



ANNEXURE K - BILL OF QUANTITIES

Mashifane Park - Installation of Civil Engineering Services: Bulk Services

SECTION : GENERAL

PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
SANS 1200 A	SECTION : PRELIMINARY AND GENERAL				
8.3	FIXED-CHARGE ITEMS				
8.3.1	Contractual Requirements	Sum	1.0		
8.3.2	Establish Facilities on the Site :				
	a) Facilities for Engineer (SANS 1200 AB)				
	Offices: 1 furnished rooms with 2x mobile phone, airtime and data	Sum	1.0		
	2x laptops	Sum	1.0		
	Covered parking : 3 lean-to as per PSAB ...	Sum	1.0		
	b) Facilities for Contractor				
	Offices and storage sheds	Sum	1.0		
	Workshops	Sum	1.0		
	Living accommodation	Sum	1.0		
	Ablution and latrine facilities	Sum	1.0		
	Tools and equipment	Sum	1.0		
	Water supplies, electric power and communications	Sum	1.0		
	Dealing with water (Subclause 5.5)	Sum	1.0		
	Access (Subclause 5.8)	Sum	1.0		
	10 t vibrating roller	Sum	1.0		
8.3.3	Other fixed-charge obligations	Sum	1.0		
8.3.4	Remove Engineer's and Contractor's Site establishment on completion	Sum	1.0		
8.4	TIME-RELATED ITEMS				
8.4.1	Contractual Requirements	Sum	1.0		
8.4.2	Operate and maintain facilities on the Site:				
8.4.2.1	a) Facilities for Engineer for duration of construction (SANS 1200 AB)				
	Offices: 3 rooms, etc., as for item .1.2	Sum	1.0		
	Survey assistants and material	Sum	1.0		
Total Carried Forward					

SECTION : GENERAL

PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Total brought forward					
8.4.2.2	b) Facilities for Contractor for duration of construction, except where otherwise stated				
	Offices and storage sheds	Sum	1.0		
	Workshops	Sum	1.0		
	Living accommodation	Sum	1.0		
	Ablution and latrine facilities	Sum	1.0		
	Tools and equipment	Sum	1.0		
	Water supplies, electric power and communications	Sum	1.0		
	Dealing with water (Subclause 5.5)	Sum	1.0		
	Access (Subclause 5.8)	Sum	1.0		
8.4.3	Supervision	Sum	1.0		
8.4.5	Other time-related obligations	Sum	1.0		
8.8.5	Land Survey Act				
	a) Search for and record tri- gonometrical survey beacons, bench marks and plot all boundary pegs, and expose on completion of Works	Sum	1.0		
Total Carried Forward					

SECTION : GENERAL

PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Total brought forward					
8.7	b) Protect beacons, etc., located under item .3.6 and reposition or re-establish, as ordered, the same by a Registered Land Surveyor on completion of the Works	Sum	1.0		
C1.2.8.1	Daywork				
	Personnel:				
	(a) Unskilled labourer	h	50.00		Rate Only
	(b) Semi-skilled labourer	h	50.00		Rate Only
	(c) Skilled labourer	h	50.00		Rate Only
	(d) Gang leader	h	50.00		Rate Only
	(e) Foreman	h	50.00		Rate Only
	(f) Skilled Artisan	h	50.00		Rate Only
C1.2.8.2	Construction equipment (specify size and / or model number):				
	(a) Motor grader	h	50.00		Rate Only
	(b) Vibratory roller	h	50.00		Rate Only
	(c) Pneumatic roller	h	50.00		Rate Only
	(d) Front end loader	h	50.00		Rate Only
	(e) Tractor loader backhoe	h	50.00		Rate Only
	(f) Excavator	h	50.00		Rate Only
	(g) Compressor	h	50.00		Rate Only
	Materials	Sum	1.0		
	Percentage adjustment to item .3.12 for materials	%			
	Plant	Sum	1.0		
	Percentage adjustment to item .3.14 for plant	%			
Total Carried Forward					

SECTION : GENERAL

PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Total brought forward					
8.8	TEMPORARY WORKS				
8.8.1	Main access road to works: construct	Sum	1.0		0.00
8.8.4	Existing services				
a)	Excavate by hand in soft material to expose service	m³	0.0	50.00	
b)	Temporary protection of services	Sum	1.0	100 000.00	
c)	Social Facilitation(To be appointed by the Employer)	Sum	1	300 000.00	300 000.00
d)	b) Overheads, charges and profit on item c).	%	300 000.0		
e)	Accredited Training (To be appointed by the Employer)	Sum	1	450 000.00	450 000.00
f)	b) Overheads, charges and profit on item e)	%	450 000.0		
g)	OHS Consultant (To be appointed by the Employer)	Sum	1	450 000.00	450 000.00
h)	b) Overheads, charges and profit on item g)	%	450 000.0		
i)	Payment to community Liason Officer	Sum	8	6 500.00	52 000.00
j)	b) Overheads, charges and profit on item i)	%	52 000.0		
k)	EIA Consultant (To be appointed by the Employer)	Sum	1	350 000.00	350 000.00
l)	c) Overheads, charges and profit on item b)	%			
Total Carried Forward To Summary					

