AGREEMENT FOR PAVEMENT MAINTENANCE TERM CONTRACT SERVICES AT ELDORET INTERNATIONAL AIRPORT (EIA).

Item	Description		
		Unit	Rate for EIA
	BILL 1: GENERAL		
1.01	Rate for mobilization/demobilization and availability during works of construction equipment for works whose duration is less than 2 days as per schedule below:		
1.01a	Asphalt Paver	Day Rate	
1.01b	Single Steel Drum Compaction Roller > or =18tonnes	Day Rate	
1.01c	Double tandem steel drum roller >/= 18 Tonnes	Day Rate	
1.01d	Sheepsfoot Roller > or = 20 Tonnes	Day Rate	
1.01e	Pneumatic Tiered Roller >/= 20 Tonnes	Day Rate	
1.01f	Bi-axial Pedestrian Roller >/= 6 Tonnes, 13.0/9.0 HP	Day Rate	
1.01g	Plate Compactor – plate size 540x420mm	Day Rate	
1.01h	Motor Grader CAT 12H or Equivalent.	Day Rate	
1.01i	Hydraulic Excavator CAT 322 or Equivalent.	Day Rate	
1.01j	Excavator with Jack hammer attachment CAT 322 or Equivalent	Day Rate	
1.01k	Back hoe Loader CAT 428 or Equivalent	Day Rate	
1.01l	Wheel Loader 4WD Articulated CAT 950 or Equivalent.	Day Rate	
1.01m	Disk concrete cutter	Day Rate	
1.01n	Air compressor	Day Rate	
1.01o	Pressure Bitumen Distributor Min 5000L	Day Rate	
1.01p	Bitumen Hand sprayer	Day Rate	
1.01q	Mechanical broom 74HP	Day Rate	
1.01r	Air Blower	Day Rate	
1.01s	Poker Vibrator 200Hz,2850 rpm	Day Rate	
1.01t	Concrete Balloon – Rubber/Synthetic Tire-cord	Day Rate	
1.01u	Concrete Pump	Day Rate	
1.01v	Concrete mixer with 400l bucket capacity	Day Rate	

Item	Description		
		Unit	Rate for EIA
1.01w	Tipper Truck 16-25 Tonnes Gross Capacity	Day Rate	
1.01x	Water Bowser	Day Rate	
1.01y	Crane – 20Tonne capacity	Day Rate	
1.01z	Crane – 100Tonne capacity	Day Rate	
1.01aa	Drill	Day Rate	
1.01bb	High loader	Day Rate	
1.01cc	Asphalt Milling Machine	Day Rate	
1.02	Allow for provision, mobilization, demobilization and maintenance of a containerized office for the engineers site office, including lighting, drinking water, flushable toilet, sockets and internet services.	Day Rate	
1.03	Allow for provision of survey equipment and material for use by the Engineer during construction.	Day rate	
1.04	Capacity building (Kenya based) training of civil engineering staff to ensure progressive career development and adaptability to the modern technology and modes of operation in the following areas; The training must be by an institution approved by ICAO and/or KCAA such as EASA and other state regulatory bodies such as KEBS, EBK, IEK or any other relevant body meeting the description herein.		
1.04a	Tuition fee per person up to a maximum of Ksh 250,000.00 for Airport pavement design, evaluation and maintenance or any other approved course.	Rate/pax	
1.04b	Tuition fee per person up to a max of 100,000.00 as in item 1.04a above.	Rate/pax	
1.04c	Tuition fee per person up to a max of 50,000.00 as in item 1.04a above	Rate/pax	
1.04d	KAA staff Travel Cost – Economy return Air ticket to any major town within the Country (in Kshs).	Pax	
1.04e	KAA Staff Travel Cost -Local Travel –provide van to accommodate Max 14 pax complete with fuel and driver.	Veh/day	
1.04f	KAA Staff Grade 8 –Allowances Kshs.16,800/day	Pax/Day	
1.04g	KAA Staff Grade 7- Allowance Kshs.14,000/ day	Pax/Day	

Item	Description		
		Unit	Rate for EIA
1.04h	KAA Staff Grade 6 Allowance Kshs.11,200 / day	Pax/Day	
1.04i	KAA Staff Grade 5 Allowance Kshs.11,200/day	Pax/Day	
1.04j	KAA Staff Grade 4 Allowance Ksh. 6,300 /day	Pax/Day	
1.04k	KAA Casual Allowance Ksh. 4,200 /day	Pax/Day	
1.05	Ditto as in 1.05 but International Training		
1.05a	Tuition fee per person up to a maximum of Ksh 2,000,000.00 for Airport pavement design, evaluation and maintenance or any other approved course.	Rate/pax	
1.05b	Tuition fee per person up to a maximum of Ksh 1,500,000.00 as in item 1.05a above.	Rate/pax	
1.05c	Tuition fee per person up to a maximum of Ksh 1,000,000.00 as in item 1.05a above.	Rate/pax	
1.05d	Tuition fee per person up to a maximum of Ksh 500,000.00 as in item 1.05a above.	Rate/pax	
1.05e	Tuition fee per person up to a maximum of Ksh 250,000.00 as in item 1.05a above.	Rate/pax	
1.05f	KAA staff Travel Cost inclusive of Economy return Air ticket and VISA fees to any foreign country (in USD).	Rate/pax	
1.05g	KAA staff local travel cost within the foreign country	Rate/pax/day	
1.05h	KAA Staff Grade 9 –Allowances 647 USD per day	Pax/Day	
1.05i	KAA Staff Grade 8 – Allowances 647 USD per day	Pax/Day	
1.05j	KAA Staff Grade 7- Allowance 549 USD per day	Pax/Day	
1.05k	KAA Staff Grade 6 Allowance 549 USD per day	Pax/Day	
1.05l	KAA Staff Grade 5 Allowance 549 USD per day	Pax/Day	
1.05m	KAA Staff Grade 4 Allowance 477 USD per day	Pax/Day	
1.06	Prime Cost Sum for removal and reinstatement of services.	PC Sum	500,000.00
1.06a	Percentage of Prime Cost Sum in Item 1.06 for Contractor's overheads and profits.	%	
1.07	Engineer's site staff communication airtime Kshs. 100,000.	Rate	
1.08	Prime Cost Sum for materials testing.	PC Sum	500,000.00
1.09	Percentage of Prime Cost Sum in Item 1.08 for	%	

Item	Description		
		Unit	Rate for EIA
	Contractor's overheads and profits.		
1.10	Provide a Total Station to the approval and exclusive use by the Engineer, complete with Prism and Tripod with an accuracy of 0.9 seconds for the duration of the Contract. The TS to be supplied with download software. Upon completion of the Contract, it shall revert to the Contractor.	Day Rate	
1.11	Allow for provision and maintenance of dumpy level survey equipment complete with staff and bubble for exclusive use by the Engineer.	Day Rate	
1.12	Prime Cost Sum for Engineer's miscellaneous account.	PC Sum	500,000.00
1.13	Percentage of Prime Cost Sum in Item 1.12 for Contractor's overheads and profits.	%	
1.14	Prime Cost Sum for off-site materials testing.	PC Sum	500,000.00
1.15	Percentage of Prime Cost Sum in Item 1.14 for Contractor's overheads and profits.	%	
1.16	Provide and erect publicity signs as directed by the engineer in accordance with the standard KAA publicity signboard specifications.	No.	
1.17	Provide, fuel and maintain with driver, comprehensively insured, new 4WD,double cabin vehicle (odometer:0-10,000km)of diesel engine capacity 2,700 - 3000cc or equivalent for the exclusive use of the engineer inclusive of the first 4000km per vehicle month in accordance with clause 138 of the standard specification.	Month	
1.18	E.O.Item 1.17 for mileage over 4,000km per vehicle month.	Km	
1.19	Provide, fuel and maintain with driver, a comprehensively insured, 4WD,station wagon vehicle (odometer:0-10,000km) of minimum diesel engine capacity 2700cc turbo charged or equivalent for the exclusive use of the engineer inclusive of the first 4000km per vehicle month in accordance with clause 138 of the standard specification.	Month	
1.20	E.O.Item 1.19 for mileage over 4,000km per vehicle month.	Km	
1.21	Provide, fuel and maintain with driver, a comprehensively insured, new 4WD,saloon vehicle (odometer:0-10,000km)	Month	

Item	Description	Unit	Rate for EIA
	of diesel engine capacity 2,700-3000cc or equivalent for the exclusive use of the engineer inclusive of the first 4000km per vehicle month in accordance with clause 138 of the standard specification.		
1.22	E.O.Item 1.21 for mileage over 4,000km per vehicle month.	Km	
1.23	Prime Cost Sum for attendance to the Engineers site staff	PC Sum	500,000.00
1.24	Percentage of Prime Cost Sum in Item 1.23 for Contractor's overheads and profits.	%	
1.25	Prime Cost Sum for provision of equipment for the engineers site office.	PC Sum	500,000.00
1.26	Percentage of Prime Cost Sum in Item 1.25 for Contractor's overheads and profits.	%	
1.27	Prime cost sum for off-road environmental mitigation measures.	PC Sum	100,000.00
1.28	Percentage of Prime Cost Sum in Item 1.27 for Contractor's overheads and profits.	%	
1.29	Allow for provision of communication air to ground base radio for car mounting of range from (118 – 136) MH with frequencies selectable within the range and appropriate antenna, 2 new handheld air to ground radios of same frequencies NB: The Radios Shall be Handed over to the Client on Completion of the Project in good working condition.	Rate	
1.30	Allow for working at night on active aircraft pavements.	Item	
1.31	Allow for sampling and testing of material samples by KeBS or accredited laboratory approved by employer – a certificate shall accompany each material stating compliance with the applicable standards.	PC Sum	200,000.00
1.32	Percentage of Prime Cost Sum in Item 1.31 for Contractor's overheads and profits.	%	
	BILL 4: SITE CLEARANCE AND TOPSOIL STRIPPING		
	No separate payment shall be made for the overhaul material out of the airport and the cost of such haulage shall be included in the rate and /or prices.		

Item	Description		
		Unit	Rate for EIA
4.01	Light Bush clearing as directed by the Engineer.	Sq.m	
4.02	Heavy bush clearing as directed by the Engineer.	Sq.m	
4.03	Clear site on road reserve including removal of trees, hedges, bushes, vegetation with approved material in accordance with the specification, and as directed by the engineer.	Ha.	
4.04	Removal of topsoil to a maximum depth of 200mm in accordance with the specification and as directed by the engineer.	Cu.m	
4.05	Hack concrete from bridge deck slab, abutments and wing walls to expose reinforcement as directed.	Cu.m	
4.06	Excavate, remove and dispose cracked pipe culverts of any size.	M	
4.07	Cutting and disposal of trees of girth 1000mm and below	No.	
4.08	Cutting and disposal of trees of girth 1000mm and above	No.	
4.09	Grass cutting to a height below 50mm or as specified.	Sq.m	
	BILL 5: EARTHWORKS.		
	No separate payment shall be made for the overhaul material into or out of the airport and the cost of such haulage shall be included in the rate and /or prices. It is the Contractor's responsibility to identify quarries, borrow pits and spoil areas.		
5.01	Fill in soft material.	Cu.m	
5.02	As in Item 5.01 but in hard material	Cu.m	
5.03	As in Item 5.01 for compaction of top 300mm in fills to 100% MDD (AASHTO T99)	Cu.m	
5.04	Cut to spoil in soft material.	Cu.m	
5.05	As in Item 5.04 but in hard material.	Cu.m	
5.06	Compact the top 150mm layer of existing ground fills and cuts to 95% MDD (AASHTO T99)	Cu.m	
5.07	Provide place and compact to refusal Rockfill	Cu.m	
5.08	Filter fabric under, over or around rockfill.	Sq.m	
5.09	Top soiling	Sq.m	

Item	Description		
		Unit	Rate for EIA
5.10	Grassing	Sq.m	
	BILL 7: EXCAVATION AND FILLING FOR STRUCTURES		
7.01	Excavation in soft material for major structures i.e. box culverts and gabion works.	Cu.m	
7.02	As for Item 7.01 but in hard material.	Cu.m	
7.03	Provide and place macaferri or equivalent gabion boxes and mattresses as specified.	Sq.m	
7.04	Provide and place rockfill to gabions.	Cu.m	
7.05	Provide stone pitching as directed by the Engineer.	Sq.m	
7.06	E.O. Item 7.05 for cement grouting as directed by the Engineer.	Sq.m	
7.07	Provide, place and compact rockfill below structures as directed by the Engineer.	Cu.m	
7.08	Provide and place porous material behind wing walls.	Cu.m	
	BILL 8: CULVERTS AND DRAINAGE WORKS		
	No separate payment shall be made for the haulage of surplus or unsuitable excavated material out of the airport and the cost of such haulage shall be included in the rates/prices.		
8.01	Excavate, desilt, grade to shape inlets outfalls, side drains to free flow conditions including cart to spoil any excess grass debris and soils as and where directed by the Engineer.	Cu.m	
8.02	Clean culverts 450mm dia culvert to free flow conditions.	m	
8.03	Clean culverts 600mm dia culvert to free flow conditions.	m	
8.04	Clean culverts 900mm dia culvert to free flow conditions.	m	
8.05	Clean culverts 1200mm dia culvert to free flow conditions.	m	
8.06	Clean IBD drains to free flow conditions	m	
8.07	Excavate in soft materials for pipe culverts headwalls, wing walls, apron, toe walls and drop inlets.	Cu.m	
8.08	Repair inlet or outlet to existing pipe culverts in Class 25/20 concrete as directed by the Engineer.	Cu.m	

Item	Description		
		Unit	Rate for EIA
8.09	Provide, lay and joint 600mm inner diameter (ID) precast concrete pipes.	m	
8.10	As in Item 8.09 but 450mm ID.	m	
8.11	As in Item 8.09 but 900mm ID.	m	
8.12	As in Item 8.09 but 1200mm ID.	m	
8.13	Provide place and compact class 15/20 concrete to beds, surrounds and haunches.	Cu.m	
8.14	Provide place and compact class 20/20 concrete to headwalls, wing walls, aprons and culverts including formwork.	Cu.m	
8.15	Provide place and compact class 25/20 concrete to headwalls, wing walls, aprons and culverts including formwork.	Cu.m	
8.16	Provide and place A142 fabric mesh reinforcement	Sq.m	
8.17	Excavate in any material provided and joint 300mm inner diameter half round precast concrete channel with maximum 4 no. courses of precast side slabs of 600x225x75mm as lining for storm water drain including bedding and backfilling with selected material as directed by the Engineer.	m	
8.18	Excavate in any material provided and joint 600x360mm invert block drains (IBD) precast concrete channels with two courses of side slabs of 600x225x75mm as lining on each side for storm water drain including bedding, jointing and backfilling with selected material as directed by the Engineer.	m	
8.19	Excavate and trim to shape, provide place precast concrete side slabs of 600x225x75mm as lining on each side for storm water drain including bedding jointing and backfilling with selected material as directed by the Engineer.	Sq.m	
8.20	Construct concrete scour checks as specified and directed by the Engineer.	Cu.m	
8.21	Excavate for and construct subsoil drains where directed including backfilling with approved hard material.	Cu.m	
8.22	E.O. Item 8.21 for filter fabric material.	Sq.m	

Item	Description		
		Unit	Rate for EIA
8.23	Provide and place heavy gauge 100mm dia PVC pipes for weep holes as directed by the Engineer.	m	
8.24	Provide and place heavy gauge 150mm dia PVC pipes for weep holes as directed by the Engineer.	m	
8.25	Provide and place heavy gauge 200mm dia PVC pipes for weep holes as directed by the Engineer.	m	
8.26	Provide and place heavy gauge 300mm dia PVC pipes for weep holes as directed by the Engineer.	m	
	BILL 9: PASSAGE OF TRAFFIC		
9.01	Allow for the passage of traffic through the works.	Km	
9.02	Construct and maintain 7m wide deviation in accordance with the specifications and as directed by the Engineer.	Km	
9.03	Improve existing public road in accordance with the specification and as directed by the engineer.	Km	
9.04	Provide natural gravel of CBR greater than 30%, lay water and compact to 150mm thickness as gravel wearing course on deviation and existing road in accordance with the specifications and as directed by the Engineer.	Cu.m	
9.05	Construct 7m wide access roads, including gravel wearing course, in accordance with the specifications and as directed by the Engineer.	Km	
	BILL 10: GRADING AND GRAVELLING		
	No overhaul out of the airport will be paid separately under this item and the cost for haulage will be deemed to have been included in the rates (METHOD A).		
10.01	Carry out light grading to the existing carriage with watering and compaction to camber, including slope and ditches as instructed by the Engineer.	Sq.m	
10.02	Carry out heavy grading to existing carriageway with watering and compaction to camber, including slope and ditches as instructed by the Engineer.	Sq.m	
10.03	Remove overburden material out of sites and cart away from airport as instructed.	Cu.m	

Item	Description		
		Unit	Rate for EIA
10.04	Excavate gravel and stockpile within the airport as instructed.	Cu.m	
10.05	Load, haul and dump gravel as instructed.	Cu.m	
10.06	Provide, spread, grade, water and compact approved gravel imported from outside airport facility to specified thickness at 95% MDD.	Cu.m	
	BILL 11: SHOULDERS TO PAVEMENTS		
11.01	Prepare surface of existing shoulders, and accesses, including benching where necessary, water process and compact in accordance with the specifications and as directed by the Engineer to receive gravel.	Sq.m	
11.02	Provide, place, water and compact natural gravel to shoulders and accesses.	Cu.m	
	BILL 12: NATURAL MATERIAL BASE AND BASECOURSE		
	No overhaul into or out of the airport will be paid separately under this item and the cost for haulage will be deemed to have been included in the rates		
12.01	Excavate existing bituminous surfacing or pavement material to spoil or stockpile for reuse as directed by the Engineer.	Cu.m	
12.02	Break or scarify the existing pavement layer, and compact as specified and directed by the Engineer.	Cu.m	
12.03	Excavate by milling existing bituminous surfacing or pavement material to spoil or stockpile for reuse as directed by the Engineer.	Cu.m	
12.04	Recycle (cold in place) the existing bituminous pavement layer for re-use including addition of approved fresh material and as directed by the Engineer.	Cu.m	
12.05	Recycle (hot in place) the existing bituminous pavement layer for re-use including addition of approved fresh material and as directed by the Engineer.	Cu.m	
12.06	Provide, place,spread,water and compact natural gravel of CBR greater than 30% on repair and reconstruction areas as specified and as directed by the Engineer.	Cu.m	
12.07	Provide, lay and compact hand packed stone material including filling of voids with stone dust as directed by the	Cu.m	

Item	Description		
		Unit	Rate for EIA
	Engineer.		
	BILL 13: GRADED CRUSHED STONE SUBBASE AND BASE		
13.01	Provide, place, spread and compact Class A Graded Crushed Stone (GCS) to 98% MDD with results not less than 96% MDD	Cu.m	
	BILL 14: CEMENT AND LIME TREATED MATERIAL		
14.01	Provide, transport to site and spread cement on natural gravel or GCS material for base or subbase as specified and as directed by the Engineer at 30-50kg/cu.m.	Tonne	
14.02	As Item 14.01 but lime.	Tonne	
14.03	Allow for mixing in cement and/or lime into natural gravel or GCS.	Cu.m	
14.04	Allow for curing and protection of treated layers as specified.	Sq.m	
	BILL15: BITUMINOUS SURFACE TREATMENT AND DRESSING		
15.01	Prepare surface of carriageway and repair areas, provide and spray MC-30 cut back bitumen at a rate of 0.8-1.2 ltr/sq.m as prime coat.	litre	
15.02	Prepare primed surfaces, provide and spray 80/100 penetration grade bitumen at a spray rate of 1.2 ltr/sq.m as binder for first seal on carriageway shoulder and junctions.	litre	
15.03	Prepare surface of carriageway and repair areas, provide and spray MC-70 cut back bitumen at a rate of 0.8-1.2 ltr/sq.m as prime coat	litre	
15.04	Prepare surface of repair areas, provide and spray K1-70 bitumen emulsion as tack coat or seal to repair areas at a spray rate of 0.8-1.0 ltr/sq.m.	litre	
15.05	Prepare existing or new bituminous surface, provide and spray 80/100 penetration grade bitumen at a spray rate of 1.0-1.2 ltr/sq.m as binder for single or second seal on carriageway shoulders and junctions.	litre	
15.06	Provide, spread and roll 10/14 mm pre coated chippings at a spread rate of 90-110 sq.m/cu.m for a single seal to carriageway as directed by the Engineer.	Cu.m	

Item	Description		
		Unit	Rate for EIA
15.07	Provide, spread and roll 6/10 mm pre coated chippings at a spread rate of 110-130 sq.m/cu.m as second seal as directed by the Engineer.	Cu.m	
15.08	Prepare surface of carriageway, provide and spray 80/100 penetration grade bitumen cut back using 5-15% kerosene as tack coat for asphalt concrete wearing course at a spray rate of 0.5-0.7 ltr/sq.m..	litre	
15.09	Prepare surface of repair areas, provide and spray K1-60 bitumen emulsion as tack coat or seal to repair areas at a spray rate of 0.8-1.0 ltr/sq.m.	litre	
15.10	Provide kerosene fuel as a cutter for 80/100 penetration grade bitumen.	litre	
15.11	Provide, spread and roll 0/6 mm chippings (quarry dust) at a spread rate of 150-200 sq.m/cu.m to the seal on repair areas or on repaired areas to allow passage of traffic.	Cu.m	
	BILL 16: BITUMINOUS MIXES		
16.01	Excavate, trim and clean potholes, failed and damaged areas of the carriageway and edges including cart to spoil the excavated materials.	Cu.m	
16.02	Repair transverse or longitudinal cracking on asphalt concrete (crack sealing) as directed by the Engineer.	m	
16.03	Milling the existing bituminous layer to spoil to a maximum depth of 50mm thick.	Sq.m	
16.04	Milling the existing bituminous layer to spoil to a maximum depth of 100mm thick.	Sq.m	
16.05	Provide, place and compact Asphalt Concrete Type 1 with 5-7% nominal bitumen content by weight to total mix as wearing course on carriageway as directed by the Engineer. Maximum volume 15 cu.m.	Cu.m	
16.06	As in item 16.05 but total volume between 15cu.m-300 cu.m	Cu.m	
16.07	As in item 16.05 but total volume between over 300 cu.m		
16.08	Provide, place and compact Asphalt Concrete Type 1 for bumps and rumble strips as directed by the Engineer.	Cu.m	
16.09	Provide, place and compact Asphalt Concrete Type 1 to repair areas and for regulation to carriageway as directed	Cu.m	

Item	Description	Unit	Rate for EIA
	by the Engineer. Total volume 10cu.m		
16.10	As in item 16.09 but total volume between 10cu.m-50 cu.m	Cu.m	
16.11	As in item 16.10 but total volume between 50 cu.m	Cu.m	
16.12	Provide, place and compact Dense Bituminous Macadam (DBM) with 3.0-4.5% nominal bitumen content by weight to total mix or as base on reconstruction sections as directed by the Engineer. Maximum volume 15cu.m.	Cu.m	
16.13	As in item 16.12 but total volume between 15cu.m-300 cu.m	Cu.m	
16.14	As in item 16.12 but total volume over 300 cu.m	Cu.m	
	Bill 17: CONCRETE WORKS		
	Concrete Provide, place, compact and cure the following classes of concrete as specified.		
17.01	Class 15/20 for blinding	Cu.m	
17.02	Class 20/20 concrete	Cu.m	
17.03	Class 25/20 for concrete	Cu.m	
17.04	Class 30/20 for concrete	Cu.m	
17.05	Class 40/20 for concrete	Cu.m	
17.06	Class 45/20 for concrete	Cu.m	
	Formwork Provide, erect and afterwards dismantle and remove all the formwork as specified by the Engineer		
17.07	Vertical formwork class F3 finish	Sq.m	
17.08	Horizontal formwork class F3 finish	Sq.m	
	Reinforcement Provide, bend and fix into positions high yield steel bars to BS4461 the following steel reinforcement as directed and as shown on the drawings.		
17.09	Reinforcement bars of high yield strength to BS4461, size 16mm and above.	Tonne	

Item	Description		
		Unit	Rate for EIA
17.10	Reinforcement bars of high yield strength to BS4461, size 12mm and below.	Tonne	
17.11	Provide and place on 50mm thick sand bed and vibrate, 60mm thick Heavy Duty paving blocks of any pattern on edges as specified.	Sq.m	
17.12	Provide and place on 50mm thick sand bed and vibrate, 80mm thick Heavy Duty paving blocks of any pattern on edges as specified.	Sq.m	
17.13	As item 17.11 but coloured	Sq.m	
17.14	As item 17.12 but coloured	Sq.m	
17.15	Provide and place Standard Heavy Duty paving slabS size 600x600x50mm.	Sq.m	
	BILL 20: ROAD FURNITURE		
20.01	Allow for removal/obliteration of peeling and accumulated rubber on the marked surface of the pavements using suitable equipment and cart away debris and dispose away from airport.	Sq.m	
20.02	Allow for removal/obliteration of unwanted markings on the surface of the pavements using suitable equipment and cart away debris and dispose away from airport.	Sq.m	
20.03	Prepare surface and repaint(apply) two coats of white/yellow/black/red oxide acrylic airfield pavement marking paint mixed with approved pavement thinner and ballotini beads as directed by Engineer.	Sq.m	
20.04	Prepare surface and apply three coats of white/yellow/black/red acrylic road marking paints to new pavement surfaces mixed with approved pavement thinner and ballotini beads as directed by Engineer.	Sq.m	
20.05	Provide and lay hot applied thermoplastic road marking compound in approved colour and shade with ballotini beads for road marking on bituminous surface using fully automatic extrusion machine and using pre-melter for melting thermoplastic material including cleaning the surface of all dirt, dust, and other foreign matter, complete with demarcation at site/premarking, finishing and managing the traffic movements as instructed by the	Sq.m	

Item	Description	Unit	Rate for EIA
	Engineer		
20.06	Provide and place the appropriate sealant for sealing Joints in concrete works upto a maximum width of 25mm (Elastic jet fuel resistant sealant to ASTM D3581)	m	
20.07	Provide and place Styrofoam at expansion joints upto a maximum width of 25mm for concrete and/or Asphalt and as specified by the Engineer.	m	
20.08	Provide and place white/white,white/red, yellow/yellow,red/red retro reflective road studs as instructed	No.	
20.09	Remove and dispose the damaged existing guard rails as directed by the Engineer.	m	
20.10	Provide and place new flex-beam guard rails complete with pre-cast flex-beam guardrail posts, spacers, nuts, bolts and fittings as directed by the Engineer.	m	
20.11	Provide and place 1500mmx200mmx3mm thickness CHS steel bollards 1200mm above and 300mm embedded below ground. Filled with concrete class 20/20, painted with alternating yellow and black strips 150mm wide place as directed by the Engineer.	No.	
20.12	Provide and place night safety retro reflective tape 50mm wide of colors Yellow, white or red glued to bollards as instructed by Engineer.	m	
20.13	Provide and erect permanent road signs where instructed by the Engineer and in accordance with the specifications as follows:		
	(a) Warning signs	No.	
	(b) Priority, prohibitory and mandatory signs	No.	
	(c) Standard informatory signs	No.	
	(d) Nonstandard signs (i) Less than 1.0 sq.m (ii) 1.0 sq.m to 2.0 sq.m (iii) 2.0 sq.m to 4.0 sq.m (iv) 4.0 sq.m to 5.0 sq.m	 No. No. No. No.	

