	PROPOSED CIVIL WORKS FOR FLOOD MITIGATION AT RIDGEWAYS 66/11	KV SUBSTA	TION		
Item No.	Description	Unit	Qty	Rate	Amount (Kshs)
	PRELIMINARIES				
	Location of and access to the Site				
Α	The site of the proposed works is located within Ridgeways Estate at				
	Ridgeways KPLC premises. The bidder is advised to visit Site, to familiarize				
	himself with the nature and position of the Site. No claims arising from the				
	Contractor's failure to do site visit will be entertained.				
	Pricing items of preliminaries				
В	Prices SHALL BE INSERTED against items of "preliminaries" in the tenderer's				
	priced Bills of Quantities. The Contractor is advised to read and understand				
	all preliminary items. The Contractor shall be deemed to have included in his				
	prices or rates for the various items in the Bills of Quantities or Specification				
	for all cost involved in complying with all the requirements for the proper				
	execution of the whole of the Works in the Contract				
	Prevention of Accidents, damage or loss.				
C	The Contractor is notified that these works are to be carried out on a		1		
	restricted site where the client is going on with other nomal activities. The				
	Contractor is thus instructed to take reasonable care in the execution of the				
	works as to prevent accidents, damage or loss and disruption of activities				
	being carried out by the Client. The Contractor shall allow in his rates any				
	expense he deemed necessary by taking such care within the site.				
	Existing Services				
D	Prior to the commencement of any work, the Contractor is to ascertain from		1		
	the relevant authority the exact position, depth and level of all existing				
	services in the area and he/she shall make whatever provisions may be				
	required by the authorities concerned for the support, maintenance and				
	protection of such services. The Contractor shall take every precaution to				
	avoid damage to all existing property including roads, cables, drains and				
	other services, and he will be held responsible for and shall make good all				
	such damage arising from the execution of this contract at his own expense				
	to the satisfaction of the Client.			4	
	Safety Personnel				
E	Contractor should allow for a qualified saferty person conversant with				
	Kenya Power contractors safety regulations for the entire contract period				
	who will be responsible for receiving work permits in daily basis The working				
	hours shall be those generally given by the client in accordance with the	ITEM	1		
	safety regulations. No work shall start in the absence of the safety person				
	having received permit to work from the relevant authorizing officer.				
	Insurance				
F	Allow for Insurance Cover for the proposed works and workers.	ITEM	1		
	TOTAL TO SUMMARY PAGE				

Item No.	Description	Unit	Qty		
.cem No.	Site Security	Oilit	Qty		
А	The Contractor shall be entirely responsible for the security of all the Works, stores, materials, plant, personnel, etc, both his own and sub-contractors' and must provide all necessary watching, lighting and other precautions as necessary to ensure security against theft, loss or damage and the protection of the public.	ITEM	1		
В	Sign Boards The Contractor shall allow for providing erect publicity, project details, directional, safety, etc sign boards, maintaining and later clearing away on completion a site sign board. The positioning, the size, type of construction and lettering shall be to client's approval.  Power for the Works	ITEM	1		
С	Allow for <u>adequate Capacity Generator</u> or apply for power connection on site for the supply of power for use for the works or allow for a adequate capacitor generator.  Approvals	ITEM	1		
D E	Allow for AS ABUILT DRAWINGS including stamped hard copies and Soft copies and submit the same to the Client after project commisioning Allow a Provisional Sum of Kes. 300,000.00 for facilitation for Kplc PM, PE &	ITEM	1		
	Project Supervisors on communications and data for both electronic and print Visitor's Book and Site Diary	ITEM	1		
F	The Contractor shall keep on the Site a visitors' book for recording the names of all persons who visit the site for the purpose of the project. He shall also maintain on the Site a diary in which he shall record site activities on a daily basis and particularly any occurrence which bears on the progress of the Works in any way. The visitors' book and the diary shall be surrendered to the Client at the completion of the project or at any other time that he may be directed.  Site Offices	ITEM	1		
G	The Contractor shall allow for providing, maintaining and later clearing away on completion adequate (about 10m <sup>2</sup> ) site offices with standard furniture for the use of the Project Manager and site meetings.  Storage of Materials	ITEM	1		
Н	The Contractor shall provide at his own risk and cost where directed on the site weatherproof lockup sheds for the safe storage and custody of material for the Works and for the use of workmen engaged thereon and shall remove such sheds and make good damaged or disrupted surfaces upon completion to the satisfaction of the Project Manager.  Water	ITEM	1		
l.	Allow for clean water for the works Tests	ITEM	1		
J	The Contractor shall furnish at his own cost any samples of materials or workmanship including concrete test cubes required for the works that may be called by the Client for his approval or rejection and any other samples in the case of rejection until such samples are approved by the Client and the Client may reject any materials or workmanship not in his opinion up to to the approved samples.  Drainage Levels	ITEM	1		
К	Allow for entire site surveying including spot-heights and contour profiles for establising working levels and substation drainage level system within the substaion and along the drainage route as directed by the Engineer.	ITEM	1	>	
	TOTAL TO SUMMARY PAGE				

Item No.	Description	Unit	Qty	
	PUMPHOUSE	Jiiit	QU	
Α	Construct pump house approximate 6.0m² floor area,comprising of 225mm	ITEM	1	
	thick natural stone substructure walling; BRC A142 fabric mesh			
	reinforcement in 150mm thick floor slab, 2No. concrete platform(insitu			
	concrete- 0.5m²) with 200mm thick machine cut wallings,internally			
	plastered, painted and key finish externally with 2m² concrete louver blocks vents, 150mm thick reinforced suspended roof slab D10 both ways; 15° fall			
	well finished, provide 1000×2000mm high 16 gauge M.S purpose made steel			
	door and including excavation, cart away spoil, formwork etc. (Contractor			
	provide drawings for Engineers approval).			
	WATER COLLECTION SUMP/PIT			
В	Construct underground water suction sump/pit size 2.0×2.0m floor area with	ITEM	1	
	200mm thick A142 BRC reinforced water proof concrete floor, wallings, the 150mm thick suspended slab with manhole covers and suction pipe holes;			
	including excavation, cart away spoil, formwork etc.(Provide drawings for			
	Engineers approval).			
С	Supply and install 1No. 3" - 24HP high pressure diesel powered water pump,	No	1	
	with 75mmØ inlet and outlet complete with all necessary inlet and outlet			
_	pipes fully connected and fixed to Engineers satisfactory.			
D E	Ditto but 1No. electric powered water pump Supply and installation of 2No. 12 HP Submissiable eletric powered water	No No	1 2	
_	pump including cost of labour and materials for completion of work;	INO		
	including supply and installation of eletrical control panelfor submersible			
	pump/pumpset containing relay conderser for 12HP pumpset single phase			
	and all the cables required to complete the work to Engineer's approval			
_	Comply and five III in late and post-to-tribe to the control of th	ITEN 4	_	
F	Supply and fix all inlet and outlet pipings to client satisfactory. [Contractor to submit pumps and piping drawing for approval by the Engineer]	ITEM	1	
G	Ditto with spare pumps inlet and outlet saddle connectors	ITEM	1	
	DRAINAGE WORKS [Internally]			
Н	Excavate trenches in normal soil : commencing at existing ground level : not	CM	65	
	exceeding 1500mm deep			
1	Supply and lay 300mm diameter 600x450x 225mm Precast concrete invert	LM	170	
	drain blocks, including bedding, backfilling with selected materials and all jointed in 1:3 cement/sand mortar.			
J	Supply and lay 600mm diameter 600x750x 350mm Precast concrete invert	LM	50	
,	drain blocks, including bedding, backfilling with selected materials and all	LIVI	30	
	jointed in 1:3 cement/sand mortar.			
K	Ditto but Precast concrete side slab in a well V-shaped formed for storm	LM	390	
	water drain sides.	ITEM	1	
L	Cut/chase out in the boundary wall to create 2No.bell-mouth drainage outlets;500x1000mm wide, in 200mm thick stone walling/ground beam	ITEM	1	
	including carting away the debris; base and side concrete approximate 1.5m			
	wide and 1.0 m high			
М	Supply and fix fabricated R12 weld-meshed mild steel gratting to the bell-	ITEM	1	
	mouth opening/outlets in wall opened for drainage out-lets.			
N	Drainage Walling Excavate 1.5 m deep trench foundation commencing from ground level and	СМ	75	
IN	cart away.	CIVI	13	
0	Extra -Over for excavating in all classes of rock	CM	5	
Р	Return, Ram and Fill Selected Excavated materials around the foundations	CM	79	
Q	Load and Cart-Away surplus excavated materials from site to County	CM	25	
	Government Approved damping site			
	Blinding( Plain Concrete Class 15 )	CM	60	
R	50mm thick (1:3:6) Concrete blinding to pit bottoms and strip foundation.  Vibrated Reinforced Concrete Class 25/20 mm Aggregates In:	SM	69	
S	200mm thick for bases.	СМ	14	
Т	150mm thick for pedestal walling	CM	23	
	High yieled steel reinforcement bars including cutting, bending, tying			
	and fixing in place, spacer blocks and tying wires to BS 4449.			
U	D10 Fair Face Formwork to:	KG	1304	
V	Fair - Face Formwork to: Vertical sides of pestal wall	SM	184	
w	Apply two coats of black bituminous water-proof paint on the concrete	SM	184	
	surface internally and externally prior to backfilling to the plinth area.			
Х	Block and seal existing UPVC drain pipes. draining from cable trench to	ITEM	1	
	theexternal open storm water drainage.			