Mashifane Park - Installation of Civil Engineering Services: Bulk Services

Schedule 2

SECTION : SEWERS

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
.1	SANS	SECTION : SEWERS				
		Pipe Trenches				
	8.2.1	Clearing with machines and some hand labour where necessary	ha	0.5		
.2.1	8.3.2	Excavation (incl. shoring of trenches as required by the Engineer)				
		a) Over 0,0m and up to 1,5m	m³	2000		Rate Only
		b) Over 1,5m and up to 2,5m	m³	1350		
		c) Over 2,5m and up to 3.5	m³	2450		
		d) Over 3,5m and up to 4.5	m³	11457		
		e) Over 4.5	m³	17450		
.2.2	8.3.2 (b)	Extra over Item 3.1 for :				
		1) Intermediate excavation.	m³	4906.05		
		2) Hard rock excavation.	m³	5200		
.2.3		BEDDING (PIPES)				
2.3	8.3.3	Provision of bedding from trench excavation				
		a) Selected fill material for bedding	m³	315		
		b) Selected fill material for blanket	m³	2350		
		c) General backfill material	m³	32707		
		c) Extra over item 4.1 for sieving where ordered by Engineer	m³	515		
		Imported from:				
2.4	8.3.4	Commercial sources (inclusive of haulage)				
		a) Selected fill material for bedding	m³	2535		
		b) Selected fill material for blanket	m³	3000		
		c) General backfill material	m³	5500		
		d) 6mm - 19mm Crushed stones bedding	m³	2500		
		d) Dump Rock	m³	100		
2.5		Excavate in all materials, select materials, backfill, and dispose of surplus and unsuitable material				
Total Carried Forward						

Schedule 2

SECTION : SEWERS

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Total Brought Forward						
3	1200 LD	PIPEWORK				
	8.2.1	Supply, lay, joint, backfill on class B bedding and test the following pipes as detailed in the project specification:				
		Class 40 Upvc Pipe				
.3.1		DN 160	m	300.0		Rate Only
.3.2		DN 200	m	855.0		
.3.3		DN 400	m	810.0		
.3.4		DN 500	m	35.0		
.4	1200 LB	BEDDING MATERIALS Supply and deliver				
.4.1		Selected granular material	m ³	0.0		Rate Only
.4.2		Selected fill material	m ³	0.0		Rate Only
.5	1200 LD 8.2.3	Manholes 1,250mm diameter complete with cover and frame				
.5.1		(a)> 1.5m but ≤ 2.0m deep	No.	20.0		Rate Only
.5.2		(b)> 2.0m but ≤ 2.5m deep	No.	15.0		Rate Only
.5.3		(c)> 2.5m but ≤ 3.0m deep	No.	30.0		Rate Only
		Manholes 1,500mm diameter complete with cover and frame				
.5.4		(a)> 1.5m but ≤ 2.0m deep	No.	4		Rate Only
		(b)> 2.0m but ≤ 2.5m deep	No.	2		
		(c)> 2.5m but ≤ 3.0m deep	No.	2		
		(d)> over 3.0m deep	No.	24		
.6	1200LD	Sewer Connections				
.6.1		Expose exit. Manhole connect and bacfill				
		a) 200mm dia pipe	No.	1		
		b) 400mm dia. Pipe	No	4		
Total Carried Forward						

Schedule 2

SECTION : SEWERS

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Total Brought Forward						
	8.2.6	Erf connections				
		Supply, lay, joint, and test new property connection				
		1) 110mm diameter - short connections (uPVC Class 16 spigot and socket pipes)	No.	10		
		2) 110mm diameter - long connections and/or double connections (uPVC Class 16 spigot and socket pipes)	No.	20		Rate Only
		3) 160mm diameter - large erf connections (uPVC Class 16 spigot and socket pipes)	No.	12		Rate Only
.6		SUNDRIES				
.6.2	8.2.8	Anchor blocks, 20 mpa concrete	m ³	0.0		Rate Only
.6.3	8.2.9	Marker posts, complete, installed	No.	0.0		Rate Only
.6.4	8.2.10	Permanent plug stoppers	No.	0.0		Rate Only
.7		CONNECTIONS				
.7.1	8.2.11	Connect 200mm dia.pipe to Existing Manhole	m ³	2.0		
.7.2	8.2.12	Connect 400mm dia.pipe to Existing Manhole	No.	5.0		
.7.3	8.2.13	Connect 500mm dia.pipe to Sump/Packadge	No.	1.0		
Total Carried Forward To Summary						