Item	Description	Unit	Rate for EIA
20.14	Excavate for, provide and place 250x125mm class 25/20 precast concrete raised or ramped kerbs haunched in 100mm thick class 15/20 concrete base bedding and mortar joined in support to carriageway as directed by the Engineer.		
	(a) Straight Kerbs	m	
	(b) Kerbs radius: 12m – 6m	m	
	(c) Ditto but radius:5m – 1m	m	
20.15	Ditto 20.11 but flush kerbs:		
	(a) Straight Kerbs	m	
	(b) Kerbs radius: 12m – 6m	m	
	(c) Ditto but radius:5m – 1m	m	
20.16	Excavate holes for fencing posts footing not exceeding 1.50 m deep, average 1.0m deep in hard and soft material; ram base to receive 'Class 20' concrete bases; include carting away.	Cu.m	
20.17	Ditto but for chain-link anchoring posts	Cu.m	
20.18	Mass concrete; Class 20 in footings	Cu.m	
20.19	Ditto but for chain-link anchoring posts	Cu.m	
20.20	Supply and install precast reinforced intermediate posts size 125 x125mm overall height 2.4m with cranked top of 475mm long as per detailed drawing including labor for 6mm diameter holes and bolts and 8mm galvanized mild steel bars with 12.5 S.W.G. stirrups at 350mm c/c as per detailed drawing to Engineer’s approval and satisfaction.	No.	
20.21	Ditto 20.05 but precast reinforced straining posts size 125x125mm all through; overall height 2.4m with cranked top of 475mm long as per detailed drawing including labour for 6mm diameter holes and bolts and 8mm galvanized mild steel bars with 12.5 S.W.G. stirrups at 350mm c/c as per detailed drawing with and including provision to receive struts to detail drawing to Engineer's approval.	No.	
20.22	Ditto 20.05 but precast reinforced straining posts size 150x150mm all through; overall height 2.4m with cranked top of 475mm long as per detailed drawing including	No.	

Item	Description	Unit	Rate for EIA
	labour for 6mm diameter holes and bolts and 8mm galvanized mild steel bars with 12.5 S.W.G. stirrups at 350mm c/c as per detailed drawing with and including provision to receive struts to detail drawing to Engineer's approval.		
20.23	100 x 80mm precast reinforced concrete struts to detail anchor on to concrete base and straining posts at approved level and 45 degrees to the horizontal to detail drawings and Engineer's approval.	No.	
20.24	High tensile galvanized barbed wire 12 1/2 G (2.5mm diameter) threaded through posts secured by galvanized binding wire to Engineer's approval.	m	
20.25	Supply, fabricate and install galvanized heavy duty metal gate overall size 6000 x 2400mm high; in two equal leaves; with and including 100 x 100 x 6mm SHS fixed firmly to the ground in approved concrete base; 8 gauge welded wire mesh covering fixed to 50 x 50 x 4mm SHS and tower locking heavy gauge bolt (including VIRO Cylinder 104); 3 lines of 12.5 gauge barbed wire at the top of each leaf; all as per attached drawings and approval of Project Manager. Gate to be painted in three coats of approved protective paint.	No.	
20.26	High tensile galvanized straining wire 9.5 Gauge through concrete posts (m/s) including hook bolts.	m	
20.27	Supply materials, fabricate and install galvanized heavy duty metal gate overall size 1000 x 2400mm high pedestrian gate with and including 75 x 75 x 4mm SHS fixed firmly to the ground in approved concrete base; 8 gauge welded wire mesh covering fixed to 50 x 50 x 4mm SHS and tower locking heavy gauge bolt (including VIRO Cylinder 104); 3 lines of 12.5 gauge barbed wire at the top; all as per attached drawings and approval of Project Manager. Gate to be painted in three coats of approved protective paint. Rate inclusive of casting of beam.	No.	
20.28	Supply and fix 2.4m high galvanized chain-link; gauge 9.5; 50x50mm mesh onto precast concrete posts (m/s); fastening with 5 No. lines of galvanized wire (m/s); threaded through and including mesh and hook bolts; secured by binding wire; all as per the drawings.	m	
20.29	Supply and fix 2.4m high galvanized chain-link; gauge	m	

Item	Description		
		Unit	Rate for EIA
	12.5; 50x50mm mesh onto precast concrete posts (m/s); fastening with 5 No. lines of galvanized wire (m/s); threaded through and including mesh and hook bolts; secured by binding wire; all as per the drawings.		
20.30	Excavate 150mm by 300 mm for ground beam	Cu.m	
20.31	Mass concrete; Class 20 in ground beam	Cu.m	

BILL OF QUANTITIES OF FRAMEWORK AGREEMENT FOR PAVEMENT MAINTENANCE TERM CONTRACT SERVICES AT KISUMU INTERNATIONAL AIRPORT (KIA).

Item	Description		
		Unit	Rate for KIA
	BILL 1: GENERAL		
1.01	Rate for mobilization/demobilization and availability during works of construction equipment for works whose duration is less than 2 days as per schedule below:		
1.01a	Asphalt Paver	Day Rate	
1.01b	Single Steel Drum Compaction Roller > or =18tonnes	Day Rate	
1.01c	Double tandem steel drum roller >/= 18 Tonnes	Day Rate	
1.01d	Sheepsfoot Roller > or = 20 Tonnes	Day Rate	
1.01e	Pneumatic Tiered Roller >/= 20 Tonnes	Day Rate	
1.01f	Bi-axial Pedestrian Roller >/= 6 Tonnes, 13.0/9.0 HP	Day Rate	
1.01g	Plate Compactor – plate size 540x420mm	Day Rate	
1.01h	Motor Grader CAT 12H or Equivalent.	Day Rate	
1.01i	Hydraulic Excavator CAT 322 or Equivalent.	Day Rate	
1.01j	Excavator with Jack hammer attachment CAT 322 or Equivalent	Day Rate	
1.01k	Back hoe Loader CAT 428 or Equivalent	Day Rate	
1.01l	Wheel Loader 4WD Articulated CAT 950 or Equivalent.	Day Rate	
1.01m	Disk concrete cutter	Day Rate	
1.01n	Air compressor	Day Rate	
1.01o	Pressure Bitumen Distributor Min 5000L	Day Rate	
1.01p	Bitumen Hand sprayer	Day Rate	
1.01q	Mechanical broom 74HP	Day Rate	
1.01r	Air Blower	Day Rate	
1.01s	Poker Vibrator 200Hz,2850 rpm	Day Rate	
1.01t	Concrete Balloon – Rubber/Synthetic Tire-cord	Day Rate	
1.01u	Concrete Pump	Day Rate	
1.01v	Concrete mixer with 400l bucket capacity	Day Rate	

Item	Description		
		Unit	Rate for KIA
1.01w	Tipper Truck 16-25 Tonnes Gross Capacity	Day Rate	
1.01x	Water Bowser	Day Rate	
1.01y	Crane – 20Tonne capacity	Day Rate	
1.01z	Crane – 100Tonne capacity	Day Rate	
1.01aa	Drill	Day Rate	
1.01bb	High loader	Day Rate	
1.01cc	Asphalt Milling Machine	Day Rate	
1.02	Allow for provision, mobilization, demobilization and maintenance of a containerized office for the engineers site office, including lighting, drinking water, flushable toilet, sockets and internet services.	Day Rate	
1.03	Allow for provision of survey equipment and material for use by the Engineer during construction.	Day rate	
1.04	Capacity building (Kenya based) training of civil engineering staff to ensure progressive career development and adaptability to the modern technology and modes of operation in the following areas; The training must be by an institution approved by ICAO and/or KCAA such as EASA and other state regulatory bodies such as KEBS, EBK, IEK or any other relevant body meeting the description herein.		
1.04a	Tuition fee per person up to a maximum of Ksh 250,000.00 for Airport pavement design, evaluation and maintenance or any other approved course.	Rate/pax	
1.04b	Tuition fee per person up to a max of 100,000.00 as in item 1.04a above.	Rate/pax	
1.04c	Tuition fee per person up to a max of 50,000.00 as in item 1.04a above	Rate/pax	
1.04d	KAA staff Travel Cost – Economy return Air ticket to any major town within the Country (in Kshs).	Pax	
1.04e	KAA Staff Travel Cost -Local Travel –provide van to accommodate Max 14 pax complete with fuel and driver.	Veh/day	
1.04f	KAA Staff Grade 8 –Allowances Kshs.16,800/day	Pax/Day	
1.04g	KAA Staff Grade 7- Allowance Kshs.14,000/ day	Pax/Day	

Item	Description		
		Unit	Rate for KIA
1.04h	KAA Staff Grade 6 Allowance Kshs.11,200 / day	Pax/Day	
1.04i	KAA Staff Grade 5 Allowance Kshs.11,200/day	Pax/Day	
1.04j	KAA Staff Grade 4 Allowance Ksh. 6,300 /day	Pax/Day	
1.04k	KAA Casual Allowance Ksh. 4,200 /day	Pax/Day	
1.05	Ditto as in 1.05 but International Training		
1.05a	Tuition fee per person up to a maximum of Ksh 2,000,000.00 for Airport pavement design, evaluation and maintenance or any other approved course.	Rate/pax	
1.05b	Tuition fee per person up to a maximum of Ksh 1,500,000.00 as in item 1.05a above.	Rate/pax	
1.05c	Tuition fee per person up to a maximum of Ksh 1,000,000.00 as in item 1.05a above.	Rate/pax	
1.05d	Tuition fee per person up to a maximum of Ksh 500,000.00 as in item 1.05a above.	Rate/pax	
1.05e	Tuition fee per person up to a maximum of Ksh 250,000.00 as in item 1.05a above.	Rate/pax	
1.05f	KAA staff Travel Cost inclusive of Economy return Air ticket and VISA fees to any foreign country (in USD).	Rate/pax	
1.05g	KAA staff local travel cost within the foreign country	Rate/pax/day	
1.05h	KAA Staff Grade 9 –Allowances 647 USD per day	Pax/Day	
1.05i	KAA Staff Grade 8 – Allowances 647 USD per day	Pax/Day	
1.05j	KAA Staff Grade 7- Allowance 549 USD per day	Pax/Day	
1.05k	KAA Staff Grade 6 Allowance 549 USD per day	Pax/Day	
1.05l	KAA Staff Grade 5 Allowance 549 USD per day	Pax/Day	
1.05m	KAA Staff Grade 4 Allowance 477 USD per day	Pax/Day	
1.06	Prime Cost Sum for removal and reinstatement of services.	PC Sum	500,000.00
1.06a	Percentage of Prime Cost Sum in Item 1.06 for Contractor's overheads and profits.	%	
1.07	Engineer's site staff communication airtime Kshs. 100,000.	Rate	
1.08	Prime Cost Sum for materials testing.	PC Sum	500,000.00
1.09	Percentage of Prime Cost Sum in Item 1.08 for	%	

Item	Description		
		Unit	Rate for KIA
	Contractor's overheads and profits.		
1.10	Provide a Total Station to the approval and exclusive use by the Engineer, complete with Prism and Tripod with an accuracy of 0.9 seconds for the duration of the Contract. The TS to be supplied with download software. Upon completion of the Contract, it shall revert to the Contractor.	Day Rate	
1.11	Allow for provision and maintenance of dumpy level survey equipment complete with staff and bubble for exclusive use by the Engineer.	Day Rate	
1.12	Prime Cost Sum for Engineer's miscellaneous account.	PC Sum	500,000.00
1.13	Percentage of Prime Cost Sum in Item 1.12 for Contractor's overheads and profits.	%	
1.14	Prime Cost Sum for off-site materials testing.	PC Sum	500,000.00
1.15	Percentage of Prime Cost Sum in Item 1.14 for Contractor's overheads and profits.	%	
1.16	Provide and erect publicity signs as directed by the engineer in accordance with the standard KAA publicity signboard specifications.	No.	
1.17	Provide, fuel and maintain with driver, comprehensively insured, new 4WD,double cabin vehicle (odometer:0-10,000km)of diesel engine capacity 2,700 - 3000cc or equivalent for the exclusive use of the engineer inclusive of the first 4000km per vehicle month in accordance with clause 138 of the standard specification.	Month	
1.18	E.O.Item 1.17 for mileage over 4,000km per vehicle month.	Km	
1.19	Provide, fuel and maintain with driver, a comprehensively insured, 4WD,station wagon vehicle (odometer:0-10,000km) of minimum diesel engine capacity 2700cc turbo charged or equivalent for the exclusive use of the engineer inclusive of the first 4000km per vehicle month in accordance with clause 138 of the standard specification.	Month	
1.20	E.O.Item 1.19 for mileage over 4,000km per vehicle month.	Km	
1.21	Provide, fuel and maintain with driver, a comprehensively insured, new 4WD,saloon vehicle (odometer:0-10,000km)	Month	

Item	Description	Unit	Rate for KIA
	of diesel engine capacity 2,700-3000cc or equivalent for the exclusive use of the engineer inclusive of the first 4000km per vehicle month in accordance with clause 138 of the standard specification.		
1.22	E.O.Item 1.21 for mileage over 4,000km per vehicle month.	Km	
1.23	Prime Cost Sum for attendance to the Engineers site staff	PC Sum	500,000.00
1.24	Percentage of Prime Cost Sum in Item 1.23 for Contractor's overheads and profits.	%	
1.25	Prime Cost Sum for provision of equipment for the engineers site office.	PC Sum	500,000.00
1.26	Percentage of Prime Cost Sum in Item 1.25 for Contractor's overheads and profits.	%	
1.27	Prime cost sum for off-road environmental mitigation measures.	PC Sum	100,000.00
1.28	Percentage of Prime Cost Sum in Item 1.27 for Contractor's overheads and profits.	%	
1.29	Allow for provision of communication air to ground base radio for car mounting of range from (118 – 136) MH with frequencies selectable within the range and appropriate antenna, 2 new handheld air to ground radios of same frequencies NB: The Radios Shall be Handed over to the Client on Completion of the Project in good working condition.	Rate	
1.30	Allow for working at night on active aircraft pavements.	Item	
1.31	Allow for sampling and testing of material samples by KeBS or accredited laboratory approved by employer – a certificate shall accompany each material stating compliance with the applicable standards.	PC Sum	200,000.00
1.32	Percentage of Prime Cost Sum in Item 1.31 for Contractor's overheads and profits.	%	
	BILL 4: SITE CLEARANCE AND TOPSOIL STRIPPING		
	No separate payment shall be made for the overhaul material out of the airport and the cost of such haulage shall be included in the rate and /or prices.		

Item	Description		
		Unit	Rate for KIA
4.01	Light Bush clearing as directed by the Engineer.	Sq.m	
4.02	Heavy bush clearing as directed by the Engineer.	Sq.m	
4.03	Clear site on road reserve including removal of trees, hedges, bushes, vegetation with approved material in accordance with the specification, and as directed by the engineer.	Ha.	
4.04	Removal of topsoil to a maximum depth of 200mm in accordance with the specification and as directed by the engineer.	Cu.m	
4.05	Hack concrete from bridge deck slab, abutments and wing walls to expose reinforcement as directed.	Cu.m	
4.06	Excavate, remove and dispose cracked pipe culverts of any size.	M	
4.07	Cutting and disposal of trees of girth 1000mm and below	No.	
4.08	Cutting and disposal of trees of girth 1000mm and above	No.	
4.09	Grass cutting to a height below 50mm or as specified.	Sq.m	
	BILL 5: EARTHWORKS.		
	No separate payment shall be made for the overhaul material into or out of the airport and the cost of such haulage shall be included in the rate and /or prices. It is the Contractor's responsibility to identify quarries, borrow pits and spoil areas.		
5.01	Fill in soft material.	Cu.m	
5.02	As in Item 5.01 but in hard material	Cu.m	
5.03	As in Item 5.01 for compaction of top 300mm in fills to 100% MDD (AASHTO T99)	Cu.m	
5.04	Cut to spoil in soft material.	Cu.m	
5.05	As in Item 5.04 but in hard material.	Cu.m	
5.06	Compact the top 150mm layer of existing ground fills and cuts to 95% MDD (AASHTO T99)	Cu.m	
5.07	Provide place and compact to refusal Rockfill	Cu.m	
5.08	Filter fabric under, over or around rockfill.	Sq.m	
5.09	Top soiling	Sq.m	

Item	Description		
		Unit	Rate for KIA
5.10	Grassing	Sq.m	
	BILL 7: EXCAVATION AND FILLING FOR STRUCTURES		
7.01	Excavation in soft material for major structures i.e. box culverts and gabion works.	Cu.m	
7.02	As for Item 7.01 but in hard material.	Cu.m	
7.03	Provide and place macaferri or equivalent gabion boxes and mattresses as specified.	Sq.m	
7.04	Provide and place rockfill to gabions.	Cu.m	
7.05	Provide stone pitching as directed by the Engineer.	Sq.m	
7.06	E.O. Item 7.05 for cement grouting as directed by the Engineer.	Sq.m	
7.07	Provide, place and compact rockfill below structures as directed by the Engineer.	Cu.m	
7.08	Provide and place porous material behind wing walls.	Cu.m	
	BILL 8: CULVERTS AND DRAINAGE WORKS		
	No separate payment shall be made for the haulage of surplus or unsuitable excavated material out of the airport and the cost of such haulage shall be included in the rates/prices.		
8.01	Excavate, desilt, grade to shape inlets outfalls, side drains to free flow conditions including cart to spoil any excess grass debris and soils as and where directed by the Engineer.	Cu.m	
8.02	Clean culverts 450mm dia culvert to free flow conditions.	m	
8.03	Clean culverts 600mm dia culvert to free flow conditions.	m	
8.04	Clean culverts 900mm dia culvert to free flow conditions.	m	
8.05	Clean culverts 1200mm dia culvert to free flow conditions.	m	
8.06	Clean IBD drains to free flow conditions	m	
8.07	Excavate in soft materials for pipe culverts headwalls, wing walls, apron, toe walls and drop inlets.	Cu.m	
8.08	Repair inlet or outlet to existing pipe culverts in Class 25/20 concrete as directed by the Engineer.	Cu.m	

Item	Description	Unit	Rate for KIA
8.09	Provide, lay and joint 600mm inner diameter (ID) precast concrete pipes.	m	
8.10	As in Item 8.09 but 450mm ID.	m	
8.11	As in Item 8.09 but 900mm ID.	m	
8.12	As in Item 8.09 but 1200mm ID.	m	
8.13	Provide place and compact class 15/20 concrete to beds, surrounds and haunches.	Cu.m	
8.14	Provide place and compact class 20/20 concrete to headwalls, wing walls, aprons and culverts including formwork.	Cu.m	
8.15	Provide place and compact class 25/20 concrete to headwalls, wing walls, aprons and culverts including formwork.	Cu.m	
8.16	Provide and place A142 fabric mesh reinforcement	Sq.m	
8.17	Excavate in any material provided and joint 300mm inner diameter half round precast concrete channel with maximum 4 no. courses of precast side slabs of 600x225x75mm as lining for storm water drain including bedding and backfilling with selected material as directed by the Engineer.	m	
8.18	Excavate in any material provided and joint 600x360mm invert block drains (IBD) precast concrete channels with two courses of side slabs of 600x225x75mm as lining on each side for storm water drain including bedding, jointing and backfilling with selected material as directed by the Engineer.	m	
8.19	Excavate and trim to shape, provide place precast concrete side slabs of 600x225x75mm as lining on each side for storm water drain including bedding jointing and backfilling with selected material as directed by the Engineer.	Sq.m	
8.20	Construct concrete scour checks as specified and directed by the Engineer.	Cu.m	
8.21	Excavate for and construct subsoil drains where directed including backfilling with approved hard material.	Cu.m	
8.22	E.O. Item 8.21 for filter fabric material.	Sq.m	

Item	Description	Unit	Rate for KIA
8.23	Provide and place heavy gauge 100mm dia PVC pipes for weep holes as directed by the Engineer.	m	
8.24	Provide and place heavy gauge 150mm dia PVC pipes for weep holes as directed by the Engineer.	m	
8.25	Provide and place heavy gauge 200mm dia PVC pipes for weep holes as directed by the Engineer.	m	
8.26	Provide and place heavy gauge 300mm dia PVC pipes for weep holes as directed by the Engineer.	m	
	BILL 9: PASSAGE OF TRAFFIC		
9.01	Allow for the passage of traffic through the works.	Km	
9.02	Construct and maintain 7m wide deviation in accordance with the specifications and as directed by the Engineer.	Km	
9.03	Improve existing public road in accordance with the specification and as directed by the engineer.	Km	
9.04	Provide natural gravel of CBR greater than 30%, lay water and compact to 150mm thickness as gravel wearing course on deviation and existing road in accordance with the specifications and as directed by the Engineer.	Cu.m	
9.05	Construct 7m wide access roads, including gravel wearing course, in accordance with the specifications and as directed by the Engineer.	Km	
	BILL 10: GRADING AND GRAVELLING		
	No overhaul out of the airport will be paid separately under this item and the cost for haulage will be deemed to have been included in the rates (METHOD A).		
10.01	Carry out light grading to the existing carriage with watering and compaction to camber, including slope and ditches as instructed by the Engineer.	Sq.m	
10.02	Carry out heavy grading to existing carriageway with watering and compaction to camber, including slope and ditches as instructed by the Engineer.	Sq.m	
10.03	Remove overburden material out of sites and cart away from airport as instructed.	Cu.m	

Item	Description		
		Unit	Rate for KIA
10.04	Excavate gravel and stockpile within the airport as instructed.	Cu.m	
10.05	Load, haul and dump gravel as instructed.	Cu.m	
10.06	Provide, spread, grade, water and compact approved gravel imported from outside airport facility to specified thickness at 95% MDD.	Cu.m	
	BILL 11: SHOULDERS TO PAVEMENTS		
11.01	Prepare surface of existing shoulders, and accesses, including benching where necessary, water process and compact in accordance with the specifications and as directed by the Engineer to receive gravel.	Sq.m	
11.02	Provide, place, water and compact natural gravel to shoulders and accesses.	Cu.m	
	BILL 12: NATURAL MATERIAL BASE AND BASECOURSE		
	No overhaul into or out of the airport will be paid separately under this item and the cost for haulage will be deemed to have been included in the rates		
12.01	Excavate existing bituminous surfacing or pavement material to spoil or stockpile for reuse as directed by the Engineer.	Cu.m	
12.02	Break or scarify the existing pavement layer, and compact as specified and directed by the Engineer.	Cu.m	
12.03	Excavate by milling existing bituminous surfacing or pavement material to spoil or stockpile for reuse as directed by the Engineer.	Cu.m	
12.04	Recycle (cold in place) the existing bituminous pavement layer for re-use including addition of approved fresh material and as directed by the Engineer.	Cu.m	
12.05	Recycle (hot in place) the existing bituminous pavement layer for re-use including addition of approved fresh material and as directed by the Engineer.	Cu.m	
12.06	Provide, place,spread,water and compact natural gravel of CBR greater than 30% on repair and reconstruction areas as specified and as directed by the Engineer.	Cu.m	
12.07	Provide, lay and compact hand packed stone material including filling of voids with stone dust as directed by the	Cu.m	

Item	Description		
		Unit	Rate for KIA
	Engineer.		
	BILL 13: GRADED CRUSHED STONE SUBBASE AND BASE		
13.01	Provide, place, spread and compact Class A Graded Crushed Stone (GCS) to 98% MDD with results not less than 96% MDD	Cu.m	
	BILL 14: CEMENT AND LIME TREATED MATERIAL		
14.01	Provide, transport to site and spread cement on natural gravel or GCS material for base or subbase as specified and as directed by the Engineer at 30-50kg/cu.m.	Tonne	
14.02	As Item 14.01 but lime.	Tonne	
14.03	Allow for mixing in cement and/or lime into natural gravel or GCS.	Cu.m	
14.04	Allow for curing and protection of treated layers as specified.	Sq.m	
	BILL15: BITUMINOUS SURFACE TREATMENT AND DRESSING		
15.01	Prepare surface of carriageway and repair areas, provide and spray MC-30 cut back bitumen at a rate of 0.8-1.2 ltr/sq.m as prime coat.	litre	
15.02	Prepare primed surfaces, provide and spray 80/100 penetration grade bitumen at a spray rate of 1.2 ltr/sq.m as binder for first seal on carriageway shoulder and junctions.	litre	
15.03	Prepare surface of carriageway and repair areas, provide and spray MC-70 cut back bitumen at a rate of 0.8-1.2 ltr/sq.m as prime coat	litre	
15.04	Prepare surface of repair areas, provide and spray K1-70 bitumen emulsion as tack coat or seal to repair areas at a spray rate of 0.8-1.0 ltr/sq.m.	litre	
15.05	Prepare existing or new bituminous surface, provide and spray 80/100 penetration grade bitumen at a spray rate of 1.0-1.2 ltr/sq.m as binder for single or second seal on carriageway shoulders and junctions.	litre	
15.06	Provide, spread and roll 10/14 mm pre coated chippings at a spread rate of 90-110 sq.m/cu.m for a single seal to carriageway as directed by the Engineer.	Cu.m	

Item	Description	Unit	Rate for KIA
15.07	Provide, spread and roll 6/10 mm pre coated chippings at a spread rate of 110-130 sq.m/cu.m as second seal as directed by the Engineer.	Cu.m	
15.08	Prepare surface of carriageway, provide and spray 80/100 penetration grade bitumen cut back using 5-15% kerosene as tack coat for asphalt concrete wearing course at a spray rate of 0.5-0.7 ltr/sq.m..	litre	
15.09	Prepare surface of repair areas, provide and spray K1-60 bitumen emulsion as tack coat or seal to repair areas at a spray rate of 0.8-1.0 ltr/sq.m.	litre	
15.10	Provide kerosene fuel as a cutter for 80/100 penetration grade bitumen.	litre	
15.11	Provide, spread and roll 0/6 mm chippings (quarry dust) at a spread rate of 150-200 sq.m/cu.m to the seal on repair areas or on repaired areas to allow passage of traffic.	Cu.m	
	BILL 16: BITUMINOUS MIXES		
16.01	Excavate, trim and clean potholes, failed and damaged areas of the carriageway and edges including cart to spoil the excavated materials.	Cu.m	
16.02	Repair transverse or longitudinal cracking on asphalt concrete (crack sealing) as directed by the Engineer.	m	
16.03	Milling the existing bituminous layer to spoil to a maximum depth of 50mm thick.	Sq.m	
16.04	Milling the existing bituminous layer to spoil to a maximum depth of 100mm thick.	Sq.m	
16.05	Provide, place and compact Asphalt Concrete Type 1 with 5-7% nominal bitumen content by weight to total mix as wearing course on carriageway as directed by the Engineer. Maximum volume 15 cu.m.	Cu.m	
16.06	As in item 16.05 but total volume between 15cu.m-300 cu.m	Cu.m	
16.07	As in item 16.05 but total volume between over 300 cu.m		
16.08	Provide, place and compact Asphalt Concrete Type 1 for bumps and rumble strips as directed by the Engineer.	Cu.m	
16.09	Provide, place and compact Asphalt Concrete Type 1 to repair areas and for regulation to carriageway as directed	Cu.m	

Item	Description	Unit	Rate for KIA
	by the Engineer. Total volume 10cu.m		
16.10	As in item 16.09 but total volume between 10cu.m-50 cu.m	Cu.m	
16.11	As in item 16.10 but total volume between 50 cu.m	Cu.m	
16.12	Provide, place and compact Dense Bituminous Macadam (DBM) with 3.0-4.5% nominal bitumen content by weight to total mix or as base on reconstruction sections as directed by the Engineer. Maximum volume 15cu.m.	Cu.m	
16.13	As in item 16.12 but total volume between 15cu.m-300 cu.m	Cu.m	
16.14	As in item 16.12 but total volume over 300 cu.m	Cu.m	
	Bill 17: CONCRETE WORKS		
	Concrete Provide, place, compact and cure the following classes of concrete as specified.		
17.01	Class 15/20 for blinding	Cu.m	
17.02	Class 20/20 concrete	Cu.m	
17.03	Class 25/20 for concrete	Cu.m	
17.04	Class 30/20 for concrete	Cu.m	
17.05	Class 40/20 for concrete	Cu.m	
17.06	Class 45/20 for concrete	Cu.m	
	Formwork Provide, erect and afterwards dismantle and remove all the formwork as specified by the Engineer		
17.07	Vertical formwork class F3 finish	Sq.m	
17.08	Horizontal formwork class F3 finish	Sq.m	
	Reinforcement Provide, bend and fix into positions high yield steel bars to BS4461 the following steel reinforcement as directed and as shown on the drawings.		
17.09	Reinforcement bars of high yield strength to BS4461, size 16mm and above.	Tonne	

Item	Description		
		Unit	Rate for KIA
17.10	Reinforcement bars of high yield strength to BS4461, size 12mm and below.	Tonne	
17.11	Provide and place on 50mm thick sand bed and vibrate, 60mm thick Heavy Duty paving blocks of any pattern on edges as specified.	Sq.m	
17.12	Provide and place on 50mm thick sand bed and vibrate, 80mm thick Heavy Duty paving blocks of any pattern on edges as specified.	Sq.m	
17.13	As item 17.11 but coloured	Sq.m	
17.14	As item 17.12 but coloured	Sq.m	
17.15	Provide and place Standard Heavy Duty paving slabS size 600x600x50mm.	Sq.m	
	BILL 20: ROAD FURNITURE		
20.01	Allow for removal/obliteration of peeling and accumulated rubber on the marked surface of the pavements using suitable equipment and cart away debris and dispose away from airport.	Sq.m	
20.02	Allow for removal/obliteration of unwanted markings on the surface of the pavements using suitable equipment and cart away debris and dispose away from airport.	Sq.m	
20.03	Prepare surface and repaint(apply) two coats of white/yellow/black/red oxide acrylic airfield pavement marking paint mixed with approved pavement thinner and ballotini beads as directed by Engineer.	Sq.m	
20.04	Prepare surface and apply three coats of white/yellow/black/red acrylic road marking paints to new pavement surfaces mixed with approved pavement thinner and ballotini beads as directed by Engineer.	Sq.m	
20.05	Provide and lay hot applied thermoplastic road marking compound in approved colour and shade with ballotini beads for road marking on bituminous surface using fully automatic extrusion machine and using pre-melter for melting thermoplastic material including cleaning the surface of all dirt, dust, and other foreign matter, complete with demarcation at site/premarking, finishing and managing the traffic movements as instructed by the	Sq.m	

Item	Description	Unit	Rate for KIA
	Engineer		
20.06	Provide and place the appropriate sealant for sealing Joints in concrete works upto a maximum width of 25mm (Elastic jet fuel resistant sealant to ASTM D3581)	m	
20.07	Provide and place Styrofoam at expansion joints upto a maximum width of 25mm for concrete and/or Asphalt and as specified by the Engineer.	m	
20.08	Provide and place white/white,white/red, yellow/yellow,red/red retro reflective road studs as instructed	No.	
20.09	Remove and dispose the damaged existing guard rails as directed by the Engineer.	m	
20.10	Provide and place new flex-beam guard rails complete with pre-cast flex-beam guardrail posts, spacers, nuts, bolts and fittings as directed by the Engineer.	m	
20.11	Provide and place 1500mmx200mmx3mm thickness CHS steel bollards 1200mm above and 300mm embedded below ground. Filled with concrete class 20/20, painted with alternating yellow and black strips 150mm wide place as directed by the Engineer.	No.	
20.12	Provide and place night safety retro reflective tape 50mm wide of colors Yellow, white or red glued to bollards as instructed by Engineer.	m	
20.13	Provide and erect permanent road signs where instructed by the Engineer and in accordance with the specifications as follows:		
	(a) Warning signs	No.	
	(b) Priority, prohibitory and mandatory signs	No.	
	(c) Standard informatory signs	No.	
	(d) Nonstandard signs (i) Less than 1.0 sq.m (ii) 1.0 sq.m to 2.0 sq.m (iii) 2.0 sq.m to 4.0 sq.m (iv) 4.0 sq.m to 5.0 sq.m	 No. No. No. No.	