Y	Provide, lay and joint 110mm diameter UPVC drain duct from the cable	LM	75	
Z	trenches to the external storm water drainage. Provide, place and compact 150mm class 15 (1:3:6) concrete bed and	СМ	7	
	surround to UPVC drain pipes	CIVI	,	
	TOTAL TO SUMMARY PAGE			
		_		

Excavation in swamp  Excavation in swamp  Excavation in swamp  Excavation in swamp  A Excavation in swamp  Froide, place and compact evenly let courty government.  Rockfill  Provide, place and compact evenly rockfill (non-porous boulders / Pardcore  at swamp are so drain and raise the area to trajenter's dection.  Supply and lay reflorated 200mm dameter LPPC in the examply area to  drains write evalue to line velocitic dame (mis).  D Supply and lay filed gauge polytheries or other equal and approved to  membrane that our compact facilities of training years to  drains write and our compact facilities of training years to  SMM  700  Supply and spread informity. Witners thick, This 2-5; singly graded and approved ballast in the examply improved areas and other disturbed areas.  500mm blantal exc. Culverts  Froid or music to create space for 000mm dameter and 120m long delange and 60%. 12-2m annualises (ms).  Excavate drainings thereof is no create space for 000mm dameter and 120m long delange and 60%. 12-2m annualises (ms).  Excavate drainings thereof is no create space for 000mm dameter and 120m long delange and 60%. 12-2m annualises (ms).  Excavate drainings thereof is no create space for 000mm dameter and 120m long delange and 60%. 12-2m annualises (ms).  Smm thick concrete bedding to correct fall.  Provide may and place 100mm thick concrete prices (suberts) on 50mm thick concrete prices (suberts) on 60mm dameter of 50 mm thick concrete prices (suberts) on 60mm dameter of 50 mm thick concrete prices (suberts) on 60mm dameter of 50 mm thick concrete prices (suberts) on 60mm dameter of 50 mm thick concrete prices (suberts) on 60mm dameter of 60 mm thick paining and surrounding of the pipes with 60mm dameter precased to 60 mm thick paining and surrounding of the pipes with 60mm dameter precased to 60 mm thick paining and surrounding or for 60 mm thick paining and concepts of 60 mm thick paining	Item No.	Description	Unit	Qty		
material is of designated damping site bit yibre county government.  Backfall  B Provide place and compact levenly rockfall proe-prossus boulders. Transforce at aswamp areas to dain and site the area to Engineer's direction.  C Supply and by profit profit both drains (ms).  D Supply and by 1000 gauge polythene or other equal and approved membrane did on compact both drains (ms).  D Supply and by 1000 gauge polythene or other equal and approved membrane did on compact dard treated quarry dat with wheeled by so of 200mm wide.  Supply and great uniformly 150mm thick. 11: 2.5°, singly graded and approved ballast in the awampy improved areas and other disturbed areas.  Somm Damateter. Culwers  E Remove existing 80mm thick concrete paining blocks in access road and secure for re-use to create space for 600mm diameter and 120m long drainage and 68to. 12-2m manifoles (ms).  C Executed crimage trench in normal soil: commencing from stripped level and not exceeding 150mm diameter procast concrete paining and 68to. 12-2m manifoles (ms).  D Somm thick concrete bedding to correct fall.  Provide, by and joint 600mm diameter procast concrete pipes (culverts) on 50mm thick concrete grade C20 (Min Ratio 12-4) as concrete brained and sorround acount pipes. Ceremit to 85 12,20mm aggregate to 65 80B. Including all the recessary formwork.  Backfall and compace after beings, planting and sorrounding of the pipes with each compacted to 95% MCD with an approved marrain in layers of 150mm diameter and sorround anound pipes. Ceremit to 85 12,20mm and programs of 150mm diameter processes of the pipes with each concrete channel to Engineer's approval.  E Machiel and compace after beings, planting and sorrounding of the pipes with each concrete channel to Engineer's approval.  D Somm thick benching, reinforced concrete (13.6) in 150mm thick is also 2,50mm thick benching, reinforced concrete (13.6) in 150mm thick should be a concrete channel to Engineer's approval.  D Somm thick benching, reinforced concrete (13.6) in 150mm thick and and ac		l '				
Rock Hill Provide, place and compact evenly rock Hill (non-porous boulders /handcore at swampy areas to darin and raise the area to Engineer's direction. Supply and by perforated 200mm dismeter UPC in the swampy area to drain surface watever to livert block drains (ms). Supply and by 1000 gauge polytheme or other equal and approved membrane laid on compacted and treated quarry dust with welted laps of 200mm value with 1000 gauge polytheme or other equal and approved area. Supply and spread uniformly 150mm thick, "1" - 25", an other disturbed area. Sigmm planneter - Culverts Remove seisting 80mm thick concrete paving blocks in access road and sercure for re-use; to create space for 600mm diameter and 120m long drainage and 6No. 1.22m manofales (ms).  Exewate drainage trench in normals coil: commencing from strapped level and not exceeding 1500mm deep. Culverts Provide, lay and joint 600mm diameter procast concrete pipes (culverts) on 30mm thick concrete bedding to correct fall. Provide and and place 100mm thick concrete grade C20 (Mix Ratio 12:4) as concrete haunch and surround around pipes. Cement to 815 12:20mm aggregates to 58 882. Including all the necessary formwork.  Jacktill and compact after laying, jointing and surrounding of the pipes with well compacted to 59% Mol Whith an approved murnam in layers of 150mm thick. Restore the stored 80mm thick paving slab in access road, road kerb, concrete channet to Engineer's approval Drainage Inspection Chambers overall size 1000x1000mm to depth not exceeding 150mm technique residence of concrete channet to Engineer's approval Drainage Inspection Chambers overall size 1000x1000mm to depth not exceeding 150m deep, comprising of plain concrete (13:6) in 150mm thick cover slab, 200mm thick benching, residence of concrete banding, 200mm thick service of coldule hist with season and selection of the concrete concrete cover reinforce with 1000 all districtions and selections of the concrete part of 200 Mix Ratio 150 and selections and selections of the concrete part of	Α	Excavate in swamps area average depth of 200mm and cart away the spoil	CM	170		
8 Provide, place and compact evenly noteful from porous boulders handcore at assumpts yeares to drian and set her ares to Engineer's direction.  C Supply and lay potterioned 200mm diameter UPIC in the swampty area to drian surface watever to Invest block drain from, 1.  D Supply and lay 1000 gauge polythene or other equal and approved membrane lidon compacted and treated quarry dust with welted laps of 200mm vide.  Supply and payed outperformed 200mm diameter upic vides with welted laps of 200mm vide.  Supply and proread uniformly 150mm thick.* 7 - 25°, singly graded and approved ballist in the awarney improved areas and other disturbed areas.  50mm Diameter - Culverts  Remove existing 50mm thick concrete paints plocks in access road and secure for reuse; to create gape to 600mm diameter and 120m long drainage and 6No 1.22m mambroles from.  G Ecareter drainage trench in normal soil: commencing from stripped level and not exceeding 1500mm deep.  Culverts  H Provide, lay and join 600mm diameter precast concrete pipes (culverts) on 5mm thick concrete bacility of cornect all.  Provide, mix and place 100mm thick concrete grade C20 (Mix Balo 12-4) as concrete haunch and surround around pipes. Cement to 58 12-20mm angurgate to 18 580. Publication of the pipes with well compacted to 59% MDD with an approved murram in layers of 150mm thick sobre 68mm thick powing side in access road, road kerb, concrete channel to Engineer's sportval Drainage Inspection Chambers  M Anholosing-pection Chambers soverall size 1000x100mm to depth not exceeding 150m deep, comprising of plani concrete (13.6) in 50mm thick including all the necessary excavations, formwork and reinforc ement.  Gabbino Box  M Provider took iffile to places and inspection Chambers  M Provider took iffile to places and inspection Chambers  M Provider took iffile to places. Shall be of minimum rock size of 100mm and the maximum rock size of 250 mm, and the deeps, hard, clean and durable stone as quarried or naturally occurring rounded stone to 85 5803–3200, as spec						
at swampy areas to drain and raise the area to Engineer's direction.  Supply and by perforated 200mm climatere UTPS, in the awampy area to drain surface watever to Invest block drains (ms).  Supply and pay 1900 gauge polythene or other equal and approved 5M 700 membrane list on compacted and treated quarry dust. with welted laps of 200mm wide.  E Supply and spread uniformly 150mm thick, 1* - 2.5", singly graded and 5M approved ballest in the sewampy improved areas and other disturbed areas.  600mm Diameter - Culverts  R emove existing 80mm thick concrete pasing blocks in access road and secure for re-use to create space for 600mm diameter and 120m long drainage and 6No. 12.22 mmaholes (ms).  Escavate drainage trench in normal soil commencing from stripped level and not exceeding 150mm deep Culverts  Culverts  Provide, and apine 100mm diameter precast concrete pipes (culverts) on 50mm thick concrete bedding to correct fall.  Provide, mix and pipes 100mm thick concrete grade C20 (Mix Ratio 12-4) as concrete haunch and surround around pipes. Cement to 85 12.20mm agargeste to 58 882. Including all the necessary formwork.  Backfill and compact after laying, jointing and surrounding of the pipes with well compacted to 105% MOV with an approved marmam in layers of 150mm thick.  R actions the stored 80mm thick paving slab in access road, road kerb, concrete channel to Engineer's approval  Drainage inspect tion Chambers overal last 100x100mm to depth not exceeding inspect to 100mm brines over 100mm thick slab, 250mm thick then thing, revelored concrete class 20 in 100mm thick slab, 250mm thick benching, revelored oncrete class 20 in 100mm thick slab, 250mm thick benching, revelored oncrete class 20 in 100mm thick and reinforcement  Provide food 200m gabion basket manufactured from havy duty guidentified (sinc content) seed with of 2 displays, 34mm and and an ormal and proved by the Eng 900mm Diameter - 1 wire Culvers is not 100mm thick cover slab concrete took life to plations. Shall be of minimum rock size of 100 mm an		Rockfill				
C supply and lay perforated 200mm diameter UPIC in the swampp area to drain surface wateve to Invest block drain (m.).  D supply and lay 1000 gauge polythene or orther equal and approved membrane laid on compacted and treated quarry dust with wetted laps of 200mm wide.  Supply and spread uniformly 150mm thick," - 2.5', singly graded and approved ballest in the swampy improved areas and other disturbed areas.  500mm Diameter Cubevets  F Senowe existing 50mm thick concrete paning blocks in access road and secure for re-use, to create gare for 500mm dameter and 120m long drainage and 5No. 12-2m manholes (ms).  G Ecardet ordinage trench in morrals soil: commencing from stripped level and not exceeding 1500mm deep.  Culverts  H Provide, lay and joint 500mm diameter precast concrete pipes (culverts) on 50mm thick concrete bedding to correct fall.  I Provide, mis and place 100mm thick concrete grade C 20 (Mis Ratio 12-4) as concrete haunch and surround around pipes. Cement to 58 12-20mm aggregate to 58 882. Including all the necessary bermwork.  S Backflaw and compact after lawing, jointing and surrounding of the pipes with well compacted to 95%. MDD with an approved murram in layers of 150mm thick concrete bedding 150mm deep. Compacted to 95%. MDD with an approved murram in layers of 150mm thick accepts approval.  Drainage inspection Chambers  M Anhoeld/impection Chambers soverall size 1000x100mm to depth not exceeding 150m deep, comprising of plain concrete (13.8) in 150mm thick accepts and concrete haunch and surrounding of the pipes with well compacted to 95%. MDD with an approved murram in layers of 150mm and the maximum concrete size of 100 mm and the case of 100 mm and the maximum concrete size of 100 mm and t	В		CM	215		
