C2.2 BILL OF QUANTITIES

ITEM NO	PAYMENT	LIC	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	SANS 1200A PSA PSAB		**SECTION 1: PRELIMINARY AND GENERAL** SCHEDULED FIXED CHARGE AND VALUE RELATED ITEMS				
	PSA 8.3; PSA 8.3.3		**Fixed Charges**				
1. 1	8.3.1		Contractual Requirements	Sum	1		
	8.3.2.1		**Facilities required by Engineer**				
1. 2	PSAB 3.2		a) Furnished office	Sum	1		
1. 3	PSAB 5.4		b) Telephone and Facsimile	Sum	1		
1. 4	PSAB 3.1		c) Contract Nameboards	No	2		
1. 5	8.3.2.2		**Facilities required by Contractor**				
1. 6	8.3.3 PSA 8.3.3		General responsibilities and other fixed-charge obligations	Sum	1		
1. 7	8.3.4		Removal of Site establishment on completion	Sum	1		
	PSA 8.4 PSA 8.4.1		**Time-related charges**				
	8.4.2.1		**Facilities required by Engineer**				
1. 8	PSAB 3.2		Furnished office	Sum	1		
1. 9	PSAB 5.4		Telephone, electricity and Internet	Sum	1		
1. 10	PSAB 3.3; PSAB 5.5		Survey assistant and equipment	Sum	1		
			Facilities required by Contractor				
1. 11	8.4.1		Contractual requirements	Sum	1		
1. 12			Offices and storage	Sum	1		
1. 13			Surveyor	Sum	1		
1. 14			Security	Sum	1		
1. 15			Safety equipment	Sum	1		
1. 16			Supervision and salaries	Sum	1		
1. 17	PSA 8.5.1		Compliance with OHS Act	Sum	1		
1. 18	PSA 8.5.2		Compliance with Environmental Management Plan (EMPr)	Sum	1		
Total Carried Forward							

ITEM NO	PAYMENT	LIC	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
Brought Forward							
	8.5		**Provisional Sums**				
1. 19			(a) Testing of materials, as directed by the Engineer	Prov Sum	1	30 000.00	30 000.00
1. 20			(b) Contractor's % mark-up on item 1.19	%	30000		
1. 21			(c) Community Liaison Officer & PSC	Prov Sum	1	200 000.00	200 000.00
1. 22			(d) Contractor's % mark-up on item 1.21	%	200000		
1. 23			(e) Provision for accredited training	Prov Sum	1	100 000.00	100 000.00
1. 24			(f) Contractor's % mark-up on item 1.23	%	100000		
1. 25			(g) Surveyor nominated by Engineer	Prov Sum	1	100 000.00	100 000.00
1. 26			(h) Contractor's mark-up on item 1.25	%	100000		
1. 27			(i) Accommodation & Transport for Engineer's Staff	Prov Sum	1	180 000.00	180 000.00
1. 28			(j) Contractor's mark-up on item 1.27	%	180000		
1. 29			(k) Safety Audits by External Auditor	Prov Sum	1	360 000.00	360 000.00
1. 30			(l) Contractor's mark-up on item 1.29	%	360000		
1. 31			(m) Environmental Audits by External Auditor	Prov Sum	1	360 000.00	360 000.00
1. 32			(n) Contractor's mark-up on item 1.31	%	360000		
1. 33			(o) Supply of Water for Pressure Testing	Prov Sum	1	120 000.00	120 000.00
1. 34			(p) Contractor's mark-up on item 1.33	%	120000		
1. 35			(q) Dealing with surface boulders on sloping terrain	Prov Sum	1	50 000.00	50 000.00
1. 36			(r) Contractor's mark-up on item 1.35	%	50000		
1. 37			(s) Eskom connections and re-energising existing supplies	Prov Sum	1	250 000.00	250 000.00
1. 38			(r) Contractor's mark-up on item 1.37	%	250000		
1. 39	8.8.2		Dealing with traffic	Sum	1		
1. 40	8.7		i) Dayworks	Prov Sum	1	100 000.00	100 000.00
Total Carried Forward							

ITEM NO	PAYMENT	LIC	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
Brought Forward							
			Commissioning and Handover				
1. 41			Providing all marked up "as built" drawings and associated information to the Employers Rep on conclusion of the Contract	Sum	1		
1. 42			Providing 1 draft copy of the Installation, Operation and Maintenance Manual prior to commissioning of the Works	Sum	1		
1. 43			Providing 3 final copies of the Installation, Operation and Maintenance Manual prior to the Issue of the Taking-Over Certificate	Sum	1		
1. 44			Performance Acceptance Testing	Sum	1		
1. 45			Providing a commissioning test report	Sum	1		
1. 46			1 month Trial Operation Period and training of Operations staff	Sum	1		
1. 47			Quarterly service visits during defects notification period to inspect, adjust (as necessary) and service all the mechanical and electrical equipment supplied under this Contract (rate to include all travelling costs, all servicing consumables and liaison with Engineer and works operator and e-mailed report)	No.	4		
Total Carried Forward To Summary							

ITEM NO	PAYMENT	LIC	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
			SECTION 2: EARTHWORKS (PIPE TRENCHES)				
	SANS 1200C, PSC		**SITE CLEARANCE**				
2. 1	8.2.1 PSC 8.2.1	LI	Clear and grub along pipeline routes in preparation for trench excavations to a maximum width of 1m for single pipe trenches. Only where directed by the Engineer.	m	4253		
2. 2	8.2.1 PSC 8.2.1	LI	Clear and grub along pipeline routes in preparation for trench excavations to a maximum width of 1.6m for double and triple pipe trenches. Only where directed by the Engineer.	m	100		
2. 3			Remove trees over 1m and up to 2m girth.	No.	16		
2. 4	PSC 8.2.5	LI	Remove existing fences along pipeline and reinsate after construction	m	525		
2. 5	SANS 1200D 8.3.1.2		Remove topsoil to a nominal depth of 150mm, stockpile and maintain for 1.0m wide trenches	m²	4050		
2. 6	SANS 1200D 8.3.1.2		Remove topsoil to a nominal depth of 150mm, stockpile and maintain for maximum 1.6m wide trenches	m²	400		
	SANS 1200DB, PSD, PSDB		EXCAVATION				
	PSDB 8.3.2(d) 8.3.2		(a) Excavate by hand, in soft materials for single pipe trenches, backfill, compact to 90% Mod AASHTO, and remove excess material to spoil, for all pipe diameters				
2. 7		LI	exceeding 0.0m but not exceeding 1.5m	m³	766		
	PSDB 8.3.2(d) 8.3.2		(a) Excavate by hand, in soft materials for trenches where there are two or three pipes in one trench, backfill, compact to 90% Mod AASHTO, and remove excess material to spoil, for all pipe diameters				
2. 8		LI	exceeding 0.0m but not exceeding 1.5m	m³	126		
			Extra over items 2.6 and 2.7 for:				
2. 9		LI	(i) Firm excavation	m³	134		
2. 10	8.3.2(a)		Excavate by machine in all materials for all widths and for all depths for trenches, backfill, compact to 90% Mod AASHTO, and remove excess material to spoil	m³	4338		
	8.3.2		Extra over item 2.9 for:				
2. 11			(i) hard rock	m³	651		
2. 12	PSDB 8.3.4 (c)		(ii) construction of Temporary Works at river /stream crossings	m³	151		
Total Carried Forward							

