

**REHABILITATION AND UPGRADING OF DAGORETTI CORNER - KARI**

**BILL № 4: Site Clearance and Topsoil Stripping**

ITEM	DESCRIPTION	QTY	UNIT
4.01	Clear site on road reserve including removal of trees (girth less than 300 mm), hedges, bushes and other vegetation and other deleterious materials. grub up roots	ha	1.20
4.02	Removal of top soil to a maximum depth of 200 mm including excavation, loading and disposal	m3	3,000.00
4.03	Cutting of trees of all girth above 300 mm including cutting of trunks, branches, uprooting and removal of all materials and stacking within the Right of Way and		
	(i) Girth from 300 mm to 600 mm	№	2
	(ii) Girth above 600 mm but up to 900 mm	№	2
	(iii) Girth above 900 mm but up to 1800 mm	№	2
	(iv) Girth above 1800 mm	№	2
4.04	transportation of the existing trees of girth above 600 mm girth as instructed by Engineer, including shifting of the tree and storing at locations as instructed by the Engineer	№	8
4.05	Excavate, remove and dispose existing 900mm, 600mm and 300mm dia pipe culverts including the inlet and outlet structures as directed by the Engineer	m	0
4.06	Provide a provisional sum of KShs 2,000,000 for relocation of services.	PC	1.00
4.07	Extra Over on Item 4.06 for the Contractors Overheads and Profit.		10%
4.08	Dismantling of structures on the roadway including sorting out the dismantled material, disposal of		
	a) Reinforced Concrete of any class	m3	1
	b) Brick and / or stone masonry	m3	1
	c) Bituminous pavement	m3	1
	d) Granular pavement	m3	1

	e) Plain concrete of any class	m3	1
4.09	Exhume pipe culverts (include costs of excavation , dismantling of headwalls, surrounds, slabs, bedding etc.)		
	a) Upto 600mm diameter	m	1
	b)600mm to 900mm diameter	m	1
	c) above 900mm diameter	m	1
4.10	Take down and re-erect fences as directed by the Resident Engineer	m	0
	<b>Total of Bill № 4 (Carried Forward to Summary)</b>		

<b>BILL № 5: Earthworks</b>			
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT</b>
	No separate payments shall be made for the overhaul of the material and the cost of such haulage shall be included in the rates and or prices.		
5.01	Cut to spoil in soft material	m3	17,940
5.02	As Item 5.01 but in hard material	m3	2,691
5.03	Provide, spread, water, process and compact 300 mm improved subgrade to 100% MDD (AASHTO T99) in two	m2	4,140
5.04	Provide and compact soft material as fill material as shown in the drawing and as directed by the Engineer	m3	13,455
5.05	Provide and fill in hard material as shown in the drawing and as directed by the Engineer.	m3	3,364
5.06	Allow for benching as instructed by the Engineer	m3	0
5.07	Provide, Spread and compact rockfill in swampy areas	m3	100
	<b>Total of Bill № 5 (Carried Forward to Summary)</b>		

<b>BILL № 8: Culvert and Drainage Works</b>			
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT</b>
	No separate payment shall be made for the haulage of surplus or unsuitable excavated material and the cost of		
8.01	Excavate in soft material for pipe culverts, subsoil drains, headwalls, wing walls, aprons, toe walls, drop inlets, mitre drains, catch water drains and median drains	m3	50
8.02	As Item 8.01 but in hard material (any method)	m3	18
8.03	Allow for hacking in existing concrete drain for junction connections	m3	0
8.04	Allow for perforation and connecting to the existing drain including stoppage of inflowing water (hole approximately 600 wide x 800 high x 250 thick)	no.	0
8.05	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	m3	0
8.06	Clean Drains and culverts of all sizes to free flow conditions	m	0
8.07	Provide, lay and joint 900 mm Internal Diameter (I. D.) Reinforced Cement Concrete pipes	m	10
8.08	Provide, lay and joint 1200 mm I.D. Reinforced Cement Concrete pipes	m	5
8.09	Provide, lay and joint 600 mm I.D. Reinforced Cement Concrete pipes	m	5
8.10	Provide place and compact class 25/20 concrete to headwalls, wingwalls, aprons and toe walls to pipe culverts.	m3	0
8.11	Provide place and compact class 15/20 concrete to beds, surrounds and haunches.	m3	30
8.12	Allow for in-situ lining with concrete Class 20/20 on outfall drains through built-up areas and limit of works areas and access roads	m3	10
8.13	Provide and joint 450mm diameter precast concrete invert block drain (IBD) channels with two double side precast side slabs of 600x225x75mm as lining for side	m	0
8.14	Extra Over for precast side slabs of 600x225x75mm.	m	0
8.15	Provide and lay 150mm thick grouted stone pitching with ratio 1:4 cement to Mortar, on culvert inlets and outlets and where directed by the Engineer.	m2	0
8.16	Excavate and remove invert block drains (IBD) and cart to spoil or re-use as directed by the Engineer.	m	0
8.17	Provide and place A142 fabric Mesh reinforcement or equivalent for wing walls, aprons, toe, wall, inlets and outlets and as directed by the Engineer	m2	0