drain surface watere to Invert block drains (ms).  Supply and by 1000 gauge polythene or other equal and approved membrane laid on compacted and treated quarry dust with welted laps of 200m wide.  E Supply and spread uniformly 150mm thick, 1* - 2.5*; singly graded and approved ballsat in the swampy improved areas and other disturbed areas.  Si00mm Diameter - Culverts  R more existing 80mm thick concrete paining blocks in access road and secure for re-user to create space for 600mm diameter and 120m long drainage and 6ko. 12.2* in manufolist (ms).  S Exeavate drainage tresch in create gaze for 600mm diameter and 120m long drainage and 6ko. 12.2* in manufolist (ms).  Provide, Iry and joint 800mm diameter precad concrete pipes (culverts) on 50mm thick concrete bedding to correct fall.  Provide, Iry and joint 800mm diameter precad concrete pipes (culverts) on 50mm thick concrete bedding to correct fall.  Provide, Iry and joint 800mm thick concrete grade C20 (Ms Ratio 12.4) as concrete hand and surround around pipes. Cerment to 85 12.20mm aggregate to 85 86.2 including at the necessary termwork.  Backfill and compact late its sying, jointing and surrounding of the pipes with well compacted to 35% MDD with an approved marram in layers of 150mm thick.  R Restore the stored 80mm thick paying slab in access road, road kerb, concrete channel to Engineer's approval  Diamege inspection Chambers  M Amholdshipspection chambers overall size 1000x1000mm to depth not exceeding 150m deeps, comprising of plan concrete C130 in 150mm thick to cover slab, 200mm thick machine custstone welling, waterproof screeds to sides and bottons, with reesald to 10 receive Loss 20 in 100mm thick on the concrete cover reinforced with D12 at 100mm ceres bottoways, 2.No. Rcb 201-Rcb with an approved murram in layers of 150mm shall be of minimum rock size of 100 mm and the maximum rock size of 250 mm. and be dense, hard, clean and durable stone as quarried or naturally occurring rounded stone to \$5 500-23-2001, as specified and approved by the first						
D Supply and lay 1000 gauge polythene or other equal and approved membrane lide on compacted and treated quarry dust with wetled laps of 200mm wide.  E Supply and spread uniformly 150mm thick 1 - 2.5', singly graded and approved balls in the swampy improved areas and other disturbed areas. 600mm Diameter - Culverts  F Remove existing 80mm thick concrete paving blocks in access road and secure for re-use to create space for 600mm diameter and 120m long driamage and 6No. 1,22m machinelse (ms).  G Excavate drainage trench in normal soil commencing from stripped level and not exceeding 1500mm deep  Culverts  H Provide, lay and joint 600mm diameter precast concrete pipes (culvert) on 30mm thick concrete bedding to correct fall.  Provide, mic and place 100mm thick concrete grade C20 (Mix Ratio 12.4) as concrete haunch and surround around pipes. Cement to 88 12.20mm aggregate to 58 882. Including all the necessary borrowerk.  J Backfill and compact after laying, jointing and surrounding of the pipes with well compacted to 58% Moly with an approved marmam in layers of 150mm thick.  R Retore the stored 80mm thick paving slab in access road, road kerb, concrete channel to Engineer's approval  Drainage lapsection Chambers  L Manhole/inspection chambers overal laise 100x1000mm to depth not exceeding 150mm depth. Commander of the pipes with slab, 250mm thick benching, reinforced concrete class 0 in 100mm thick slab, 250mm thick benching, reinforced concrete class 0 in 100mm thick cover slab, 200mm thick ambine custones walling, waterproof screeds to sides and bottoms, with recessed to to receive 150mm thick reinforced precast concrete cover reinforced with D 21 tolongm, waterproof commanders of the pipes was a specified and approved with D 21 tolongm and the measurem of the pipes was a specified and approved with D 21 tolongm and the precasing of the pipes was a specified and approved with D 21 tolongm and the precasing of the pipes was a specified and propoved by the fing 90mm and the device of the pipes was a specified an	C	Supply and lay perforated 200mm diameter UPVC in the swampy area to	LM	120		
membrane laid on compacted and treated quarry dust. with welted laps of 200mm wise.  E. Supply and spread uniformly 150mm thick, "T - 2.5", singly graded and approved ballast in the swampy improved areas and other disturbed areas. \$60mm Diameter - Culverts  F. Remove existing 80mm thick concrete pawing blocks in access road and secure for re-use to create paw for 900mm diameter and 120m long drainage and 60% 1.12.cm mariholes fins).  E. cavate drainage trench in normal soll: commencing from stripped level and not exceeding 1500mm deep.  Culverts  H. Provide, lay and joint 600mm diameter precast concrete pipes (culverts) on 50mm thick concrete bedding to correct fail and color of 150mm thick concrete bedding to correct fail.  F. Provide, mix and place 100mm thick concrete grade C 20 (Mix Ratio 12-4) as concrete haunch and surround around pipes. Cement to 85 12:20mm aggregate to 85 862 including all the necessary formwork.  Backfill and compact fail foring, pipining and surrounding of the pipes with well compacted to 95% MDO with an approved murram in layers of 150mm thick.  R. Restore the stored 80mm thick paying slab in access road, road kerb, concrete channel to Engineer's approval Drainage inspection Chambers  M. Marhotokingsection chambers overall size 1000x1000mm to depth not exceeding 150m deep, comprising of plain concrete (135) in 150mm thick short of the concrete chass 20 in 100mm thick residence does 20 in 100mm and the maximum rack size of 250 mm. and be dense, lard, clean and durable store as quarried or naturally occurring rounded store to 85 852. Sculbring all the energes from thick between 100mm thick concrete bedding to correct bedding to correct 130m thick. Also, 500 000		· ·				
200mm wide.  E Supply and spread uniformly 150mm thick T - 2.5", singly graded and approved ballast in the swampy improved areas and other disturbed areas.  800mm Diameter - Culverts  F Remove existing 80mm thick concrete pawing blocks in access road and secure for re-use; to create space for 600mm diameter and 120m long drainage and 800. 1.22m marinoles (ms).  G Excavate drainage trench in normal soil: commencing from stripped level and not exceeding 150mm deep.  Culverts  F Provide, lay and joint 600mm diameter precast concrete pipes (culverts) on Stimm thick concrete bedding to correct fail.  P Provide, lay and joint 600mm diameter precast concrete pipes (culverts) on Stimm thick concrete bedding to correct fail.  P Provide in and place 100mm thick concrete pade C 20 (Mix Ratio 12-4) as concrete haunch and surround around pipes, Cement to 85 12/20mm aggregate to 85 882. Including all the necessary formwork.  J Backfill and compact after laying, jointing and surrounding of the pipes with evel constant to 5 Ragin Levil Dow With an approved murram in layers of 150mm thick well constant to 5 ragineer's approval  Drainage inspection. Chambers  L Manhole/inspection chambers overall size 1000x1000mm to depth not exceeding 150ml deeps, comprising of plain concrete (13:36) in 150mm thick siab, 250mm thick benching, reinforced concrete class 20 in 100mm thick cover slab, 200mm thick methic exist on the sides and bottoms, with recessed top to receive 150mm thick reinforced precast correct cover reinforced with D12 at 100mm certes bothway, 2, No. R20 fall down handles including all necessary excavations, formwork and reinforcement  Gabbion Box  N Provide 10.00 20 mg abion baskets manufactured from heavy-duty galvanized critic coated) steel wire of double twist heagon weave, having a normial mesh opening of forms 80mm, mesh wire size min 2.5mm dia and selvedge wire min 3.2mm  N Provide context of 16 mg abions. Shall be of minimum rock size of 100 mm and the maximum rock size of 250 mm, and be dense, hard, clean and durab	D		SM	700		
E Supply and spread uniformly 150mm thick 1" - 2.5", singly graded and approved ballist in the swampy improved areas and other disturbed areas.  600mm Diameter - Culverts  F Remove existing 80mm thick concrete paving blocks in access road and scure for re-use; to create space for 650mm diameter and 120m long drainage and 6No. 1.2x2m manholes (ms).  E cavated drainage trench in normal soil: commencing from stripped level and not exceeding 150mm deep. Culverts  H Provide, lay and pint 600mm diameter precast concrete pipes (culverts) on 5mm thick concrete bedding to correct fall.  Provide, mix and place 100mm thick concrete grade C20 (Mix Ratio 12:4) as concrete haunch and surround around pipes. Gement to 851220mm aggregate to 85 882. Including all the necessary formwork.  Backfill and compact after lying, plaining and surrounding of the pipes with well compacted to 95% MDO with an approved murram in layers of 150mm thick.  K Restore the stored 80mm thick paving slabin in access road, road kerb, concrete channel to Engineer's approval Drainage Inspection Chambers  Manhold-inspection Chambers  Manhold-ins		membrane laid on compacted and treated quarry dust with welted laps of				
approved ballsts in the swampy improved areas and other disturbed areas.  80mm Diamater - Culverts F Remove existing 80mm thick concrete paving blocks in access road and secure for re-use; to create space for 600mm diameter and 120m long drainage and fNo. 1.22m martholes (ms).  G Excavate drainage trench in normal soil: commencing from stripped level and not exceeding 1500md deep C culverts H Provide, lay and joint 600mm diameter precast concrete pipes (culverts) on 50mm thick concrete bedding to correct fail. Provide, mix and pales followm thick morrete grade C 20 (Mix Ratio 12:4) as concrete haunch and surround around pipes. Cement to 85 82. Including all the necessary formwork.  Backfill and compact after laying, jointing and surrounding of the pipes with well compact after laying, jointing and surrounding of the pipes with well compact after laying, jointing and surrounding of the pipes with well compact after laying, jointing and surrounding of the pipes with well compact after laying, jointing and surrounding of the pipes with well compact to 58 881. Including all the necessary formwork.  K Restore the stored 80mm thick paving slab in access road, road kerb, concrete channel to fingineer's approval Drainage inspection Chambers  M Amholocking-spection Chambers overall size 1000x1000mm to depth not exceeding 150m deep, comprising of plain concrete (13:36) in 150mm thick slab, 250mm thick benching reinforce concrete cover reinforced with D12 at 100mm cettes bothways, 2No. R20 fail-down handles including all necessary exavations, formwork and reinforcement.  Gabbion 80x  M Provide 10.01 0x.20 m gabion baskets manufactured from heavy-duty galanized (fric coated jac tell wite of double twist heagon weave, having a nominal mech opening of 60mm x 80mm, mesh wire size min 2.5mm dia and selvedge wire min 3.2mm  N Provide rock fill to gabions. Shall be of minimum rock size of 100 mm and the maximum rock size of 230 mm. and be demse, hard, clean and durable store as quarried or naturally occurring rounded store to 85						