ITEM NO	PAYMENT	LIC	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
Brought Forward							
			Extra over items 2.7 to 2.11 for:				
2. 13	8.3.2(c)		Excavate unsuitable material from trench bottom (Prov)	m³	476		
2. 14	PSD 8.3.2 (b) (3)		Transporting, placing and compacting, to 90% Mod AASHTO, unsuitable and surplus material at designated spoil sites (Rate to include 5km freehaul distance) (Prov)	m³	1900		
	8.3.3.4		**Overhaul**				
2. 15			Disposal of material to spoil sites in excess of freehaul distance of 5km (Prov)	m³.km	1600		
2. 16	PSDB 8.3.2(e) (i)		Backfill stabilised with 5% cement where directed by the Engineer (Prov)	m³	53		
			Excavation Ancillaries				
2. 17	8.3.5 (a)	LI	(a) Services that intersect a trench (Prov)	No	32		
2. 18	8.3.5 (b)	LI	(b) Services that adjoin a trench (Prov.)	m	389		
	8.3.3.1		Make up deficiency in backfill material (Prov)				
2. 19							
2. 20			(a) from other necessary excavations on site	m³	383		
2. 21	8.3.3.3		Compaction in road reserves. Trench backfill to be compacted to a minimum of 95% Mod AASHTO	m²	140		
2. 22		LI	Excavate by hand to detect and expose existing services	m³	150		
			Temporary Works: Control of Water Inflow:				
2. 23	PSDB 8.3.4 (b)		Excavate, maintain, backfill and reinstate well points adjacent to trenches to 1,0m below trench invert level, including providing, operating, maintaining and removal of pumping equipment where instructed by the Engineer in wetlands only	No	32		
	8.3.6		**FINISHINGS**				
2. 24	PSC 8.3		Topsoiling and reinstatement of vegetation for trenches up to a maximum of 1.0m wide	m	4050		
2. 25			Topsoiling and reinstatement of vegetation for trenches up to a maximum of 1.6m wide	m	400		
	8.3.6.1		Reinstate road surfaces complete with all courses (Road Crossings)				
2. 26			(a) Gravel road surface using G5 material from commercial or other source	m²	150		
2. 27			(b) Surfaced road including 30mm asphalt road surfacing and G2 gravel base from commercial source	m²	50		
2. 28	PSA 8.6		Installation of earth berms to steep slopes	m³	105		
Total Carried Forward To Summary							

ITEM NO	PAYMENT	LIC	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	SANS 1200L, PSL		**SECTION 3: MEDIUM PRESSURE PIPELINES**				
3. 1			**PIPELINE**				
	PSL 8.2.1		Supply, handle, lay, bed on bedding for flexible pipes, join, test and disinfect, as detailed on the drawings, uPVC potable water pipeline, complete with rubber seals and sockets according to SABS 966.				
			uPVC Class 16				
3. 2		LI	160mm dia.	m	25		
3. 3		LI	200mm dia.	m	50		
3. 4		LI	250mm dia.	m	25		
3. 5		LI	315mm dia.	m	35		
			Steel pipes to SANS 62 and SANS 719, Groove Ended to SANS 815-2: Below Ground				
	PSL 8.2.1		Supply, handle, lay, bed on bedding for flexible pipes, join, test and disinfect, galvanised steel and tosa wrapped potable water pipes, with grooved ends complete with associated couplings and wrapping joints with 'Denso' mastic system				
		LI	Cut grooved GMS pipe (4.2mm wall thickness), with Victaulic Style 77 coupling with flush seal gasket or similar approved:				
3. 6			200mm dia **Class 40**	m	2500		
		LI	Roll grooved GMS pipe (4.2mm wall thickness), with Victaulic Style 177 coupling with centre register gasket or similar approved:				
3. 7			200mm dia **Class 25**	m	1720		
			Sleeve Pipes				
	PSL 8.2.1		Supply, handle, lay, bed, join and test on bedding, as detailed on the drawings. The following sleeve pipes:				
3. 8			600 ND Concrete interlocking joint pipes class 100D	m	72		
			SPECIALS AND FITTINGS FOR PIPELINE				
	8.2.2 PSL 8.1		Supply, lay, bed, join, incl. cut pipes to length where required, test and disinfect:				
			uPVC Bends, Class 16				
3. 9			315mm dia. - 90°	No	2		
3. 10			315mmdia. - 45°	No	1		
3. 11			315mm dia. - 22½°	No	1		
3. 12			315mm dia. - 11¼°	No	1		
			uPVC Bends, Class 16				
3. 13			250 mmdia. - 45°	No	1		
3. 14			250mm dia. - 22½°	No	1		
3. 15			250 mm dia. - 11¼°	No	1		
Total Carried Forward							

ITEM NO	PAYMENT	LIC	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
Brought Forward							
			uPVC Bends, Class 16				
3. 16			200 mmdia. - 90°	No	5		
3. 17			200 mmdia. - 45°	No	1		
3. 18			250mm dia. - 22½°	No	2		
3. 19			250 mm dia. - 11¼°	No	2		
			uPVC Bends, Class 16				
3. 20			160 mmdia. - 45°	No	1		
3. 21			160mm dia. - 22½°	No	1		
3. 22			160 mm dia. - 11¼°	No	1		
	8.2.2 PSL 8.1		GMS Cut grooved bends, Klambon Type, complete with Victaulic Style 77 coupling with flush seal gasket or similar approved				
			Class 40				
3. 23			200mm dia. - 90°	No	4		
3. 24			200 mmdia. - 45°	No	7		
3. 25			200mm dia. - 22½°	No	15		
3. 26			200 mm dia. - 11¼°	No	21		
3. 27			200 mm dia. - 5° (PROV)	No	31		
	8.2.2 PSL 8.1		GMS Roll grooved bends, Klambon Type, complete with Victaulic Style 177 coupling or similar approved				
			Class 25				
3. 28			200mm dia. - 90°	No	6		
3. 29			200 mmdia. - 45°	No	4		
3. 30			200mm dia. - 22½°	No	2		
3. 31			200 mm dia. - 11¼°	No	16		
3. 32			200 mm dia. - 5° (PROV)	No	11		
	8.2.2 PSL 8.1		**Galvanised Steel Flange Adaptors**				
			Cut grooved, for Klambon Pipe Class 40 with Victaulic Style 77 coupling centre register gasket or similar approved. (Drilling Table 4000)				
3. 33			200mm dia	No	3		
			Roll grooved, for Klambon Pipe Class 25 with Victaulic Style 177 coupling centre register gasket or similar approved. (Drilling Table 2500)				
3. 34			200mm dia	No	4		
3. 35			300mm dia	No	4		
	8.2.2 PSL 8.1		DI Flange Adaptor for PVC-U (Drilling Table 1600)				
3. 36			160mm dia	No	2		
3. 37			200mm dia	No	2		
3. 38			250mm dia	No	1		
3. 39			315mm dia	No	2		
Total Carried Forward							