	<b>Total of Bill № 8 (Carried Forward to Summary)</b>		
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<b>BILL № 13: Graded Crushed Stone Sub-base and Base</b>			
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT</b>
13.01	Provide, mixing, spreading and compacting Graded Crushed Stone (GCS) for Base	m3	3,240.00
	<b>Total of Bill № 13 (Carried Forward to Summary)</b>		

<b>BILL № 14: Cement and Lime Treated Material</b>			
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT</b>
14.01	Provide, transport to site and spread/mix cement improvement agent at 45-65kg/m3 for natural material sub-base and GCS base as instructed by the Engineer	tonne	84
14.02	Mix the Subbase material with the instructed cement quantity, use a pulvimixer, grade with a motor grader and compact with a road roller at OMC to achieve the desired unconfined compressive strength and to form a layer of sub-base as specified or as instructed by the Engineer.	m3	3,888
14.03	Allow for curing and protection of treated subbase as specified or as instructed by the Engineer.	m2	13800
	<b>Total of Bill № 14 (Carried Forward to Summary)</b>		

<b>BILL № 15: Bituminous Surface Treatments and Surface Dressing</b>			
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT</b>
	Note: No haulage will be paid for bitumen or chipping sand this should be included in the billed rates.		
15.01	Prepare surface of carriageway, shoulders, repair areas, bus bays, accesses and junctions, provide, heat and spray MC 70 cutback bitumen prime coat at a rate of spray in	litre	21,600.00

15.02	Clean and prepare surfaces, provide and spray K1-60 bitumen emulsion as tack coat on carriageway	litre	22,080.00
<b>Total of Bill № 15 (Carried Forward to Summary)</b>			

<b>BILL № 16: Bituminous Mix Bases, Binder Courses and Wearing Courses.</b>			
ITEM	DESCRIPTION	QTY	UNIT
	Note: No haulage will be paid for bituminous mix bases and Asphalt Concrete (AC) binder course and the rate		
16.01	Prepare surfaces of repair areas, provide, mix, lay and compact Asphaltic Concrete (AC) (Type 1) with bitumen	m3	504.00
16.02	Prepare surfaces, provide, mix, lay and compact Asphaltic Concrete (AC) (Type 1) as wearing course on base with	m3	720.00
16.03	Prepare surface of underlying material, provide, lay and compact DBM (0/30) as base layer in compacted	m3	1,800.00
<b>Total of Bill № 16 (Carried Forward to Summary)</b>			


**BILL № 20: Road Furniture**

ITEM	DESCRIPTION	QTY	UNIT
20A	<b>Road Marking and Road Signs</b>		
	Road Marking		
20A.01	Provide and lay hot applied thermoplastic road marking compound in approved colour and shade (ASTM 9) for road marking on bituminous surface on centerline, 100 mm, edge line 150 mm wide 3.0 mm thick, 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/pre-marking,		
	(i) For lane marking (broken lines) with white paint, 100 mm wide	m2	480
	(ii) For lane marking with yellow paint, 150mm wide	m2	240
	(iii) For raised kerb lines with black paint, 150 mm wide	m2	300