S00mm Diameter - Culverts Remove existing 00mm flick concrete pawing blocks in access road and secure for re-use; to create space for 600mm diameter and 20m long drainage and 60m. 12-22m maniholes flms).  Exavated drainage french in normal soil: commencing from stripped level and not exceeding 1500mm deep. Culverts H Provide, lay and joint 600mm diameter precast concrete pipes (culverts) on 50mm tikk: concrete bedding to correct fall. P Provide, mix and place 100mm thick concrete grade C20 (Mix Ratio 12-24) as concrete haunch and surround around pipes. Cement to 5812 20mm aggregate to 58 582. Including all the necessary formwork. B ackfill and compact fare flying, jointing and surrounding of the pipes with well compacted to 95% MDO with an approved murram in layers of 150mm thick. K Restore the stored 80mm thick pawing slab in access road, road kerb, concrete channel to Engineer's approval D rainage Inspection Chambers Manhole/inspection chambers overall size 1000x1000mm to depth not exceeding 150m deep, comprising of plain concrete (1350 in 150mm thick slab, 250mm thick benching resilorate concrete class 20 in 10mm thick slab, 250mm thick therefore this class of the concrete cover reinforced with 102 at 100mm ceres bothways, 2 No. R20 fall-down handles including all necessary excavations, formwork and reinforcement G abbiton 80x with recessed top to receive 150mm thick reinforced precast concrete cover reinforced with 102 at 100mm ceres bothways, 2 No. R20 fall-down handles including all necessary excavations, formwork and reinforcement G application of the provider of t	E		SM	700		
F memove existing 80mm thick concrete paving blocks in access road and socure for re-use to create space for 60mm diameter and 120m long drainage and 6No. 12x.2m manholes (ms).  G Siccavate drainage trench in normal soil: commencing from stripped level and not exceeding 1500m deep. Culverts P Rovoids, lay and joint 600mm diameter precast concrete pipes (rulverts) on 30mm thick concrete bedding to correct fall. P Rovoids (ms and place 100mm thick concrete grade C20 (Mix Ratio 12:4) as concrete haunch and surround around pipes. Cement to 85 122.0mm aggregate to 85 882. Including all the necessary formwork.  B Backfill and compact after laying, jointing and surrounding of the pipes with well compacted to 95% MDO with an approved murram in layers of 150mm thick. R Bestore the stored 80mm thick paving slab in access road, road kerb, concrete channel to Engineer's approval Drainage inspection Chambers  L Manhole/inspection chambers overall size 1000x1000mm to depth not exceeding 150m deep, comprising of plain concrete (12:5) in 150mm thick slab, 250mm thick benching, reinforced concrete class 20 in 100mm thick cover slab, 200mm thick machine cutstones valling, waterproof screeds to sides and bottoms, with recessed upto 1 occessed 100mm certers bothways, 2No. R20 fall-down handles including all necessary excavations, formwork and reinforcement Gabbion 80x  M Provide 1.0d 0.02.0m gabion baskets manufactured from heavy-duty galvanized (zinc coated) steel wire of double twist hexagon weave, having a nominal mesh opening of 60mm x 80mm, mesh wire size min 2.5mm dia and selvedge wire min 3.2mm  N Provider ock fill to gabions. Shall be of minimum rock size of 150 mm and be deep, provide, mix and place 150mm thick concrete bedding to correct fall including excavations of drainage trench in normal soil: commencing from ground pipes. Cement to 85 12.20mm aggregate to 85 882. Including all the necessary formovib. backfilling and compacting and surroundray with well compacted to 35% for fall down handles including all necessary		approved ballast in the swampy improved areas and other disturbed areas.				
secure for re-use to create space for 600mm diameter and 120m long drainage and 60s. 1.22. manhooles (ms.)  G Excavate drainage trench in normal soil: commencing from stripped level and not exceeding 1500mm degree (Culverts)  H Provide, by and joint 600mm diameter precast concrete pipes (culverts) on SUmm thick concrete bedding to correct fall.  Provide, mix and place 100mm thick concrete grade C20 (Mix Ratio 1:24) as concrete haunch and surround around pipes. Cement to 85 12:20mm aggregate to 85 882. Including all the necessary formwork.  Backfill and compact after laying, jointing and surrounding of the pipes with well compacted to 95% MDD with an approved murram in layers of 150mm thick.  K Restore the stored 30mm thick pains plants in access road, road kerb, concrete channel to Engineer's approval Drainage inspection Chambers  L Manhola/Inspection chambers overall size 1000:4000mm to depth not exceeding 150m deep, comprising of plain concrete (1:35) in 150mm thick slab, 250mm thick benching, reinforced concrete (1:35) in 150mm thick slab, 250mm thick machine custons walling, waterproof screeds to sides and bottoms, with recessed top to receive 150mm thick reinforced precess to concrete cover reinforced with 1012 a 100mm cettes bothways, 2 No. 820 fall-down handles including all necessary excavations, formwork and reinforcement Gabbion 80x  M Provide 10.01.02.0m gabion baskets manufactured from heavy-duty galvanized (zinc coated) steel wire of double twist hexagon wave, having a nominal mesh opening of 50mm x 80mm, mesh wire size min 2.5mm dia and selvedge wire min 3.2mm.  N Provide rock fill to gabions. Shall be of minimum rock size of 100 mm and the maximum rock size of 50mm and be dees, hard, clean and durable stone as quarried or naturally occurring rounded stone to 85 5c88-32:2001. as specified and approved by the fig 900mm binameter – Twin-Culverts and Inspection Chambers  O Allow Primer cost sum of K5ns. 3500, 000 to provide, lay and join Twin 900mm diameter grecast concrete pipes (culverts) on 50mm t		600mm Diameter - Culverts				
drainage and 6No. 12x.2m marholes (rns).  Scavered drainage trench in normal soil: commencing from stripped level and not exceeding 1500mm deep.  Culverts  H. Provide, lay and joint 600mm diameter precast concrete pipes (culverts) on 50mm thick concrete bleding to correct fall.  Provide, mix and place 100mm thick concrete grade C20 (Mix Ratio 12x4) as concrete haunch and surround around pipes. Cement to 85 12z.0mm aggregate to 85 882. Including all the necessary formwork.  J. Backfill and compact after laying, jointing and surrounding of the pipes with well compacted to 95% MDD with an approved murram in layers of 150mm thick.  K. Restore the stored 80mm thick paving slab in access road, road kerb, concrete channel to Engineer's approval  Drainage inspection Chambers  U. Manhofe/inspection chambers overall size 1000x1000mm to depth not exceeding 1.50m deep, comprising of plain concrete (13x) in 150mm thick slab, 250mm thick heraling, reinforced contrect eciss. 20 in 100mm thick cover slab, 200mm thick machine cutstones walling, waterproof screeds to sides and bottons, with recessed to 100 receive 150mm thick reinforced precast concrete cover reinforced with D12 at 100mm ceres bothways, 2No.  R20 fall-down handles including all necessary ex-avations, formwork and reinforcement  Gabbion Box  N. Provide 10.01 bu2.0m gabion baskets manufactured from heavy-duty galvanized (2inc coated) steel wire of double twist hexagon weave, having a nominal mesh opening of 60mm x 80mm, mesh wire size min 2.5mm dia and selvedge wire min 3.2mm  N. Provides rock fill to gabiones. Shall be of minimum rock size of 100 mm and the maximum rock size of 250 mm, and be dense, hard, clean and durable stone as quarried or naturally occurring rounded stone to 85 5028-3200. as specified and approved by the Eng  900mm Diameter - Twin-Culverts and Inspection Chambers  Allow Primer cost sum of Kah, 3500, 000 to provide, lay and join Twin 900mm diameter precast concrete pipes (culverts) on 50mm thick concrete grade (20) (Mix Ratio 12x4) as concret	F	Remove existing 80mm thick concrete paving blocks in access road and	ITEM	1		
G Excavate drainage trench in normal soil: commencing from stripped level and not exceeding ISOmm deep Culverts H Provide, lay and join 600mm dismeter precast concrete pipes (culverts) on Somm thick concrete bedding to correct fall. Provide, mix and place 100mm thick concrete grade C20 (Mix Ratio 1:2-4) as concrete hearth and surround around pipes. Cement to 85 1:2-0mm aggregate to 85 882. Including all the necessary formwork. Backfill and compact after laying, jointing and surrounding of the pipes with well compacted to 95% MDD with an approved murram in layers of 150mm thick. K Bestore the stored 80mm thick paving slab in access road, road kerb, concrete channel to Engineer's approval Drainage inspection Chambers L Manhole/inspection chambers overall size 1000x100mm to depth not exceeding 150m deep, comprising of plain concrete (13:5) in 150mm thick slab, 250mm thick benching, reinforced concrete class 20 in 100mm thick cover slab, 200mm thick machine custosnes walling, waterproof screeds to sides and bottoms, with recessed top to receive 150mm thick reinforced precast concrete cover reinforced with D12 at 100mm certes bottways, ZNo. R20 fall-down handles including all necessary excavations, formwork and reinforcement Gabbion 80x M Provide Indu/D2.Om gabion baskets manufactured from heavy-duty galvanized (zinc coated) steel wire of double twist hexagon weave, having a nominal mesh opening of 80mm x B0mm, mesh wire size min 25mm dia and selvedge wire min 32mm. N Provide rock fill to gabions. Shall be of minimum rock size of 100 mm. and the maximum rock size of 100 mm. and th		·				
and not exceeding 1500mm deep Culverts H Provide, lay and joint 600mm diameter precast concrete pipes (culverts) on S0mm thick concrete bedding to correct fall. Provide, lay and joint 600mm diameter precast concrete pipes (culverts) on S0mm thick concrete bedding to correct fall. Provide, mix and place 100mm thick concrete grade C20 (Mix Ratio 1:2-4) as concrete haunch and surround around pipes. Cement to 85 12,20mm aggregate to 85 880. Including all the necessary formwork.  J Backfill and compact after laying, jointing and surrounding of the pipes with well compacted to 95% MDD with an approved murram in layers of 150mm thick. K Restore the stored 80mm thick paving slab in access road, road kerb, concrete channel to Engineer's approval Drainage Inspection Chambers  L Manhole/inspection chambers overall size 1000x1000mm to depth not exceeding 150m deep, comprising of plain concrete (1:36) in 150mm thick slab, 250mm thick benching, reinforced concrete class 20 in 150mm thick clover slab, 200mm thick benching, reinforced concrete class 20 in 100mm thick clover slab, 200mm thick benching reinforced concrete class 20 in 100mm thick clover slab, 200mm thick benching, reinforced concrete class 20 in 100mm thick clover slab, 200mm thick benching, reinforced concrete class 20 in 100mm diameter precast concrete with D12 at 100mm cetres bothways, 2No. R20 fall-down handles including all necessary exevations, formwork and reinforcement Gabbion Box Provide Into D2-Dm gabion baskets manufactured from heavy-duty galvanized (pinc coated) steel wire of double twist hexagon weave, having a nominal mesh opening of 60mm x 80mm, mesh vive size min 2.5mm dia and selvedge wire min 3.2mm Provide rock fill to pabions. Shall be of minimum rock size of 100 mm and the maximum rock size of 250 mm. and be dense, hard, clean and durable stone as quarried or naturally occurring rounded stone to 85 5628-32000, as specified and approved by the Eng 900mm Diameter. Twin-Culverts and Inspection Chambers  Allow Primer cost sum of 8th, 3.500, 000 t		drainage and 6No. 1.2x.2m manholes (ms).				