ITEM NO	PAYMENT	LIC	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
Brought Forward							
	8.2.2 8.2.3 PSL8.1		**SPECIALS AND FITTINGS FOR AIR VALVE CHAMBERS**				
			Flange Adaptors:				
			GMS Flange Adaptors for Klambon Pipe to suite				
3. 40			200mm dia. Class 40 with Victaulic Style 77	No	16		
3. 41			200mm dia. Class 25 (Drilling Table 2500) with	No	4		
			Flanged GMS Tees				
3. 42			200 x 200 Class 40 (Drilling Table 4000)	No	8		
3. 43			200 x 200 Class 25 (Drilling Table 2500)	No	2		
	8.2.2 8.2.3 PSL 8.1		**Air valve assembly complete**, including reducer, isolating valve and double Acting Air Valve, Vent-O-Mat, type RBX Anti Shock, or similar approved, as detailed on drawing 6055-2-SD1 (**excludes** flanged tee and flange adaptors and Manhole measured separately) for:				
3. 44			50mm dia Air valve, class 40, for 200mm dia tee	No	1		
3. 45			50mm dia Air valve, class 25, for 200mm dia tee	No	1		
3. 46			25mm dia Air valve, class 40, for 200mm dia tee	No	7		
3. 47			25mm dia Air valve, class 25, for 200mm dia tee	No	1		
			Extra Over Items 3.30 to 3.31 for:				
3. 48			Additional 100mm length	No	5		
			Extra Over Items 3.32 to 3.33 for:				
3. 49			Additional 100mm length	No	2		
	8.2.2 8.2.3 PSL 8.1		**SPECIALS AND FITTINGS FOR SCOUR VALVE CHAMBERS**				
			Flange Adaptors				
	8.2.2 PSL 8.1		**DI Flange Adaptor** for PVC-U (Drilling Table 1600)				
3. 50			200mm dia	No	2		
3. 51			315mm dia	No	2		
			Galvanised Flange Adaptors for Klambon Pipe to suit pipe coupling class for:				
3. 52			200mm dia. Class 40 with Victaulic Style 77 couplings with flush seal gasket or similar approved (Drilling table 4000)	No	4		
3. 53			200mm dia. Class 25 with Victaulic Style 177 coupling with centre register gasket or similar approved (Drilling Table 2500)	No	8		
Total Carried Forward							

ITEM NO	PAYMENT	LIC	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
Brought Forward							
			Scour Tees				
			Flanged GMS Scour Tees, Class 40 (Drilling Table				
3. 54			200 x 50mm dia.	No	2		
			Flanged GMS Scour Tees, Class 25 (Drilling Table				
3. 55			200 x 50mm dia.	No	2		
			Flanged GMS Scour Tees, Class 16 (Drilling Table				
3. 56			200 x 50mm dia.	No	2		
	8.2.2 8.,2.3 PSL8.1		**Scour valve assembly complete**, including Wedge Gate Scour Valves, as detailed on drawing 6055-9B1-SD2, excluding flanged tee and flange adaptors. Manhole measured separately for:				
3. 57			50 mm dia. Scour valve, Class 40	No	2		
3. 58			50 mm dia. Scour valve, Class 25	No	2		
3. 59			50 mm dia. Scour valve, Class 16	No	2		
	8.2.2 8.2.3 PSL 8.1		**SPECIALS AND FITTINGS FOR PRE-SEDIMENTATION TANK**				
			INLET PIPEWORK AND FITTINGS (All Class 16 with flange drillings to 1600/3)				
3. 60			200mm dia. D.I. Flange Adaptor for uPVC pipe	No	1		
3. 61			200 x 200mm dia GMS Flanged Equal Tee	No	1		
3. 62			200mm dia. GMS Flanged Straight, approx. 1785mm F/F to be confirmed by pipe fabricator	No.	2		
3. 63			200mm dia. GMS Flanged 90 degree bend	No	2		
3. 64			200mm dia. Flanged Resilient Seal Gate Vavle, Cap Top, Non-Rising Spindle	No	2		
3. 65			200mm dia GMS Puddle Pipe 650mm long, flanged one end, with puddle located 100mm from plain end	No	2		
	PSL 8.1		PRE-SEDIMENTATION TANK : OUTLET				
3. 66			315mm dia. D.I. Flange Adaptor for uPVC pipe	No	1		
			ANCILLARIES				
3. 67	8.2.11		Anchor/Thrust Blocks Class 25/19 concrete for:				
3. 68			Tees, bends and reducers as detailed on the	m³	56		
3. 69			Anchor Blocks for ground slopes steeper than 1:6	m³	23		
Total Carried Forward							

ITEM NO	PAYMENT	LIC	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
Brought Forward							
	8.2.13		**Valve Chambers and Manholes**				
			Construct **gate valve chamber** complete as detailed on the drawings, including all manhole rings, cover slab and concrete reinforced strip footing and concrete support. (Rate to include for all materials, plant and labour) for depths:				
3. 70			0,0m to 1,5m	No	1		
3. 71			1,5m to 2,0m	No	1		
3. 72			Extra over Items 3.70 & 3.71 for supply and installing of locking bar mechanism including temporary padlock, as detailed on the drawings for all scour valve chamber lids	No	2		
			Construct **scour valve chamber** complete as detailed on the drawings, including manhole rings, concrete reinforced base slabs and brickwork and cover slab. (Rate to include for all materials, plant and labour) for depths:				
3. 73			0,0m to 1,5m	No	3		
3. 74			1,5m to 2,0m	No	3		
3. 75			Extra over item 3.73 and 3.74 for supply and installing of locking bar mechanism including supply of temporary padlock, as detailed on the drawings for all scour valve chamber lids	No	6		
			Construct **air valve chamber** complete as detailed on the drawings, including manhole rings, concrete reinforced base slabs and brickwork and cover slab. (Rate to include for all materials, plant and labour) for depths:				
3. 76			0,0m to 1,5m	No	5		
3. 77			1,5m to 2,0m	No	5		
	PSA 8.6		Marking of chambers and reservoirs with stensils complete as detailed drawing 6055-9B1-SD6, per description for:				
3. 78			AV Chambers - 100mm high text	No	9		
3. 79			SV Chambers - 100mm high text	No	4		
3. 80			Reservoirs - 100mm high text	No	1		
3. 81			Reservoirs - 400mm high text	No	1		
3. 82	SANS 1200A 8.5		Pipeline markers as detailed on drawing 6055-9B1-SD6	No	50		
Total Carried Forward To Summary							