Item	Description	Unit	Rate for KIA
20.14	Excavate for, provide and place 250x125mm class 25/20 precast concrete raised or ramped kerbs haunched in 100mm thick class 15/20 concrete base bedding and mortar joined in support to carriageway as directed by the Engineer.		
	(a) Straight Kerbs	m	
	(b) Kerbs radius: 12m – 6m	m	
	(c) Ditto but radius:5m – 1m	m	
20.15	Ditto 20.11 but flush kerbs:		
	(a) Straight Kerbs	m	
	(b) Kerbs radius: 12m – 6m	m	
	(c) Ditto but radius:5m – 1m	m	
20.16	Excavate holes for fencing posts footing not exceeding 1.50 m deep, average 1.0m deep in hard and soft material; ram base to receive 'Class 20' concrete bases; include carting away.	Cu.m	
20.17	Ditto but for chain-link anchoring posts	Cu.m	
20.18	Mass concrete; Class 20 in footings	Cu.m	
20.19	Ditto but for chain-link anchoring posts	Cu.m	
20.20	Supply and install precast reinforced intermediate posts size 125 x125mm overall height 2.4m with cranked top of 475mm long as per detailed drawing including labor for 6mm diameter holes and bolts and 8mm galvanized mild steel bars with 12.5 S.W.G. stirrups at 350mm c/c as per detailed drawing to Engineer’s approval and satisfaction.	No.	
20.21	Ditto 20.05 but precast reinforced straining posts size 125x125mm all through; overall height 2.4m with cranked top of 475mm long as per detailed drawing including labour for 6mm diameter holes and bolts and 8mm galvanized mild steel bars with 12.5 S.W.G. stirrups at 350mm c/c as per detailed drawing with and including provision to receive struts to detail drawing to Engineer's approval.	No.	
20.22	Ditto 20.05 but precast reinforced straining posts size 150x150mm all through; overall height 2.4m with cranked top of 475mm long as per detailed drawing including	No.	

Item	Description	Unit	Rate for KIA
	labour for 6mm diameter holes and bolts and 8mm galvanized mild steel bars with 12.5 S.W.G. stirrups at 350mm c/c as per detailed drawing with and including provision to receive struts to detail drawing to Engineer's approval.		
20.23	100 x 80mm precast reinforced concrete struts to detail anchor on to concrete base and straining posts at approved level and 45 degrees to the horizontal to detail drawings and Engineer's approval.	No.	
20.24	High tensile galvanized barbed wire 12 1/2 G (2.5mm diameter) threaded through posts secured by galvanized binding wire to Engineer's approval.	m	
20.25	Supply, fabricate and install galvanized heavy duty metal gate overall size 6000 x 2400mm high; in two equal leaves; with and including 100 x 100 x 6mm SHS fixed firmly to the ground in approved concrete base; 8 gauge welded wire mesh covering fixed to 50 x 50 x 4mm SHS and tower locking heavy gauge bolt (including VIRO Cylinder 104); 3 lines of 12.5 gauge barbed wire at the top of each leaf; all as per attached drawings and approval of Project Manager. Gate to be painted in three coats of approved protective paint.	No.	
20.26	High tensile galvanized straining wire 9.5 Gauge through concrete posts (m/s) including hook bolts.	m	
20.27	Supply materials, fabricate and install galvanized heavy duty metal gate overall size 1000 x 2400mm high pedestrian gate with and including 75 x 75 x 4mm SHS fixed firmly to the ground in approved concrete base; 8 gauge welded wire mesh covering fixed to 50 x 50 x 4mm SHS and tower locking heavy gauge bolt (including VIRO Cylinder 104); 3 lines of 12.5 gauge barbed wire at the top; all as per attached drawings and approval of Project Manager. Gate to be painted in three coats of approved protective paint. Rate inclusive of casting of beam.	No.	
20.28	Supply and fix 2.4m high galvanized chain-link; gauge 9.5; 50x50mm mesh onto precast concrete posts (m/s); fastening with 5 No. lines of galvanized wire (m/s); threaded through and including mesh and hook bolts; secured by binding wire; all as per the drawings.	m	
20.29	Supply and fix 2.4m high galvanized chain-link; gauge	m	

Item	Description		
		Unit	Rate for KIA
	12.5; 50x50mm mesh onto precast concrete posts (m/s); fastening with 5 No. lines of galvanized wire (m/s); threaded through and including mesh and hook bolts; secured by binding wire; all as per the drawings.		
20.30	Excavate 150mm by 300 mm for ground beam	Cu.m	
20.31	Mass concrete; Class 20 in ground beam	Cu.m	

BILL OF QUANTITIES OF FRAMEWORK AGREEMENT FOR PAVEMENT MAINTENANCE TERM CONTRACT SERVICES AT MALINDI AIRPORT

Item	Description		
		Unit	Rate for MALINDI
	BILL 1: GENERAL		
1.01	Rate for mobilization/demobilization and availability during works of construction equipment for works whose duration is less than 2 days as per schedule below:		
1.01a	Asphalt Paver	Day Rate	
1.01b	Single Steel Drum Compaction Roller > or =18tonnes	Day Rate	
1.01c	Double tandem steel drum roller >/= 18 Tonnes	Day Rate	
1.01d	Sheepsfoot Roller > or = 20 Tonnes	Day Rate	
1.01e	Pneumatic Tiered Roller >/= 20 Tonnes	Day Rate	
1.01f	Bi-axial Pedestrian Roller >/= 6 Tonnes, 13.0/9.0 HP	Day Rate	
1.01g	Plate Compactor – plate size 540x420mm	Day Rate	
1.01h	Motor Grader CAT 12H or Equivalent.	Day Rate	
1.01i	Hydraulic Excavator CAT 322 or Equivalent.	Day Rate	
1.01j	Excavator with Jack hammer attachment CAT 322 or Equivalent	Day Rate	
1.01k	Back hoe Loader CAT 428 or Equivalent	Day Rate	
1.01l	Wheel Loader 4WD Articulated CAT 950 or Equivalent.	Day Rate	
1.01m	Disk concrete cutter	Day Rate	
1.01n	Air compressor	Day Rate	
1.01o	Pressure Bitumen Distributor Min 5000L	Day Rate	
1.01p	Bitumen Hand sprayer	Day Rate	
1.01q	Mechanical broom 74HP	Day Rate	
1.01r	Air Blower	Day Rate	
1.01s	Poker Vibrator 200Hz,2850 rpm	Day Rate	
1.01t	Concrete Balloon – Rubber/Synthetic Tire-cord	Day Rate	
1.01u	Concrete Pump	Day Rate	
1.01v	Concrete mixer with 400l bucket capacity	Day Rate	

Item	Description		
		Unit	Rate for MALINDI
1.01w	Tipper Truck 16-25 Tonnes Gross Capacity	Day Rate	
1.01x	Water Bowser	Day Rate	
1.01y	Crane – 20Tonne capacity	Day Rate	
1.01z	Crane – 100Tonne capacity	Day Rate	
1.01aa	Drill	Day Rate	
1.01bb	High loader	Day Rate	
1.01cc	Asphalt Milling Machine	Day Rate	
1.02	Allow for provision, mobilization, demobilization and maintenance of a containerized office for the engineers site office, including lighting, drinking water, flushable toilet, sockets and internet services.	Day Rate	
1.03	Allow for provision of survey equipment and material for use by the Engineer during construction.	Day rate	
1.04	Capacity building (Kenya based) training of civil engineering staff to ensure progressive career development and adaptability to the modern technology and modes of operation in the following areas; The training must be by an institution approved by ICAO and/or KCAA such as EASA and other state regulatory bodies such as KEBS, EBK, IEK or any other relevant body meeting the description herein.		
1.04a	Tuition fee per person up to a maximum of Ksh 250,000.00 for Airport pavement design, evaluation and maintenance or any other approved course.	Rate/pax	
1.04b	Tuition fee per person up to a max of 100,000.00 as in item 1.04a above.	Rate/pax	
1.04c	Tuition fee per person up to a max of 50,000.00 as in item 1.04a above	Rate/pax	
1.04d	KAA staff Travel Cost – Economy return Air ticket to any major town within the Country (in Kshs).	Pax	
1.04e	KAA Staff Travel Cost -Local Travel –provide van to accommodate Max 14 pax complete with fuel and driver.	Veh/day	
1.04f	KAA Staff Grade 8 –Allowances Kshs.16,800/day	Pax/Day	

Item	Description		
		Unit	Rate for MALINDI
1.04g	KAA Staff Grade 7- Allowance Kshs.14,000/ day	Pax/Day	
1.04h	KAA Staff Grade 6 Allowance Kshs.11,200 / day	Pax/Day	
1.04i	KAA Staff Grade 5 Allowance Kshs.11,200/day	Pax/Day	
1.04j	KAA Staff Grade 4 Allowance Ksh. 6,300 /day	Pax/Day	
1.04k	KAA Casual Allowance Ksh. 4,200 /day	Pax/Day	
1.05	Ditto as in 1.05 but International Training		
1.05a	Tuition fee per person up to a maximum of Ksh 2,000,000.00 for Airport pavement design, evaluation and maintenance or any other approved course.	Rate/pax	
1.05b	Tuition fee per person up to a maximum of Ksh 1,500,000.00 as in item 1.05a above.	Rate/pax	
1.05c	Tuition fee per person up to a maximum of Ksh 1,000,000.00 as in item 1.05a above.	Rate/pax	
1.05d	Tuition fee per person up to a maximum of Ksh 500,000.00 as in item 1.05a above.	Rate/pax	
1.05e	Tuition fee per person up to a maximum of Ksh 250,000.00 as in item 1.05a above.	Rate/pax	
1.05f	KAA staff Travel Cost inclusive of Economy return Air ticket and VISA fees to any foreign country (in USD).	Rate/pax	
1.05g	KAA staff local travel cost within the foreign country	Rate/pax/day	
1.05h	KAA Staff Grade 9 –Allowances 647 USD per day	Pax/Day	
1.05i	KAA Staff Grade 8 – Allowances 647 USD per day	Pax/Day	
1.05j	KAA Staff Grade 7- Allowance 549 USD per day	Pax/Day	
1.05k	KAA Staff Grade 6 Allowance 549 USD per day	Pax/Day	
1.05l	KAA Staff Grade 5 Allowance 549 USD per day	Pax/Day	
1.05m	KAA Staff Grade 4 Allowance 477 USD per day	Pax/Day	
1.06	Prime Cost Sum for removal and reinstatement of services.	PC Sum	500,000.00
1.06a	Percentage of Prime Cost Sum in Item 1.06 for Contractor's overheads and profits.	%	
1.07	Engineer's site staff communication airtime Kshs. 100,000.	Rate	

Item	Description		
		Unit	Rate for MALINDI
1.08	Prime Cost Sum for materials testing.	PC Sum	500,000.00
1.09	Percentage of Prime Cost Sum in Item 1.08 for Contractor's overheads and profits.	%	
1.10	Provide a Total Station to the approval and exclusive use by the Engineer, complete with Prism and Tripod with an accuracy of 0.9 seconds for the duration of the Contract. The TS to be supplied with download software. Upon completion of the Contract, it shall revert to the Contractor.	Day Rate	
1.11	Allow for provision and maintenance of dumpy level survey equipment complete with staff and bubble for exclusive use by the Engineer.	Day Rate	
1.12	Prime Cost Sum for Engineer's miscellaneous account.	PC Sum	500,000.00
1.13	Percentage of Prime Cost Sum in Item 1.12 for Contractor's overheads and profits.	%	
1.14	Prime Cost Sum for off-site materials testing.	PC Sum	500,000.00
1.15	Percentage of Prime Cost Sum in Item 1.14 for Contractor's overheads and profits.	%	
1.16	Provide and erect publicity signs as directed by the engineer in accordance with the standard KAA publicity signboard specifications.	No.	
1.17	Provide, fuel and maintain with driver, comprehensively insured, new 4WD,double cabin vehicle (odometer:0-10,000km)of diesel engine capacity 2,700 - 3000cc or equivalent for the exclusive use of the engineer inclusive of the first 4000km per vehicle month in accordance with clause 138 of the standard specification.	Month	
1.18	E.O.Item 1.17 for mileage over 4,000km per vehicle month.	Km	
1.19	Provide, fuel and maintain with driver, a comprehensively insured, 4WD,station wagon vehicle (odometer:0-10,000km) of minimum diesel engine capacity 2700cc turbo charged or equivalent for the exclusive use of the engineer inclusive of the first 4000km per vehicle month in accordance with clause 138 of the standard specification.	Month	
1.20	E.O.Item 1.19 for mileage over 4,000km per vehicle	Km	

Item	Description		
		Unit	Rate for MALINDI
	month.		
1.21	Provide, fuel and maintain with driver, a comprehensively insured, new 4WD,saloon vehicle (odometer:0-10,000km) of diesel engine capacity 2,700-3000cc or equivalent for the exclusive use of the engineer inclusive of the first 4000km per vehicle month in accordance with clause 138 of the standard specification.	Month	
1.22	E.O.Item 1.21 for mileage over 4,000km per vehicle month.	Km	
1.23	Prime Cost Sum for attendance to the Engineers site staff	PC Sum	500,000.00
1.24	Percentage of Prime Cost Sum in Item 1.23 for Contractor's overheads and profits.	%	
1.25	Prime Cost Sum for provision of equipment for the engineers site office.	PC Sum	500,000.00
1.26	Percentage of Prime Cost Sum in Item 1.25 for Contractor's overheads and profits.	%	
1.27	Prime cost sum for off-road environmental mitigation measures.	PC Sum	100,000.00
1.28	Percentage of Prime Cost Sum in Item 1.27 for Contractor's overheads and profits.	%	
1.29	Allow for provision of communication air to ground base radio for car mounting of range from (118 – 136) MH with frequencies selectable within the range and appropriate antenna, 2 new handheld air to ground radios of same frequencies NB: The Radios Shall be Handed over to the Client on Completion of the Project in good working condition.	Rate	
1.30	Allow for working at night on active aircraft pavements.	Item	
1.31	Allow for sampling and testing of material samples by KeBS or accredited laboratory approved by employer – a certificate shall accompany each material stating compliance with the applicable standards.	PC Sum	200,000.00
1.32	Percentage of Prime Cost Sum in Item 1.31 for Contractor's overheads and profits.	%	

Item	Description		
		Unit	Rate for MALINDI
	BILL 4: SITE CLEARANCE AND TOPSOIL STRIPPING		
	No separate payment shall be made for the overhaul material out of the airport and the cost of such haulage shall be included in the rate and /or prices.		
4.01	Light Bush clearing as directed by the Engineer.	Sq.m	
4.02	Heavy bush clearing as directed by the Engineer.	Sq.m	
4.03	Clear site on road reserve including removal of trees, hedges, bushes, vegetation with approved material in accordance with the specification, and as directed by the engineer.	Ha.	
4.04	Removal of topsoil to a maximum depth of 200mm in accordance with the specification and as directed by the engineer.	Cu.m	
4.05	Hack concrete from bridge deck slab, abutments and wing walls to expose reinforcement as directed.	Cu.m	
4.06	Excavate, remove and dispose cracked pipe culverts of any size.	M	
4.07	Cutting and disposal of trees of girth 1000mm and below	No.	
4.08	Cutting and disposal of trees of girth 1000mm and above	No.	
4.09	Grass cutting to a height below 50mm or as specified.	Sq.m	
	BILL 5: EARTHWORKS.		
	No separate payment shall be made for the overhaul material into or out of the airport and the cost of such haulage shall be included in the rate and /or prices. It is the Contractor's responsibility to identify quarries, borrow pits and spoil areas.		
5.01	Fill in soft material.	Cu.m	
5.02	As in Item 5.01 but in hard material	Cu.m	
5.03	As in Item 5.01 for compaction of top 300mm in fills to 100% MDD (AASHTO T99)	Cu.m	
5.04	Cut to spoil in soft material.	Cu.m	
5.05	As in Item 5.04 but in hard material.	Cu.m	

Item	Description		
		Unit	Rate for MALINDI
5.06	Compact the top 150mm layer of existing ground fills and cuts to 95% MDD (AASHTO T99)	Cu.m	
5.07	Provide place and compact to refusal Rockfill	Cu.m	
5.08	Filter fabric under, over or around rockfill.	Sq.m	
5.09	Top soiling	Sq.m	
5.10	Grassing	Sq.m	
	BILL 7: EXCAVATION AND FILLING FOR STRUCTURES		
7.01	Excavation in soft material for major structures i.e. box culverts and gabion works.	Cu.m	
7.02	As for Item 7.01 but in hard material.	Cu.m	
7.03	Provide and place macaferri or equivalent gabion boxes and mattresses as specified.	Sq.m	
7.04	Provide and place rockfill to gabions.	Cu.m	
7.05	Provide stone pitching as directed by the Engineer.	Sq.m	
7.06	E.O. Item 7.05 for cement grouting as directed by the Engineer.	Sq.m	
7.07	Provide, place and compact rockfill below structures as directed by the Engineer.	Cu.m	
7.08	Provide and place porous material behind wing walls.	Cu.m	
	BILL 8: CULVERTS AND DRAINAGE WORKS		
	No separate payment shall be made for the haulage of surplus or unsuitable excavated material out of the airport and the cost of such haulage shall be included in the rates/prices.		
8.01	Excavate, desilt, grade to shape inlets outfalls, side drains to free flow conditions including cart to spoil any excess grass debris and soils as and where directed by the Engineer.	Cu.m	
8.02	Clean culverts 450mm dia culvert to free flow conditions.	m	
8.03	Clean culverts 600mm dia culvert to free flow conditions.	m	
8.04	Clean culverts 900mm dia culvert to free flow conditions.	m	

Item	Description		
		Unit	Rate for MALINDI
8.05	Clean culverts 1200mm dia culvert to free flow conditions.	m	
8.06	Clean IBD drains to free flow conditions	m	
8.07	Excavate in soft materials for pipe culverts headwalls, wing walls, apron, toe walls and drop inlets.	Cu.m	
8.08	Repair inlet or outlet to existing pipe culverts in Class 25/20 concrete as directed by the Engineer.	Cu.m	
8.09	Provide, lay and joint 600mm inner diameter (ID) precast concrete pipes.	m	
8.10	As in Item 8.09 but 450mm ID.	m	
8.11	As in Item 8.09 but 900mm ID.	m	
8.12	As in Item 8.09 but 1200mm ID.	m	
8.13	Provide place and compact class 15/20 concrete to beds, surrounds and haunches.	Cu.m	
8.14	Provide place and compact class 20/20 concrete to headwalls, wing walls, aprons and culverts including formwork.	Cu.m	
8.15	Provide place and compact class 25/20 concrete to headwalls, wing walls, aprons and culverts including formwork.	Cu.m	
8.16	Provide and place A142 fabric mesh reinforcement	Sq.m	
8.17	Excavate in any material provided and joint 300mm inner diameter half round precast concrete channel with maximum 4 no. courses of precast side slabs of 600x225x75mm as lining for storm water drain including bedding and backfilling with selected material as directed by the Engineer.	m	
8.18	Excavate in any material provided and joint 600x360mm invert block drains (IBD) precast concrete channels with two courses of side slabs of 600x225x75mm as lining on each side for storm water drain including bedding, jointing and backfilling with selected material as directed by the Engineer.	m	
8.19	Excavate and trim to shape, provide place precast concrete side slabs of 600x225x75mm as lining on each side for storm water drain including bedding jointing and	Sq.m	

Item	Description		
		Unit	Rate for MALINDI
	backfilling with selected material as directed by the Engineer.		
8.20	Construct concrete scour checks as specified and directed by the Engineer.	Cu.m	
8.21	Excavate for and construct subsoil drains where directed including backfilling with approved hard material.	Cu.m	
8.22	E.O. Item 8.21 for filter fabric material.	Sq.m	
8.23	Provide and place heavy gauge 100mm dia PVC pipes for weep holes as directed by the Engineer.	m	
8.24	Provide and place heavy gauge 150mm dia PVC pipes for weep holes as directed by the Engineer.	m	
8.25	Provide and place heavy gauge 200mm dia PVC pipes for weep holes as directed by the Engineer.	m	
8.26	Provide and place heavy gauge 300mm dia PVC pipes for weep holes as directed by the Engineer.	m	
	BILL 9: PASSAGE OF TRAFFIC		
9.01	Allow for the passage of traffic through the works.	Km	
9.02	Construct and maintain 7m wide deviation in accordance with the specifications and as directed by the Engineer.	Km	
9.03	Improve existing public road in accordance with the specification and as directed by the engineer.	Km	
9.04	Provide natural gravel of CBR greater than 30%, lay water and compact to 150mm thickness as gravel wearing course on deviation and existing road in accordance with the specifications and as directed by the Engineer.	Cu.m	
9.05	Construct 7m wide access roads, including gravel wearing course, in accordance with the specifications and as directed by the Engineer.	Km	
	BILL 10: GRADING AND GRAVELLING		
	No overhaul out of the airport will be paid separately under this item and the cost for haulage will be deemed to have been included in the rates (METHOD A).		