20A.03	Provide and lay hot applied thermoplastic road marking compound in approved colour and shade (ASTM 9) for road marking on bituminous road surface on pedestrian crossings, chevrons, directional arrows, give way and stop lines mm thick using fully automatic extrusion machine and using pre-melter for melting thermoplastic. Material, including dispensing drop on glass beads of	m <sup>2</sup>	80
	<b>Permanent Road Signs</b>		
20A.04	Supply and fix regulatory/mandatory road sign boards made up with high intensity grade retroreflective type sheeting (ASTM 9) complete as per the drawings and Technical specifications.	N <sub>o</sub>	0
20A.05	Supply and fix cautionary/warning road sign boards made up with high intensity grade retroreflective type sheeting (ASTM 9) complete as per the drawings and Technical Specifications	N <sub>o</sub>	0
20A.06	Supply and fix informatory road sign boards made up with high intensity grade retro-reflective type sheeting complete as per drawing and Technical specifications.		
	(i) Area less than 1.0 m <sup>2</sup>	N <sub>o</sub>	0
	(ii) Area more than 1.0 m <sup>2</sup> but less than 2 m <sup>2</sup>	N <sub>o</sub>	0
	(ii) Area more than 2.0 m <sup>2</sup> but less than 5 m <sup>2</sup>	N <sub>o</sub>	0
20A.07	Supply and fix in position road overhead retroreflective informatory sign boards including fixing on overhead gantry/any other overhead structure excluding the cost		
	(i) For 12 m span	N <sub>o</sub>	0
	(ii) For 22.5 m span	N <sub>o</sub>	0
20A.08	Supply and fix in position road cantilever overhang retro-reflective informatory sign boards including fixing on	N <sub>o</sub>	0
20B	Other Road Furniture		
20B.01	Provide and fix precast road reserve boundary posts of cement concrete Class 20/20 and painted in white,	N <sub>o</sub>	0
20B.02	Provide and fix concrete Edge Marker Posts on the outer edge of shoulder as per the drawings, specifications and	N <sub>o</sub>	0

20B.03	Provide and fix Kilometre marker posts as per drawings, specifications and as instructed by the Engineer	No	0
20B.04	Provide and erect single sided single head flexibeam guardrails complete with steel posts, spacers, nuts, bolts	m	0
20B.05	Provide and erect single sided double head flexibeam guardrails complete with steel posts, spacers, nuts, bolts	m	0
20B.06	Provide, lay and Joint complete with hauncing as shown on the drawings and as instructed by the Engineer		
	(i) Raised Kerbs	m	4,600
	(ii) Flush Kerbs	m	2,200
20B.07	Provide, lay and Joint complete with hauncing as shown on the drawings and as instructed by the Engineer 100 x	m	0
20B.08	Provide all materials and erect rumble strips on shoulders	m	0
20B.09	Erect standard bumps using Class 25/20 concrete reinforced with BRC A142 mesh where instructed by the	m <sup>3</sup>	0
20B.10	Provide and place Concrete Class 20/20 Bollard size 1.2 m x 0.1 m x 0.1 m embedded to a depth 0.2 m where	No.	1,200
20C	Provide and fix aluminium casted reflective studs (Cat's eyes) of size 100 mm x 100 mm at the base with zinc	No	0
20C.01	Service Ducts		
20C.02	Provide and lay service ducts as per the drawings and as instructed by the Engineer	No	0
20C.03	Provide and construct stone masonry stone foundation	m	0
20C.03	other structures	m <sup>2</sup>	0
	<b>Total of Bill No 20 (Carried Forward to Summary</b>		