Culverts H Provide, by and joint 600mm diameter precast concrete pipes (culverts) on Somm thick concrete bedding to correct fall. Provide, mix and place 100mm thick concrete grade C20 (Mix Ratio 12:4) as concrete haunch and surround around pipes. Cement to 85 12;20mm aggregate to 85 882. Including all the necessary formwork. Backfull and compact after laying, jointing and surrounding of the pipes with well compacted to 95% MDD with an approved murram in layers of 150mm thick. K Restore the stored 80mm thick paving slab in access road, road kerb, concrete channel to Engineer's approval Drainage Inspection Chambers overall size 1000x1000mm to depth not exceeding 1.50m deep, comprising of plain concrete (13:8) in 150mm thick slab, 250mm thick benching, reinforced concrete class 20 in 100mm thick cover slab, 200mm thick menhing, reinforced concrete class 20 in 100mm thick cover slab, 200mm thick menhing reinforced with D12 at 100mm cetres bothways, 2No. R20 fall-down handles including all necessary excavations, formwork and reinforcement Gabbino Box M Provide 10x10x20m gabion baskets manufactured from heavy-duty gahanized clinic coated slee wive of double twist hexagon weave, having a nominal mesh opening of 60mm x 80mm, mesh wire size min 2.5mm dia and selvedge wire min 3.2mm. Provide rock fill to gabions. Shall be of minimum rock size of 100 mm and the maximum rock size of 250 mm, and be dense, hard, clean and durable stone as quarried or naturally occurring rounded stone to 85 5628-32001. as specified and approved by the Eng 900mm Joineter - Twin-Culverts and inspection Chambers  O Allow Prime cost sum of Ksh. 3,500,000 to provide, lay and join Twin 900mm diameter precast concrete pipes (culverty) on 50mm thick concrete gades. 2000 this concrete play on the concrete play of the concrete play of the provide, mix and place 150mm thick concrete grades close to 85 5628-32001. as specified and approved by the Eng 900mm Joineter - Twin-Culverts and insaper tench in normal soil : commencing from ground level and not ex	G	Excavate drainage trench in normal soil : commencing from stripped level	CM	180		
H Provide, lay and joint 600mm diameter precast concrete pipes (culverts) on S0mm thick concrete bedding to correct fall.  H Provide, mix and place 100mm thick concrete grade C 20 (Mix Ratio 12:4) as concrete haunch and surround around pipes. Cement to 85 12:20mm aggregate to 85 882. Including all the necessary formwork.  J Backfill and compact aft or 95% MDO with an approved murram in layers of 150mm thick.  K Restore the stored 80mm thick paving slab in access road, road kerb, concrete channel to Engineer's approval Drainage Inspection Chambers  U Manhole/inspection chambers overall size 100x1000mm to depth not exceeding 1.50m deep, comprising of plain concrete (13:6) in 150mm thick slab. 250mm thick benching, reinforced concrete class 20 in 100mm thick cover slab, 200mm thick benching, reinforced concrete class 20 in 100mm thick cover slab, 200mm thick benching and increasary excavations, formwork and reinforcement  Gabbion 80x  Provide 10x10x20mg abion baskets manufactured from heavy-duty galvanized (zinc coated) steel wire of double twist hexagon weave, having a nominal mesh opening of 60mm x 80mm, mesh wire size min 25mm dia and selvedge wire min 3.2mm  Provide rock fill to gabions. Shall be of minimum rock size of 100 mm and the maximum rock size of 250 mm, and be dense, hard, clean and durable stone as quarried or naturally occurring rounded stone to 85 5628-32001. as specified and approved by the Eng 900mm Diameter - Twin-Culverts and Inspection Chambers  Allow Primic cost sum of 8th, 3500, 000 to provide, lay and join Twin 900mm diameter precast concrete pipes (culverts) on 50mm thick concrete bedding to correct fall; including as exvanitions of drainage ternch in normal soil: commencing from ground level and not exceeding 1500mm deep, Provide, mix and place 150mm thick concrete propried conducted to place to 100mm thick concrete grade (20 Mix Ratio 12-24) as concrete haunch and surrounding with well compacted to 95% MDO with an approved murram in layers of 150mm thick tenforced pre-cast concrete cove		and not exceeding 1500mm deep				
Somm thick concrete bedding to correct fall.  Provide, mix and place 100mm thick concrete grade C20 (Mix Ratio 12:4) as concrete haunch and surround around pipes. Cement to 85 12:20mm aggregate to 85 882. Including all the necessary formwork.  Backfall and compact after laying, jointing and surrounding of the pipes with well compacted to 95% MDD with an approved murram in layers of 150mm thick.  K Restore the stored 80mm thick paying slab in access road, road kerb, concrete channel to Engineer's approval Drainage Inspection Chambers overall size 1000x1000mm to depth not exceeding 1.50m deep, comprising of plain concrete (13:36) in 150mm thick slab, 250mm thick benching, reinforced concrete class 20 in 100mm thick cover slab, 200mm thick machine cutstones walling, waterproof screeds to side and bottoms, with recessed top to receive 150mm thick reinforced precast concrete cover reinforced with D12 at 100mm cetres bothways, 2No. R20 fall-down handles including all necessary excavations, formwork and reinforcement Gabbino Box  M Provide rock fill to gabions. Shall be of minimum rock size of 100 mm and the maximum rock size of 250 mm, and be dense, hard, clean and durable stone as quarried or naturally occurring rounded stone to 85 5628–32001. as specified and approved by the Eng 900mm Diameter - Twin-Culverts and Inspection Chambers  O Allow Prime cost sum of Ksh 3.500, 000 to provide, lay and join Twin 90mm ITEM  1 diameter precast concrete pipes (culverty) on 50mm thick concrete pedding to correct fall including accavations of drainage trench in normal soil : commencing from ground level and not exceeding 1500mm deep, Provide, mix and place 150mm thin-Culverts and Inspection Chambers  O Allow Prime cost sum of Ksh 3.500, 000 to provide, lay and join Twin 90mm ITEM  1 diameter procast concrete pipes (culverty) on 50mm thick concrete pedding to correct fall including exavations of drainage trench in normal soil : commencing from ground level and not exceeding 1500mm and ground pipes. Cement to 85 12.20mm and ground						
Provide, mix and place 100mm thick concrete grade C20 (Mix Ratio 12-4) as concrete haunch and surround around pipes. Cement to 85 12-20mm aggregate to 85 882. Including all the necessary formwork.  J Backfill and compact after laying, jointing and surrounding of the pipes with well compacted to 95% MDD with an approved murram in layers of 150mm thick.  K Restore the stored 80mm thick paving slab in access road, road kerb, concrete channel to Engineer's approval Drainage Inspection Chambers  L Manhole/inspection chambers overall size 1000x1000mm to depth not exceeding 150m deep, comprising of plain concrete (13-36) in 150mm thick slab, 250mm thick benching, reinforced concrete class 20 in 100mm thick cover slab, 200mm thick received to 10-10x 20 mm thick slab, 250mm thick benching, reinforced concrete class 20 in 100mm thick cover slab, 200mm thick received to 10-10x 20 mm thick pages and 10-10 mm certes bothways, 2No. R20 fall-down handles including all necessary excavations, formwork and reinforcement Gabbion 8 ox  M Provide 10x10x2 Dim gabion baskets manufactured from heavy-duty galvanized (zinc coated) steel wire of double twist hexagon weave, having a nominal mesh opening of 60mm x 80mm, mesh wire size min 25mm dia and selvedge wire min 3.2mm  N Provide 10x10x2 Dim gabion baskets manufactured from heavy-duty galvanized (zinc coated) steel wire of double twist hexagon weave, having a nominal mesh opening of 60mm x 80mm, mesh wire size min 25mm dia and selvedge wire min 3.2mm  N Provide 10x10x2 Dim gabion baskets manufactured from heavy-duty galvanized (zinc coated) steel wire of double twist hexagon weave, having a nominal mesh opening of 60mm x 80mm, mesh wire size min 25mm dia and selvedge wire min 3.2mm  N Provide 10x10x2 Dim gabion baskets manufactured from heavy-duty galvanized (zinc coated) steel wire of double twist hexagon weave, having a nominal mesh opening of 60mm x 80mm, mesh wire size min 25mm dia and selvedge wire min 3.2mm  N Provide 10x10x2 Dim gabion schall be of minimum rock size of 250 mm	Н	1	LM	120		
concrete haunch and surround around pipes. Cement to BS 12,20mm aggregate to BS 882. Including all the necessary formwork.  J Backfill and compact after laying, jointing and surrounding of the pipes with well compacted to 95% MDD with an approved murram in layers of 150mm thick.  K Restore the stored 80mm thick paving slab in access road, road kerb, concrete channel to Engineer's approval Drainage Inspection Chambers  L Manhole/inspection chambers overall size 1000x1000mm to depth not exceeding 150m deep, comprising of plain concrete (13-6) in 150mm thick slab, 250mm thick benching, reinforced concrete class 20 in 100mm thick cover slab, 200mm thick machine cutstones walling, waterproof screeds to sides and bottoms, with recessed top to receive 150mm thick reinforced precast concrete cover reinforced with D12 at 100mm cetres bothways, 2No. R20 fall-down handles including all necessary excavations, formwork and reinforcement  N Provide 10x10x20m gabion baskets manufactured from heavy-duty galvanized (zinc coated) steel wire of double twist hexagon weave, having a nominal mesh opening of 60mm x 80mm, mesh wire size min 2.5mm dia and selvedge wire min 3.2mm  N Provide rock fill to gabions. Shall be of minimum rock size of 100 mm and the maximum rock size of 250 mm. and be dense, hard, clean and durable stone as quarried or naturally occurring rounded stone to 85 5628-32001. as specified and approved by the Eng 900mm Diameter - Twin-Culverts and Inspection Chambers  O Allow Prime cost sum of KSh. 3,500,000 to provide, lay and join Twin 900mm diameter precast concrete pipes (culverts) on 50mm thick concrete bedding to correct fall; including excavations of drainage trench in normal soil: commencing from ground level and not exceeding 150mm deep, Provide, mix and place 150mm thick concrete grade C20 (Mix Ratio 12:4) as concrete haunch and surround pipes. Cement to 85 12,20mm angergeate to 85 882. Including all the necessary formwork backfilling and compacting and surrounding with well compacted to 95% MDD with an app		· · · · · · · · · · · · · · · · · · ·				