Item	Description		
		Unit	Rate for MALINDI
10.01	Carry out light grading to the existing carriage with watering and compaction to camber, including slope and ditches as instructed by the Engineer.	Sq.m	
10.02	Carry out heavy grading to existing carriageway with watering and compaction to camber, including slope and ditches as instructed by the Engineer.	Sq.m	
10.03	Remove overburden material out of sites and cart away from airport as instructed.	Cu.m	
10.04	Excavate gravel and stockpile within the airport as instructed.	Cu.m	
10.05	Load, haul and dump gravel as instructed.	Cu.m	
10.06	Provide, spread, grade, water and compact approved gravel imported from outside airport facility to specified thickness at 95% MDD.	Cu.m	
	BILL 11: SHOULDERS TO PAVEMENTS		
11.01	Prepare surface of existing shoulders, and accesses, including benching where necessary, water process and compact in accordance with the specifications and as directed by the Engineer to receive gravel.	Sq.m	
11.02	Provide, place, water and compact natural gravel to shoulders and accesses.	Cu.m	
	BILL 12: NATURAL MATERIAL BASE AND BASECOURSE		
	No overhaul into or out of the airport will be paid separately under this item and the cost for haulage will be deemed to have been included in the rates		
12.01	Excavate existing bituminous surfacing or pavement material to spoil or stockpile for reuse as directed by the Engineer.	Cu.m	
12.02	Break or scarify the existing pavement layer, and compact as specified and directed by the Engineer.	Cu.m	
12.03	Excavate by milling existing bituminous surfacing or pavement material to spoil or stockpile for reuse as directed by the Engineer.	Cu.m	
12.04	Recycle (cold in place) the existing bituminous pavement layer for re-use including addition of approved fresh	Cu.m	

Item	Description		
		Unit	Rate for MALINDI
	material and as directed by the Engineer.		
12.05	Recycle (hot in place) the existing bituminous pavement layer for re-use including addition of approved fresh material and as directed by the Engineer.	Cu.m	
12.06	Provide, place,spread,water and compact natural gravel of CBR greater than 30% on repair and reconstruction areas as specified and as directed by the Engineer.	Cu.m	
12.07	Provide, lay and compact hand packed stone material including filling of voids with stone dust as directed by the Engineer.	Cu.m	
	BILL 13: GRADED CRUSHED STONE SUBBASE AND BASE		
13.01	Provide, place, spread and compact Class A Graded Crushed Stone (GCS) to 98% MDD with results not less than 96% MDD	Cu.m	
	BILL 14: CEMENT AND LIME TREATED MATERIAL		
14.01	Provide, transport to site and spread cement on natural gravel or GCS material for base or subbase as specified and as directed by the Engineer at 30-50kg/cu.m.	Tonne	
14.02	As Item 14.01 but lime.	Tonne	
14.03	Allow for mixing in cement and/or lime into natural gravel or GCS.	Cu.m	
14.04	Allow for curing and protection of treated layers as specified.	Sq.m	
	BILL15: BITUMINOUS SURFACE TREATMENT AND DRESSING		
15.01	Prepare surface of carriageway and repair areas, provide and spray MC-30 cut back bitumen at a rate of 0.8-1.2 ltr/sq.m as prime coat.	litre	
15.02	Prepare primed surfaces, provide and spray 80/100 penetration grade bitumen at a spray rate of 1.2 ltr/sq.m as binder for first seal on carriageway shoulder and junctions.	litre	
15.03	Prepare surface of carriageway and repair areas, provide and spray MC-70 cut back bitumen at a rate of 0.8-1.2 ltr/sq.m as prime coat	litre	

Item	Description		
		Unit	Rate for MALINDI
15.04	Prepare surface of repair areas, provide and spray K1-70 bitumen emulsion as tack coat or seal to repair areas at a spray rate of 0.8-1.0 ltr/sq.m.	litre	
15.05	Prepare existing or new bituminous surface, provide and spray 80/100 penetration grade bitumen at a spray rate of 1.0-1.2 ltr/sq.m as binder for single or second seal on carriageway shoulders and junctions.	litre	
15.06	Provide, spread and roll 10/14 mm pre coated chippings at a spread rate of 90-110 sq.m/cu.m for a single seal to carriageway as directed by the Engineer.	Cu.m	
15.07	Provide, spread and roll 6/10 mm pre coated chippings at a spread rate of 110-130 sq.m/cu.m as second seal as directed by the Engineer.	Cu.m	
15.08	Prepare surface of carriageway, provide and spray 80/100 penetration grade bitumen cut back using 5-15% kerosene as tack coat for asphalt concrete wearing course at a spray rate of 0.5-0.7 ltr/sq.m..	litre	
15.09	Prepare surface of repair areas, provide and spray K1-60 bitumen emulsion as tack coat or seal to repair areas at a spray rate of 0.8-1.0 ltr/sq.m.	litre	
15.10	Provide kerosene fuel as a cutter for 80/100 penetration grade bitumen.	litre	
15.11	Provide, spread and roll 0/6 mm chippings (quarry dust) at a spread rate of 150-200 sq.m/cu.m to the seal on repair areas or on repaired areas to allow passage of traffic.	Cu.m	
	BILL 16: BITUMINOUS MIXES		
16.01	Excavate, trim and clean potholes, failed and damaged areas of the carriageway and edges including cart to spoil the excavated materials.	Cu.m	
16.02	Repair transverse or longitudinal cracking on asphalt concrete (crack sealing) as directed by the Engineer.	m	
16.03	Milling the existing bituminous layer to spoil to a maximum depth of 50mm thick.	Sq.m	
16.04	Milling the existing bituminous layer to spoil to a maximum depth of 100mm thick.	Sq.m	

Item	Description		
		Unit	Rate for MALINDI
16.05	Provide, place and compact Asphalt Concrete Type 1 with 5-7% nominal bitumen content by weight to total mix as wearing course on carriageway as directed by the Engineer. Maximum volume 15 cu.m.	Cu.m	
16.06	As in item 16.05 but total volume between 15cu.m-300 cu.m	Cu.m	
16.07	As in item 16.05 but total volume between over 300 cu.m		
16.08	Provide, place and compact Asphalt Concrete Type 1 for bumps and rumble strips as directed by the Engineer.	Cu.m	
16.09	Provide, place and compact Asphalt Concrete Type 1 to repair areas and for regulation to carriageway as directed by the Engineer. Total volume 10cu.m	Cu.m	
16.10	As in item 16.09 but total volume between 10cu.m-50 cu.m	Cu.m	
16.11	As in item 16.10 but total volume between 50 cu.m	Cu.m	
16.12	Provide, place and compact Dense Bituminous Macadam (DBM) with 3.0-4.5% nominal bitumen content by weight to total mix or as base on reconstruction sections as directed by the Engineer. Maximum volume 15cu.m.	Cu.m	
16.13	As in item 16.12 but total volume between 15cu.m-300 cu.m	Cu.m	
16.14	As in item 16.12 but total volume over 300 cu.m	Cu.m	
	Bill 17: CONCRETE WORKS		
	Concrete Provide, place, compact and cure the following classes of concrete as specified.		
17.01	Class 15/20 for blinding	Cu.m	
17.02	Class 20/20 concrete	Cu.m	
17.03	Class 25/20 for concrete	Cu.m	
17.04	Class 30/20 for concrete	Cu.m	
17.05	Class 40/20 for concrete	Cu.m	
17.06	Class 45/20 for concrete	Cu.m	

Item	Description		
		Unit	Rate for MALINDI
	Formwork Provide, erect and afterwards dismantle and remove all the formwork as specified by the Engineer		
17.07	Vertical formwork class F3 finish	Sq.m	
17.08	Horizontal formwork class F3 finish	Sq.m	
	Reinforcement Provide, bend and fix into positions high yield steel bars to BS4461 the following steel reinforcement as directed and as shown on the drawings.		
17.09	Reinforcement bars of high yield strength to BS4461, size 16mm and above.	Tonne	
17.10	Reinforcement bars of high yield strength to BS4461, size 12mm and below.	Tonne	
17.11	Provide and place on 50mm thick sand bed and vibrate, 60mm thick Heavy Duty paving blocks of any pattern on edges as specified.	Sq.m	
17.12	Provide and place on 50mm thick sand bed and vibrate, 80mm thick Heavy Duty paving blocks of any pattern on edges as specified.	Sq.m	
17.13	As item 17.11 but coloured	Sq.m	
17.14	As item 17.12 but coloured	Sq.m	
17.15	Provide and place Standard Heavy Duty paving slabS size 600x600x50mm.	Sq.m	
	BILL 20: ROAD FURNITURE		
20.01	Allow for removal/obliteration of peeling and accumulated rubber on the marked surface of the pavements using suitable equipment and cart away debris and dispose away from airport.	Sq.m	
20.02	Allow for removal/obliteration of unwanted markings on the surface of the pavements using suitable equipment and cart away debris and dispose away from airport.	Sq.m	
20.03	Prepare surface and repaint(apply) two coats of white/yellow/black/red oxide acrylic airfield pavement	Sq.m	

Item	Description		
		Unit	Rate for MALINDI
	marking paint mixed with approved pavement thinner and ballotini beads as directed by Engineer.		
20.04	Prepare surface and apply three coats of white/yellow/black/red acrylic road marking paints to new pavement surfaces mixed with approved pavement thinner and ballotini beads as directed by Engineer.	Sq.m	
20.05	Provide and lay hot applied thermoplastic road marking compound in approved colour and shade with ballotini beads for road marking on bituminous surface using fully automatic extrusion machine and using pre-melter for melting thermoplastic material including cleaning the surface of all dirt, dust, and other foreign matter, complete with demarcation at site/premarking, finishing and managing the traffic movements as instructed by the Engineer	Sq.m	
20.06	Provide and place the appropriate sealant for sealing Joints in concrete works upto a maximum width of 25mm (Elastic jet fuel resistant sealant to ASTM D3581)	m	
20.07	Provide and place Styrofoam at expansion joints upto a maximum width of 25mm for concrete and/or Asphalt and as specified by the Engineer.	m	
20.08	Provide and place white/white,white/red, yellow/yellow,red/red retro reflective road studs as instructed	No.	
20.09	Remove and dispose the damaged existing guard rails as directed by the Engineer.	m	
20.10	Provide and place new flex-beam guard rails complete with pre-cast flex-beam guardrail posts, spacers, nuts, bolts and fittings as directed by the Engineer.	m	
20.11	Provide and place 1500mmx200mmx3mm thickness CHS steel bollards 1200mm above and 300mm embedded below ground. Filled with concrete class 20/20, painted with alternating yellow and black strips 150mm wide place as directed by the Engineer.	No.	
20.12	Provide and place night safety retro reflective tape 50mm wide of colors Yellow, white or red glued to bollards as instructed by Engineer.	m	

Item	Description		
		Unit	Rate for MALINDI
20.13	Provide and erect permanent road signs where instructed by the Engineer and in accordance with the specifications as follows:		
	(a) Warning signs	No.	
	(b) Priority, prohibitory and mandatory signs	No.	
	(c) Standard informatory signs	No.	
	(d) Nonstandard signs (i) Less than 1.0 sq.m (ii) 1.0 sq.m to 2.0 sq.m (iii) 2.0 sq.m to 4.0 sq.m (iv) 4.0 sq.m to 5.0 sq.m	 No. No. No. No.	
20.14	Excavate for, provide and place 250x125mm class 25/20 precast concrete raised or ramped kerbs haunched in 100mm thick class 15/20 concrete base bedding and mortar joined in support to carriageway as directed by the Engineer.		
	(a) Straight Kerbs	m	
	(b) Kerbs radius: 12m – 6m	m	
	(c) Ditto but radius:5m – 1m	m	
20.15	Ditto 20.11 but flush kerbs:		
	(a) Straight Kerbs	m	
	(b) Kerbs radius: 12m – 6m	m	
	(c) Ditto but radius:5m – 1m	m	
20.16	Excavate holes for fencing posts footing not exceeding 1.50 m deep, average 1.0m deep in hard and soft material; ram base to receive 'Class 20' concrete bases; include carting away.	Cu.m	
20.17	Ditto but for chain-link anchoring posts	Cu.m	
20.18	Mass concrete; Class 20 in footings	Cu.m	
20.19	Ditto but for chain-link anchoring posts	Cu.m	
20.20	Supply and install precast reinforced intermediate posts	No.	

Item	Description	Unit	Rate for MALINDI
	size 125 x125mm overall height 2.4m with cranked top of 475mm long as per detailed drawing including labor for 6mm diameter holes and bolts and 8mm galvanized mild steel bars with 12.5 S.W.G. stirrups at 350mm c/c as per detailed drawing to Engineer's approval and satisfaction.		
20.21	Ditto 20.05 but precast reinforced straining posts size 125x125mm all through; overall height 2.4m with cranked top of 475mm long as per detailed drawing including labour for 6mm diameter holes and bolts and 8mm galvanized mild steel bars with 12.5 S.W.G. stirrups at 350mm c/c as per detailed drawing with and including provision to receive struts to detail drawing to Engineer's approval.	No.	
20.22	Ditto 20.05 but precast reinforced straining posts size 150x150mm all through; overall height 2.4m with cranked top of 475mm long as per detailed drawing including labour for 6mm diameter holes and bolts and 8mm galvanized mild steel bars with 12.5 S.W.G. stirrups at 350mm c/c as per detailed drawing with and including provision to receive struts to detail drawing to Engineer's approval.	No.	
20.23	100 x 80mm precast reinforced concrete struts to detail anchor on to concrete base and straining posts at approved level and 45 degrees to the horizontal to detail drawings and Engineer's approval.	No.	
20.24	High tensile galvanized barbed wire 12 1/2 G (2.5mm diameter) threaded through posts secured by galvanized binding wire to Engineer's approval.	m	
20.25	Supply, fabricate and install galvanized heavy duty metal gate overall size 6000 x 2400mm high; in two equal leaves; with and including 100 x 100 x 6mm SHS fixed firmly to the ground in approved concrete base; 8 gauge welded wire mesh covering fixed to 50 x 50 x 4mm SHS and tower locking heavy gauge bolt (including VIRO Cylinder 104); 3 lines of 12.5 gauge barbed wire at the top of each leaf; all as per attached drawings and approval of Project Manager. Gate to be painted in three coats of approved protective paint.	No.	
20.26	High tensile galvanized straining wire 9.5 Gauge through	m	

Item	Description		
		Unit	Rate for MALINDI
	concrete posts (m/s) including hook bolts.		
20.27	Supply materials, fabricate and install galvanized heavy duty metal gate overall size 1000 x 2400mm high pedestrian gate with and including 75 x 75 x 4mm SHS fixed firmly to the ground in approved concrete base; 8 gauge welded wire mesh covering fixed to 50 x 50 x 4mm SHS and tower locking heavy gauge bolt (including VIRO Cylinder 104); 3 lines of 12.5 gauge barbed wire at the top; all as per attached drawings and approval of Project Manager. Gate to be painted in three coats of approved protective paint. Rate inclusive of casting of beam.	No.	
20.28	Supply and fix 2.4m high galvanized chain-link; gauge 9.5; 50x50mm mesh onto precast concrete posts (m/s); fastening with 5 No. lines of galvanized wire (m/s); threaded through and including mesh and hook bolts; secured by binding wire; all as per the drawings.	m	
20.29	Supply and fix 2.4m high galvanized chain-link; gauge 12.5; 50x50mm mesh onto precast concrete posts (m/s); fastening with 5 No. lines of galvanized wire (m/s); threaded through and including mesh and hook bolts; secured by binding wire; all as per the drawings.	m	
20.30	Excavate 150mm by 300 mm for ground beam	Cu.m	
20.31	Mass concrete; Class 20 in ground beam	Cu.m	

BILL OF QUANTITIES OF FRAMEWORK AGREEMENT FOR PAVEMENT MAINTENANCE TERM CONTRACT SERVICES AT WAJIR AIRPORT

Item	Description		
		Unit	Rate for WAJIR
	BILL 1: GENERAL		
1.01	Rate for mobilization/demobilization and availability during works of construction equipment for works whose duration is less than 2 days as per schedule below:		
1.01a	Asphalt Paver	Day Rate	
1.01b	Single Steel Drum Compaction Roller > or =18tonnes	Day Rate	
1.01c	Double tandem steel drum roller >/= 18 Tonnes	Day Rate	
1.01d	Sheepsfoot Roller > or = 20 Tonnes	Day Rate	
1.01e	Pneumatic Tiered Roller >/= 20 Tonnes	Day Rate	
1.01f	Bi-axial Pedestrian Roller >/= 6 Tonnes, 13.0/9.0 HP	Day Rate	
1.01g	Plate Compactor – plate size 540x420mm	Day Rate	
1.01h	Motor Grader CAT 12H or Equivalent.	Day Rate	
1.01i	Hydraulic Excavator CAT 322 or Equivalent.	Day Rate	
1.01j	Excavator with Jack hammer attachment CAT 322 or Equivalent	Day Rate	
1.01k	Back hoe Loader CAT 428 or Equivalent	Day Rate	
1.01l	Wheel Loader 4WD Articulated CAT 950 or Equivalent.	Day Rate	
1.01m	Disk concrete cutter	Day Rate	
1.01n	Air compressor	Day Rate	
1.01o	Pressure Bitumen Distributor Min 5000L	Day Rate	
1.01p	Bitumen Hand sprayer	Day Rate	
1.01q	Mechanical broom 74HP	Day Rate	
1.01r	Air Blower	Day Rate	
1.01s	Poker Vibrator 200Hz,2850 rpm	Day Rate	
1.01t	Concrete Balloon – Rubber/Synthetic Tire-cord	Day Rate	
1.01u	Concrete Pump	Day Rate	
1.01v	Concrete mixer with 400l bucket capacity	Day Rate	

Item	Description		
		Unit	Rate for WAJIR
1.01w	Tipper Truck 16-25 Tonnes Gross Capacity	Day Rate	
1.01x	Water Bowser	Day Rate	
1.01y	Crane – 20Tonne capacity	Day Rate	
1.01z	Crane – 100Tonne capacity	Day Rate	
1.01aa	Drill	Day Rate	
1.01bb	High loader	Day Rate	
1.01cc	Asphalt Milling Machine	Day Rate	
1.02	Allow for provision, mobilization, demobilization and maintenance of a containerized office for the engineers site office, including lighting, drinking water, flushable toilet, sockets and internet services.	Day Rate	
1.03	Allow for provision of survey equipment and material for use by the Engineer during construction.	Day rate	
1.04	Capacity building (Kenya based) training of civil engineering staff to ensure progressive career development and adaptability to the modern technology and modes of operation in the following areas; The training must be by an institution approved by ICAO and/or KCAA such as EASA and other state regulatory bodies such as KEBS, EBK, IEK or any other relevant body meeting the description herein.		
1.04a	Tuition fee per person up to a maximum of Ksh 250,000.00 for Airport pavement design, evaluation and maintenance or any other approved course.	Rate/pax	
1.04b	Tuition fee per person up to a max of 100,000.00 as in item 1.04a above.	Rate/pax	
1.04c	Tuition fee per person up to a max of 50,000.00 as in item 1.04a above	Rate/pax	
1.04d	KAA staff Travel Cost – Economy return Air ticket to any major town within the Country (in Kshs).	Pax	
1.04e	KAA Staff Travel Cost -Local Travel –provide van to accommodate Max 14 pax complete with fuel and driver.	Veh/day	
1.04f	KAA Staff Grade 8 –Allowances Kshs.16,800/day	Pax/Day	
1.04g	KAA Staff Grade 7- Allowance Kshs.14,000/ day	Pax/Day	

Item	Description		
		Unit	Rate for WAJIR
1.04h	KAA Staff Grade 6 Allowance Kshs.11,200 / day	Pax/Day	
1.04i	KAA Staff Grade 5 Allowance Kshs.11,200/day	Pax/Day	
1.04j	KAA Staff Grade 4 Allowance Ksh. 6,300 /day	Pax/Day	
1.04k	KAA Casual Allowance Ksh. 4,200 /day	Pax/Day	
1.05	Ditto as in 1.05 but International Training		
1.05a	Tuition fee per person up to a maximum of Ksh 2,000,000.00 for Airport pavement design, evaluation and maintenance or any other approved course.	Rate/pax	
1.05b	Tuition fee per person up to a maximum of Ksh 1,500,000.00 as in item 1.05a above.	Rate/pax	
1.05c	Tuition fee per person up to a maximum of Ksh 1,000,000.00 as in item 1.05a above.	Rate/pax	
1.05d	Tuition fee per person up to a maximum of Ksh 500,000.00 as in item 1.05a above.	Rate/pax	
1.05e	Tuition fee per person up to a maximum of Ksh 250,000.00 as in item 1.05a above.	Rate/pax	
1.05f	KAA staff Travel Cost inclusive of Economy return Air ticket and VISA fees to any foreign country (in USD).	Rate/pax	
1.05g	KAA staff local travel cost within the foreign country	Rate/pax/day	
1.05h	KAA Staff Grade 9 –Allowances 647 USD per day	Pax/Day	
1.05i	KAA Staff Grade 8 – Allowances 647 USD per day	Pax/Day	
1.05j	KAA Staff Grade 7- Allowance 549 USD per day	Pax/Day	
1.05k	KAA Staff Grade 6 Allowance 549 USD per day	Pax/Day	
1.05l	KAA Staff Grade 5 Allowance 549 USD per day	Pax/Day	
1.05m	KAA Staff Grade 4 Allowance 477 USD per day	Pax/Day	
1.06	Prime Cost Sum for removal and reinstatement of services.	PC Sum	500,000.00
1.06a	Percentage of Prime Cost Sum in Item 1.06 for Contractor's overheads and profits.	%	
1.07	Engineer's site staff communication airtime Kshs. 100,000.	Rate	
1.08	Prime Cost Sum for materials testing.	PC Sum	500,000.00
1.09	Percentage of Prime Cost Sum in Item 1.08 for	%	

Item	Description		
		Unit	Rate for WAJIR
	Contractor's overheads and profits.		
1.10	Provide a Total Station to the approval and exclusive use by the Engineer, complete with Prism and Tripod with an accuracy of 0.9 seconds for the duration of the Contract. The TS to be supplied with download software. Upon completion of the Contract, it shall revert to the Contractor.	Day Rate	
1.11	Allow for provision and maintenance of dumpy level survey equipment complete with staff and bubble for exclusive use by the Engineer.	Day Rate	
1.12	Prime Cost Sum for Engineer's miscellaneous account.	PC Sum	500,000.00
1.13	Percentage of Prime Cost Sum in Item 1.12 for Contractor's overheads and profits.	%	
1.14	Prime Cost Sum for off-site materials testing.	PC Sum	500,000.00
1.15	Percentage of Prime Cost Sum in Item 1.14 for Contractor's overheads and profits.	%	
1.16	Provide and erect publicity signs as directed by the engineer in accordance with the standard KAA publicity signboard specifications.	No.	
1.17	Provide, fuel and maintain with driver, comprehensively insured, new 4WD,double cabin vehicle (odometer:0-10,000km)of diesel engine capacity 2,700 - 3000cc or equivalent for the exclusive use of the engineer inclusive of the first 4000km per vehicle month in accordance with clause 138 of the standard specification.	Month	
1.18	E.O.Item 1.17 for mileage over 4,000km per vehicle month.	Km	
1.19	Provide, fuel and maintain with driver, a comprehensively insured, 4WD,station wagon vehicle (odometer:0-10,000km) of minimum diesel engine capacity 2700cc turbo charged or equivalent for the exclusive use of the engineer inclusive of the first 4000km per vehicle month in accordance with clause 138 of the standard specification.	Month	
1.20	E.O.Item 1.19 for mileage over 4,000km per vehicle month.	Km	
1.21	Provide, fuel and maintain with driver, a comprehensively insured, new 4WD,saloon vehicle (odometer:0-10,000km)	Month	

Item	Description	Unit	Rate for WAJIR
	of diesel engine capacity 2,700-3000cc or equivalent for the exclusive use of the engineer inclusive of the first 4000km per vehicle month in accordance with clause 138 of the standard specification.		
1.22	E.O.Item 1.21 for mileage over 4,000km per vehicle month.	Km	
1.23	Prime Cost Sum for attendance to the Engineers site staff	PC Sum	500,000.00
1.24	Percentage of Prime Cost Sum in Item 1.23 for Contractor's overheads and profits.	%	
1.25	Prime Cost Sum for provision of equipment for the engineers site office.	PC Sum	500,000.00
1.26	Percentage of Prime Cost Sum in Item 1.25 for Contractor's overheads and profits.	%	
1.27	Prime cost sum for off-road environmental mitigation measures.	PC Sum	100,000.00
1.28	Percentage of Prime Cost Sum in Item 1.27 for Contractor's overheads and profits.	%	
1.29	Allow for provision of communication air to ground base radio for car mounting of range from (118 – 136) MH with frequencies selectable within the range and appropriate antenna, 2 new handheld air to ground radios of same frequencies NB: The Radios Shall be Handed over to the Client on Completion of the Project in good working condition.	Rate	
1.30	Allow for working at night on active aircraft pavements.	Item	
1.31	Allow for sampling and testing of material samples by KeBS or accredited laboratory approved by employer – a certificate shall accompany each material stating compliance with the applicable standards.	PC Sum	200,000.00
1.32	Percentage of Prime Cost Sum in Item 1.31 for Contractor's overheads and profits.	%	
	BILL 4: SITE CLEARANCE AND TOPSOIL STRIPPING		
	No separate payment shall be made for the overhaul material out of the airport and the cost of such haulage shall be included in the rate and /or prices.		

Item	Description		
		Unit	Rate for WAJIR
4.01	Light Bush clearing as directed by the Engineer.	Sq.m	
4.02	Heavy bush clearing as directed by the Engineer.	Sq.m	
4.03	Clear site on road reserve including removal of trees, hedges, bushes, vegetation with approved material in accordance with the specification, and as directed by the engineer.	Ha.	
4.04	Removal of topsoil to a maximum depth of 200mm in accordance with the specification and as directed by the engineer.	Cu.m	
4.05	Hack concrete from bridge deck slab, abutments and wing walls to expose reinforcement as directed.	Cu.m	
4.06	Excavate, remove and dispose cracked pipe culverts of any size.	M	
4.07	Cutting and disposal of trees of girth 1000mm and below	No.	
4.08	Cutting and disposal of trees of girth 1000mm and above	No.	
4.09	Grass cutting to a height below 50mm or as specified.	Sq.m	
	BILL 5: EARTHWORKS.		
	No separate payment shall be made for the overhaul material into or out of the airport and the cost of such haulage shall be included in the rate and /or prices. It is the Contractor's responsibility to identify quarries, borrow pits and spoil areas.		
5.01	Fill in soft material.	Cu.m	
5.02	As in Item 5.01 but in hard material	Cu.m	
5.03	As in Item 5.01 for compaction of top 300mm in fills to 100% MDD (AASHTO T99)	Cu.m	
5.04	Cut to spoil in soft material.	Cu.m	
5.05	As in Item 5.04 but in hard material.	Cu.m	
5.06	Compact the top 150mm layer of existing ground fills and cuts to 95% MDD (AASHTO T99)	Cu.m	
5.07	Provide place and compact to refusal Rockfill	Cu.m	
5.08	Filter fabric under, over or around rockfill.	Sq.m	
5.09	Top soiling	Sq.m	

Item	Description		
		Unit	Rate for WAJIR
5.10	Grassing	Sq.m	
	BILL 7: EXCAVATION AND FILLING FOR STRUCTURES		
7.01	Excavation in soft material for major structures i.e. box culverts and gabion works.	Cu.m	
7.02	As for Item 7.01 but in hard material.	Cu.m	
7.03	Provide and place macaferri or equivalent gabion boxes and mattresses as specified.	Sq.m	
7.04	Provide and place rockfill to gabions.	Cu.m	
7.05	Provide stone pitching as directed by the Engineer.	Sq.m	
7.06	E.O. Item 7.05 for cement grouting as directed by the Engineer.	Sq.m	
7.07	Provide, place and compact rockfill below structures as directed by the Engineer.	Cu.m	
7.08	Provide and place porous material behind wing walls.	Cu.m	
	BILL 8: CULVERTS AND DRAINAGE WORKS		
	No separate payment shall be made for the haulage of surplus or unsuitable excavated material out of the airport and the cost of such haulage shall be included in the rates/prices.		
8.01	Excavate, desilt, grade to shape inlets outfalls, side drains to free flow conditions including cart to spoil any excess grass debris and soils as and where directed by the Engineer.	Cu.m	
8.02	Clean culverts 450mm dia culvert to free flow conditions.	m	
8.03	Clean culverts 600mm dia culvert to free flow conditions.	m	
8.04	Clean culverts 900mm dia culvert to free flow conditions.	m	
8.05	Clean culverts 1200mm dia culvert to free flow conditions.	m	
8.06	Clean IBD drains to free flow conditions	m	
8.07	Excavate in soft materials for pipe culverts headwalls, wing walls, apron, toe walls and drop inlets.	Cu.m	
8.08	Repair inlet or outlet to existing pipe culverts in Class 25/20 concrete as directed by the Engineer.	Cu.m	

Item	Description	Unit	Rate for WAJIR
8.09	Provide, lay and joint 600mm inner diameter (ID) precast concrete pipes.	m	
8.10	As in Item 8.09 but 450mm ID.	m	
8.11	As in Item 8.09 but 900mm ID.	m	
8.12	As in Item 8.09 but 1200mm ID.	m	
8.13	Provide place and compact class 15/20 concrete to beds, surrounds and haunches.	Cu.m	
8.14	Provide place and compact class 20/20 concrete to headwalls, wing walls, aprons and culverts including formwork.	Cu.m	
8.15	Provide place and compact class 25/20 concrete to headwalls, wing walls, aprons and culverts including formwork.	Cu.m	
8.16	Provide and place A142 fabric mesh reinforcement	Sq.m	
8.17	Excavate in any material provided and joint 300mm inner diameter half round precast concrete channel with maximum 4 no. courses of precast side slabs of 600x225x75mm as lining for storm water drain including bedding and backfilling with selected material as directed by the Engineer.	m	
8.18	Excavate in any material provided and joint 600x360mm invert block drains (IBD) precast concrete channels with two courses of side slabs of 600x225x75mm as lining on each side for storm water drain including bedding, jointing and backfilling with selected material as directed by the Engineer.	m	
8.19	Excavate and trim to shape, provide place precast concrete side slabs of 600x225x75mm as lining on each side for storm water drain including bedding jointing and backfilling with selected material as directed by the Engineer.	Sq.m	
8.20	Construct concrete scour checks as specified and directed by the Engineer.	Cu.m	
8.21	Excavate for and construct subsoil drains where directed including backfilling with approved hard material.	Cu.m	
8.22	E.O. Item 8.21 for filter fabric material.	Sq.m	

Item	Description	Unit	Rate for WAJIR
8.23	Provide and place heavy gauge 100mm dia PVC pipes for weep holes as directed by the Engineer.	m	
8.24	Provide and place heavy gauge 150mm dia PVC pipes for weep holes as directed by the Engineer.	m	
8.25	Provide and place heavy gauge 200mm dia PVC pipes for weep holes as directed by the Engineer.	m	
8.26	Provide and place heavy gauge 300mm dia PVC pipes for weep holes as directed by the Engineer.	m	
	BILL 9: PASSAGE OF TRAFFIC		
9.01	Allow for the passage of traffic through the works.	Km	
9.02	Construct and maintain 7m wide deviation in accordance with the specifications and as directed by the Engineer.	Km	
9.03	Improve existing public road in accordance with the specification and as directed by the engineer.	Km	
9.04	Provide natural gravel of CBR greater than 30%, lay water and compact to 150mm thickness as gravel wearing course on deviation and existing road in accordance with the specifications and as directed by the Engineer.	Cu.m	
9.05	Construct 7m wide access roads, including gravel wearing course, in accordance with the specifications and as directed by the Engineer.	Km	
	BILL 10: GRADING AND GRAVELLING		
	No overhaul out of the airport will be paid separately under this item and the cost for haulage will be deemed to have been included in the rates (METHOD A).		
10.01	Carry out light grading to the existing carriage with watering and compaction to camber, including slope and ditches as instructed by the Engineer.	Sq.m	
10.02	Carry out heavy grading to existing carriageway with watering and compaction to camber, including slope and ditches as instructed by the Engineer.	Sq.m	
10.03	Remove overburden material out of sites and cart away from airport as instructed.	Cu.m	