ITEM NO	PAYMENT	LIC	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	SANS 1200 LB PSLB		**SECTION 4: BEDDING (Pipes)**				
	8.2.1 PSLB8.1.3 PSLB8.1.6		Provision of bedding from trench excavation within 5km freehaul distance of excavation (rate to include for selection, staging, stockpiling and handling etc.)				
4. 1			a) Selected granular material to bedding cradle	m³	285		
4. 2			b) Selected fill material to fill blanket	m³	135		
	8.2.2.3 PSLB 8.1.3		Provision of bedding from commercial (Provisional)				
4. 3			a) Selected granular fill	m³	1130		
4. 4			b) Selected fill material	m³	540		
4. 5	PSLB 8.2.5		Overhaul	m³.km			
4. 6	PSA 8.6		Free draining stone blanket (19mm stone)	m³	350		
4. 7	PSA 8.6		Supply and install geofabric "Bidim" A4 (or similar approved) to free draining stone blanket	m²	2800		
	8.2.4		Encasing of pipes in Class 25/19 concrete river crossing or elswhere directed by the Engineer, as detailed on the drawings				
			Steel pipes				
4. 8			200mm dia.	m³	47		
	8.2.4		Encasing of steel pipes in Class 25/19 on rock as detailed on the drawings, **including Y16 dowel bars**				
4. 9			200mm dia.	m³	14		

Total Carried Forward To Summary

ITEM NO	PAYMENT	LIC	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	SANS 1200 DK		**SECTION 5: GABIONS AND PITCHING**				
			GABIONS				
5. 1			Excavate for restricted foundations and footings in all materials and use for backfill or dispose of surplus material	m³	21		
5. 2	8.2.1	LI	Surface preparation for bedding of reno mattresses, gabion baskets and rock pack, including trimming to a level surface and compacting insitu material to 90% Mod AASHTO	m²	112		
5. 3	8.2.2	LI	Supply, place and fill 2.0m x 1.0m x 1.0m gabion baskets of 60mm x 80mm mesh 2.0mm dia. galvanised wire	m³	177		
5. 4	8.2.2	LI	Supply, place and fill 6.0m x 2.0m x 0.23m reno mattress of 60mm x 80mm mesh 2.0mm dia. galvanised wire	m³	32		
5. 5	8.2.4	LI	Geotextile ("Bidim A4" or similar approved) placed under gabions or reno mattresses, where instructed by the Engineer.	m²	321		
5. 6	PSA 8.6	LI	Rock pack above concrete encased pipe up to the invert of the gabion mattress as detailed	m³	21		
			PITCHING				
5. 7	8.2.5	LI	Grouted pitching, of thickness at least 300mm on slope of bank inclusive of all surface preparation, using selected stone from rivers or commercial sources	m³	105		
5. 8	PSA 8.6		Rock pack to toe of earth embankment, where directed on site	m³	21		
5. 9	8.2.4		Geotextile "Bidim A5" or similar approved, placed over rock pack, where instructed by the Engineer	m²	42		

Total Carried Forward To Summary

ITEM NO	PAYMENT	LIC	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	SANS 1200DM		**SECTION 6: EARTHWORKS, ROADWORKS & STORMWATER**				
			SITE CLEARANCE				
6. 1	PSC 8.2.1		Clear and grub at pumpstations, reservoirs, roads and spoil sites	m²	846		
6. 2	8.2.2		Remove trees over 1m and up to 2m	No	10		
6. 3	8.2.2		Remove trees over 2m and up to 3m	No	2		
6. 4	SANS 1200D 8.3.1.2		Remove topsoil to 150mm depth and stockpile and maintain at reservoir and spoil sites	m²	220		
	SANS 1200D		**EARTHWORKS**				
			Bulk Excavation, in all materials				
6. 5	PSD 8.3.2		a) Cut to stockpile in soft and intermediate material and maintain stockpile	m³	840		
6. 6	PSD 8.3.2		b) Backfill around reservoir from stockpile, compact to 90% mod AASHTO	m³	230		
6. 7	PSD 8.3.2(b)(5)		c) Fill from stockpile to spoil site and compact to 90% mod AASHTO	m³	610		
6. 8			d) Cut to fill and compact to 93% mod AASHTO in embankments	m³	100		
	PSD 8.3.3		Restricted Excavation, in all materials including disposal of surplus material to stockpile for:				
6. 9			e) Floor slabs, footings and G5 material	m³	256		
6. 10			f) Inlet, outlet, overflow and scour pipework and subsoil drains	m³	8		
			Extra over item 6.5, 6.8, 6.9 and 6.10 for:				
6. 11	8.3.3 (b) (2)		(i) hard rock	m³	111		
6. 12	8.3.3 (b) (4)		Boulder Class B	m³	21		
6. 13			Remove all loose material and thoroughly clean rock surface ready to receive concrete	m^2	250		
6. 14	PSA 8.6		Rip and recompact insitu material to 150mm depth and compact to 93% MOD AASHTO	m³	42		
6. 15	SANS 1200ME 8.3.3		Imported G5 material from commercial sources and compact to 98% Mod AASHTO in max. 150mm layers	m³	240		
6. 16	SANS 1200DM 8.3.15		Catch water channel: form trench and bank to details shown on drawing 6055-2-SD8	m³	200		
6. 17	PSC 8.3	LI	Topsoiling and reinstatement of vegetation from stockpile provided under item 6.4	m³	100		
Total Carried Forward							

ITEM NO	PAYMENT	LIC	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
Brought Forward							
	SANS 1200 DM / PSDM		**ROADWORKS**				
			Treatment of road bed				
	8.3.3 (a)		Road-bed preparation and compaction of material				
6. 18			Compact to 90% mod AASHTO	m³	100		
	8.3.3 (b)		In-place treatment of road-bed in intermediate or hard material				
6. 19			1) ripping	m³	50		
6. 20			2) blasting	m³	15		
	8.3.4(a)		**Cut to fill**				
6. 21			a) Compact to 90% mod AASHTO	m³	12		
6. 22	PSDM 8.3.16		G5 Gravel to form compacted layer 150mm thick, ex commercial source, compacted to 93% Mod AASHTO	m³	100		
6. 23	PSD 8.3.2(b) (5)		**Cut to Spoil**	m³	266		
6. 24			Fill from Stockpile within freehaul distance, where directed by the Engineer on site and compact to 90% Mod AASHTO	m³	78		
			STORMWATER DRAINAGE				
			Excavate in all materials for trenches, backfill and compact, including disposal of surplus/unsuitable material concrete pipes up to DN 750 for:				
			Over and Up to				
6. 25			0.0m 1.5m	m	24		
6. 26			1.5m 2.5m	m	7		
			Supply, handle and lay concrete ogee pipes on Class C bedding for the following:				
6. 27			DN 450, Cl 100D	m	17		
6. 28			DN 750, Cl 100D	m	13		
6. 29			Construct catchpit complete as detailed on drg 6055-2-SD12 for depths up to 1.5m	No	4		
6. 30			EO item 6.14 for additional 0.5m depth	No	2		
6. 31			Construct headwalls complete as detailed on drg 6055-2-SD7	No	4		
6. 32			Construct mitre drains complete as detailed on drg 6055-2-SD12	m	30		
			Construct v-drains complete as detailed on drg 6055-2-SD12 for:				
6. 33			1.0m wide v-drain	m	35		
6. 34			1.5m wide v-drain	m	142		
Total Carried Forward To Summary							