**BILL № 22: Day Works**

ITEM	DESCRIPTION	QTY	UNIT
Note:	Any plant employed upon Day works which have power rating lower than that specified, shall be paid for at rates		
	PLANT		
22.01	Crawler Dozer and Hydraulic Ripper		
	(a) 100-135 Kw rated flywheel power	Hr	2
	(b) 136-185 Kw rated flywheel power	Hr	2
	(c) 186-250 Kw rated flywheel power	Hr	2
22.02	Motor Graders		
	(a) 80-110 Kw rated flywheel power	Hr	2
	(b) 111-120 Kw rated flywheel power	Hr	2
22.03	Rollers Towed vibratory including tractor		
	(a) 6.5-8.8 t un-ballasted weight	Hr	2
	(b) 8.6-11.7 t un-ballasted weight	Hr	2
22.04	Roller rubber tyred self propelled		
	(a) up to 1 t per wheel	Hr	2
	(b) 1.1 t -2.0 t per wheel	Hr	2
22.05	Roller Vibratory single roll Rubber tyred, 8.3-10.5 t un-ballasted weight	Hr	2
22.06	Vibrating plate compactor 114-200 kg operating weight	Hr	2
22.07	Compressor rated by normal delivery of free air per minute complete with all tools		
	(a) 6.0-7.4 m <sup>3</sup> /mm	Hr	2



	(b) 7.5-9.7m <sup>3</sup> /min	Hr	2
	(c) 9.8-25.5m <sup>3</sup> /min	Hr	2
22.11	Concrete mixers (wet capacity)		
	(a) up to 100 litres	Hr	1
	(b) 101-200 litres	Hr	1
	(c) 201-300 litres	Hr	1
22.12	Concrete poker vibrator	Hr	1
22.13	Lorries - Flatbed		
	(a) up to 7.5t gross vehicle weight	Hr	2
	(b) 7.6-12.0t gross vehicle weight	Hr	2
22.14	Lorries - Tippers		
	(a) up to 11t gross vehicle weight	Hr	2
	(b) 11-17t gross vehicle weight	Hr	2
	(c) 17.1- 25t gross vehicle weight	Hr	2
22.15	Van, Pickup or similar utility vehicle		
	(a) up to 1 t carrying capacity	Hr	2
	(b) 1.1-2.6 t carrying capacity	Hr	2
22.16	Self propelled water or fuel tanker		
	(a) 3500-4550 litre capacity	Hr	2
	(b) 4551-7000 litre capacity	Hr	2
	(c) 7001-12000 litre capacity	Hr	2
22.17	Pressure Bitumen distributor		

	(a) 3500-4550 litre capacity	Hr	2
	(b) 4551-9000 litre capacity	Hr	2
22.18	Mechanical Broom	Hr	2
22.19	LABOUR		
	(a) Unskilled Labour	Hr	2
	(b) Artisan	Hr	2
	(c) Plant Operator	Hr	2
	(d) Driver	Hr	2
	(e) Foreman	Hr	2
	(f) Office attendants and chainmen	Hr	2
	MATERIALS		
	All items of materials must be priced to comply with the Specifications.		
22.2	Ordinary Portland Cement	tonne	1
22.21	Hydrated Lime	tonne	1
22.22	High Yield Steel		
	(a) Up to and including 16mm diameter	tonne	0
	(b) Over 16mm diameter	tonne	0
22.23	Aggregates for Concrete		
	(a) Fine	m3	2
	(b) coarse	m3	2
22.24	Shuttering Timber		
	(a) F1 finish	m2	0

	(b) F2 finish	m2	0
22.25	Chippings		
	(a) Class 3 any size	m3	2
	(b) fine aggregate	m3	2
22.26	Cutback Bitumen and emulsion		
	(a) bitumen pen grade 80/100	litre	2
	(c) Bitumen cut-back MC 30	litre	2
	(d) Bitumen emulsion K-160	litre	2
22.27	Gabion mesh, size 1.0 m x 1.0 m x1.0 m	m2	0
22.28	Stone for gabions	m3	0
	<b>Total of Bill № 22 (Carried Forward to Summary)</b>		

ITEM	DESCRIPTION	QTY	UNIT
A	SITE CLEARANCE AND TOPSOIL STRIPPING		
B	EARTHWORKS		
C	CULVERT AND DRAINAGE WORKS		
D	BASE		
E	CEMENT AND LIME TREATED MATERIAL		
F	BITUMINOUS SURFACE TREATMENTS AND SURFACE DRESSING		
G	AND WEARING COURSES.		
H	ROAD FURNITURE		
I	DAY WORKS		
	<b>SUBTOTAL</b>		
	Add;16% VAT		
	<b>TOTAL+ VAT</b>		





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