Item	Description		
		Unit	Rate for WAJIR
10.04	Excavate gravel and stockpile within the airport as instructed.	Cu.m	
10.05	Load, haul and dump gravel as instructed.	Cu.m	
10.06	Provide, spread, grade, water and compact approved gravel imported from outside airport facility to specified thickness at 95% MDD.	Cu.m	
	BILL 11: SHOULDERS TO PAVEMENTS		
11.01	Prepare surface of existing shoulders, and accesses, including benching where necessary, water process and compact in accordance with the specifications and as directed by the Engineer to receive gravel.	Sq.m	
11.02	Provide, place, water and compact natural gravel to shoulders and accesses.	Cu.m	
	BILL 12: NATURAL MATERIAL BASE AND BASECOURSE		
	No overhaul into or out of the airport will be paid separately under this item and the cost for haulage will be deemed to have been included in the rates		
12.01	Excavate existing bituminous surfacing or pavement material to spoil or stockpile for reuse as directed by the Engineer.	Cu.m	
12.02	Break or scarify the existing pavement layer, and compact as specified and directed by the Engineer.	Cu.m	
12.03	Excavate by milling existing bituminous surfacing or pavement material to spoil or stockpile for reuse as directed by the Engineer.	Cu.m	
12.04	Recycle (cold in place) the existing bituminous pavement layer for re-use including addition of approved fresh material and as directed by the Engineer.	Cu.m	
12.05	Recycle (hot in place) the existing bituminous pavement layer for re-use including addition of approved fresh material and as directed by the Engineer.	Cu.m	
12.06	Provide, place,spread,water and compact natural gravel of CBR greater than 30% on repair and reconstruction areas as specified and as directed by the Engineer.	Cu.m	
12.07	Provide, lay and compact hand packed stone material including filling of voids with stone dust as directed by the	Cu.m	

Item	Description		
		Unit	Rate for WAJIR
	Engineer.		
	BILL 13: GRADED CRUSHED STONE SUBBASE AND BASE		
13.01	Provide, place, spread and compact Class A Graded Crushed Stone (GCS) to 98% MDD with results not less than 96% MDD	Cu.m	
	BILL 14: CEMENT AND LIME TREATED MATERIAL		
14.01	Provide, transport to site and spread cement on natural gravel or GCS material for base or subbase as specified and as directed by the Engineer at 30-50kg/cu.m.	Tonne	
14.02	As Item 14.01 but lime.	Tonne	
14.03	Allow for mixing in cement and/or lime into natural gravel or GCS.	Cu.m	
14.04	Allow for curing and protection of treated layers as specified.	Sq.m	
	BILL15: BITUMINOUS SURFACE TREATMENT AND DRESSING		
15.01	Prepare surface of carriageway and repair areas, provide and spray MC-30 cut back bitumen at a rate of 0.8-1.2 ltr/sq.m as prime coat.	litre	
15.02	Prepare primed surfaces, provide and spray 80/100 penetration grade bitumen at a spray rate of 1.2 ltr/sq.m as binder for first seal on carriageway shoulder and junctions.	litre	
15.03	Prepare surface of carriageway and repair areas, provide and spray MC-70 cut back bitumen at a rate of 0.8-1.2 ltr/sq.m as prime coat	litre	
15.04	Prepare surface of repair areas, provide and spray K1-70 bitumen emulsion as tack coat or seal to repair areas at a spray rate of 0.8-1.0 ltr/sq.m.	litre	
15.05	Prepare existing or new bituminous surface, provide and spray 80/100 penetration grade bitumen at a spray rate of 1.0-1.2 ltr/sq.m as binder for single or second seal on carriageway shoulders and junctions.	litre	
15.06	Provide, spread and roll 10/14 mm pre coated chippings at a spread rate of 90-110 sq.m/cu.m for a single seal to carriageway as directed by the Engineer.	Cu.m	

Item	Description	Unit	Rate for WAJIR
15.07	Provide, spread and roll 6/10 mm pre coated chippings at a spread rate of 110-130 sq.m/cu.m as second seal as directed by the Engineer.	Cu.m	
15.08	Prepare surface of carriageway, provide and spray 80/100 penetration grade bitumen cut back using 5-15% kerosene as tack coat for asphalt concrete wearing course at a spray rate of 0.5-0.7 ltr/sq.m..	litre	
15.09	Prepare surface of repair areas, provide and spray K1-60 bitumen emulsion as tack coat or seal to repair areas at a spray rate of 0.8-1.0 ltr/sq.m.	litre	
15.10	Provide kerosene fuel as a cutter for 80/100 penetration grade bitumen.	litre	
15.11	Provide, spread and roll 0/6 mm chippings (quarry dust) at a spread rate of 150-200 sq.m/cu.m to the seal on repair areas or on repaired areas to allow passage of traffic.	Cu.m	
	BILL 16: BITUMINOUS MIXES		
16.01	Excavate, trim and clean potholes, failed and damaged areas of the carriageway and edges including cart to spoil the excavated materials.	Cu.m	
16.02	Repair transverse or longitudinal cracking on asphalt concrete (crack sealing) as directed by the Engineer.	m	
16.03	Milling the existing bituminous layer to spoil to a maximum depth of 50mm thick.	Sq.m	
16.04	Milling the existing bituminous layer to spoil to a maximum depth of 100mm thick.	Sq.m	
16.05	Provide, place and compact Asphalt Concrete Type 1 with 5-7% nominal bitumen content by weight to total mix as wearing course on carriageway as directed by the Engineer. Maximum volume 15 cu.m.	Cu.m	
16.06	As in item 16.05 but total volume between 15cu.m-300 cu.m	Cu.m	
16.07	As in item 16.05 but total volume between over 300 cu.m		
16.08	Provide, place and compact Asphalt Concrete Type 1 for bumps and rumble strips as directed by the Engineer.	Cu.m	
16.09	Provide, place and compact Asphalt Concrete Type 1 to repair areas and for regulation to carriageway as directed	Cu.m	

Item	Description	Unit	Rate for WAJIR
	by the Engineer. Total volume 10cu.m		
16.10	As in item 16.09 but total volume between 10cu.m-50 cu.m	Cu.m	
16.11	As in item 16.10 but total volume between 50 cu.m	Cu.m	
16.12	Provide, place and compact Dense Bituminous Macadam (DBM) with 3.0-4.5% nominal bitumen content by weight to total mix or as base on reconstruction sections as directed by the Engineer. Maximum volume 15cu.m.	Cu.m	
16.13	As in item 16.12 but total volume between 15cu.m-300 cu.m	Cu.m	
16.14	As in item 16.12 but total volume over 300 cu.m	Cu.m	
	Bill 17: CONCRETE WORKS		
	Concrete Provide, place, compact and cure the following classes of concrete as specified.		
17.01	Class 15/20 for blinding	Cu.m	
17.02	Class 20/20 concrete	Cu.m	
17.03	Class 25/20 for concrete	Cu.m	
17.04	Class 30/20 for concrete	Cu.m	
17.05	Class 40/20 for concrete	Cu.m	
17.06	Class 45/20 for concrete	Cu.m	
	Formwork Provide, erect and afterwards dismantle and remove all the formwork as specified by the Engineer		
17.07	Vertical formwork class F3 finish	Sq.m	
17.08	Horizontal formwork class F3 finish	Sq.m	
	Reinforcement Provide, bend and fix into positions high yield steel bars to BS4461 the following steel reinforcement as directed and as shown on the drawings.		
17.09	Reinforcement bars of high yield strength to BS4461, size 16mm and above.	Tonne	

Item	Description		
		Unit	Rate for WAJIR
17.10	Reinforcement bars of high yield strength to BS4461, size 12mm and below.	Tonne	
17.11	Provide and place on 50mm thick sand bed and vibrate, 60mm thick Heavy Duty paving blocks of any pattern on edges as specified.	Sq.m	
17.12	Provide and place on 50mm thick sand bed and vibrate, 80mm thick Heavy Duty paving blocks of any pattern on edges as specified.	Sq.m	
17.13	As item 17.11 but coloured	Sq.m	
17.14	As item 17.12 but coloured	Sq.m	
17.15	Provide and place Standard Heavy Duty paving slabS size 600x600x50mm.	Sq.m	
	BILL 20: ROAD FURNITURE		
20.01	Allow for removal/obliteration of peeling and accumulated rubber on the marked surface of the pavements using suitable equipment and cart away debris and dispose away from airport.	Sq.m	
20.02	Allow for removal/obliteration of unwanted markings on the surface of the pavements using suitable equipment and cart away debris and dispose away from airport.	Sq.m	
20.03	Prepare surface and repaint(apply) two coats of white/yellow/black/red oxide acrylic airfield pavement marking paint mixed with approved pavement thinner and ballotini beads as directed by Engineer.	Sq.m	
20.04	Prepare surface and apply three coats of white/yellow/black/red acrylic road marking paints to new pavement surfaces mixed with approved pavement thinner and ballotini beads as directed by Engineer.	Sq.m	
20.05	Provide and lay hot applied thermoplastic road marking compound in approved colour and shade with ballotini beads for road marking on bituminous surface using fully automatic extrusion machine and using pre-melter for melting thermoplastic material including cleaning the surface of all dirt, dust, and other foreign matter, complete with demarcation at site/premarking, finishing and managing the traffic movements as instructed by the	Sq.m	

Item	Description	Unit	Rate for WAJIR
	Engineer		
20.06	Provide and place the appropriate sealant for sealing Joints in concrete works upto a maximum width of 25mm (Elastic jet fuel resistant sealant to ASTM D3581)	m	
20.07	Provide and place Styrofoam at expansion joints upto a maximum width of 25mm for concrete and/or Asphalt and as specified by the Engineer.	m	
20.08	Provide and place white/white,white/red, yellow/yellow,red/red retro reflective road studs as instructed	No.	
20.09	Remove and dispose the damaged existing guard rails as directed by the Engineer.	m	
20.10	Provide and place new flex-beam guard rails complete with pre-cast flex-beam guardrail posts, spacers, nuts, bolts and fittings as directed by the Engineer.	m	
20.11	Provide and place 1500mmx200mmx3mm thickness CHS steel bollards 1200mm above and 300mm embedded below ground. Filled with concrete class 20/20, painted with alternating yellow and black strips 150mm wide place as directed by the Engineer.	No.	
20.12	Provide and place night safety retro reflective tape 50mm wide of colors Yellow, white or red glued to bollards as instructed by Engineer.	m	
20.13	Provide and erect permanent road signs where instructed by the Engineer and in accordance with the specifications as follows:		
	(a) Warning signs	No.	
	(b) Priority, prohibitory and mandatory signs	No.	
	(c) Standard informatory signs	No.	
	(d) Nonstandard signs (i) Less than 1.0 sq.m (ii) 1.0 sq.m to 2.0 sq.m (iii) 2.0 sq.m to 4.0 sq.m (iv) 4.0 sq.m to 5.0 sq.m	 No. No. No. No.	

Item	Description	Unit	Rate for WAJIR
20.14	Excavate for, provide and place 250x125mm class 25/20 precast concrete raised or ramped kerbs haunched in 100mm thick class 15/20 concrete base bedding and mortar joined in support to carriageway as directed by the Engineer.		
	(a) Straight Kerbs	m	
	(b) Kerbs radius: 12m – 6m	m	
	(c) Ditto but radius:5m – 1m	m	
20.15	Ditto 20.11 but flush kerbs:		
	(a) Straight Kerbs	m	
	(b) Kerbs radius: 12m – 6m	m	
	(c) Ditto but radius:5m – 1m	m	
20.16	Excavate holes for fencing posts footing not exceeding 1.50 m deep, average 1.0m deep in hard and soft material; ram base to receive 'Class 20' concrete bases; include carting away.	Cu.m	
20.17	Ditto but for chain-link anchoring posts	Cu.m	
20.18	Mass concrete; Class 20 in footings	Cu.m	
20.19	Ditto but for chain-link anchoring posts	Cu.m	
20.20	Supply and install precast reinforced intermediate posts size 125 x125mm overall height 2.4m with cranked top of 475mm long as per detailed drawing including labor for 6mm diameter holes and bolts and 8mm galvanized mild steel bars with 12.5 S.W.G. stirrups at 350mm c/c as per detailed drawing to Engineer’s approval and satisfaction.	No.	
20.21	Ditto 20.05 but precast reinforced straining posts size 125x125mm all through; overall height 2.4m with cranked top of 475mm long as per detailed drawing including labour for 6mm diameter holes and bolts and 8mm galvanized mild steel bars with 12.5 S.W.G. stirrups at 350mm c/c as per detailed drawing with and including provision to receive struts to detail drawing to Engineer's approval.	No.	
20.22	Ditto 20.05 but precast reinforced straining posts size 150x150mm all through; overall height 2.4m with cranked top of 475mm long as per detailed drawing including	No.	

Item	Description	Unit	Rate for WAJIR
	labour for 6mm diameter holes and bolts and 8mm galvanized mild steel bars with 12.5 S.W.G. stirrups at 350mm c/c as per detailed drawing with and including provision to receive struts to detail drawing to Engineer's approval.		
20.23	100 x 80mm precast reinforced concrete struts to detail anchor on to concrete base and straining posts at approved level and 45 degrees to the horizontal to detail drawings and Engineer's approval.	No.	
20.24	High tensile galvanized barbed wire 12 1/2 G (2.5mm diameter) threaded through posts secured by galvanized binding wire to Engineer's approval.	m	
20.25	Supply, fabricate and install galvanized heavy duty metal gate overall size 6000 x 2400mm high; in two equal leaves; with and including 100 x 100 x 6mm SHS fixed firmly to the ground in approved concrete base; 8 gauge welded wire mesh covering fixed to 50 x 50 x 4mm SHS and tower locking heavy gauge bolt (including VIRO Cylinder 104); 3 lines of 12.5 gauge barbed wire at the top of each leaf; all as per attached drawings and approval of Project Manager. Gate to be painted in three coats of approved protective paint.	No.	
20.26	High tensile galvanized straining wire 9.5 Gauge through concrete posts (m/s) including hook bolts.	m	
20.27	Supply materials, fabricate and install galvanized heavy duty metal gate overall size 1000 x 2400mm high pedestrian gate with and including 75 x 75 x 4mm SHS fixed firmly to the ground in approved concrete base; 8 gauge welded wire mesh covering fixed to 50 x 50 x 4mm SHS and tower locking heavy gauge bolt (including VIRO Cylinder 104); 3 lines of 12.5 gauge barbed wire at the top; all as per attached drawings and approval of Project Manager. Gate to be painted in three coats of approved protective paint. Rate inclusive of casting of beam.	No.	
20.28	Supply and fix 2.4m high galvanized chain-link; gauge 9.5; 50x50mm mesh onto precast concrete posts (m/s); fastening with 5 No. lines of galvanized wire (m/s); threaded through and including mesh and hook bolts; secured by binding wire; all as per the drawings.	m	
20.29	Supply and fix 2.4m high galvanized chain-link; gauge	m	

Item	Description		
		Unit	Rate for WAJIR
	12.5; 50x50mm mesh onto precast concrete posts (m/s); fastening with 5 No. lines of galvanized wire (m/s); threaded through and including mesh and hook bolts; secured by binding wire; all as per the drawings.		
20.30	Excavate 150mm by 300 mm for ground beam	Cu.m	
20.31	Mass concrete; Class 20 in ground beam	Cu.m	

BILL OF QUANTITIES OF FRAMEWORK AGREEMENT FOR PAVEMENT MAINTENANCE TERM CONTRACT SERVICES AT LOKICHOGIO AIRPORT

Item	Description		
		Unit	Rate for LOKICHOGIO
	BILL 1: GENERAL		
1.01	Rate for mobilization/demobilization and availability during works of construction equipment for works whose duration is less than 2 days as per schedule below:		
1.01a	Asphalt Paver	Day Rate	
1.01b	Single Steel Drum Compaction Roller > or =18tonnes	Day Rate	
1.01c	Double tandem steel drum roller >/= 18 Tonnes	Day Rate	
1.01d	Sheepsfoot Roller > or = 20 Tonnes	Day Rate	
1.01e	Pneumatic Tiered Roller >/= 20 Tonnes	Day Rate	
1.01f	Bi-axial Pedestrian Roller >/= 6 Tonnes, 13.0/9.0 HP	Day Rate	
1.01g	Plate Compactor – plate size 540x420mm	Day Rate	
1.01h	Motor Grader CAT 12H or Equivalent.	Day Rate	
1.01i	Hydraulic Excavator CAT 322 or Equivalent.	Day Rate	
1.01j	Excavator with Jack hammer attachment CAT 322 or Equivalent	Day Rate	
1.01k	Back hoe Loader CAT 428 or Equivalent	Day Rate	
1.01l	Wheel Loader 4WD Articulated CAT 950 or Equivalent.	Day Rate	
1.01m	Disk concrete cutter	Day Rate	
1.01n	Air compressor	Day Rate	
1.01o	Pressure Bitumen Distributor Min 5000L	Day Rate	
1.01p	Bitumen Hand sprayer	Day Rate	
1.01q	Mechanical broom 74HP	Day Rate	
1.01r	Air Blower	Day Rate	
1.01s	Poker Vibrator 200Hz,2850 rpm	Day Rate	
1.01t	Concrete Balloon – Rubber/Synthetic Tire-cord	Day Rate	
1.01u	Concrete Pump	Day Rate	
1.01v	Concrete mixer with 400l bucket capacity	Day Rate	

Item	Description		
		Unit	Rate for LOKICHOGIO
1.01w	Tipper Truck 16-25 Tonnes Gross Capacity	Day Rate	
1.01x	Water Bowser	Day Rate	
1.01y	Crane – 20Tonne capacity	Day Rate	
1.01z	Crane – 100Tonne capacity	Day Rate	
1.01aa	Drill	Day Rate	
1.01bb	High loader	Day Rate	
1.01cc	Asphalt Milling Machine	Day Rate	
1.02	Allow for provision, mobilization, demobilization and maintenance of a containerized office for the engineers site office, including lighting, drinking water, flushable toilet, sockets and internet services.	Day Rate	
1.03	Allow for provision of survey equipment and material for use by the Engineer during construction.	Day rate	
1.04	Capacity building (Kenya based) training of civil engineering staff to ensure progressive career development and adaptability to the modern technology and modes of operation in the following areas; The training must be by an institution approved by ICAO and/or KCAA such as EASA and other state regulatory bodies such as KEBS, EBK, IEK or any other relevant body meeting the description herein.		
1.04a	Tuition fee per person up to a maximum of Ksh 250,000.00 for Airport pavement design, evaluation and maintenance or any other approved course.	Rate/pax	
1.04b	Tuition fee per person up to a max of 100,000.00 as in item 1.04a above.	Rate/pax	
1.04c	Tuition fee per person up to a max of 50,000.00 as in item 1.04a above	Rate/pax	
1.04d	KAA staff Travel Cost – Economy return Air ticket to any major town within the Country (in Kshs).	Pax	
1.04e	KAA Staff Travel Cost -Local Travel –provide van to accommodate Max 14 pax complete with fuel and driver.	Veh/day	
1.04f	KAA Staff Grade 8 –Allowances Kshs.16,800/day	Pax/Day	

Item	Description		
		Unit	Rate for LOKICHOGIO
1.04g	KAA Staff Grade 7- Allowance Kshs.14,000/ day	Pax/Day	
1.04h	KAA Staff Grade 6 Allowance Kshs.11,200 / day	Pax/Day	
1.04i	KAA Staff Grade 5 Allowance Kshs.11,200/day	Pax/Day	
1.04j	KAA Staff Grade 4 Allowance Ksh. 6,300 /day	Pax/Day	
1.04k	KAA Casual Allowance Ksh. 4,200 /day	Pax/Day	
1.05	Ditto as in 1.05 but International Training		
1.05a	Tuition fee per person up to a maximum of Ksh 2,000,000.00 for Airport pavement design, evaluation and maintenance or any other approved course.	Rate/pax	
1.05b	Tuition fee per person up to a maximum of Ksh 1,500,000.00 as in item 1.05a above.	Rate/pax	
1.05c	Tuition fee per person up to a maximum of Ksh 1,000,000.00 as in item 1.05a above.	Rate/pax	
1.05d	Tuition fee per person up to a maximum of Ksh 500,000.00 as in item 1.05a above.	Rate/pax	
1.05e	Tuition fee per person up to a maximum of Ksh 250,000.00 as in item 1.05a above.	Rate/pax	
1.05f	KAA staff Travel Cost inclusive of Economy return Air ticket and VISA fees to any foreign country (in USD).	Rate/pax	
1.05g	KAA staff local travel cost within the foreign country	Rate/pax/day	
1.05h	KAA Staff Grade 9 –Allowances 647 USD per day	Pax/Day	
1.05i	KAA Staff Grade 8 – Allowances 647 USD per day	Pax/Day	
1.05j	KAA Staff Grade 7- Allowance 549 USD per day	Pax/Day	
1.05k	KAA Staff Grade 6 Allowance 549 USD per day	Pax/Day	
1.05l	KAA Staff Grade 5 Allowance 549 USD per day	Pax/Day	
1.05m	KAA Staff Grade 4 Allowance 477 USD per day	Pax/Day	
1.06	Prime Cost Sum for removal and reinstatement of services.	PC Sum	500,000.00
1.06a	Percentage of Prime Cost Sum in Item 1.06 for Contractor's overheads and profits.	%	
1.07	Engineer's site staff communication airtime Kshs. 100,000.	Rate	

Item	Description		
		Unit	Rate for LOKICHOGIO
1.08	Prime Cost Sum for materials testing.	PC Sum	500,000.00
1.09	Percentage of Prime Cost Sum in Item 1.08 for Contractor's overheads and profits.	%	
1.10	Provide a Total Station to the approval and exclusive use by the Engineer, complete with Prism and Tripod with an accuracy of 0.9 seconds for the duration of the Contract. The TS to be supplied with download software. Upon completion of the Contract, it shall revert to the Contractor.	Day Rate	
1.11	Allow for provision and maintenance of dumpy level survey equipment complete with staff and bubble for exclusive use by the Engineer.	Day Rate	
1.12	Prime Cost Sum for Engineer's miscellaneous account.	PC Sum	500,000.00
1.13	Percentage of Prime Cost Sum in Item 1.12 for Contractor's overheads and profits.	%	
1.14	Prime Cost Sum for off-site materials testing.	PC Sum	500,000.00
1.15	Percentage of Prime Cost Sum in Item 1.14 for Contractor's overheads and profits.	%	
1.16	Provide and erect publicity signs as directed by the engineer in accordance with the standard KAA publicity signboard specifications.	No.	
1.17	Provide, fuel and maintain with driver, comprehensively insured, new 4WD,double cabin vehicle (odometer:0-10,000km)of diesel engine capacity 2,700 - 3000cc or equivalent for the exclusive use of the engineer inclusive of the first 4000km per vehicle month in accordance with clause 138 of the standard specification.	Month	
1.18	E.O.Item 1.17 for mileage over 4,000km per vehicle month.	Km	
1.19	Provide, fuel and maintain with driver, a comprehensively insured, 4WD,station wagon vehicle (odometer:0-10,000km) of minimum diesel engine capacity 2700cc turbo charged or equivalent for the exclusive use of the engineer inclusive of the first 4000km per vehicle month in accordance with clause 138 of the standard specification.	Month	
1.20	E.O.Item 1.19 for mileage over 4,000km per vehicle	Km	

Item	Description		
		Unit	Rate for LOKICHOGIO
	month.		
1.21	Provide, fuel and maintain with driver, a comprehensively insured, new 4WD,saloon vehicle (odometer:0-10,000km) of diesel engine capacity 2,700-3000cc or equivalent for the exclusive use of the engineer inclusive of the first 4000km per vehicle month in accordance with clause 138 of the standard specification.	Month	
1.22	E.O.Item 1.21 for mileage over 4,000km per vehicle month.	Km	
1.23	Prime Cost Sum for attendance to the Engineers site staff	PC Sum	500,000.00
1.24	Percentage of Prime Cost Sum in Item 1.23 for Contractor's overheads and profits.	%	
1.25	Prime Cost Sum for provision of equipment for the engineers site office.	PC Sum	500,000.00
1.26	Percentage of Prime Cost Sum in Item 1.25 for Contractor's overheads and profits.	%	
1.27	Prime cost sum for off-road environmental mitigation measures.	PC Sum	100,000.00
1.28	Percentage of Prime Cost Sum in Item 1.27 for Contractor's overheads and profits.	%	
1.29	Allow for provision of communication air to ground base radio for car mounting of range from (118 – 136) MH with frequencies selectable within the range and appropriate antenna, 2 new handheld air to ground radios of same frequencies NB: The Radios Shall be Handed over to the Client on Completion of the Project in good working condition.	Rate	
1.30	Allow for working at night on active aircraft pavements.	Item	
1.31	Allow for sampling and testing of material samples by KeBS or accredited laboratory approved by employer – a certificate shall accompany each material stating compliance with the applicable standards.	PC Sum	200,000.00
1.32	Percentage of Prime Cost Sum in Item 1.31 for Contractor's overheads and profits.	%	

Item	Description		
		Unit	Rate for LOKICHOGIO
	BILL 4: SITE CLEARANCE AND TOPSOIL STRIPPING		
	No separate payment shall be made for the overhaul material out of the airport and the cost of such haulage shall be included in the rate and /or prices.		
4.01	Light Bush clearing as directed by the Engineer.	Sq.m	
4.02	Heavy bush clearing as directed by the Engineer.	Sq.m	
4.03	Clear site on road reserve including removal of trees, hedges, bushes, vegetation with approved material in accordance with the specification, and as directed by the engineer.	Ha.	
4.04	Removal of topsoil to a maximum depth of 200mm in accordance with the specification and as directed by the engineer.	Cu.m	
4.05	Hack concrete from bridge deck slab, abutments and wing walls to expose reinforcement as directed.	Cu.m	
4.06	Excavate, remove and dispose cracked pipe culverts of any size.	M	
4.07	Cutting and disposal of trees of girth 1000mm and below	No.	
4.08	Cutting and disposal of trees of girth 1000mm and above	No.	
4.09	Grass cutting to a height below 50mm or as specified.	Sq.m	
	BILL 5: EARTHWORKS.		
	No separate payment shall be made for the overhaul material into or out of the airport and the cost of such haulage shall be included in the rate and /or prices. It is the Contractor's responsibility to identify quarries, borrow pits and spoil areas.		
5.01	Fill in soft material.	Cu.m	
5.02	As in Item 5.01 but in hard material	Cu.m	
5.03	As in Item 5.01 for compaction of top 300mm in fills to 100% MDD (AASHTO T99)	Cu.m	
5.04	Cut to spoil in soft material.	Cu.m	
5.05	As in Item 5.04 but in hard material.	Cu.m	