ITEM NO	PAYMENT	LIC	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	SANS 1200G SANS 1200-CCI: 2007 PSCC1 PSG		**SECTION 7: REINFORCED CONCRETE RESERVOIR**				
			CONCRETE				
			In situ concrete reinforced reservoir				
			Construct and commission in situ reinforced concrete reservoir, complete as detailed on the drawings				
			CONCRETE FORMWORK AND REINFORCING				
	SANS 1200 GA		Concrete Work				
	8.4.2		Concrete blinding (15Mpa/19mm)				
7. 1			50mm thick concrete blinding under base and floor	m²	113		
7. 2	8.4.3		15Mpa/19mm mass concrete fill below reservoir where directed by the Engineer	m³			
	SANS 1200 G 8.4.3		**CONCRETE STRUCTURAL**				
			Supply 35Mpa / 19mm strength concrete to water retaining structure, cast and cure to the following:				
7. 3			Pipe encasement	m³	4		
7. 4			Floor	m³	10		
7. 5			Wall Footing	m³	18		
7. 6			Walls	m³	36		
7. 7			Columns, Column Footings and Heads	m³	1		
7. 8			Roof slabs incl access manhole	m³	22		
	SANS 1200 G 8.2		**FORMWORK**				
			Formed Finishes on Reservoirs (all edges chamfered 25 x 25mm)				
	8.2.1		**Rough**				
7. 9			Vertical to sides of pipe encasement and sub soil drain	m²	12		
7. 10			Vertical curved narrow widths to edge of floor slab up to 350mm high	m²	39		
	8.2.2		**Smooth**				
7. 11			Vertical curved to walls	m²	281		
Total Carried Forward							

ITEM NO	PAYMENT	LIC	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
Brought Forward							
	8.2.2		**Smooth**				
7. 12			Vertical curved to columns up to 350mm dia	m²	6		
7. 13			Horizontal to soffit of roof slab. Prop height up to 4.5m.	m²	93		
	8.2.5		**Narrow Widths**				
7. 14			Vertical curved to floor panels up to 200mm high	m	29		
7. 15			Vertical to floor panels up to 200mm high	m			
7. 16			Vertical to sides of column bases up to 400mm high	m	7		
7. 17			Vertical curved narrow widths up to 230mm high to edge of roof slab	m	35		
7. 18			Vertical narrow widths up to 150mm high to access manhole	m	8		
7. 19			Vertical narrow widths up to 350mm high to access manhole	m	5		
	8.2.6		Box out holes / form voids				
7. 20			600 x 600 openings for pipework	No	1		
7. 21			Opening in roof slab 1.2 x 0.9 x 0.35m deep	No	2		
	SANS 1200 G 8.3.1		**REINFORCING**				
7. 22			Supply and fixing of 8mm - 16mm dia. reinforcing steel (high tensile) to all concrete volumes including cover blocks to shuttering	t	6		
7. 23			Supply and fixing of of greater than 16mm dia. reinforcing steel (mild steel) to all concrete volumes including cover blocks to shuttering	t	1		
7. 24	8.3.2		Supply and fixing of Mesh Ref 617 to floor slab including cover blocks to shuttering	m²	63		
	SANS 1200 G		**FINISHES (Unformed Finishes)**				
	8.4.4(a)		**Wood float** finish to:				
7. 25		LI	Outer wall base / footing	m²	19		
7. 26		LI	Access manhole and roof	m²	3		
	8.4.4(b)		**Steel trowel** finish to:				
7. 27		LI	Reservoir floor slabs	m²	63		
7. 28		LI	On top of reservoir wall	m²	9		
7. 29		LI	Reservoir roof slabs	m²	93		
Total Carried Forward							

ITEM NO	PAYMENT	LIC	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
Brought Forward							
	8.4.4(b)		**Steel trowel** finish to:				
7. 30		LI	Internal footing	m²	22		
	8.5		**JOINTS**				
			Form concrete joints complete as detailed including all water-stops, joint fillers, sealants, etc, for the following reservoirs:				
			300 kl Reservoir				
7. 31			Footing joint	m	28		
7. 32			Floor slab / Wall joint	m	34		
7. 33			Wall joint	m	34		
7. 34			Wall / Roof joint	m	34		
	PSG 8.9		**Miscellaneous:**				
7. 35			2 Layers of 250 Micron thick Polyethelene sheeting to underside of reservoir footing	m²	8		
			SUBSOIL DRAINS				
7. 36			Construct subsoil drains along internal face of footings in 300kl reservoirs complete as detailed including all material	m	29		
	8.8		**METAL WORK**				
			Galvanised Steel Work				
			Supply and install (all items to be heavy duty hot dip galvanised):				
7. 37			1250 x 950mm lockable manhole cover and frame cast into reservoir roof slab as detailed (300 kl Res)	No.	1		
7. 38			Internal galvanised access ladder detailed on the drawings incl. Hoop details and all anchor bolts etc. (length 4 100mm) (300kl Res)	No.	1		
7. 39			External handrail - as detailed on the drawings, incl. base plate details and all anchor bolts etc.	No	1		
7. 40			Roof Ventilators as detailed on drawing 6055-9B1-SD9	No	5		
			Supply and install pipe brackets as detailed on drawing 6055-9B1-PS10 for:				
7. 41			200mm dia. pipe	No	2		
7. 42			150mm dia. pipe	No	2		
7. 43	SANS 1200A 8.5		Supply and install to reservoir roof, a 3.7m high water level indicator, complete.	Prov Sum	1	35 000.00	35 000.00
7. 44	SANS 1200A 8.5		Provisional sum for all additional associated civil works at Reservoir Sites	Prov Sum	1	50 000.00	50 000.00
			Miscellaneous				
7. 45	PSG 8.11		Clean and sterilize reservoir and all pipes	Sum	1		
7. 46	PSG 8.12		Test reservoir for watertightness	Sum	1		
Total Carried Forward To Summary							