Mashifane Park - Installation of Civil Engineering Services: Bulk Services

Schedule 3

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	Package Plant
						AMOUNT R
.3	SANS	SECTION : WASTE WATER TREATMENT PLANT				
		SITE CLEARANCE				
		10.1 Clearing with machines and some hand labour where necessary	ha	1		0.00
		10.2 Grubbing with machines and some hand labour where necessary	ha	1		0.00
		Terrace Platform & Bulk Earthworks				
.3.1						
.3.2		10.3 Construction of terrace/Platform	ha	prov. Sum	1 500 000.00	1 500 000.00
		Waste Water Treatment Plant				
.3.4		10.4 Supply/install 2.4Ml Waste Water Treatment Package Plant (Appointed and managed by the Employer)	1	Prov. Sum	34 930 000.00	34 930 000.00
		10.5 b) Overheads, charges and profit on item m)	%	34 930 000.00		
Total Carried Forward To Summary						

Mashifane Park - Installation of Civil Engineering Services: Bulk Services

Schedule 3

Concrete Reservoir

Item No	Payment Clause	Description	Unit	Qty	Rate	Amount
B.1	SABS 1200C	SIT CLEARANCE Clear and grub, including trees of girth up to 1m	m2	1 600		
	SABS 1200DB	TRENCH EXCAVATION Excavate in materials for trenches, backfill and compact including disposal of over and up to:				
B.2	8.3.2(a)	a) 0.0 m to 1.0 m	m3	1 280		
B.3		Excavate in all material for the sump inlet, outlet, scour and overflow, including Extra over items B.2 and B3	m3	480		
B.4		a) Intermediate excavation	m3	512		
B.5		b) Hard Rock Excavation	m3	640		
	SABS 1200DM	SURFACE PREPARATION Cut in all materials to form platform	m3	2450		
B.7	5.2.3.3.a	Extra-over item B.6 for excavation in: Hard rock Excavation	m3	255		
B.8		Over excavate reservoir floor by 1m and backfill with excavated material in layers of not Preparation by ripping and compection to 93% MOD AASHTO density (150mm layers)	m3	335		
B.9		Reservoir foundation	m2	635		
	SABS 1200ME	FOUNDATION LAYER Construct foundation from in-situ material, compacted to 95% MOD AASHTO density	m3	255		
B.10	8.3.2.6					
	SABS 1200L	MEDIUM -PRESSURE PIPELINE Supply, install, test and commision 110mm dia Upvc pipe class 9 complete with fittings	m	450		
B.11	PSL					
B.12		Supply, install, test and commision 160mm dia				
B.13		Supply and install the subsoil-drainage pipe, consisiting of 160mm perforated or under drain pipe, commission and test the pipework and fittings	m	130		
		Upvc pipe class 9 complete with fittings	m	250		
	8.3.2	EXCAVATION Excavate in all materials for trenches backfill, compact, and dispose of surplus/unsuitable material				
B.14	8.3.2.1	a) Exceeding 0,0 m but not exceeding 1,0 m	m	90		
B.15		b) Exceeding 1,0 m but not exceeding 1,5 m	m	140		
		BEDDING AND BACKFILLING Imported backfill material from designated borrow-pit compacted to 90% Mod AASHTO density and finishing off of area, for:				
B.16	8.3.4		m3	148		
B.17		Bedding using material from excavation	m3	170		
		Backfilling using material from excavation and compact	m3			
TOTAL CARRIED						

SECTION C - RESERVOIR CONSTRUCTION (Continued)

Item No	Payment Clause	Description	Unit	Qty	Rate	Amount
TOTAL BROUGHT FORWARD						
	SABS 1200G	CONCRETE				
C.1	8.4.2	Blinding layer, class 15 Mpa/19mm concrete, 75mm thick for all level where reinforced	m2	54		
C.2	8.4.3	Concrete filling class 15 Mpa / 19mm concrete for anchor blocks, filling where ordered by	m3	6		
C.3	PSG.10	No-fines concrete, as specified for the subsurface drain	m3	24		
	8.4.3	Strength concrete, class 30 Mpa/ 19mm for the following:				
C.4		Floorslabs	m3	215		
C.5		Columns and Columnheads	m3	112		
C.6		Reservoir Wall	m3	335		
C.7		Roofslab	m3	125		
C.8		Walls to Valve Boxes	m3	15		
	8.3.1	Steel reinforcement consisting of deformed high-tension steelbars, including all cutting,				
C.9		In reservoir floor	t	9		
C.10		In reservoir columns and Columnheads	t	2.2		
C.11		In reservoir wall	t	28		
C.12		In reservoir roof	t	15		
C.13		Walls to Valve Boxes	m3	0.5		
C.14		Welded steel mesh reinforcement Ref 395 in valve chambers	m2	22		
		FORMWORK AND SCAFFOLDING				
		NOTE: No-fines concrete as well as floor beams underneath floor joints will be cast				
	8.4.4	Finishing of concrete surfaces with steel float:				
C.15		Floorslab and roof slab	m2	730		
	8.11	FORMWORK				
	8.2.1	Smooth				
C.16		Horizontal plane	m2	500		
C.17		Vertical plane	m2	1750		
C.18		Top of reservoir wall	m2	106		
CARRIED FORWARD						