Item	Description		
		Unit	Rate for LOKICHOGIO
5.06	Compact the top 150mm layer of existing ground fills and cuts to 95% MDD (AASHTO T99)	Cu.m	
5.07	Provide place and compact to refusal Rockfill	Cu.m	
5.08	Filter fabric under, over or around rockfill.	Sq.m	
5.09	Top soiling	Sq.m	
5.10	Grassing	Sq.m	
	BILL 7: EXCAVATION AND FILLING FOR STRUCTURES		
7.01	Excavation in soft material for major structures i.e. box culverts and gabion works.	Cu.m	
7.02	As for Item 7.01 but in hard material.	Cu.m	
7.03	Provide and place macaferri or equivalent gabion boxes and mattresses as specified.	Sq.m	
7.04	Provide and place rockfill to gabions.	Cu.m	
7.05	Provide stone pitching as directed by the Engineer.	Sq.m	
7.06	E.O. Item 7.05 for cement grouting as directed by the Engineer.	Sq.m	
7.07	Provide, place and compact rockfill below structures as directed by the Engineer.	Cu.m	
7.08	Provide and place porous material behind wing walls.	Cu.m	
	BILL 8: CULVERTS AND DRAINAGE WORKS		
	No separate payment shall be made for the haulage of surplus or unsuitable excavated material out of the airport and the cost of such haulage shall be included in the rates/prices.		
8.01	Excavate, desilt, grade to shape inlets outfalls, side drains to free flow conditions including cart to spoil any excess grass debris and soils as and where directed by the Engineer.	Cu.m	
8.02	Clean culverts 450mm dia culvert to free flow conditions.	m	
8.03	Clean culverts 600mm dia culvert to free flow conditions.	m	
8.04	Clean culverts 900mm dia culvert to free flow conditions.	m	

Item	Description		
		Unit	Rate for LOKICHOGIO
8.05	Clean culverts 1200mm dia culvert to free flow conditions.	m	
8.06	Clean IBD drains to free flow conditions	m	
8.07	Excavate in soft materials for pipe culverts headwalls, wing walls, apron, toe walls and drop inlets.	Cu.m	
8.08	Repair inlet or outlet to existing pipe culverts in Class 25/20 concrete as directed by the Engineer.	Cu.m	
8.09	Provide, lay and joint 600mm inner diameter (ID) precast concrete pipes.	m	
8.10	As in Item 8.09 but 450mm ID.	m	
8.11	As in Item 8.09 but 900mm ID.	m	
8.12	As in Item 8.09 but 1200mm ID.	m	
8.13	Provide place and compact class 15/20 concrete to beds, surrounds and haunches.	Cu.m	
8.14	Provide place and compact class 20/20 concrete to headwalls, wing walls, aprons and culverts including formwork.	Cu.m	
8.15	Provide place and compact class 25/20 concrete to headwalls, wing walls, aprons and culverts including formwork.	Cu.m	
8.16	Provide and place A142 fabric mesh reinforcement	Sq.m	
8.17	Excavate in any material provided and joint 300mm inner diameter half round precast concrete channel with maximum 4 no. courses of precast side slabs of 600x225x75mm as lining for storm water drain including bedding and backfilling with selected material as directed by the Engineer.	m	
8.18	Excavate in any material provided and joint 600x360mm invert block drains (IBD) precast concrete channels with two courses of side slabs of 600x225x75mm as lining on each side for storm water drain including bedding, jointing and backfilling with selected material as directed by the Engineer.	m	
8.19	Excavate and trim to shape, provide place precast concrete side slabs of 600x225x75mm as lining on each side for storm water drain including bedding jointing and	Sq.m	

Item	Description		
		Unit	Rate for LOKICHOGIO
	backfilling with selected material as directed by the Engineer.		
8.20	Construct concrete scour checks as specified and directed by the Engineer.	Cu.m	
8.21	Excavate for and construct subsoil drains where directed including backfilling with approved hard material.	Cu.m	
8.22	E.O. Item 8.21 for filter fabric material.	Sq.m	
8.23	Provide and place heavy gauge 100mm dia PVC pipes for weep holes as directed by the Engineer.	m	
8.24	Provide and place heavy gauge 150mm dia PVC pipes for weep holes as directed by the Engineer.	m	
8.25	Provide and place heavy gauge 200mm dia PVC pipes for weep holes as directed by the Engineer.	m	
8.26	Provide and place heavy gauge 300mm dia PVC pipes for weep holes as directed by the Engineer.	m	
	BILL 9: PASSAGE OF TRAFFIC		
9.01	Allow for the passage of traffic through the works.	Km	
9.02	Construct and maintain 7m wide deviation in accordance with the specifications and as directed by the Engineer.	Km	
9.03	Improve existing public road in accordance with the specification and as directed by the engineer.	Km	
9.04	Provide natural gravel of CBR greater than 30%, lay water and compact to 150mm thickness as gravel wearing course on deviation and existing road in accordance with the specifications and as directed by the Engineer.	Cu.m	
9.05	Construct 7m wide access roads, including gravel wearing course, in accordance with the specifications and as directed by the Engineer.	Km	
	BILL 10: GRADING AND GRAVELLING		
	No overhaul out of the airport will be paid separately under this item and the cost for haulage will be deemed to have been included in the rates (METHOD A).		

Item	Description		
		Unit	Rate for LOKICHOGIO
10.01	Carry out light grading to the existing carriage with watering and compaction to camber, including slope and ditches as instructed by the Engineer.	Sq.m	
10.02	Carry out heavy grading to existing carriageway with watering and compaction to camber, including slope and ditches as instructed by the Engineer.	Sq.m	
10.03	Remove overburden material out of sites and cart away from airport as instructed.	Cu.m	
10.04	Excavate gravel and stockpile within the airport as instructed.	Cu.m	
10.05	Load, haul and dump gravel as instructed.	Cu.m	
10.06	Provide, spread, grade, water and compact approved gravel imported from outside airport facility to specified thickness at 95% MDD.	Cu.m	
	BILL 11: SHOULDERS TO PAVEMENTS		
11.01	Prepare surface of existing shoulders, and accesses, including benching where necessary, water process and compact in accordance with the specifications and as directed by the Engineer to receive gravel.	Sq.m	
11.02	Provide, place, water and compact natural gravel to shoulders and accesses.	Cu.m	
	BILL 12: NATURAL MATERIAL BASE AND BASECOURSE		
	No overhaul into or out of the airport will be paid separately under this item and the cost for haulage will be deemed to have been included in the rates		
12.01	Excavate existing bituminous surfacing or pavement material to spoil or stockpile for reuse as directed by the Engineer.	Cu.m	
12.02	Break or scarify the existing pavement layer, and compact as specified and directed by the Engineer.	Cu.m	
12.03	Excavate by milling existing bituminous surfacing or pavement material to spoil or stockpile for reuse as directed by the Engineer.	Cu.m	
12.04	Recycle (cold in place) the existing bituminous pavement layer for re-use including addition of approved fresh	Cu.m	

Item	Description		
		Unit	Rate for LOKICHOGIO
	material and as directed by the Engineer.		
12.05	Recycle (hot in place) the existing bituminous pavement layer for re-use including addition of approved fresh material and as directed by the Engineer.	Cu.m	
12.06	Provide, place,spread,water and compact natural gravel of CBR greater than 30% on repair and reconstruction areas as specified and as directed by the Engineer.	Cu.m	
12.07	Provide, lay and compact hand packed stone material including filling of voids with stone dust as directed by the Engineer.	Cu.m	
	BILL 13: GRADED CRUSHED STONE SUBBASE AND BASE		
13.01	Provide, place, spread and compact Class A Graded Crushed Stone (GCS) to 98% MDD with results not less than 96% MDD	Cu.m	
	BILL 14: CEMENT AND LIME TREATED MATERIAL		
14.01	Provide, transport to site and spread cement on natural gravel or GCS material for base or subbase as specified and as directed by the Engineer at 30-50kg/cu.m.	Tonne	
14.02	As Item 14.01 but lime.	Tonne	
14.03	Allow for mixing in cement and/or lime into natural gravel or GCS.	Cu.m	
14.04	Allow for curing and protection of treated layers as specified.	Sq.m	
	BILL15: BITUMINOUS SURFACE TREATMENT AND DRESSING		
15.01	Prepare surface of carriageway and repair areas, provide and spray MC-30 cut back bitumen at a rate of 0.8-1.2 ltr/sq.m as prime coat.	litre	
15.02	Prepare primed surfaces, provide and spray 80/100 penetration grade bitumen at a spray rate of 1.2 ltr/sq.m as binder for first seal on carriageway shoulder and junctions.	litre	
15.03	Prepare surface of carriageway and repair areas, provide and spray MC-70 cut back bitumen at a rate of 0.8-1.2 ltr/sq.m as prime coat	litre	

Item	Description		
		Unit	Rate for LOKICHOGIO
15.04	Prepare surface of repair areas, provide and spray K1-70 bitumen emulsion as tack coat or seal to repair areas at a spray rate of 0.8-1.0 ltr/sq.m.	litre	
15.05	Prepare existing or new bituminous surface, provide and spray 80/100 penetration grade bitumen at a spray rate of 1.0-1.2 ltr/sq.m as binder for single or second seal on carriageway shoulders and junctions.	litre	
15.06	Provide, spread and roll 10/14 mm pre coated chippings at a spread rate of 90-110 sq.m/cu.m for a single seal to carriageway as directed by the Engineer.	Cu.m	
15.07	Provide, spread and roll 6/10 mm pre coated chippings at a spread rate of 110-130 sq.m/cu.m as second seal as directed by the Engineer.	Cu.m	
15.08	Prepare surface of carriageway, provide and spray 80/100 penetration grade bitumen cut back using 5-15% kerosene as tack coat for asphalt concrete wearing course at a spray rate of 0.5-0.7 ltr/sq.m..	litre	
15.09	Prepare surface of repair areas, provide and spray K1-60 bitumen emulsion as tack coat or seal to repair areas at a spray rate of 0.8-1.0 ltr/sq.m.	litre	
15.10	Provide kerosene fuel as a cutter for 80/100 penetration grade bitumen.	litre	
15.11	Provide, spread and roll 0/6 mm chippings (quarry dust) at a spread rate of 150-200 sq.m/cu.m to the seal on repair areas or on repaired areas to allow passage of traffic.	Cu.m	
	BILL 16: BITUMINOUS MIXES		
16.01	Excavate, trim and clean potholes, failed and damaged areas of the carriageway and edges including cart to spoil the excavated materials.	Cu.m	
16.02	Repair transverse or longitudinal cracking on asphalt concrete (crack sealing) as directed by the Engineer.	m	
16.03	Milling the existing bituminous layer to spoil to a maximum depth of 50mm thick.	Sq.m	
16.04	Milling the existing bituminous layer to spoil to a maximum depth of 100mm thick.	Sq.m	

Item	Description		
		Unit	Rate for LOKICHOGIO
16.05	Provide, place and compact Asphalt Concrete Type 1 with 5-7% nominal bitumen content by weight to total mix as wearing course on carriageway as directed by the Engineer. Maximum volume 15 cu.m.	Cu.m	
16.06	As in item 16.05 but total volume between 15cu.m-300 cu.m	Cu.m	
16.07	As in item 16.05 but total volume between over 300 cu.m		
16.08	Provide, place and compact Asphalt Concrete Type 1 for bumps and rumble strips as directed by the Engineer.	Cu.m	
16.09	Provide, place and compact Asphalt Concrete Type 1 to repair areas and for regulation to carriageway as directed by the Engineer. Total volume 10cu.m	Cu.m	
16.10	As in item 16.09 but total volume between 10cu.m-50 cu.m	Cu.m	
16.11	As in item 16.10 but total volume between 50 cu.m	Cu.m	
16.12	Provide, place and compact Dense Bituminous Macadam (DBM) with 3.0-4.5% nominal bitumen content by weight to total mix or as base on reconstruction sections as directed by the Engineer. Maximum volume 15cu.m.	Cu.m	
16.13	As in item 16.12 but total volume between 15cu.m-300 cu.m	Cu.m	
16.14	As in item 16.12 but total volume over 300 cu.m	Cu.m	
	Bill 17: CONCRETE WORKS		
	Concrete Provide, place, compact and cure the following classes of concrete as specified.		
17.01	Class 15/20 for blinding	Cu.m	
17.02	Class 20/20 concrete	Cu.m	
17.03	Class 25/20 for concrete	Cu.m	
17.04	Class 30/20 for concrete	Cu.m	
17.05	Class 40/20 for concrete	Cu.m	
17.06	Class 45/20 for concrete	Cu.m	

Item	Description		
		Unit	Rate for LOKICHOGIO
	Formwork Provide, erect and afterwards dismantle and remove all the formwork as specified by the Engineer		
17.07	Vertical formwork class F3 finish	Sq.m	
17.08	Horizontal formwork class F3 finish	Sq.m	
	Reinforcement Provide, bend and fix into positions high yield steel bars to BS4461 the following steel reinforcement as directed and as shown on the drawings.		
17.09	Reinforcement bars of high yield strength to BS4461, size 16mm and above.	Tonne	
17.10	Reinforcement bars of high yield strength to BS4461, size 12mm and below.	Tonne	
17.11	Provide and place on 50mm thick sand bed and vibrate, 60mm thick Heavy Duty paving blocks of any pattern on edges as specified.	Sq.m	
17.12	Provide and place on 50mm thick sand bed and vibrate, 80mm thick Heavy Duty paving blocks of any pattern on edges as specified.	Sq.m	
17.13	As item 17.11 but coloured	Sq.m	
17.14	As item 17.12 but coloured	Sq.m	
17.15	Provide and place Standard Heavy Duty paving slabS size 600x600x50mm.	Sq.m	
	BILL 20: ROAD FURNITURE		
20.01	Allow for removal/obliteration of peeling and accumulated rubber on the marked surface of the pavements using suitable equipment and cart away debris and dispose away from airport.	Sq.m	
20.02	Allow for removal/obliteration of unwanted markings on the surface of the pavements using suitable equipment and cart away debris and dispose away from airport.	Sq.m	
20.03	Prepare surface and repaint(apply) two coats of white/yellow/black/red oxide acrylic airfield pavement	Sq.m	

Item	Description		
		Unit	Rate for LOKICHOGIO
	marking paint mixed with approved pavement thinner and ballotini beads as directed by Engineer.		
20.04	Prepare surface and apply three coats of white/yellow/black/red acrylic road marking paints to new pavement surfaces mixed with approved pavement thinner and ballotini beads as directed by Engineer.	Sq.m	
20.05	Provide and lay hot applied thermoplastic road marking compound in approved colour and shade with ballotini beads for road marking on bituminous surface using fully automatic extrusion machine and using pre-melter for melting thermoplastic material including cleaning the surface of all dirt, dust, and other foreign matter, complete with demarcation at site/premarking, finishing and managing the traffic movements as instructed by the Engineer	Sq.m	
20.06	Provide and place the appropriate sealant for sealing Joints in concrete works upto a maximum width of 25mm (Elastic jet fuel resistant sealant to ASTM D3581)	m	
20.07	Provide and place Styrofoam at expansion joints upto a maximum width of 25mm for concrete and/or Asphalt and as specified by the Engineer.	m	
20.08	Provide and place white/white,white/red, yellow/yellow,red/red retro reflective road studs as instructed	No.	
20.09	Remove and dispose the damaged existing guard rails as directed by the Engineer.	m	
20.10	Provide and place new flex-beam guard rails complete with pre-cast flex-beam guardrail posts, spacers, nuts, bolts and fittings as directed by the Engineer.	m	
20.11	Provide and place 1500mmx200mmx3mm thickness CHS steel bollards 1200mm above and 300mm embedded below ground. Filled with concrete class 20/20, painted with alternating yellow and black strips 150mm wide place as directed by the Engineer.	No.	
20.12	Provide and place night safety retro reflective tape 50mm wide of colors Yellow, white or red glued to bollards as instructed by Engineer.	m	

Item	Description		
		Unit	Rate for LOKICHOGIO
20.13	Provide and erect permanent road signs where instructed by the Engineer and in accordance with the specifications as follows:		
	(a) Warning signs	No.	
	(b) Priority, prohibitory and mandatory signs	No.	
	(c) Standard informatory signs	No.	
	(d) Nonstandard signs (i) Less than 1.0 sq.m (ii) 1.0 sq.m to 2.0 sq.m (iii) 2.0 sq.m to 4.0 sq.m (iv) 4.0 sq.m to 5.0 sq.m	 No. No. No. No.	
20.14	Excavate for, provide and place 250x125mm class 25/20 precast concrete raised or ramped kerbs haunched in 100mm thick class 15/20 concrete base bedding and mortar joined in support to carriageway as directed by the Engineer.		
	(a) Straight Kerbs	m	
	(b) Kerbs radius: 12m – 6m	m	
	(c) Ditto but radius:5m – 1m	m	
20.15	Ditto 20.11 but flush kerbs:		
	(a) Straight Kerbs	m	
	(b) Kerbs radius: 12m – 6m	m	
	(c) Ditto but radius:5m – 1m	m	
20.16	Excavate holes for fencing posts footing not exceeding 1.50 m deep, average 1.0m deep in hard and soft material; ram base to receive 'Class 20' concrete bases; include carting away.	Cu.m	
20.17	Ditto but for chain-link anchoring posts	Cu.m	
20.18	Mass concrete; Class 20 in footings	Cu.m	
20.19	Ditto but for chain-link anchoring posts	Cu.m	
20.20	Supply and install precast reinforced intermediate posts	No.	

Item	Description	Unit	Rate for LOKICHOGIO
	size 125 x125mm overall height 2.4m with cranked top of 475mm long as per detailed drawing including labor for 6mm diameter holes and bolts and 8mm galvanized mild steel bars with 12.5 S.W.G. stirrups at 350mm c/c as per detailed drawing to Engineer's approval and satisfaction.		
20.21	Ditto 20.05 but precast reinforced straining posts size 125x125mm all through; overall height 2.4m with cranked top of 475mm long as per detailed drawing including labour for 6mm diameter holes and bolts and 8mm galvanized mild steel bars with 12.5 S.W.G. stirrups at 350mm c/c as per detailed drawing with and including provision to receive struts to detail drawing to Engineer's approval.	No.	
20.22	Ditto 20.05 but precast reinforced straining posts size 150x150mm all through; overall height 2.4m with cranked top of 475mm long as per detailed drawing including labour for 6mm diameter holes and bolts and 8mm galvanized mild steel bars with 12.5 S.W.G. stirrups at 350mm c/c as per detailed drawing with and including provision to receive struts to detail drawing to Engineer's approval.	No.	
20.23	100 x 80mm precast reinforced concrete struts to detail anchor on to concrete base and straining posts at approved level and 45 degrees to the horizontal to detail drawings and Engineer's approval.	No.	
20.24	High tensile galvanized barbed wire 12 1/2 G (2.5mm diameter) threaded through posts secured by galvanized binding wire to Engineer's approval.	m	
20.25	Supply, fabricate and install galvanized heavy duty metal gate overall size 6000 x 2400mm high; in two equal leaves; with and including 100 x 100 x 6mm SHS fixed firmly to the ground in approved concrete base; 8 gauge welded wire mesh covering fixed to 50 x 50 x 4mm SHS and tower locking heavy gauge bolt (including VIRO Cylinder 104); 3 lines of 12.5 gauge barbed wire at the top of each leaf; all as per attached drawings and approval of Project Manager. Gate to be painted in three coats of approved protective paint.	No.	
20.26	High tensile galvanized straining wire 9.5 Gauge through	m	

Item	Description		
		Unit	Rate for LOKICHOGIO
	concrete posts (m/s) including hook bolts.		
20.27	Supply materials, fabricate and install galvanized heavy duty metal gate overall size 1000 x 2400mm high pedestrian gate with and including 75 x 75 x 4mm SHS fixed firmly to the ground in approved concrete base; 8 gauge welded wire mesh covering fixed to 50 x 50 x 4mm SHS and tower locking heavy gauge bolt (including VIRO Cylinder 104); 3 lines of 12.5 gauge barbed wire at the top; all as per attached drawings and approval of Project Manager. Gate to be painted in three coats of approved protective paint. Rate inclusive of casting of beam.	No.	
20.28	Supply and fix 2.4m high galvanized chain-link; gauge 9.5; 50x50mm mesh onto precast concrete posts (m/s); fastening with 5 No. lines of galvanized wire (m/s); threaded through and including mesh and hook bolts; secured by binding wire; all as per the drawings.	m	
20.29	Supply and fix 2.4m high galvanized chain-link; gauge 12.5; 50x50mm mesh onto precast concrete posts (m/s); fastening with 5 No. lines of galvanized wire (m/s); threaded through and including mesh and hook bolts; secured by binding wire; all as per the drawings.	m	
20.30	Excavate 150mm by 300 mm for ground beam	Cu.m	
20.31	Mass concrete; Class 20 in ground beam	Cu.m	

BILL OF QUANTITIES OF FRAMEWORK AGREEMENT FOR PAVEMENT MAINTENANCE TERM CONTRACT SERVICES AT ISIOLO AIRPORT

Item	Description		
		Unit	Rate for ISIOLO
	BILL 1: GENERAL		
1.01	Rate for mobilization/demobilization and availability during works of construction equipment for works whose duration is less than 2 days as per schedule below:		
1.01a	Asphalt Paver	Day Rate	
1.01b	Single Steel Drum Compaction Roller > or =18tonnes	Day Rate	
1.01c	Double tandem steel drum roller >/= 18 Tonnes	Day Rate	
1.01d	Sheepsfoot Roller > or = 20 Tonnes	Day Rate	
1.01e	Pneumatic Tiered Roller >/= 20 Tonnes	Day Rate	
1.01f	Bi-axial Pedestrian Roller >/= 6 Tonnes, 13.0/9.0 HP	Day Rate	
1.01g	Plate Compactor – plate size 540x420mm	Day Rate	
1.01h	Motor Grader CAT 12H or Equivalent.	Day Rate	
1.01i	Hydraulic Excavator CAT 322 or Equivalent.	Day Rate	
1.01j	Excavator with Jack hammer attachment CAT 322 or Equivalent	Day Rate	
1.01k	Back hoe Loader CAT 428 or Equivalent	Day Rate	
1.01l	Wheel Loader 4WD Articulated CAT 950 or Equivalent.	Day Rate	
1.01m	Disk concrete cutter	Day Rate	
1.01n	Air compressor	Day Rate	
1.01o	Pressure Bitumen Distributor Min 5000L	Day Rate	
1.01p	Bitumen Hand sprayer	Day Rate	
1.01q	Mechanical broom 74HP	Day Rate	
1.01r	Air Blower	Day Rate	
1.01s	Poker Vibrator 200Hz,2850 rpm	Day Rate	
1.01t	Concrete Balloon – Rubber/Synthetic Tire-cord	Day Rate	
1.01u	Concrete Pump	Day Rate	
1.01v	Concrete mixer with 400l bucket capacity	Day Rate	

Item	Description		
		Unit	Rate for ISIOLO
1.01w	Tipper Truck 16-25 Tonnes Gross Capacity	Day Rate	
1.01x	Water Bowser	Day Rate	
1.01y	Crane – 20Tonne capacity	Day Rate	
1.01z	Crane – 100Tonne capacity	Day Rate	
1.01aa	Drill	Day Rate	
1.01bb	High loader	Day Rate	
1.01cc	Asphalt Milling Machine	Day Rate	
1.02	Allow for provision, mobilization, demobilization and maintenance of a containerized office for the engineers site office, including lighting, drinking water, flushable toilet, sockets and internet services.	Day Rate	
1.03	Allow for provision of survey equipment and material for use by the Engineer during construction.	Day rate	
1.04	Capacity building (Kenya based) training of civil engineering staff to ensure progressive career development and adaptability to the modern technology and modes of operation in the following areas; The training must be by an institution approved by ICAO and/or KCAA such as EASA and other state regulatory bodies such as KEBS, EBK, IEK or any other relevant body meeting the description herein.		
1.04a	Tuition fee per person up to a maximum of Ksh 250,000.00 for Airport pavement design, evaluation and maintenance or any other approved course.	Rate/pax	
1.04b	Tuition fee per person up to a max of 100,000.00 as in item 1.04a above.	Rate/pax	
1.04c	Tuition fee per person up to a max of 50,000.00 as in item 1.04a above	Rate/pax	
1.04d	KAA staff Travel Cost – Economy return Air ticket to any major town within the Country (in Kshs).	Pax	
1.04e	KAA Staff Travel Cost -Local Travel –provide van to accommodate Max 14 pax complete with fuel and driver.	Veh/day	
1.04f	KAA Staff Grade 8 –Allowances Kshs.16,800/day	Pax/Day	
1.04g	KAA Staff Grade 7- Allowance Kshs.14,000/ day	Pax/Day	

Item	Description		
		Unit	Rate for ISIOLO
1.04h	KAA Staff Grade 6 Allowance Kshs.11,200 / day	Pax/Day	
1.04i	KAA Staff Grade 5 Allowance Kshs.11,200/day	Pax/Day	
1.04j	KAA Staff Grade 4 Allowance Ksh. 6,300 /day	Pax/Day	
1.04k	KAA Casual Allowance Ksh. 4,200 /day	Pax/Day	
1.05	Ditto as in 1.05 but International Training		
1.05a	Tuition fee per person up to a maximum of Ksh 2,000,000.00 for Airport pavement design, evaluation and maintenance or any other approved course.	Rate/pax	
1.05b	Tuition fee per person up to a maximum of Ksh 1,500,000.00 as in item 1.05a above.	Rate/pax	
1.05c	Tuition fee per person up to a maximum of Ksh 1,000,000.00 as in item 1.05a above.	Rate/pax	
1.05d	Tuition fee per person up to a maximum of Ksh 500,000.00 as in item 1.05a above.	Rate/pax	
1.05e	Tuition fee per person up to a maximum of Ksh 250,000.00 as in item 1.05a above.	Rate/pax	
1.05f	KAA staff Travel Cost inclusive of Economy return Air ticket and VISA fees to any foreign country (in USD).	Rate/pax	
1.05g	KAA staff local travel cost within the foreign country	Rate/pax/day	
1.05h	KAA Staff Grade 9 –Allowances 647 USD per day	Pax/Day	
1.05i	KAA Staff Grade 8 – Allowances 647 USD per day	Pax/Day	
1.05j	KAA Staff Grade 7- Allowance 549 USD per day	Pax/Day	
1.05k	KAA Staff Grade 6 Allowance 549 USD per day	Pax/Day	
1.05l	KAA Staff Grade 5 Allowance 549 USD per day	Pax/Day	
1.05m	KAA Staff Grade 4 Allowance 477 USD per day	Pax/Day	
1.06	Prime Cost Sum for removal and reinstatement of services.	PC Sum	500,000.00
1.06a	Percentage of Prime Cost Sum in Item 1.06 for Contractor's overheads and profits.	%	
1.07	Engineer's site staff communication airtime Kshs. 100,000.	Rate	
1.08	Prime Cost Sum for materials testing.	PC Sum	500,000.00
1.09	Percentage of Prime Cost Sum in Item 1.08 for	%	

Item	Description		
		Unit	Rate for ISIOLO
	Contractor's overheads and profits.		
1.10	Provide a Total Station to the approval and exclusive use by the Engineer, complete with Prism and Tripod with an accuracy of 0.9 seconds for the duration of the Contract. The TS to be supplied with download software. Upon completion of the Contract, it shall revert to the Contractor.	Day Rate	
1.11	Allow for provision and maintenance of dumpy level survey equipment complete with staff and bubble for exclusive use by the Engineer.	Day Rate	
1.12	Prime Cost Sum for Engineer's miscellaneous account.	PC Sum	500,000.00
1.13	Percentage of Prime Cost Sum in Item 1.12 for Contractor's overheads and profits.	%	
1.14	Prime Cost Sum for off-site materials testing.	PC Sum	500,000.00
1.15	Percentage of Prime Cost Sum in Item 1.14 for Contractor's overheads and profits.	%	
1.16	Provide and erect publicity signs as directed by the engineer in accordance with the standard KAA publicity signboard specifications.	No.	
1.17	Provide, fuel and maintain with driver, comprehensively insured, new 4WD,double cabin vehicle (odometer:0-10,000km)of diesel engine capacity 2,700 - 3000cc or equivalent for the exclusive use of the engineer inclusive of the first 4000km per vehicle month in accordance with clause 138 of the standard specification.	Month	
1.18	E.O.Item 1.17 for mileage over 4,000km per vehicle month.	Km	
1.19	Provide, fuel and maintain with driver, a comprehensively insured, 4WD,station wagon vehicle (odometer:0-10,000km) of minimum diesel engine capacity 2700cc turbo charged or equivalent for the exclusive use of the engineer inclusive of the first 4000km per vehicle month in accordance with clause 138 of the standard specification.	Month	
1.20	E.O.Item 1.19 for mileage over 4,000km per vehicle month.	Km	
1.21	Provide, fuel and maintain with driver, a comprehensively insured, new 4WD,saloon vehicle (odometer:0-10,000km)	Month	

Item	Description	Unit	Rate for ISIOLO
	of diesel engine capacity 2,700-3000cc or equivalent for the exclusive use of the engineer inclusive of the first 4000km per vehicle month in accordance with clause 138 of the standard specification.		
1.22	E.O.Item 1.21 for mileage over 4,000km per vehicle month.	Km	
1.23	Prime Cost Sum for attendance to the Engineers site staff	PC Sum	500,000.00
1.24	Percentage of Prime Cost Sum in Item 1.23 for Contractor's overheads and profits.	%	
1.25	Prime Cost Sum for provision of equipment for the engineers site office.	PC Sum	500,000.00
1.26	Percentage of Prime Cost Sum in Item 1.25 for Contractor's overheads and profits.	%	
1.27	Prime cost sum for off-road environmental mitigation measures.	PC Sum	100,000.00
1.28	Percentage of Prime Cost Sum in Item 1.27 for Contractor's overheads and profits.	%	
1.29	Allow for provision of communication air to ground base radio for car mounting of range from (118 – 136) MH with frequencies selectable within the range and appropriate antenna, 2 new handheld air to ground radios of same frequencies NB: The Radios Shall be Handed over to the Client on Completion of the Project in good working condition.	Rate	
1.30	Allow for working at night on active aircraft pavements.	Item	
1.31	Allow for sampling and testing of material samples by KeBS or accredited laboratory approved by employer – a certificate shall accompany each material stating compliance with the applicable standards.	PC Sum	200,000.00
1.32	Percentage of Prime Cost Sum in Item 1.31 for Contractor's overheads and profits.	%	
	BILL 4: SITE CLEARANCE AND TOPSOIL STRIPPING		
	No separate payment shall be made for the overhaul material out of the airport and the cost of such haulage shall be included in the rate and /or prices.		