aggregate to SS 882. Including all the necessary formwork. Backfill and compact after laying, jointing and surrounding of the pipes with well compacted to 5% MDD with an approved murram in layers of 150mm thick. Restore the stored 80mm thick paving slab in access road, road kerb, concrete channel to Engineer's approval Drainage Inspection Chambers  L Manhole/inspection Chambers overall size 100x1000mm to depth not exceeding 150m deep, comprising of plain concrete (12:8) in 150mm thick slab, 250mm thick benching, reinforced concrete class 20 in 100mm thick cover slab, 200mm thick machine cutstones walling, waterproof screeds to sides and bottoms, with recessed typ to receive 150mm thick reinforced precast concrete cover reinforced with D12 at 100mm cetres bothways, 2No. R20 fall-down handles including all necessary excavations, formwork and reinforcement Gabbion Box Provide 10x10x2 Dag abion baskets manufactured from heavy-duty galvanized (zinc coated) steel wire of double twist hexagon weave, having a nominal mesh opening of 60mm x 80mm, mesh wire size min 2.5mm dia and selvedge wire min 3.2mm Provide rock fill to gabions. Shall be of minimum rock size of 100 mm and the maximum rock size of 250 mm, and be dense, hard, clean and durable stone as quarried or naturally occurring rounded stone to 85 5628-32001. as specified and approved by the Eng 300mm Diameter - Twin - Culverts and Inspection Chambers  Allow Prime cost sum of Ksh. 3,300, 000 to provide, lay and join Twin 900mm diameter preast concrete pipes (culvers) so 50mm thick concrete bedding to correct fall, including excavations of drainage trench in normal soil: commencing from ground level and not exceeding 150mm deep, Provide, mix and place 150mm thick so concrete pipes (user thick concrete bedding to correct fills) including excavations of drainage trench in normal soil: commencing from ground level and not exceeding 150mm deep, provide, mix and place 150mm thick so correcte person courtee preases concrete pipes (user transhelo everall size 3000x100x10	l		CM	80		
Backfill and compact after laying, jointing and surrounding of the pipes with well compacted to 95% MDD with an approved murram in layers of 150mm thick.  K. Restore the stored 80mm thick paving slab in access road, road kerb, concrete channel to Engineer's approval Drainage Inspection Chambers  L. Manhole/inspection Chambers  L. Manhole/inspection Chambers  L. Manhole/inspection chambers overall size 1000x1000mm to depth not exceeding 150m deep, comprising of plain concrete (13.5) in 150mm thick slab, 250mm thick benching, reinforced concrete class 20 in 100mm thick cover slab, 200mm thick machine cutstones walling, waterproof screeds to sides and bottoms, with recessed top to receive 150mm thick reinforced precast concrete cover reinforced with DI2 at 100mm cetres botthways, 2No. R20 fall-down handles including all necessary excavations, formwork and reinforcement  Gabbion Box  M. Provide 1.0x1.0x2.0m gabion baskets manufactured from heavy-duty galvanized (zinc coated) steel wire of double twist hexagon weave, having a nominal mesh opening of 60mm x 80mm, mesh wire size min 2.5mm dia and selvedge wire min 3.2mm  N. Provide 1.0x1.0x2.0m gabion baskets manufactured from heavy-duty galvanized (zinc roated) steel wire of double twist hexagon weave, having a nominal mesh opening of 60mm x 80mm, mesh wire size min 2.5mm dia and selvedge wire min 3.2mm  N. Provide rock filt to galbions. Shall be of minimum rock size of 100 mm and the maximum rock size of 250 mm. and be dense, hard, clean and durable stone as quarried or naturally occurring rounded stone to 85 5828-32:001. as specified and approved by the Eng  300mm DiameterTwinCulverts and Inspection Chambers  O. Allow Prime cost sum of Ksh 3,500,000 to provide, lay and join Twin 300mm diameter precast concrete pipes (culverts) on 50mm thick concrete bedding to correct fals including excavations of drainage trench in normal soil: commencing from ground level and not exceeding 150mm deep. Provide, mix and place 150mm thick concrete prime for the provide, mix and		· ·				
well compacted to 95% MDD with an approved murram in layers of 150mm thick.  K Restore the stored 80mm thick paving slab in access road, road kerb, concrete channel to Engineer's approval Drainage Inspection Chambers  L Manhole/inspection chambers overall size 1000x1000mm to depth not exceeding 1.50m deep, comprising of plain concrete (13.5) in 150mm thick slab, 250mm thick benching, reinforced concrete (13.5) in 150mm thick cover slab, 200mm thick machine cutstones walling, waterproof screeds to sides and bottoms, with recessed top to receive 150mm thick reinforced precast concrete cover reinforced with D12 at 100mm cetres botthways, 2No. R20 fall-down handles including all necessary excavations, formwork and reinforcement  Gabbion Box  M Provide 10x10x20m gabion baskets manufactured from heavy-duty galvanized (zinc coated) steel wire of double twist hexagon weave, having a nominal mesh opening of 60mm x 80mm, mesh wire size min 2.5mm dia and selvedge wire min 3.2mm  N Provide rock fill to gabions. Shall be of minimum rock size of 100 mm and the maximum rock size of 250 mm, and be dense, hard, clean and durable stone as quarried or naturally occurring rounded stone to 85 5628-332001. as specified and approved by the Eng 900mm Diameter - Twin-Culverts and Inspection Chambers  O Allow Prime cost sum of Ksh 3,500,000 to provide, lay and join Twin 900mm diameter precast concrete pipes (culverts) on 50mm thick concrete bedding to correct fall; including excavations of drainage trench in normal soil: commencing from ground level and not exceeding 1500mm deep, Provide, mix and place 150mm thick concrete grade C20 (Mix Ratio 12:4) as concrete haunch and surround around pipes. Cement to 85 12:0mm aggregate to 85 882. Including all the necessary formwork. backfilling and compacting and surrounding with well compacted to 95% MDD with an approved murram in layers of 150mm thick slot ocntrete cover reinforced with D12 at 100mm cetres bottways, 2No. R16 fall-down handles including all necessary excavations, formwork and rei			61.4	120		
thick.  Restore the stored 80mm thick paving slab in access road, road kerb, concrete channel to Engineer's approval Drainage Inspection Chambers  L Manhole/inspection Chambers overall size 1000x1000mm to depth not exceeding 1.50m deep, comprising of plain concrete (13:6) in 150mm thick slab, 250mm thick benching, reinforced concrete class 20 in 100mm thick cover slab, 200mm thick machine cutstones walling, waterproof screeds to sides and bottoms, with recessed top to receive 150mm thick reinforced precast concrete cover reinforced with D12 at 100mm certes bothways, 2No. R20 fall-down handles including all necessary excavations, formwork and reinforcement  Gabbion Box  M Provide 1.0x10x2.0m gabion baskets manufactured from heavy-duty galvanized (zinc coated) steel wire of double twist hexagon weave, having a nominal mesh opening of 60mm x 80mm, mesh wire size min 2.5mm dia and selvedge wire min 3.2mm  N Provide rock filt og abions. Shall be of minimum rock size of 100 mm and the maximum rock size of 250 mm, and be dense, hard, clean and durable stone as quarried or naturally occurring rounded stone to 85 5628-32001. as specified and approved by the Eng 900mm Diameter - Twin-Culverts and Inspection Chambers  O Allow Prime cost sum of Ksh 3.500, 000 to provide, lay and join Twin 900mm diameter precast concrete pipes (culverts) on 50mm thick concrete bedding to correct fall; including exeavations of drainage trench in normal soil: commencing from ground level and not exceeding 150mm deep. Provide, mix and place 150mm thick concrete grade C20 (Mix Ratio 12:4) as concrete baunch and surround around pipes. Cement to 85 12,00mm approved murram in layers of 150mm thick. Also to construct manhole overden liste 3000x1000x1000x1000x1000x1000x1000x1000	J	, , , , , , , , , , , , , , , , , , , ,	CM	120		
Restore the stored 80mm thick paving slab in access road, road kerb, concrete channel to Engineer's approval Drainage Inspection Chambers  L Manhole/inspection chambers overall size 1000x100mm to depth not exceeding 1.50m deep, comprising of plain concrete (13.6) in 150mm thick slab, 250mm thick benching, reinforced concrete class 20 in 100mm thick cover slab, 200mm thick machine cutstones walling, waterproof screeds to sides and bottoms, with recessed top to receive 150mm thick reinforced precast concrete cover reinforced with D12 at 100mm cetres bothways, 2No. R20 fall-down handles including all necessary excavations, formwork and reinforcement  Gabbion Box  M Provide 1.0x1.0x2.0m gabion baskets manufactured from heavy-duty galvanized (zinc coated) steel wire of double twist hexagon weave, having a nominal mesh opening of 60mm x 80mm, mesh wire size min 2.5mm dia and selvedge wire min 3.2mm  N Provide rock fill to gabions, Shall be of minimum rock size of 100 mm and the maximum rock size of 250 mm. and be dense, hard, clean and durable stone as quarried or naturally occurring rounded stone to 85 5628-32.001. as specified and approved by the Eng 900mm Diameter - Twin-Culverts and Inspection Chambers  O Allow Prime cost sum of Ksh 3,300, 000 to provide, lay and join Twin 900mm diameter precast concrete pipes (culverts) on 50mm thick concrete bedding to correct fall; including excavations of drainage trenh in normal soil: commencing from ground level and not exceeding 1500mm deep, Provide, mix and place 150mm thick concrete grade C20 (Mix Ratio 12.4) as concrete haunch and surround around pipes. Cement to 85 12.20mm aggregate to 85 882. Including all the necessary formwork. backfilling and compacting and surrounding with well compacted to 95% MDD with an approved murram in layers of 150mm thick slab, 250mm thick benching, reinforced concrete (13.6) in 150mm thick slab, 250mm thick benching, reinforced concrete class 20 in 100mm thick cover slab, 200mm thick enching reinforced with D12 at 100mm cetres bothways, 2						