ITEM NO	PAYMENT	LIC	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
			SECTION 8: RESERVOIR PIPEWORK				
	PSG 8.13.1 PSL 8.1		**RESERVOIR PIPEWORK <u>ENCASED IN CONCRETE</u>:**				
			Supply, install and test GMS pipes and specials (incl. all jointing material). All pipework encased in concrete to be Denso Ultraflex 750 wrapped (or similar approved) extending 500mm beyond all soil / concrete interfaces. All pipework to be Class 16 and flanges drilled to Table 1600				
			INLET PIPEWORK				
8. 1			200mm dia. GMS flanged 90^{o} elbow, vertical C/F = 750mm with flange drilled to Class 16, Horizontal C/F = 1400mm with flange drilled to **Class 2500**, Elbow Radius = 205mm, with Puddle Flange located on Horizontal leg, 800mm from Flange.	No.	1		
			OVERFLOW PIPEWORK				
8. 2			250mm dia. GMS flanged puddle pipe / elbow special (Vert C/F=900mm, Horiz C/F 1550mm, R=229mm, with puddle flange located 450mm from vertical flanged end and puddle flange located 1000mm from horizontal flanged end), Class16	No.	1		
			SCOUR PIPEWORK				
8. 3			250mm dia. GMS elbow special, Vertical C/F = 550mm plain ended, Horizontal C/F = 1700mm flanged, R = 255mm, with puddle flange located 135mm from plain end, Class 16	No.	1		
			OUTLET PIPEWORK				
8. 4			250mm dia. GMS bellmouth / elbow special, (Vert = 575mm, Bellmouth 127mm high, Total height = 727mm, Horiz C/F = 1700mm, R = 305mm, flanged one end, with puddle flange located 250mm from bellmouth end, Class 16	No.	1		
	PSG 8.13.2PSL 8.1		**RESERVOIR PIPEWORK <u>NOT</u> ENCASED IN CONCRETE:**				
			INLET PIPEWORK				
8. 5			200mm dia. GMS Klambon Flange Adaptor (for steel pipe), Drilling to Class 2500	No.	1		
8. 6			200mm dia. GMS pipe, 3400mm long, flanged both ends, Class 16	No.	1		
8. 7			200mm dia. GMS 90^{o} elbow, flanged both ends, Class 16	No.	1		
8. 8			200 x 100mm GMS flanged reducer (F/F = 200mm), Class 16	No.	1		
8. 9			100mm dia. VOSA Series 7354 Equilibrium Float Valve, Class 16, (or similar approved)	No.	1		
Total Carried Forward							

ITEM NO	PAYMENT	LIC	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
Brought Forward							
			OVERFLOW PIPEWORK				
8. 10			250mm dia.DI Flange Adaptor (for uPVC pipe),	No.	1		
8. 11			250mm dia. Bellmouth (380mm dia.x 127mm long) pipe, flanged one end, straight piece 3600mm long (Total length 3727mm)	No.	1		
			SCOUR PIPEWORK				
8. 12			160mm dia.DI Flange Adaptor (for uPVC pipe), Class 16	No.	1		
8. 13			150mm dia. Flanged Wedge Gate Valve, Class 16 (F/F = 280mm)	No.	1		
8. 14	SANS 1200A 8.5		Interconnecting Pipework: Existing and Proposed reservoirs	Prov Sum	1	80 000.00	80 000.00
	SANS 1200L		**ACCESSORIES / ASSOCIATED WORKS OVERFLOW AND SCOUR PIPEWORK**				
	PSL 8.2.1		Supply, handle, lay, bed, join and disinfect on bedding, as detailed on the drawings, uPVC potable water pipeline, complete with rubber seals and sockets according to SABS 966				
			uPVC Class 9				
8. 15			250 mm dia	m	30		
8. 16			200 mm dia	m	30		
8. 17			160 mm dia	m	30		
8. 18			110 mm dia. PVC-U Class 6 pipe outlet from subsoil drains	m	30		
			Supply, handle, lay, bed, join, test and disinfect on Class C bedding HDPE potable water pipeline, complete with Plasson or Magnum Couplings, or similar approved, according to ISO 4427 Type PE100				
			HDPE Class 10				
8. 19		LI	50mm dia	m	15		
8. 20	PSA 8.6	LI	Headwall to scour and overflow pipework as per drawing 6055-9B1-SD7	No	1		
	8.2.13		**VALVE CHAMBERS AND MANHOLES**				
8. 21			Supply & install isolating valve chamber for Reservoir Isolating Valves, complete as detailed on the drawings (rate to incl. for all materials, i.e. concrete cradle, pipe cap, valve box, concrete surround etc.) (Refer to Drawing No. 6055-2-SD8)	No	3		
8. 22	SANS 1200A 8.5		Additional Air Valve fittings and chambers complete, at Reservoir Sites	Prov Sum	1	35 000.00	35 000.00
Total Carried Forward To Summary							

ITEM NO	PAYMENT	LIC	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	SANS 1200C 1200D 1200DM 1200G 1200ME		**SECTION 9: PUMP STATIONS AND PRE-SEDIMENTATION TANK**				
	SANS 1200G 8.1.3		**CONCRETE**				
9. 1			Drill 50mm dia holes 1.0m deep into rock. Supply and install Y16 dowels complete as detailed on dwg 6055-9B1-APS3	No	90		
9. 2	8.4.2		Blinding layer in 15 MPa/19 mm concrete, 50mm thick	m^2	186		
9. 3			15 Mpa/19mm, 75mm thick concrete surround to pumpstations	m^2	8		
9. 4			15 MPa/19mm Mass concrete fill below pump station (Prov)	m^3	3		
	8.4.3		**Strength concrete: 30 MPa/19 mm to:**				
9. 5			Floor slabs, footings, plinths and pipe encasement	m^3	65		
9. 6			Cable trenches and sumps	m^3	6		
9. 7			Walls and columns	m^3	78		
9. 8			Roof slabs, manhole upstands and beams	m^3	29		
9. 9			Benching/screeds to falls	m^3	5		
	8.2		**Smooth Formwork**				
9. 10			Formed finishes - all edges will be chamfered 25 x 25mm	m	195		
9. 11			Vertical to walls	m^2	523		
9. 12	8.2.2		Horizontal to suspended roof soffit up to 2.9m high	m^2	55		
9. 13	8.2.2		Horizontal to suspended roof soffit up to 4.25m high	m^2	56		
9. 14			Horizontal narrow widths to edge of roof slab, access manholes and cable trench slabs (up to 150 mm wide)	m	37		
9. 15			Horizontal narrow widths to edge of floor slab and strip footings (250 mm wide)	m	152		
9. 16			Horizontal narrow widths to edge of roof slab, beam and pump plinths (up to 300 mm wide)	m	129		
9. 17			Horizontal narrow widths to edge of floor slab and strip footings (350 mm wide)	m	15		
9. 18			Horizontal narrow widths to edge of access manholes (up to 400 mm wide)	m	13		
9. 19			Horizontal narrow widths to internal and external faces of cable trench (up to 500mm wide)	m	51		
Total Carried Forward							