Item	Description		
		Unit	Rate for ISIOLO
4.01	Light Bush clearing as directed by the Engineer.	Sq.m	
4.02	Heavy bush clearing as directed by the Engineer.	Sq.m	
4.03	Clear site on road reserve including removal of trees, hedges, bushes, vegetation with approved material in accordance with the specification, and as directed by the engineer.	Ha.	
4.04	Removal of topsoil to a maximum depth of 200mm in accordance with the specification and as directed by the engineer.	Cu.m	
4.05	Hack concrete from bridge deck slab, abutments and wing walls to expose reinforcement as directed.	Cu.m	
4.06	Excavate, remove and dispose cracked pipe culverts of any size.	M	
4.07	Cutting and disposal of trees of girth 1000mm and below	No.	
4.08	Cutting and disposal of trees of girth 1000mm and above	No.	
4.09	Grass cutting to a height below 50mm or as specified.	Sq.m	
	BILL 5: EARTHWORKS.		
	No separate payment shall be made for the overhaul material into or out of the airport and the cost of such haulage shall be included in the rate and /or prices. It is the Contractor's responsibility to identify quarries, borrow pits and spoil areas.		
5.01	Fill in soft material.	Cu.m	
5.02	As in Item 5.01 but in hard material	Cu.m	
5.03	As in Item 5.01 for compaction of top 300mm in fills to 100% MDD (AASHTO T99)	Cu.m	
5.04	Cut to spoil in soft material.	Cu.m	
5.05	As in Item 5.04 but in hard material.	Cu.m	
5.06	Compact the top 150mm layer of existing ground fills and cuts to 95% MDD (AASHTO T99)	Cu.m	
5.07	Provide place and compact to refusal Rockfill	Cu.m	
5.08	Filter fabric under, over or around rockfill.	Sq.m	
5.09	Top soiling	Sq.m	

Item	Description		
		Unit	Rate for ISIOLO
5.10	Grassing	Sq.m	
	BILL 7: EXCAVATION AND FILLING FOR STRUCTURES		
7.01	Excavation in soft material for major structures i.e. box culverts and gabion works.	Cu.m	
7.02	As for Item 7.01 but in hard material.	Cu.m	
7.03	Provide and place macaferri or equivalent gabion boxes and mattresses as specified.	Sq.m	
7.04	Provide and place rockfill to gabions.	Cu.m	
7.05	Provide stone pitching as directed by the Engineer.	Sq.m	
7.06	E.O. Item 7.05 for cement grouting as directed by the Engineer.	Sq.m	
7.07	Provide, place and compact rockfill below structures as directed by the Engineer.	Cu.m	
7.08	Provide and place porous material behind wing walls.	Cu.m	
	BILL 8: CULVERTS AND DRAINAGE WORKS		
	No separate payment shall be made for the haulage of surplus or unsuitable excavated material out of the airport and the cost of such haulage shall be included in the rates/prices.		
8.01	Excavate, desilt, grade to shape inlets outfalls, side drains to free flow conditions including cart to spoil any excess grass debris and soils as and where directed by the Engineer.	Cu.m	
8.02	Clean culverts 450mm dia culvert to free flow conditions.	m	
8.03	Clean culverts 600mm dia culvert to free flow conditions.	m	
8.04	Clean culverts 900mm dia culvert to free flow conditions.	m	
8.05	Clean culverts 1200mm dia culvert to free flow conditions.	m	
8.06	Clean IBD drains to free flow conditions	m	
8.07	Excavate in soft materials for pipe culverts headwalls, wing walls, apron, toe walls and drop inlets.	Cu.m	
8.08	Repair inlet or outlet to existing pipe culverts in Class 25/20 concrete as directed by the Engineer.	Cu.m	

Item	Description	Unit	Rate for ISIOLO
8.09	Provide, lay and joint 600mm inner diameter (ID) precast concrete pipes.	m	
8.10	As in Item 8.09 but 450mm ID.	m	
8.11	As in Item 8.09 but 900mm ID.	m	
8.12	As in Item 8.09 but 1200mm ID.	m	
8.13	Provide place and compact class 15/20 concrete to beds, surrounds and haunches.	Cu.m	
8.14	Provide place and compact class 20/20 concrete to headwalls, wing walls, aprons and culverts including formwork.	Cu.m	
8.15	Provide place and compact class 25/20 concrete to headwalls, wing walls, aprons and culverts including formwork.	Cu.m	
8.16	Provide and place A142 fabric mesh reinforcement	Sq.m	
8.17	Excavate in any material provided and joint 300mm inner diameter half round precast concrete channel with maximum 4 no. courses of precast side slabs of 600x225x75mm as lining for storm water drain including bedding and backfilling with selected material as directed by the Engineer.	m	
8.18	Excavate in any material provided and joint 600x360mm invert block drains (IBD) precast concrete channels with two courses of side slabs of 600x225x75mm as lining on each side for storm water drain including bedding, jointing and backfilling with selected material as directed by the Engineer.	m	
8.19	Excavate and trim to shape, provide place precast concrete side slabs of 600x225x75mm as lining on each side for storm water drain including bedding jointing and backfilling with selected material as directed by the Engineer.	Sq.m	
8.20	Construct concrete scour checks as specified and directed by the Engineer.	Cu.m	
8.21	Excavate for and construct subsoil drains where directed including backfilling with approved hard material.	Cu.m	
8.22	E.O. Item 8.21 for filter fabric material.	Sq.m	

Item	Description		
		Unit	Rate for ISIOLO
8.23	Provide and place heavy gauge 100mm dia PVC pipes for weep holes as directed by the Engineer.	m	
8.24	Provide and place heavy gauge 150mm dia PVC pipes for weep holes as directed by the Engineer.	m	
8.25	Provide and place heavy gauge 200mm dia PVC pipes for weep holes as directed by the Engineer.	m	
8.26	Provide and place heavy gauge 300mm dia PVC pipes for weep holes as directed by the Engineer.	m	
	BILL 9: PASSAGE OF TRAFFIC		
9.01	Allow for the passage of traffic through the works.	Km	
9.02	Construct and maintain 7m wide deviation in accordance with the specifications and as directed by the Engineer.	Km	
9.03	Improve existing public road in accordance with the specification and as directed by the engineer.	Km	
9.04	Provide natural gravel of CBR greater than 30%, lay water and compact to 150mm thickness as gravel wearing course on deviation and existing road in accordance with the specifications and as directed by the Engineer.	Cu.m	
9.05	Construct 7m wide access roads, including gravel wearing course, in accordance with the specifications and as directed by the Engineer.	Km	
	BILL 10: GRADING AND GRAVELLING		
	No overhaul out of the airport will be paid separately under this item and the cost for haulage will be deemed to have been included in the rates (METHOD A).		
10.01	Carry out light grading to the existing carriage with watering and compaction to camber, including slope and ditches as instructed by the Engineer.	Sq.m	
10.02	Carry out heavy grading to existing carriageway with watering and compaction to camber, including slope and ditches as instructed by the Engineer.	Sq.m	
10.03	Remove overburden material out of sites and cart away from airport as instructed.	Cu.m	

Item	Description	Unit	Rate for ISIOLO
10.04	Excavate gravel and stockpile within the airport as instructed.	Cu.m	
10.05	Load, haul and dump gravel as instructed.	Cu.m	
10.06	Provide, spread, grade, water and compact approved gravel imported from outside airport facility to specified thickness at 95% MDD.	Cu.m	
	BILL 11: SHOULDERS TO PAVEMENTS		
11.01	Prepare surface of existing shoulders, and accesses, including benching where necessary, water process and compact in accordance with the specifications and as directed by the Engineer to receive gravel.	Sq.m	
11.02	Provide, place, water and compact natural gravel to shoulders and accesses.	Cu.m	
	BILL 12: NATURAL MATERIAL BASE AND BASECOURSE		
	No overhaul into or out of the airport will be paid separately under this item and the cost for haulage will be deemed to have been included in the rates		
12.01	Excavate existing bituminous surfacing or pavement material to spoil or stockpile for reuse as directed by the Engineer.	Cu.m	
12.02	Break or scarify the existing pavement layer, and compact as specified and directed by the Engineer.	Cu.m	
12.03	Excavate by milling existing bituminous surfacing or pavement material to spoil or stockpile for reuse as directed by the Engineer.	Cu.m	
12.04	Recycle (cold in place) the existing bituminous pavement layer for re-use including addition of approved fresh material and as directed by the Engineer.	Cu.m	
12.05	Recycle (hot in place) the existing bituminous pavement layer for re-use including addition of approved fresh material and as directed by the Engineer.	Cu.m	
12.06	Provide, place,spread,water and compact natural gravel of CBR greater than 30% on repair and reconstruction areas as specified and as directed by the Engineer.	Cu.m	
12.07	Provide, lay and compact hand packed stone material including filling of voids with stone dust as directed by the	Cu.m	

Item	Description		
		Unit	Rate for ISIOLO
	Engineer.		
	BILL 13: GRADED CRUSHED STONE SUBBASE AND BASE		
13.01	Provide, place, spread and compact Class A Graded Crushed Stone (GCS) to 98% MDD with results not less than 96% MDD	Cu.m	
	BILL 14: CEMENT AND LIME TREATED MATERIAL		
14.01	Provide, transport to site and spread cement on natural gravel or GCS material for base or subbase as specified and as directed by the Engineer at 30-50kg/cu.m.	Tonne	
14.02	As Item 14.01 but lime.	Tonne	
14.03	Allow for mixing in cement and/or lime into natural gravel or GCS.	Cu.m	
14.04	Allow for curing and protection of treated layers as specified.	Sq.m	
	BILL15: BITUMINOUS SURFACE TREATMENT AND DRESSING		
15.01	Prepare surface of carriageway and repair areas, provide and spray MC-30 cut back bitumen at a rate of 0.8-1.2 ltr/sq.m as prime coat.	litre	
15.02	Prepare primed surfaces, provide and spray 80/100 penetration grade bitumen at a spray rate of 1.2 ltr/sq.m as binder for first seal on carriageway shoulder and junctions.	litre	
15.03	Prepare surface of carriageway and repair areas, provide and spray MC-70 cut back bitumen at a rate of 0.8-1.2 ltr/sq.m as prime coat	litre	
15.04	Prepare surface of repair areas, provide and spray K1-70 bitumen emulsion as tack coat or seal to repair areas at a spray rate of 0.8-1.0 ltr/sq.m.	litre	
15.05	Prepare existing or new bituminous surface, provide and spray 80/100 penetration grade bitumen at a spray rate of 1.0-1.2 ltr/sq.m as binder for single or second seal on carriageway shoulders and junctions.	litre	
15.06	Provide, spread and roll 10/14 mm pre coated chippings at a spread rate of 90-110 sq.m/cu.m for a single seal to carriageway as directed by the Engineer.	Cu.m	

Item	Description		
		Unit	Rate for ISIOLO
15.07	Provide, spread and roll 6/10 mm pre coated chippings at a spread rate of 110-130 sq.m/cu.m as second seal as directed by the Engineer.	Cu.m	
15.08	Prepare surface of carriageway, provide and spray 80/100 penetration grade bitumen cut back using 5-15% kerosene as tack coat for asphalt concrete wearing course at a spray rate of 0.5-0.7 ltr/sq.m..	litre	
15.09	Prepare surface of repair areas, provide and spray K1-60 bitumen emulsion as tack coat or seal to repair areas at a spray rate of 0.8-1.0 ltr/sq.m.	litre	
15.10	Provide kerosene fuel as a cutter for 80/100 penetration grade bitumen.	litre	
15.11	Provide, spread and roll 0/6 mm chippings (quarry dust) at a spread rate of 150-200 sq.m/cu.m to the seal on repair areas or on repaired areas to allow passage of traffic.	Cu.m	
	BILL 16: BITUMINOUS MIXES		
16.01	Excavate, trim and clean potholes, failed and damaged areas of the carriageway and edges including cart to spoil the excavated materials.	Cu.m	
16.02	Repair transverse or longitudinal cracking on asphalt concrete (crack sealing) as directed by the Engineer.	m	
16.03	Milling the existing bituminous layer to spoil to a maximum depth of 50mm thick.	Sq.m	
16.04	Milling the existing bituminous layer to spoil to a maximum depth of 100mm thick.	Sq.m	
16.05	Provide, place and compact Asphalt Concrete Type 1 with 5-7% nominal bitumen content by weight to total mix as wearing course on carriageway as directed by the Engineer. Maximum volume 15 cu.m.	Cu.m	
16.06	As in item 16.05 but total volume between 15cu.m-300 cu.m	Cu.m	
16.07	As in item 16.05 but total volume between over 300 cu.m		
16.08	Provide, place and compact Asphalt Concrete Type 1 for bumps and rumble strips as directed by the Engineer.	Cu.m	
16.09	Provide, place and compact Asphalt Concrete Type 1 to repair areas and for regulation to carriageway as directed	Cu.m	

Item	Description	Unit	Rate for ISIOLO
	by the Engineer. Total volume 10cu.m		
16.10	As in item 16.09 but total volume between 10cu.m-50 cu.m	Cu.m	
16.11	As in item 16.10 but total volume between 50 cu.m	Cu.m	
16.12	Provide, place and compact Dense Bituminous Macadam (DBM) with 3.0-4.5% nominal bitumen content by weight to total mix or as base on reconstruction sections as directed by the Engineer. Maximum volume 15cu.m.	Cu.m	
16.13	As in item 16.12 but total volume between 15cu.m-300 cu.m	Cu.m	
16.14	As in item 16.12 but total volume over 300 cu.m	Cu.m	
	Bill 17: CONCRETE WORKS		
	Concrete Provide, place, compact and cure the following classes of concrete as specified.		
17.01	Class 15/20 for blinding	Cu.m	
17.02	Class 20/20 concrete	Cu.m	
17.03	Class 25/20 for concrete	Cu.m	
17.04	Class 30/20 for concrete	Cu.m	
17.05	Class 40/20 for concrete	Cu.m	
17.06	Class 45/20 for concrete	Cu.m	
	Formwork Provide, erect and afterwards dismantle and remove all the formwork as specified by the Engineer		
17.07	Vertical formwork class F3 finish	Sq.m	
17.08	Horizontal formwork class F3 finish	Sq.m	
	Reinforcement Provide, bend and fix into positions high yield steel bars to BS4461 the following steel reinforcement as directed and as shown on the drawings.		
17.09	Reinforcement bars of high yield strength to BS4461, size 16mm and above.	Tonne	

Item	Description		
		Unit	Rate for ISIOLO
17.10	Reinforcement bars of high yield strength to BS4461, size 12mm and below.	Tonne	
17.11	Provide and place on 50mm thick sand bed and vibrate, 60mm thick Heavy Duty paving blocks of any pattern on edges as specified.	Sq.m	
17.12	Provide and place on 50mm thick sand bed and vibrate, 80mm thick Heavy Duty paving blocks of any pattern on edges as specified.	Sq.m	
17.13	As item 17.11 but coloured	Sq.m	
17.14	As item 17.12 but coloured	Sq.m	
17.15	Provide and place Standard Heavy Duty paving slabS size 600x600x50mm.	Sq.m	
	BILL 20: ROAD FURNITURE		
20.01	Allow for removal/obliteration of peeling and accumulated rubber on the marked surface of the pavements using suitable equipment and cart away debris and dispose away from airport.	Sq.m	
20.02	Allow for removal/obliteration of unwanted markings on the surface of the pavements using suitable equipment and cart away debris and dispose away from airport.	Sq.m	
20.03	Prepare surface and repaint(apply) two coats of white/yellow/black/red oxide acrylic airfield pavement marking paint mixed with approved pavement thinner and ballotini beads as directed by Engineer.	Sq.m	
20.04	Prepare surface and apply three coats of white/yellow/black/red acrylic road marking paints to new pavement surfaces mixed with approved pavement thinner and ballotini beads as directed by Engineer.	Sq.m	
20.05	Provide and lay hot applied thermoplastic road marking compound in approved colour and shade with ballotini beads for road marking on bituminous surface using fully automatic extrusion machine and using pre-melter for melting thermoplastic material including cleaning the surface of all dirt, dust, and other foreign matter, complete with demarcation at site/premarking, finishing and managing the traffic movements as instructed by the	Sq.m	

Item	Description	Unit	Rate for ISIOLO
	Engineer		
20.06	Provide and place the appropriate sealant for sealing Joints in concrete works upto a maximum width of 25mm (Elastic jet fuel resistant sealant to ASTM D3581)	m	
20.07	Provide and place Styrofoam at expansion joints upto a maximum width of 25mm for concrete and/or Asphalt and as specified by the Engineer.	m	
20.08	Provide and place white/white,white/red, yellow/yellow,red/red retro reflective road studs as instructed	No.	
20.09	Remove and dispose the damaged existing guard rails as directed by the Engineer.	m	
20.10	Provide and place new flex-beam guard rails complete with pre-cast flex-beam guardrail posts, spacers, nuts, bolts and fittings as directed by the Engineer.	m	
20.11	Provide and place 1500mmx200mmx3mm thickness CHS steel bollards 1200mm above and 300mm embedded below ground. Filled with concrete class 20/20, painted with alternating yellow and black strips 150mm wide place as directed by the Engineer.	No.	
20.12	Provide and place night safety retro reflective tape 50mm wide of colors Yellow, white or red glued to bollards as instructed by Engineer.	m	
20.13	Provide and erect permanent road signs where instructed by the Engineer and in accordance with the specifications as follows:		
	(a) Warning signs	No.	
	(b) Priority, prohibitory and mandatory signs	No.	
	(c) Standard informatory signs	No.	
	(d) Nonstandard signs (i) Less than 1.0 sq.m (ii) 1.0 sq.m to 2.0 sq.m (iii) 2.0 sq.m to 4.0 sq.m (iv) 4.0 sq.m to 5.0 sq.m	 No. No. No. No.	

Item	Description	Unit	Rate for ISIOLO
20.14	Excavate for, provide and place 250x125mm class 25/20 precast concrete raised or ramped kerbs haunched in 100mm thick class 15/20 concrete base bedding and mortar joined in support to carriageway as directed by the Engineer.		
	(a) Straight Kerbs	m	
	(b) Kerbs radius: 12m – 6m	m	
	(c) Ditto but radius:5m – 1m	m	
20.15	Ditto 20.11 but flush kerbs:		
	(a) Straight Kerbs	m	
	(b) Kerbs radius: 12m – 6m	m	
	(c) Ditto but radius:5m – 1m	m	
20.16	Excavate holes for fencing posts footing not exceeding 1.50 m deep, average 1.0m deep in hard and soft material; ram base to receive 'Class 20' concrete bases; include carting away.	Cu.m	
20.17	Ditto but for chain-link anchoring posts	Cu.m	
20.18	Mass concrete; Class 20 in footings	Cu.m	
20.19	Ditto but for chain-link anchoring posts	Cu.m	
20.20	Supply and install precast reinforced intermediate posts size 125 x125mm overall height 2.4m with cranked top of 475mm long as per detailed drawing including labor for 6mm diameter holes and bolts and 8mm galvanized mild steel bars with 12.5 S.W.G. stirrups at 350mm c/c as per detailed drawing to Engineer’s approval and satisfaction.	No.	
20.21	Ditto 20.05 but precast reinforced straining posts size 125x125mm all through; overall height 2.4m with cranked top of 475mm long as per detailed drawing including labour for 6mm diameter holes and bolts and 8mm galvanized mild steel bars with 12.5 S.W.G. stirrups at 350mm c/c as per detailed drawing with and including provision to receive struts to detail drawing to Engineer's approval.	No.	
20.22	Ditto 20.05 but precast reinforced straining posts size 150x150mm all through; overall height 2.4m with cranked top of 475mm long as per detailed drawing including	No.	

Item	Description	Unit	Rate for ISIOLO
	labour for 6mm diameter holes and bolts and 8mm galvanized mild steel bars with 12.5 S.W.G. stirrups at 350mm c/c as per detailed drawing with and including provision to receive struts to detail drawing to Engineer's approval.		
20.23	100 x 80mm precast reinforced concrete struts to detail anchor on to concrete base and straining posts at approved level and 45 degrees to the horizontal to detail drawings and Engineer's approval.	No.	
20.24	High tensile galvanized barbed wire 12 1/2 G (2.5mm diameter) threaded through posts secured by galvanized binding wire to Engineer's approval.	m	
20.25	Supply, fabricate and install galvanized heavy duty metal gate overall size 6000 x 2400mm high; in two equal leaves; with and including 100 x 100 x 6mm SHS fixed firmly to the ground in approved concrete base; 8 gauge welded wire mesh covering fixed to 50 x 50 x 4mm SHS and tower locking heavy gauge bolt (including VIRO Cylinder 104); 3 lines of 12.5 gauge barbed wire at the top of each leaf; all as per attached drawings and approval of Project Manager. Gate to be painted in three coats of approved protective paint.	No.	
20.26	High tensile galvanized straining wire 9.5 Gauge through concrete posts (m/s) including hook bolts.	m	
20.27	Supply materials, fabricate and install galvanized heavy duty metal gate overall size 1000 x 2400mm high pedestrian gate with and including 75 x 75 x 4mm SHS fixed firmly to the ground in approved concrete base; 8 gauge welded wire mesh covering fixed to 50 x 50 x 4mm SHS and tower locking heavy gauge bolt (including VIRO Cylinder 104); 3 lines of 12.5 gauge barbed wire at the top; all as per attached drawings and approval of Project Manager. Gate to be painted in three coats of approved protective paint. Rate inclusive of casting of beam.	No.	
20.28	Supply and fix 2.4m high galvanized chain-link; gauge 9.5; 50x50mm mesh onto precast concrete posts (m/s); fastening with 5 No. lines of galvanized wire (m/s); threaded through and including mesh and hook bolts; secured by binding wire; all as per the drawings.	m	
20.29	Supply and fix 2.4m high galvanized chain-link; gauge	m	

Item	Description		
		Unit	Rate for ISIOLO
	12.5; 50x50mm mesh onto precast concrete posts (m/s); fastening with 5 No. lines of galvanized wire (m/s); threaded through and including mesh and hook bolts; secured by binding wire; all as per the drawings.		
20.30	Excavate 150mm by 300 mm for ground beam	Cu.m	
20.31	Mass concrete; Class 20 in ground beam	Cu.m	

BILL OF QUANTITIES OF FRAMEWORK AGREEMENT FOR PAVEMENT MAINTENANCE TERM CONTRACT SERVICES AT KITALE AIRSTRIP.