SECTION C - CONCRETE WORK AND CONSTRUCTION

TOTAL BROUGHT FORWARD						
Item No	Payment Clause	Description	Unit	Qty	Rate	Amount
C.16	PSG.7	Supply and install 150 mm centre-bulb rubber waterstop in the wall / floor footing.	m	330		
C.17		Supply and install pipe brackets for inlet and overflow-pipe	No	6		
C.18		Supply and install roof ventilators on reservoir roof	No	6		
C.19		Supply and install a 5mm Vastrap plate cover and frame for the opening in the reservoir roof	No	30		
C.20	PC.1	Allow for the complete disinfection of the reservoir and all pipework	sum	1		
C.21	PSG.11	Watertightness testing of reservoir and all pipework	sum	1		
C.22		Casting, curing and testing of concrete cubes	No	60		
C.23	PSH 8.3	Supply and install 4200 mm long stainless steel access ladder	No	1		
C.24	PSH 8.3	Allow for complete disinfection of all reservoirs and all pipework	Sum	1		
		Control Valve: Automatic Hydraulic control				
C.25.1	PSL 8.5	Supply and install 110mm dia Control Valve with float valve	No	1		
C.25.2	PSL 8.5	Supply and install 160mm dia Water Meter	No	1		
C.25.3	PSL 8.5	Supply and install 160mm dia Strainer	No	1		
C.25.4	PSL 8.5	Supply and install 160mm dia Non Return Valve	No	1		
C.25.5		Supply and install 150mm dia Control Valve with float valve	No	1		
C.26		Supply and install 200mm dia Control Valve with float valve	No	1		
C.27	PSL 8.5	Supply and install 200mm dia Water Meter	No	1		
C.28	PSL 8.5	Supply and install 200mm dia Strainer	No	1		
C.29		Supply and install 200mm dia Non Return Valve	No	1		
C.30	PSL	Supply and install 200mm dia Resilient Seal Flanged Gate Valve (with rising spindle and handwheel, clockwise closing)	No	2		
C.31	PSH 8.3	Supply and install 3500mm high water level indicator	No	1		
C.32	1200G	Supply and place 100mm thick of 19mm crushed stone on reservoir roof	m3	56		
CARRIED FORWARD						

SECTION C - CONCRETE WORK AND CONSTRUCTION

TOTAL BROUGHT FORWARD

Item No	Payment Clause	Description	Unit	Qty	Rate	Amount
		RESERVOIR AND ASSOCIATED WORK				
		OUTLET AT RESERVOIR				
C.33		250mm diameter steel pipe flanged, with a 460x315 bellmouth plain ended and a 90 degree bend	No	1		
C.34		250mm diameter Class 16RSV flanged	No	1		
C.35		315mm diameter extension piece, 1500mm long flanged and 315mm by 250 reducer	No	1		
C.36		250mm diameter steel pipe flanged, with a 360x250 bellmouth plain ended and a 90 degree bend	No	1		
C.37		250mm diameter Class 16RSV flanged	No	1		
C.38		315mm diameter extension piece, 1500mm long flanged and 315mm by 250 reducer	No	1		
		SCOUR AT RESERVOIR				
C.39		200mm steel pipe, flanged one end, with a plain ended 300 x 200 bellmouth and 90 degree bend	No	1		
C.40		250mm Class 16 RSV flanged	No	1		
TOTAL CARRIED TO SUMMARY						

Mashifane Park - Installation of Civil Engineering Services: Bulk Services

SUMMARY OF SCHEDULES

No.	SCHEDULE	DESCRIPTION	AMOUNT R
1	1200A	PRELIMINARY AND GENERAL	
2	1200 LB	OUTFALL SEWER	
3	1200 LD	PACKAGE PLANT	
4	1200 LF	CONCRETE RESERVOIR	
Total for Construction			
Add 10% Contingencies			
Sub-Total			
Add 15% Vat			
Total to form of Tender			