ITEM NO	PAYMENT	LIC	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
Brought Forward							
9. 20			Horizontal narrow widths to internal and external faces of sump and pipe encasements (up to 750mm wide)	m	11		
	8.2.6		Form openings in walls and roof slab up to 250 mm thick:				
9. 21			110mm dia opening in roof slab	No	1		
9. 22			900 x 750 mm for access manhole in roof slab	No	1		
9. 23			2000 x 1500 mm for access manhole in roof slab	No	2		
9. 24			1500 x 750 mm for louvres in walls	No	8		
	8.2.6		Form box-out for pipes and sluice gates in walls:				
9. 25			600 x 600 mm opening in wall for puddle pipes	No	6		
9. 26			300 x 300 mm opening for sluice gates	No	2		
9. 27			Supply and cast-in 160mm uPVC pipe and long radius bend, 1.5m long including end cap	No	2		
			Reinforcement				
			High-tensile steel bars:				
9. 28	8.3.1		Supply and fixing of 8 - 16mm dia reinforcing steel to all concrete volumes including cover blocks to shuttering	t	21		
			Unformed surface finishes				
9. 29	8.4.4 (a)		Wood-floated finish	m²	268		
9. 30	8.4.4 (b)		Steel-floated finish	m²	96		
	8.5		**Joints**				
			Joints will be formed as detailed on the drawings				
9. 31			Crack control joint	m	15		
9. 32			Isolation joint	m	29		
9. 33			Construction joint	m	29		
9. 34			Wall / roof joint	m	22		
	SANS 1200 HA		**Structural steelwork (Sundry items)**				
9. 35			Supply and install 3mm thick GMS fixed weather proof, security louvres as detailed on the drawings	No	8		
9. 36			Supply and install air vent detail at all louvres as detailed on the drawings	No	8		
9. 37			Supply and install at Inetermediate Pump Station, a 254 x 146 x 31 kg/m hot-dip galvanized mild steel "I" beam 7.32 m long and gantry incl supply and cast-in 20 mm dia 435 mm long GMS U-bolts and GMS bolting plates as shown on the drawings. Including testing and certification by Independent Inspectorate.	Sum	1		
Total Carried Forward							

ITEM NO	PAYMENT	LIC	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
Brought Forward							
9. 38	SANS 1200 HA		Supply and fix to abstraction pump station concrete roof, gantry frame as indicated on the drawings. Comprising a 254 x 146 x 31 kg/m hot-dip galvanized mild steel "I" beam 10.1m long, supported on 3 x "A" frame supports comprising 2,0m long 152 x 152 x 23kg/m JR Columns supporting 254 x 146 x 31 kg/m cross-beam. Ganrty and framework to include all welding, bolting, holding down bolts and hot--dipped galvanizing of all members. Including testing and certification by Independent Inspectorate.	Sum	1		
9. 39			Supply only 2,5 ton hand trolley (Yale type) and chain hoist (Yale type VH1 or approved alternative) to suit installation onto pump station gantries	No	2		
9. 40	8.3.4		Supply and install GMS Mentis banded 'Rectagrid' RS40 cable trench covers as detailed on the dwgs including frames cast into concrete with fishtail lugs.	m	27		
9. 41			Supply and install GMS platform to interior of abstraction pump station including GMS Mentis banded 'Rectagrid' RS40, as detailed on the drawings	Sum	1		
9. 42			Supply and install external GMS cat ladder as detailed on dwg 6055-9B1-APS2	No	1		
9. 43			Supply and install internal GMS ladder, 2.16m long, as detailed on dwg 6055-9B1-APS3	No	1		
9. 44			Supply and install internal GMS ladder, 1.72m long, as detailed on dwg 6055-9B1-APS3	No	1		
9. 45			Supply and install 1.2 x 1.05m hinged GMS manhole cover and frame to abstraction pump station roof complete with padlock	No	1		
9. 46			Supply and install 2.1 x 1.5m hinged GMS double door manhole cover and frame to abstraction pump station roof complete with padlock	No	2		
9. 47			Supply and install double leaf pump station door for 1.85 x 2.65 m opening, as detailed on dwg 6055-9B1-IPS2	No	1		
9. 48			Supply and install structural GMS walkway, 8.0m long x 1,0m wide complete including GMS Mentis banded 'Rectagrid' RS40, as detailed on the drawings	No	2		
	8.3.2		Handrails assemply complete, including anchor bolts				
9. 49			Horizontal	m	40		
9. 50			Sloping	m	8		
9. 51			Shaped ends	No	10		
Total Carried Forward							

ITEM	PAYMENT	LIC	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
Brought Forward							
	SPEC QB		**Building work**				
	8.2.4.1		Brickwork and plastering:				
9. 52			230 mm wall to be NFX bricks to below ground foundations and cable trenches	m²	11		
9. 53			230 mm walls: facebrick exterior to be FBX bricks and interior skin to be NFX bricks, 15mm thick plastered interior	m²	85		
9. 54	8.2.4.6		Brickforce to 230 mm thick walls	m	413		
9. 55			250 micron DPC below floor slab	m²	59		
	SANS1200 G SPEC QB		**Precast Lintels**				
9. 56	8.2.3.1		Prestressed concrete lintels above doors	m	3		
	8.2.9.1		**Painting:**				
9. 57			3 Coats of white 'Plascon Wall and All', or similar approved to internal concrete and plastered brick walls as specified	m²	198		
9. 58			3 Coats of white 'Plascon Wall and All', or similar approved to soffit of roof slabs as specified	m²	96		
			Staircases:				
9. 59	SANS 1200A 8.5		Construct brick staircases complete including concrete infill and reinforced concrete foundations as detailed on Drawings	No	2		
			SECURITY FENCING				
9. 60			Clear, strip and trim along fence line	m	150		
9. 61			Supply and install 2.0m high razor wire fence complete with all fencing posts, straining wire and concreting as detailed on dwg 6055-9B1-IPS3	m	150		
9. 62			Supply and install double leave gate complete as detailed on dwg 6055-9B1-IPS3	No	2		
9. 63	PSG 8.12		Test Pre-sedimentation tank for watertightness	Sum	1		
Total Carried Forward To Summary							