Item	Description		
		Unit	Rate for KITALE
	BILL 1: GENERAL		
1.01	Rate for mobilization/demobilization and availability during works of construction equipment for works whose duration is less than 2 days as per schedule below:		
1.01a	Asphalt Paver	Day Rate	
1.01b	Single Steel Drum Compaction Roller > or =18tonnes	Day Rate	
1.01c	Double tandem steel drum roller >/= 18 Tonnes	Day Rate	
1.01d	Sheepsfoot Roller > or = 20 Tonnes	Day Rate	
1.01e	Pneumatic Tiered Roller >/= 20 Tonnes	Day Rate	
1.01f	Bi-axial Pedestrian Roller >/= 6 Tonnes, 13.0/9.0 HP	Day Rate	
1.01g	Plate Compactor – plate size 540x420mm	Day Rate	
1.01h	Motor Grader CAT 12H or Equivalent.	Day Rate	
1.01i	Hydraulic Excavator CAT 322 or Equivalent.	Day Rate	
1.01j	Excavator with Jack hammer attachment CAT 322 or Equivalent	Day Rate	
1.01k	Back hoe Loader CAT 428 or Equivalent	Day Rate	
1.01l	Wheel Loader 4WD Articulated CAT 950 or Equivalent.	Day Rate	
1.01m	Disk concrete cutter	Day Rate	
1.01n	Air compressor	Day Rate	
1.01o	Pressure Bitumen Distributor Min 5000L	Day Rate	
1.01p	Bitumen Hand sprayer	Day Rate	
1.01q	Mechanical broom 74HP	Day Rate	
1.01r	Air Blower	Day Rate	
1.01s	Poker Vibrator 200Hz,2850 rpm	Day Rate	
1.01t	Concrete Balloon – Rubber/Synthetic Tire-cord	Day Rate	
1.01u	Concrete Pump	Day Rate	
1.01v	Concrete mixer with 400l bucket capacity	Day Rate	

Item	Description		
		Unit	Rate for KITALE
1.01w	Tipper Truck 16-25 Tonnes Gross Capacity	Day Rate	
1.01x	Water Bowser	Day Rate	
1.01y	Crane – 20Tonne capacity	Day Rate	
1.01z	Crane – 100Tonne capacity	Day Rate	
1.01aa	Drill	Day Rate	
1.01bb	High loader	Day Rate	
1.01cc	Asphalt Milling Machine	Day Rate	
1.02	Allow for provision, mobilization, demobilization and maintenance of a containerized office for the engineers site office, including lighting, drinking water, flushable toilet, sockets and internet services.	Day Rate	
1.03	Allow for provision of survey equipment and material for use by the Engineer during construction.	Day rate	
1.04	Capacity building (Kenya based) training of civil engineering staff to ensure progressive career development and adaptability to the modern technology and modes of operation in the following areas; The training must be by an institution approved by ICAO and/or KCAA such as EASA and other state regulatory bodies such as KEBS, EBK, IEK or any other relevant body meeting the description herein.		
1.04a	Tuition fee per person up to a maximum of Ksh 250,000.00 for Airport pavement design, evaluation and maintenance or any other approved course.	Rate/pax	
1.04b	Tuition fee per person up to a max of 100,000.00 as in item 1.04a above.	Rate/pax	
1.04c	Tuition fee per person up to a max of 50,000.00 as in item 1.04a above	Rate/pax	
1.04d	KAA staff Travel Cost – Economy return Air ticket to any major town within the Country (in Kshs).	Pax	
1.04e	KAA Staff Travel Cost -Local Travel –provide van to accommodate Max 14 pax complete with fuel and driver.	Veh/day	
1.04f	KAA Staff Grade 8 –Allowances Kshs.16,800/day	Pax/Day	
1.04g	KAA Staff Grade 7- Allowance Kshs.14,000/ day	Pax/Day	

Item	Description		
		Unit	Rate for KITALE
1.04h	KAA Staff Grade 6 Allowance Kshs.11,200 / day	Pax/Day	
1.04i	KAA Staff Grade 5 Allowance Kshs.11,200/day	Pax/Day	
1.04j	KAA Staff Grade 4 Allowance Ksh. 6,300 /day	Pax/Day	
1.04k	KAA Casual Allowance Ksh. 4,200 /day	Pax/Day	
1.05	Ditto as in 1.05 but International Training		
1.05a	Tuition fee per person up to a maximum of Ksh 2,000,000.00 for Airport pavement design, evaluation and maintenance or any other approved course.	Rate/pax	
1.05b	Tuition fee per person up to a maximum of Ksh 1,500,000.00 as in item 1.05a above.	Rate/pax	
1.05c	Tuition fee per person up to a maximum of Ksh 1,000,000.00 as in item 1.05a above.	Rate/pax	
1.05d	Tuition fee per person up to a maximum of Ksh 500,000.00 as in item 1.05a above.	Rate/pax	
1.05e	Tuition fee per person up to a maximum of Ksh 250,000.00 as in item 1.05a above.	Rate/pax	
1.05f	KAA staff Travel Cost inclusive of Economy return Air ticket and VISA fees to any foreign country (in USD).	Rate/pax	
1.05g	KAA staff local travel cost within the foreign country	Rate/pax/day	
1.05h	KAA Staff Grade 9 –Allowances 647 USD per day	Pax/Day	
1.05i	KAA Staff Grade 8 – Allowances 647 USD per day	Pax/Day	
1.05j	KAA Staff Grade 7- Allowance 549 USD per day	Pax/Day	
1.05k	KAA Staff Grade 6 Allowance 549 USD per day	Pax/Day	
1.05l	KAA Staff Grade 5 Allowance 549 USD per day	Pax/Day	
1.05m	KAA Staff Grade 4 Allowance 477 USD per day	Pax/Day	
1.06	Prime Cost Sum for removal and reinstatement of services.	PC Sum	500,000.00
1.06a	Percentage of Prime Cost Sum in Item 1.06 for Contractor's overheads and profits.	%	
1.07	Engineer's site staff communication airtime Kshs. 100,000.	Rate	
1.08	Prime Cost Sum for materials testing.	PC Sum	500,000.00
1.09	Percentage of Prime Cost Sum in Item 1.08 for	%	

Item	Description		
		Unit	Rate for KITALE
	Contractor's overheads and profits.		
1.10	Provide a Total Station to the approval and exclusive use by the Engineer, complete with Prism and Tripod with an accuracy of 0.9 seconds for the duration of the Contract. The TS to be supplied with download software. Upon completion of the Contract, it shall revert to the Contractor.	Day Rate	
1.11	Allow for provision and maintenance of dumpy level survey equipment complete with staff and bubble for exclusive use by the Engineer.	Day Rate	
1.12	Prime Cost Sum for Engineer's miscellaneous account.	PC Sum	500,000.00
1.13	Percentage of Prime Cost Sum in Item 1.12 for Contractor's overheads and profits.	%	
1.14	Prime Cost Sum for off-site materials testing.	PC Sum	500,000.00
1.15	Percentage of Prime Cost Sum in Item 1.14 for Contractor's overheads and profits.	%	
1.16	Provide and erect publicity signs as directed by the engineer in accordance with the standard KAA publicity signboard specifications.	No.	
1.17	Provide, fuel and maintain with driver, comprehensively insured, new 4WD,double cabin vehicle (odometer:0-10,000km)of diesel engine capacity 2,700 - 3000cc or equivalent for the exclusive use of the engineer inclusive of the first 4000km per vehicle month in accordance with clause 138 of the standard specification.	Month	
1.18	E.O.Item 1.17 for mileage over 4,000km per vehicle month.	Km	
1.19	Provide, fuel and maintain with driver, a comprehensively insured, 4WD,station wagon vehicle (odometer:0-10,000km) of minimum diesel engine capacity 2700cc turbo charged or equivalent for the exclusive use of the engineer inclusive of the first 4000km per vehicle month in accordance with clause 138 of the standard specification.	Month	
1.20	E.O.Item 1.19 for mileage over 4,000km per vehicle month.	Km	
1.21	Provide, fuel and maintain with driver, a comprehensively insured, new 4WD,saloon vehicle (odometer:0-10,000km)	Month	

Item	Description	Unit	Rate for KITALE
	of diesel engine capacity 2,700-3000cc or equivalent for the exclusive use of the engineer inclusive of the first 4000km per vehicle month in accordance with clause 138 of the standard specification.		
1.22	E.O.Item 1.21 for mileage over 4,000km per vehicle month.	Km	
1.23	Prime Cost Sum for attendance to the Engineers site staff	PC Sum	500,000.00
1.24	Percentage of Prime Cost Sum in Item 1.23 for Contractor's overheads and profits.	%	
1.25	Prime Cost Sum for provision of equipment for the engineers site office.	PC Sum	500,000.00
1.26	Percentage of Prime Cost Sum in Item 1.25 for Contractor's overheads and profits.	%	
1.27	Prime cost sum for off-road environmental mitigation measures.	PC Sum	100,000.00
1.28	Percentage of Prime Cost Sum in Item 1.27 for Contractor's overheads and profits.	%	
1.29	Allow for provision of communication air to ground base radio for car mounting of range from (118 – 136) MH with frequencies selectable within the range and appropriate antenna, 2 new handheld air to ground radios of same frequencies NB: The Radios Shall be Handed over to the Client on Completion of the Project in good working condition.	Rate	
1.30	Allow for working at night on active aircraft pavements.	Item	
1.31	Allow for sampling and testing of material samples by KeBS or accredited laboratory approved by employer – a certificate shall accompany each material stating compliance with the applicable standards.	PC Sum	200,000.00
1.32	Percentage of Prime Cost Sum in Item 1.31 for Contractor's overheads and profits.	%	
	BILL 4: SITE CLEARANCE AND TOPSOIL STRIPPING		
	No separate payment shall be made for the overhaul material out of the airport and the cost of such haulage shall be included in the rate and /or prices.		

Item	Description		
		Unit	Rate for KITALE
4.01	Light Bush clearing as directed by the Engineer.	Sq.m	
4.02	Heavy bush clearing as directed by the Engineer.	Sq.m	
4.03	Clear site on road reserve including removal of trees, hedges, bushes, vegetation with approved material in accordance with the specification, and as directed by the engineer.	Ha.	
4.04	Removal of topsoil to a maximum depth of 200mm in accordance with the specification and as directed by the engineer.	Cu.m	
4.05	Hack concrete from bridge deck slab, abutments and wing walls to expose reinforcement as directed.	Cu.m	
4.06	Excavate, remove and dispose cracked pipe culverts of any size.	M	
4.07	Cutting and disposal of trees of girth 1000mm and below	No.	
4.08	Cutting and disposal of trees of girth 1000mm and above	No.	
4.09	Grass cutting to a height below 50mm or as specified.	Sq.m	
	BILL 5: EARTHWORKS.		
	No separate payment shall be made for the overhaul material into or out of the airport and the cost of such haulage shall be included in the rate and /or prices. It is the Contractor's responsibility to identify quarries, borrow pits and spoil areas.		
5.01	Fill in soft material.	Cu.m	
5.02	As in Item 5.01 but in hard material	Cu.m	
5.03	As in Item 5.01 for compaction of top 300mm in fills to 100% MDD (AASHTO T99)	Cu.m	
5.04	Cut to spoil in soft material.	Cu.m	
5.05	As in Item 5.04 but in hard material.	Cu.m	
5.06	Compact the top 150mm layer of existing ground fills and cuts to 95% MDD (AASHTO T99)	Cu.m	
5.07	Provide place and compact to refusal Rockfill	Cu.m	
5.08	Filter fabric under, over or around rockfill.	Sq.m	
5.09	Top soiling	Sq.m	

Item	Description		
		Unit	Rate for KITALE
5.10	Grassing	Sq.m	
	BILL 7: EXCAVATION AND FILLING FOR STRUCTURES		
7.01	Excavation in soft material for major structures i.e. box culverts and gabion works.	Cu.m	
7.02	As for Item 7.01 but in hard material.	Cu.m	
7.03	Provide and place macaferri or equivalent gabion boxes and mattresses as specified.	Sq.m	
7.04	Provide and place rockfill to gabions.	Cu.m	
7.05	Provide stone pitching as directed by the Engineer.	Sq.m	
7.06	E.O. Item 7.05 for cement grouting as directed by the Engineer.	Sq.m	
7.07	Provide, place and compact rockfill below structures as directed by the Engineer.	Cu.m	
7.08	Provide and place porous material behind wing walls.	Cu.m	
	BILL 8: CULVERTS AND DRAINAGE WORKS		
	No separate payment shall be made for the haulage of surplus or unsuitable excavated material out of the airport and the cost of such haulage shall be included in the rates/prices.		
8.01	Excavate, desilt, grade to shape inlets outfalls, side drains to free flow conditions including cart to spoil any excess grass debris and soils as and where directed by the Engineer.	Cu.m	
8.02	Clean culverts 450mm dia culvert to free flow conditions.	m	
8.03	Clean culverts 600mm dia culvert to free flow conditions.	m	
8.04	Clean culverts 900mm dia culvert to free flow conditions.	m	
8.05	Clean culverts 1200mm dia culvert to free flow conditions.	m	
8.06	Clean IBD drains to free flow conditions	m	
8.07	Excavate in soft materials for pipe culverts headwalls, wing walls, apron, toe walls and drop inlets.	Cu.m	
8.08	Repair inlet or outlet to existing pipe culverts in Class 25/20 concrete as directed by the Engineer.	Cu.m	

Item	Description	Unit	Rate for KITALE
8.09	Provide, lay and joint 600mm inner diameter (ID) precast concrete pipes.	m	
8.10	As in Item 8.09 but 450mm ID.	m	
8.11	As in Item 8.09 but 900mm ID.	m	
8.12	As in Item 8.09 but 1200mm ID.	m	
8.13	Provide place and compact class 15/20 concrete to beds, surrounds and haunches.	Cu.m	
8.14	Provide place and compact class 20/20 concrete to headwalls, wing walls, aprons and culverts including formwork.	Cu.m	
8.15	Provide place and compact class 25/20 concrete to headwalls, wing walls, aprons and culverts including formwork.	Cu.m	
8.16	Provide and place A142 fabric mesh reinforcement	Sq.m	
8.17	Excavate in any material provided and joint 300mm inner diameter half round precast concrete channel with maximum 4 no. courses of precast side slabs of 600x225x75mm as lining for storm water drain including bedding and backfilling with selected material as directed by the Engineer.	m	
8.18	Excavate in any material provided and joint 600x360mm invert block drains (IBD) precast concrete channels with two courses of side slabs of 600x225x75mm as lining on each side for storm water drain including bedding, jointing and backfilling with selected material as directed by the Engineer.	m	
8.19	Excavate and trim to shape, provide place precast concrete side slabs of 600x225x75mm as lining on each side for storm water drain including bedding jointing and backfilling with selected material as directed by the Engineer.	Sq.m	
8.20	Construct concrete scour checks as specified and directed by the Engineer.	Cu.m	
8.21	Excavate for and construct subsoil drains where directed including backfilling with approved hard material.	Cu.m	
8.22	E.O. Item 8.21 for filter fabric material.	Sq.m	

Item	Description		
		Unit	Rate for KITALE
8.23	Provide and place heavy gauge 100mm dia PVC pipes for weep holes as directed by the Engineer.	m	
8.24	Provide and place heavy gauge 150mm dia PVC pipes for weep holes as directed by the Engineer.	m	
8.25	Provide and place heavy gauge 200mm dia PVC pipes for weep holes as directed by the Engineer.	m	
8.26	Provide and place heavy gauge 300mm dia PVC pipes for weep holes as directed by the Engineer.	m	
	BILL 9: PASSAGE OF TRAFFIC		
9.01	Allow for the passage of traffic through the works.	Km	
9.02	Construct and maintain 7m wide deviation in accordance with the specifications and as directed by the Engineer.	Km	
9.03	Improve existing public road in accordance with the specification and as directed by the engineer.	Km	
9.04	Provide natural gravel of CBR greater than 30%, lay water and compact to 150mm thickness as gravel wearing course on deviation and existing road in accordance with the specifications and as directed by the Engineer.	Cu.m	
9.05	Construct 7m wide access roads, including gravel wearing course, in accordance with the specifications and as directed by the Engineer.	Km	
	BILL 10: GRADING AND GRAVELLING		
	No overhaul out of the airport will be paid separately under this item and the cost for haulage will be deemed to have been included in the rates (METHOD A).		
10.01	Carry out light grading to the existing carriage with watering and compaction to camber, including slope and ditches as instructed by the Engineer.	Sq.m	
10.02	Carry out heavy grading to existing carriageway with watering and compaction to camber, including slope and ditches as instructed by the Engineer.	Sq.m	
10.03	Remove overburden material out of sites and cart away from airport as instructed.	Cu.m	

Item	Description	Unit	Rate for KITALE
10.04	Excavate gravel and stockpile within the airport as instructed.	Cu.m	
10.05	Load, haul and dump gravel as instructed.	Cu.m	
10.06	Provide, spread, grade, water and compact approved gravel imported from outside airport facility to specified thickness at 95% MDD.	Cu.m	
	BILL 11: SHOULDERS TO PAVEMENTS		
11.01	Prepare surface of existing shoulders, and accesses, including benching where necessary, water process and compact in accordance with the specifications and as directed by the Engineer to receive gravel.	Sq.m	
11.02	Provide, place, water and compact natural gravel to shoulders and accesses.	Cu.m	
	BILL 12: NATURAL MATERIAL BASE AND BASECOURSE		
	No overhaul into or out of the airport will be paid separately under this item and the cost for haulage will be deemed to have been included in the rates		
12.01	Excavate existing bituminous surfacing or pavement material to spoil or stockpile for reuse as directed by the Engineer.	Cu.m	
12.02	Break or scarify the existing pavement layer, and compact as specified and directed by the Engineer.	Cu.m	
12.03	Excavate by milling existing bituminous surfacing or pavement material to spoil or stockpile for reuse as directed by the Engineer.	Cu.m	
12.04	Recycle (cold in place) the existing bituminous pavement layer for re-use including addition of approved fresh material and as directed by the Engineer.	Cu.m	
12.05	Recycle (hot in place) the existing bituminous pavement layer for re-use including addition of approved fresh material and as directed by the Engineer.	Cu.m	
12.06	Provide, place,spread,water and compact natural gravel of CBR greater than 30% on repair and reconstruction areas as specified and as directed by the Engineer.	Cu.m	
12.07	Provide, lay and compact hand packed stone material including filling of voids with stone dust as directed by the	Cu.m	

Item	Description		
		Unit	Rate for KITALE
	Engineer.		
	BILL 13: GRADED CRUSHED STONE SUBBASE AND BASE		
13.01	Provide, place, spread and compact Class A Graded Crushed Stone (GCS) to 98% MDD with results not less than 96% MDD	Cu.m	
	BILL 14: CEMENT AND LIME TREATED MATERIAL		
14.01	Provide, transport to site and spread cement on natural gravel or GCS material for base or subbase as specified and as directed by the Engineer at 30-50kg/cu.m.	Tonne	
14.02	As Item 14.01 but lime.	Tonne	
14.03	Allow for mixing in cement and/or lime into natural gravel or GCS.	Cu.m	
14.04	Allow for curing and protection of treated layers as specified.	Sq.m	
	BILL15: BITUMINOUS SURFACE TREATMENT AND DRESSING		
15.01	Prepare surface of carriageway and repair areas, provide and spray MC-30 cut back bitumen at a rate of 0.8-1.2 ltr/sq.m as prime coat.	litre	
15.02	Prepare primed surfaces, provide and spray 80/100 penetration grade bitumen at a spray rate of 1.2 ltr/sq.m as binder for first seal on carriageway shoulder and junctions.	litre	
15.03	Prepare surface of carriageway and repair areas, provide and spray MC-70 cut back bitumen at a rate of 0.8-1.2 ltr/sq.m as prime coat	litre	
15.04	Prepare surface of repair areas, provide and spray K1-70 bitumen emulsion as tack coat or seal to repair areas at a spray rate of 0.8-1.0 ltr/sq.m.	litre	
15.05	Prepare existing or new bituminous surface, provide and spray 80/100 penetration grade bitumen at a spray rate of 1.0-1.2 ltr/sq.m as binder for single or second seal on carriageway shoulders and junctions.	litre	
15.06	Provide, spread and roll 10/14 mm pre coated chippings at a spread rate of 90-110 sq.m/cu.m for a single seal to carriageway as directed by the Engineer.	Cu.m	

Item	Description		
		Unit	Rate for KITALE
15.07	Provide, spread and roll 6/10 mm pre coated chippings at a spread rate of 110-130 sq.m/cu.m as second seal as directed by the Engineer.	Cu.m	
15.08	Prepare surface of carriageway, provide and spray 80/100 penetration grade bitumen cut back using 5-15% kerosene as tack coat for asphalt concrete wearing course at a spray rate of 0.5-0.7 ltr/sq.m..	litre	
15.09	Prepare surface of repair areas, provide and spray K1-60 bitumen emulsion as tack coat or seal to repair areas at a spray rate of 0.8-1.0 ltr/sq.m.	litre	
15.10	Provide kerosene fuel as a cutter for 80/100 penetration grade bitumen.	litre	
15.11	Provide, spread and roll 0/6 mm chippings (quarry dust) at a spread rate of 150-200 sq.m/cu.m to the seal on repair areas or on repaired areas to allow passage of traffic.	Cu.m	
	BILL 16: BITUMINOUS MIXES		
16.01	Excavate, trim and clean potholes, failed and damaged areas of the carriageway and edges including cart to spoil the excavated materials.	Cu.m	
16.02	Repair transverse or longitudinal cracking on asphalt concrete (crack sealing) as directed by the Engineer.	m	
16.03	Milling the existing bituminous layer to spoil to a maximum depth of 50mm thick.	Sq.m	
16.04	Milling the existing bituminous layer to spoil to a maximum depth of 100mm thick.	Sq.m	
16.05	Provide, place and compact Asphalt Concrete Type 1 with 5-7% nominal bitumen content by weight to total mix as wearing course on carriageway as directed by the Engineer. Maximum volume 15 cu.m.	Cu.m	
16.06	As in item 16.05 but total volume between 15cu.m-300 cu.m	Cu.m	
16.07	As in item 16.05 but total volume between over 300 cu.m		
16.08	Provide, place and compact Asphalt Concrete Type 1 for bumps and rumble strips as directed by the Engineer.	Cu.m	
16.09	Provide, place and compact Asphalt Concrete Type 1 to repair areas and for regulation to carriageway as directed	Cu.m	

Item	Description	Unit	Rate for KITALE
	by the Engineer. Total volume 10cu.m		
16.10	As in item 16.09 but total volume between 10cu.m-50 cu.m	Cu.m	
16.11	As in item 16.10 but total volume between 50 cu.m	Cu.m	
16.12	Provide, place and compact Dense Bituminous Macadam (DBM) with 3.0-4.5% nominal bitumen content by weight to total mix or as base on reconstruction sections as directed by the Engineer. Maximum volume 15cu.m.	Cu.m	
16.13	As in item 16.12 but total volume between 15cu.m-300 cu.m	Cu.m	
16.14	As in item 16.12 but total volume over 300 cu.m	Cu.m	
	Bill 17: CONCRETE WORKS		
	Concrete Provide, place, compact and cure the following classes of concrete as specified.		
17.01	Class 15/20 for blinding	Cu.m	
17.02	Class 20/20 concrete	Cu.m	
17.03	Class 25/20 for concrete	Cu.m	
17.04	Class 30/20 for concrete	Cu.m	
17.05	Class 40/20 for concrete	Cu.m	
17.06	Class 45/20 for concrete	Cu.m	
	Formwork Provide, erect and afterwards dismantle and remove all the formwork as specified by the Engineer		
17.07	Vertical formwork class F3 finish	Sq.m	
17.08	Horizontal formwork class F3 finish	Sq.m	
	Reinforcement Provide, bend and fix into positions high yield steel bars to BS4461 the following steel reinforcement as directed and as shown on the drawings.		
17.09	Reinforcement bars of high yield strength to BS4461, size 16mm and above.	Tonne	

Item	Description	Unit	Rate for KITALE
17.10	Reinforcement bars of high yield strength to BS4461, size 12mm and below.	Tonne	
17.11	Provide and place on 50mm thick sand bed and vibrate, 60mm thick Heavy Duty paving blocks of any pattern on edges as specified.	Sq.m	
17.12	Provide and place on 50mm thick sand bed and vibrate, 80mm thick Heavy Duty paving blocks of any pattern on edges as specified.	Sq.m	
17.13	As item 17.11 but coloured	Sq.m	
17.14	As item 17.12 but coloured	Sq.m	
17.15	Provide and place Standard Heavy Duty paving slabS size 600x600x50mm.	Sq.m	
	BILL 20: ROAD FURNITURE		
20.01	Allow for removal/obliteration of peeling and accumulated rubber on the marked surface of the pavements using suitable equipment and cart away debris and dispose away from airport.	Sq.m	
20.02	Allow for removal/obliteration of unwanted markings on the surface of the pavements using suitable equipment and cart away debris and dispose away from airport.	Sq.m	
20.03	Prepare surface and repaint(apply) two coats of white/yellow/black/red oxide acrylic airfield pavement marking paint mixed with approved pavement thinner and ballotini beads as directed by Engineer.	Sq.m	
20.04	Prepare surface and apply three coats of white/yellow/black/red acrylic road marking paints to new pavement surfaces mixed with approved pavement thinner and ballotini beads as directed by Engineer.	Sq.m	
20.05	Provide and lay hot applied thermoplastic road marking compound in approved colour and shade with ballotini beads for road marking on bituminous surface using fully automatic extrusion machine and using pre-melter for melting thermoplastic material including cleaning the surface of all dirt, dust, and other foreign matter, complete with demarcation at site/premarking, finishing and managing the traffic movements as instructed by the	Sq.m	

Item	Description	Unit	Rate for KITALE
	Engineer		
20.06	Provide and place the appropriate sealant for sealing Joints in concrete works upto a maximum width of 25mm (Elastic jet fuel resistant sealant to ASTM D3581)	m	
20.07	Provide and place Styrofoam at expansion joints upto a maximum width of 25mm for concrete and/or Asphalt and as specified by the Engineer.	m	
20.08	Provide and place white/white,white/red, yellow/yellow,red/red retro reflective road studs as instructed	No.	
20.09	Remove and dispose the damaged existing guard rails as directed by the Engineer.	m	
20.10	Provide and place new flex-beam guard rails complete with pre-cast flex-beam guardrail posts, spacers, nuts, bolts and fittings as directed by the Engineer.	m	
20.11	Provide and place 1500mmx200mmx3mm thickness CHS steel bollards 1200mm above and 300mm embedded below ground. Filled with concrete class 20/20, painted with alternating yellow and black strips 150mm wide place as directed by the Engineer.	No.	
20.12	Provide and place night safety retro reflective tape 50mm wide of colors Yellow, white or red glued to bollards as instructed by Engineer.	m	
20.13	Provide and erect permanent road signs where instructed by the Engineer and in accordance with the specifications as follows:		
	(a) Warning signs	No.	
	(b) Priority, prohibitory and mandatory signs	No.	
	(c) Standard informatory signs	No.	
	(d) Nonstandard signs (i) Less than 1.0 sq.m (ii) 1.0 sq.m to 2.0 sq.m (iii) 2.0 sq.m to 4.0 sq.m (iv) 4.0 sq.m to 5.0 sq.m	 No. No. No. No.	

Item	Description	Unit	Rate for KITALE
20.14	Excavate for, provide and place 250x125mm class 25/20 precast concrete raised or ramped kerbs haunched in 100mm thick class 15/20 concrete base bedding and mortar joined in support to carriageway as directed by the Engineer.		
	(a) Straight Kerbs	m	
	(b) Kerbs radius: 12m – 6m	m	
	(c) Ditto but radius:5m – 1m	m	
20.15	Ditto 20.11 but flush kerbs:		
	(a) Straight Kerbs	m	
	(b) Kerbs radius: 12m – 6m	m	
	(c) Ditto but radius:5m – 1m	m	
20.16	Excavate holes for fencing posts footing not exceeding 1.50 m deep, average 1.0m deep in hard and soft material; ram base to receive 'Class 20' concrete bases; include carting away.	Cu.m	
20.17	Ditto but for chain-link anchoring posts	Cu.m	
20.18	Mass concrete; Class 20 in footings	Cu.m	
20.19	Ditto but for chain-link anchoring posts	Cu.m	
20.20	Supply and install precast reinforced intermediate posts size 125 x125mm overall height 2.4m with cranked top of 475mm long as per detailed drawing including labor for 6mm diameter holes and bolts and 8mm galvanized mild steel bars with 12.5 S.W.G. stirrups at 350mm c/c as per detailed drawing to Engineer’s approval and satisfaction.	No.	
20.21	Ditto 20.05 but precast reinforced straining posts size 125x125mm all through; overall height 2.4m with cranked top of 475mm long as per detailed drawing including labour for 6mm diameter holes and bolts and 8mm galvanized mild steel bars with 12.5 S.W.G. stirrups at 350mm c/c as per detailed drawing with and including provision to receive struts to detail drawing to Engineer's approval.	No.	
20.22	Ditto 20.05 but precast reinforced straining posts size 150x150mm all through; overall height 2.4m with cranked top of 475mm long as per detailed drawing including	No.	

Item	Description	Unit	Rate for KITALE
	labour for 6mm diameter holes and bolts and 8mm galvanized mild steel bars with 12.5 S.W.G. stirrups at 350mm c/c as per detailed drawing with and including provision to receive struts to detail drawing to Engineer's approval.		
20.23	100 x 80mm precast reinforced concrete struts to detail anchor on to concrete base and straining posts at approved level and 45 degrees to the horizontal to detail drawings and Engineer's approval.	No.	
20.24	High tensile galvanized barbed wire 12 1/2 G (2.5mm diameter) threaded through posts secured by galvanized binding wire to Engineer's approval.	m	
20.25	Supply, fabricate and install galvanized heavy duty metal gate overall size 6000 x 2400mm high; in two equal leaves; with and including 100 x 100 x 6mm SHS fixed firmly to the ground in approved concrete base; 8 gauge welded wire mesh covering fixed to 50 x 50 x 4mm SHS and tower locking heavy gauge bolt (including VIRO Cylinder 104); 3 lines of 12.5 gauge barbed wire at the top of each leaf; all as per attached drawings and approval of Project Manager. Gate to be painted in three coats of approved protective paint.	No.	
20.26	High tensile galvanized straining wire 9.5 Gauge through concrete posts (m/s) including hook bolts.	m	
20.27	Supply materials, fabricate and install galvanized heavy duty metal gate overall size 1000 x 2400mm high pedestrian gate with and including 75 x 75 x 4mm SHS fixed firmly to the ground in approved concrete base; 8 gauge welded wire mesh covering fixed to 50 x 50 x 4mm SHS and tower locking heavy gauge bolt (including VIRO Cylinder 104); 3 lines of 12.5 gauge barbed wire at the top; all as per attached drawings and approval of Project Manager. Gate to be painted in three coats of approved protective paint. Rate inclusive of casting of beam.	No.	
20.28	Supply and fix 2.4m high galvanized chain-link; gauge 9.5; 50x50mm mesh onto precast concrete posts (m/s); fastening with 5 No. lines of galvanized wire (m/s); threaded through and including mesh and hook bolts; secured by binding wire; all as per the drawings.	m	
20.29	Supply and fix 2.4m high galvanized chain-link; gauge	m	

Item	Description		
		Unit	Rate for KITALE
	12.5; 50x50mm mesh onto precast concrete posts (m/s); fastening with 5 No. lines of galvanized wire (m/s); threaded through and including mesh and hook bolts; secured by binding wire; all as per the drawings.		
20.30	Excavate 150mm by 300 mm for ground beam	Cu.m	
20.31	Mass concrete; Class 20 in ground beam	Cu.m	