Concrete channel to Engineer's approval Drainage Inspection Chambers  L Manhole/inspection chambers overall size 1000x100mm to depth not exceeding 1.50m deep, comprising of plain concrete (13:50) in 150mm thick schoin, greinforced concrete class 20 in 100mm thick cover slab, 200mm thick machine cutstones walling, waterproof screeds to sides and bottoms, with recessed top to receive 150mm thick reinforced precast concrete cover reinforced with D12 at 100mm cettes bothways, 2No. R20 fall-down handles including all necessary excavations, formwork and reinforcement Gabbion Box  M Provide 1.0x1.0x2.0m gabion baskets manufactured from heavy-duty galvanized (zinc coated) steel wire of double twist hexagon weave, having a nominal mesh opening of 60mm x 80mm, mesh wire size min 2.5mm dia and selvedge wire min 3.2mm  N Provide rock fill to gabions. Shall be of minimum rock size of 100 mm and the maximum rock size of 250 mm, and be dense, hard, clean and durable stone as quarried or naturally occurring rounded stone to BS 5628-3:2001. as specified and approved by the Eng 900mm Diameter - Twin-Culverts and Inspection Chambers  Allow Prime cost sum of Ksh. 3.500, 000 to provide, lay and join Twin 900mm diameter precast concrete pipes (culverts) on 50mm thick concrete bedding to correct fall; including excavations of drainage trench in normal soil: commencing from ground level and not exceeding 1500mm deep, Provide, mix and place 150mm thick concrete grade C20 (Mix Ratio 12:49 as concrete haunch and surround around pipes. Cement to BS 12,20mm aggregate to BS 882. Including all the necessary formwork. backfilling and compacting and surrounding with well compacted to 95% MDD with an approved murram in layers of 150mm thick Also to construct manhole overall size 3000x1000x1000x1000x1000mm to depth not exceeding 150m deep, comprising of plain concrete (13:6) in 150mm thick sale, 250mm thick benching, reinforced concrete cover reinforced with D12 at 100mm cetres bothways, 2No. RIG fall-down handles including all necessary excavat	V		ITEM	1		
Drainage Inspection Chambers  Manhole/inspection chambers overall size 1000x1000mm to depth not exceeding 1.50m deep, comprising of plain concrete (1.3.6) in 150mm thick slab, 250mm thick benching, reinforced concrete class 20 in 100mm thick cover slab, 200mm thick benching, reinforced concrete class 20 in 100mm thick cover slab, 200mm thick machine cutstones walling, waterproof screeds to sides and bottoms, with recessed top to receive 150mm thick reinforced precast concrete cover reinforced with D12 at 100mm cetres bothways, 2No.  R20 fall-down handles including all necessary excavations, formwork and reinforcement Gabbion Box  M Provide 10x1.0x20m gabion baskets manufactured from heavy-duty galvanized (zinc coated) steel wire of double twist hexagon weave, having a nominal mesh opening of 60mm x 80mm, mesh wire size min 2.5mm dia and selvedge wire min 3.2mm  N Provide rock fill to gabions, Shall be of minimum rock size of 100 mm and the maximum rock size of 250 mm. and be dense, hard, clean and durable stone as quarried or naturally occurring rounded stone to 85 5628-3:2001. as specified and approved by the Eng 90mm Diameter – Twin-Culverts and Inspection Chambers  O Allow Prime cost sum of Ksh. 3,500, 000 to provide, lay and join Twin 900mm diameter precast concrete pipes (culverts) on 50mm thick concrete bedding to correct fall; including excavations of drainage trench in normal soil: commencing from ground level and not exceeding 1500mm deep, Provide, mix and place 150mm thick concrete grade C20 (Mix Ratio 12:4) as concrete haunch and surround around pipes. Cement to 85 12,20mm aggregate to 85 882. Including all the necessary formwork. backfilling and compacting and surrounding with well compacted to 95% MDD with an approved murram in layers of 150mm thick. Also to construct manhole overall size 3000x1000x1000mm to depth not exceeding 1.50m deep, comprising of plain concrete (1:36) in 150mm thick slab, 250mm thick benching, reinforced concrete class 20 in 100mm thick slab, 250mm thick benching, reinforced	K	, -	IILIVI	'		
L Manhole/inspection chambers overall size 1000x1000mm to depth not exceeding 150m deep, comprising of plain concrete (1:3-6) in 150mm thick slab, 250mm thick benching, reinforced concrete class 20 in 100mm thick cover slab, 200mm thick machine cutstones walling, waterproof screeds to sides and bottoms, with recessed top to receive 150mm thick reinforced precast concrete cover reinforced with D12 at 100mm cetres bothways, 2No. R20 fall-down handles including all necessary excavations, formwork and reinforcement Gabbion Box  M Provide 10x1.0x2.0m gabion baskets manufactured from heavy-duty galvanized (zinc coated) steel wire of double twist hexagon weave, having a nominal mesh opening of 60mm x 80mm, mesh wire size min 25mm dia and selvedge wire min 3.2mm  N Provide rock fill to gabions. Shall be of minimum rock size of 100 mm and the maximum rock size of 250 mm, and be dense, hard, clean and durable stone as quarried or naturally occurring rounded stone to B5 S628-3:2001. as specified and approved by the Eng 90mm Diameter – Twin-Culverts and Inspection Chambers  O Allow Prime cost sum of K8h 3,500,000 to provide, lay and join Twin 900mm diameter precast concrete pipes (culverts) on 50mm thick concrete bedding to correct fall; including excavations of drainage trench in normal soil : commencing from ground level and not exceeding 1500mm deep, Provide, mix and place 150mm thick concrete prade 220 (Mix Ratio 1:24) as concrete haunch and surround around pipes. Cement to B5 12,20mm aggregate to B5 882. Including all the necessary formwork. backfilling and compacting and surrounding with well compacted to 95% MDD with an approved murram in layers of 150mm thick. Also to construct manhole overall size 3000x1000x1000mm to depth not exceeding 1.50m deep, comprising of plain concrete (1:3-6) in 150mm thick slab, 250mm thick benching, reinforced concrete cover reinforced with D12 at 100mm cetres bothways, 2No. Rtif fall-down handles including all necessary excavations, formwork and reinforcement		1				
exceeding 1.50m deep, comprising of plain concrete (13.6) in 150mm thick slab, 250mm thick benching, reinforced concrete class 20 in 100mm thick cover slab, 200mm thick benching, reinforced concrete class 20 in 100mm thick cover slab, 200mm thick machine cutstones walling, waterproof screeds to sides and bottoms, with recessed top to receive 150mm thick reinforced precast concrete cover reinforced with D12 at 100mm cetres bothways, 2No.  R20 fall-down handles including all necessary excavations, formwork and reinforcement Gabbion Box M Provide 10x10x20m gabion baskets manufactured from heavy-duty galvanized (zinc coated) steel wire of double twist hexagon weave, having a nominal mesh opening of 60mm x 80mm, mesh wire size min 2.5mm dia and selvedge wire min 3.2mm N Provide rock fill to gabions. Shall be of minimum rock size of 100 mm and the maximum rock size of 250 mm, and be dense, hard, clean and durable stone as quarried or naturally occurring rounded stone to 85 5628-32001. as specified and approved by the Eng 900mm Diameter - Twin - Culverts and Inspection Chambers O Allow Prime cost sum of Ksh 3,500,000 to provide, lay and join Twin 900mm diameter precast concrete pipes (culverts) on 50mm thick concrete bedding to correct fall; including excavations of drainage trench in normal soil: commencing from ground level and not exceeding 150mm aggregate to 85 882. Including all the necessary formwork. backfilling and compacting and surrounding with well compacted to 95% MDD with an approved murram in layers of 150mm thick. Also to construct manhole overall size 3000x1000x1000mm to depth not exceeding 150m deep, comprising of plain concrete (13.6) in 150mm thick slab, 250mm thick benching, reinforced concrete class 20 in 100mm thick cover slab, 200mm thick machine cutstones walling, waterproof screeds to sides and bottoms, with recessed top to receive 150mm thick reinforced pre-cast concrete cover reinforced with D12 at 100mm cetres bothways, 2No. R16 fall-down handles including all necessary exavations, formwork	L	1	NO	7		
slab, 250mm thick benching, reinforced concrete class 20 in 100mm thick cover slab, 200mm thick machine cutstones walling, waterproof screeds to sides and bottoms, with recessed top to receive 150mm thick reinforced precast concrete cover reinforced with D12 at 100mm cetres bothways, 2No.  R20 fall-down handles including all necessary excavations, formwork and reinforcement  Gabbion Box  M Provide 1.0x1.0x2.0m gabion baskets manufactured from heavy-duty galvanized (zinc coated) steel wire of double twist hexagon weave, having a nominal mesh opening of 60mm x 80mm, mesh wire size min 2.5mm dia and selvedge wire min 3.2mm  N Provide rock fill to gabions. Shall be of minimum rock size of 100 mm and the maximum rock size of 250 mm. and be dense, hard, clean and durable stone as quarried or naturally occurring rounded stone to BS 5628-3:2001. as specified and approved by the Eng 90mm Diameter – Twin-Culverts and Inspection Chambers  O Allow Prime cost sum of Ksh. 3,500,000 to provide, lay and join Twin 900mm diameter precast concrete pipes (culverts) on 50mm thick concrete bedding to correct fall; including excavations of drainage trench in normal soil: commencing from ground level and not exceeding 1500mm deep, Provide, mix and place 150mm thick concrete grade C20 (Mix Ratio 12:4) as concrete haunch and surround around pipes. Cement to BS 12,20mm aggregate to BS 882. Including all the necessary formwork. backfilling and compacting and surrounding with well compacted to 95% MDD with an approved murram in layers of 150mm thick. Also to construct manhole overall size 3000x1000x1000mm to depth not exceeding 150m deep, comprising of plain concrete (1:3:6) in 150mm thick cover slab, 200mm thick machine cutstones walling, waterproof screeds to sides and bottoms, with recessed top to receive 150mm thick reinforced pre-cast concrete cover reinforced with D12 at 100mm cetres bothways, 2No. R16 fall-down handles including all necessary excavations, formwork and reinforcement	_	l · · · · · · · · · · · · · · · · · · ·				
cover slab, 200mm thick machine cutstones walling, waterproof screeds to sides and bottoms, with recessed top to receive 150mm thick reinforced precast concrete cover reinforced with D12 at 100mm eteres bothways, 2No.  R20 fall-down handles including all necessary excavations, formwork and reinforcement Gabbion Box  M Provide 1.0x1.0x2.0m gabion baskets manufactured from heavy-duty galvanized (zinc coated) steel wire of double twist hexagon weave, having a nominal mesh opening of 60mm x 80mm, mesh wire size min 2.5mm dia and selvedge wire min 3.2mm  N Provide rock fill to gabions. Shall be of minimum rock size of 100 mm and the maximum rock size of 250 mm. and be dense, hard, clean and durable stone as quarried or naturally occurring rounded stone to B5 5628-3:2001. as specified and approved by the Eng 900mm Diameter - Twin-Culverts and Inspection Chambers  O Allow Prime cost sum of Ksh. 3,500, 000 to provide, lay and join Twin 900mm diameter precast concrete pipes (culverts) on 50mm thick concrete bedding to correct fall; including excavations of drainage trench in normal soil: commencing from ground level and not exceeding 1500mm deep, Provide, mix and place 150mm thick concrete grade C20 (Mix Ratio 12:4) as concrete haunch and surround around pipes. Cement to BS 12,20mm aggregate to BS 882. Including all the necessary formwork. backfilling and compacting and surrounding with well compacted to 95% MDD with an approved murram in layers of 150mm thick. Also to construct manhole overall size 3000x1000x1000mm to depth not exceeding 150md deep, comprising of plain concrete (1:3.6) in 150mm thick slab, 250mm thick benching, reinforced concrete class 20 in 100mm thick cover slab, 200mm thick machine cutstones walling, waterproofs creeds to sides and bottoms, with recessed top to receive 150mm thick reinforced pre-cast concrete cover reinforced with D12 at 100mm cetres bothways, 2No. R16 fall-down handles including all necessary excavations, formwork and reinforcement						
cast concrete cover reinforced with D12 at 100mm cetres bothways, 2No. R20 fall-down handles including all necessary excavations, formwork and reinforcement Gabbion Box  M Provide 10x1,0x2.0m gabion baskets manufactured from heavy-duty galvanized (zinc coated) steel wire of double twist hexagon weave, having a nominal mesh opening of 60mm x 80mm, mesh wire size min 2.5mm dia and selvedge wire min 3.2mm  N Provide rock fill to gabions. Shall be of minimum rock size of 100 mm and the maximum rock size of 250 mm, and be dense, hard, clean and durable stone as quarried or naturally occurring rounded stone to 85 5628-3:2001. as specified and approved by the Eng 900mm Diameter - Twin-Culverts and Inspection Chambers  O Allow Prime cost sum of Ksh. 3,500, 000 to provide, lay and join Twin 900mm diameter precast concrete pipes (culverts) on 50mm thick concrete bedding to correct fall; including excavations of drainage trench in normal soil: commencing from ground level and not exceeding 1500mm deep, Provide, mix and place 150mm thick concrete grade C20 (Mix Ratio 1:24) as concrete haunch and surround around pipes. Cement to B5 12,20mm aggregate to B5 882. Including all the necessary formwork. backfilling and compacting and surrounding with well compacted to 95% MDD with an approved murram in layers of 150mm thick. Also to construct manhole overall size 3000x1000x1000mm to depth not exceeding 1.50m deep, comprising of plain concrete (1:3:6) in 150mm thick slab, 250mm thick benching, reinforced concrete class 20 in 100mm thick cover slab, 200mm thick mick machine cutstones walling, waterproof screeds to sides and bottoms, with recessed top to receive 150mm thick reinforced pre-cast concrete cover reinforced with D12 at 100mm cetres bothways, 2No. R16 fall-down handles including all necessary excavations, formwork and reinforcement		cover slab, 200mm thick machine cutstones walling, waterproof screeds to				
R20 fall-down handles including all necessary excavations, formwork and reinforcement Gabbion Box  M Provide 1.0x1.0x2.0m gabion baskets manufactured from heavy-duty galvanized (zinc coated) steel wire of double twist hexagon weave, having a nominal mesh opening of 60mm x 80mm, mesh wire size min 2.5mm dia and selvedge wire min 3.2mm  N Provide rock fill to gabions. Shall be of minimum rock size of 100 mm and the maximum rock size of 250 mm. and be dense, hard, clean and durable stone as quarried or naturally occurring rounded stone to BS 5628-3.2001. as specified and approved by the Eng 900mm Diameter - Twin-Culverts and Inspection Chambers  O Allow Prime cost sum of Ksh. 3,500,000 to provide, lay and join Twin 900mm diameter precast concrete pipes (culverts) on 50mm thick concrete bedding to correct fall; including excavations of drainage trench in normal soil: commencing from ground level and not exceeding 1500mm deep, Provide, mix and place 150mm thick concrete grade C20 (Mix Ratio 1:24) as concrete haunch and surround around pipes. Cement to BS 12,20mm aggregate to BS 882. Including all the necessary formwork. backfilling and compacting and surrounding with well compacted to 95% MDD with an approved murram in layers of 150mm thick. Also to construct manhole overall size 3000x1000x1000mm to depth not exceeding 1.50m deep, comprising of plain concrete [1:3:6) in 150mm thick slab, 250mm thick benching, reinforced concrete class 20 in 100mm thick cover slab, 200mm thick machine cutstones walling, waterproof screeds to sides and bottoms, with recessed top to receive 150mm thick reinforced pre-cast concrete cover reinforced with D12 at 100mm cetres bothways, 2No. R16 fall-down handles including all necessary excavations, formwork and reinforcement		sides and bottoms, with recessed top to receive 150mm thick reinforced pre-				
reinforcement Gabbion Box  M Provide 1.0x1.0x2.0m gabion baskets manufactured from heavy-duty galvanized (zinc coated) steel wire of double twist hexagon weave, having a nominal mesh opening of 60mm x 80mm, mesh wire size min 2.5mm dia and selvedge wire min 3.2mm  N Provide rock fill to gabions. Shall be of minimum rock size of 100 mm and the maximum rock size of 250 mm. and be dense, hard, clean and durable stone as quarried or naturally occurring rounded stone to B5 5628-3.2001. as specified and approved by the Eng 900mm Diameter - Twin-Culverts and Inspection Chambers  O Allow Prime cost sum of Ksh. 3,500,000 to provide, lay and join Twin 900mm diameter precast concrete pipes (culverts) on 50mm thick concrete bedding to correct fall; including excavations of drainage trench in normal soil: commencing from ground level and not exceeding 1500mm deep, Provide, mix and place 150mm thick concrete grade C20 (Mix Ratio 1;2:4) as concrete haunch and surround around pipes. Cement to B5 12,20mm aggregate to B5 882. Including all the necessary formwork. backfilling and compacting and surrounding with well compacted to 95% MDD with an approved murram in layers of 150mm thick. Also to construct manhole overall size 3000x1000x1000x1000mm to depth not exceeding 1,50m deep, comprising of plain concrete (1:3.6) in 150mm thick solab, 250mm thick benching, reinforced concrete class 20 in 100mm thick cover slab, 200mm thick machine cutstones walling, waterproof screeds to sides and bottoms, with recessed top to receive 150mm thick reinforced pre-cast concrete cover reinforced with D12 at 100mm cetres bothways, 2No. R16 fall-down handles including all necessary excavations, formwork and reinforcement		cast concrete cover reinforced with D12 at 100mm cetres bothways, 2No.				
Gabbion Box  M Provide 1.0x1.0x2.0m gabion baskets manufactured from heavy-duty galvanized (zinc coated) steel wire of double twist hexagon weave, having a nominal mesh opening of 60mm x 80mm, mesh wire size min 2.5mm dia and selvedge wire min 3.2mm  N Provide rock fill to gabions. Shall be of minimum rock size of 100 mm and the maximum rock size of 250 mm. and be dense, hard, clean and durable stone as quarried or naturally occurring rounded stone to 85 5628-3:2001. as specified and approved by the Eng 900mm Diameter - Twin-Culverts and Inspection Chambers  O Allow Prime cost sum of K8h. 3500, 000 to provide, lay and join Twin 900mm diameter precast concrete pipes (culverts) on 50mm thick concrete bedding to correct fall; including excavations of drainage trench in normal soil: commencing from ground level and not exceeding 1500mm deep, Provide, mix and place 150mm thick concrete grade C20 (Mix Ratio 12:24) as concrete haunch and surround around pipes. Cement to BS 12,20mm aggregate to BS 882. Including all the necessary formwork. backfilling and compacting and surrounding with well compacted to 95% MDD with an approved murram in layers of 150mm thick. Also to construct manhole overall size 3000x1000x1000mm to depth not exceeding 1.50m deep, comprising of plain concrete (1:36) in 150mm thick slab, 250mm thick benching, reinforced concrete class 20 in 100mm thick cover slab, 200mm thick machine cutstones walling, waterproof screeds to sides and bottoms, with recessed top to receive 150mm thick reinforced pre-cast concrete cover reinforced with D12 at 100mm cetres bothways, 2No. R16 fall-down handles including all necessary excavations, formwork and reinforcement		R20 fall-down handles including all necessary excavations, formwork and				
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Item No.	Description	Unit	Qty	
	Drainage -Externally			
Α	Rehabilitate existing external drainage by wideding/expand the base and cart	ITEM	1	
	away approx.150m long. Including cutting the drainage shoulders of heaped			
	materials to make up/to receive stone pitching (ms) surface			
В	Provide all materials, prepare and construct average 150-200mm thick	SM	300	
	grouted stone pitching laid to slanting surfaces of storm water drainage			
	embakments, including outlets weep holes on slopes to drains.			
	Rate to include 1:3 cement mortar.			
	GATE			
C	Remove and secure the exsisting substation gate to prepare for raising the	ITEM	1	
	ground.			
D	Remove the existing 80mm thick paving blocks and secure for re-use.	SM	60	
E	Excavate 250mm thick to form base for concrete ramp	CM	15	
F	Supply and hand-pack approved hardcore average 300mm thick and	CM	15	
	copacted in 150mm layers			
G	50mm thick approved murram blinding	SM	60	
Н	Vibrated reinforced concrete class 20/20 (1:2:4) for gate ramp.	CM	10	
1	Fair face formwork to sides of gate ramps	SM	5	
J	Supply fabric mesh BRC gauge A142 2.22 kg/m	SM	60	
K	Supply and fix 75×50×3mm RHS to extend the gate frame to receive the	ITEM	1	
	reserved gate.			
L	Re-fix the gate	ITEM	1	
М	Prepare and apply paint on gate surface to client satisfactory	ITEM	1	
	4			
	TOTAL TO SUMMARY PAGE			

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TOTAL PAGE 1	BOQ
TOTAL PAGE 2	
TOTAL PAGE 3	
TOTAL PAGE 4	
TOTAL PAGE 5	
SUB-TOTALS	
ADD 0.03% LEVY	
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TOTAL TO FORM OF TENDER & QS CERTIFIED SUMMARY P	PAGE
AMOUNT IN WORDS	
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