ITEM NO	PAYMENT	LIC	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	PC, PD, PE		**SECTION 10: MECHANICAL & ELECTRICAL WORKS** **PUMPS AND PIPEWORK** Allow for all the costs and expenses associated with the design, manufacture / supply of materials and fittings and storage on own premises (up to 3 months) of the following:				
	PC3.1		**Raw water abstraction pumps for the Abstraction pump station:** **Abstraction pumps**				
10. 1	PC3.1.2.1		1 No Duty & 1 No Standby raw water, low lift, single / multistage pumps and motors on GMS baseplates. Duty Point: 90 m3/h @ 15m total head (2 pump sets in total) *KSB AU 150-150-025 self-priming pump* or similar approved	Sum	1		
10. 2	PC3.1.2.2		All suction manifold pipework (PN 16) including all fittings, valves, gauges, supports and fixings including all pipework from the abstraction pipeline, but excluding the flow meter.	Sum	1		
10. 3	PC3.1.2.2		DN150 in-line electro-magnetic flow meter PN16 (complete with wall-mounted read-out unit and cabling to electrical DB) and earthing and insulating gaskets each side	No	1		
10. 4	PC3.1.2.2		All delivery manifold pipework including all PN 16 fittings, valves, nozzle non-return valves, gauges, supports and fixings	Sum	1		
10. 5	PC3.1.2.6		MCC panel, complete including all cabling to and from MCC to drives and equipment, to be mounted on the suspended steel platform in the pump room	Sum	1		
			High-lift transfer pumps				
10. 6	PC3.1.2.3		1 No Duty & 1 No Standby raw water, High-lift, multistage pumps and motors on GMS baseplates. Duty Point: 90 m3/h @ 178m total head (2 pump sets in total) *KSB WKLn 80/3* or similar approved	Sum	1		
10. 7	PC3.1.2.4		All suction manifold pipework (PN 16) including all fittings, valves, gauges, supports and fixings including all pipework from the Pre-sedimentation delivery pipeline.	Sum	1		
10. 8	PC3.1.2.4		All delivery manifold pipework including all PN 40 fittings, valves, non-return valves, gauges, supports and fixings	Sum	1		
10. 9	PC3.1.2.6		MCC panel, complete including all cabling to and from MCC to drives and equipment, to be mounted on the suspended steel platform in the pump room	Sum	1		
10. 10			Allow for all costs and expenses associated with the delivery, off-loading and Site installation of all of the above pump sets, pipework and electrical control (MCC) and cabling.	Sum	1		
Total Carried Forward							

ITEM NO	PAYMENT	LIC	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
Brought Forward							
10. 11			Allow for all costs and expenses associated with testing for leaks and commissioning all pump installation and associated pipework at the abstraction pump station	Sum	1		
			Sluice gates for Pre-sedimentation Tank				
10. 12			Supply Wall mounted sluice gate to suit 300x300mm opening. Completely sealed against seating pressure, rectangular flush invert. 'Fulton' or similar approved. Rising spindle approx 3.0m long with wall mounted brackets with handwheels	No	2		
10. 13			Allow for all costs and expenses associated with the delivery, off-loading and installation of the above sluice gates	Sum	1		
10. 14			Supply only, Industrial High Pressure Washer 2300W BOSCH GHP 5-13C or similar approved fitted with an industrial IP65 rated plug	No	1		
	PC, PE		**LV ELECTRICAL**				
			Low Voltage Cable and Installation				
			Supply, delivery and installation of 600/1000V PVC/SWA/ ECC/PVC Copper cables. Installed in cable ducts, on surface or on cable tray (excluding cost to supply and install ducts or trays)				
10. 15			120mm² + 4 core	m	60		
10. 16			95mm² + 4 core	m	30		
10. 17			10mm² + 4 core	m	45		
			Low Voltage Cable Terminations				
			Terminations of low voltage PVC/SWA/ECC/PVC cable complete with glands, shrouds, lugs and connection.				
10. 18			120mm² + 4 core termination	each	16		
10. 19			95mm² + 4 core termination	each	16		
10. 20			10mm² + 4 core termination	each	32		
			LV Cable Supports				
			Supply and install, complete with all fixing brackets, splices reduction brackets and accessories, Hot dip galvanised epoxy painted cable ladder as per manufacturers recommendation				
10. 21			400 mm wide cable ladder	m	15		
10. 22			400 mm Internal/External bends	each	6		
			Testing and Commissioning				
10. 23			Testing and commissioning of the installation fed from db's including the completion of Compliance Certificates	Sum	1		
Total Carried Forward							

ITEM	PAYMENT	LIC	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
Brought Forward							
			Low Voltage Cable Tests				
10. 24			LV Cable tests as specified on all cables and issuing of required test certificates	Sum	1		
			Conduit				
			Installation of rigid PVC conduits including fixings, couplings, bends, draw-boxes, waste, etc. Installed on surface on wall, on ceiling void, in chase, or cast into concrete (excluding chasing)				
10. 25			Ø20mm conduit	m	60		
10. 26			Ø25mm conduit	m	60		
10. 27			Ø32mm conduit	m	60		
			Conduit Boxes and Terminations				
			One conduit end termination onto a fitting and the other onto a conduit outlet box without covers installed on surface,in ceiling void, in chase or cast in concrete complete with a conduit box (including chasing).Outlet boxes shall be either 50x100mm,100x100mm or 76mm round deep or shallow.				
10. 28			20mm pairs of ends	each	10		
10. 29			25mm pairs of ends	each	10		
10. 30			32mm pairs of ends	each	10		
			PVC insulated copper conductors drawn into conduit, wiring trunking or powerskirting				
10. 31			2.5mm² PVC conductor	m	120		
10. 32			10mm² PVC conductor	m	60		
			Switched Socket Outlets				
10. 33			16A 3 Pin Switched Socket Outlet	each	4		
10. 34			16A 3 Pin Industrial Waterproof Socket, IP65 rated, for outdoor use	each	4		
			Isolators				
			Isolator complete with yoke and cover plate, but excluding wall box.				
10. 35			32A Triple Pole Isolator	each	2		
			POWER SOCKETS				
10. 36			32A TPN&E Socket and Plug Top	each	2		
			Draw Wire				
			Supply and installation of non-rusting draw wire drawn into conduits and sleeves				
10. 37			2.5mm² draw wire	m	120		
			MCC Panels				
10. 38	PC3.1.2.6		Design, supply, install and commission Motor Control Centre Panel for management of electrical power supply and operational control of all pump motors, as per the specifications, complete including VSD's	No	1		
Total Carried Forward							

ITEM	PAYMENT	LIC	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
Brought Forward							
			ATTENDANCE ON SPECIALIST INSTALLERS				
10. 39			Lightning Protection	Prov Sum	1	60 000.00	60 000.00
10. 40			Profit required on the Provisional sums above	%			
			Provisional Sum Items				
10. 41			Additional works to complete electrical installations as directed by the Engineer	Prov Sum	1	50 000.00	50 000.00
Total Carried Forward To Summary							

SUMMARY OF BILL OF QUANTITIES

PART 1 :	*PRELIMINARY AND GENERAL*	*R*
PART 2 :	*EARTHWORKS (PIPE TRENCHES)*	*R*
PART 3 :	*MEDIUM PRESSURE PIPELINES*	*R*
PART 4 :	*BEDDING(PIPES)*	*R*
PART 5 :	*GABIONS AND PITCHING*	*R*
PART 6 :	*EARTHWORKS, ROADWORKS AND STORMWATER*	*R*
PART 7 :	*RESERVOIR*	*R*
PART 8 :	*RESERVOIR PIPEWORK*	*R*
PART 9:	*PUMP STATIONS AND PRE-SEDIMENTATION TANK*	*R*
PART 10:	*MECHANICAL AND ELECTRICAL WORKS*	*R*

SUBTOTAL ..... *R* .....

ADD CONTINGENCIES

Add 10 % ..... R .....

SUBTOTAL ..... **R .....**

ADD ESCALATION

Add 5 % ..... R .....

SUBTOTAL ..... **R .....**

VALUE ADDED TAX

Add 15 % ..... R .....

TOTAL CARRIED TO TENDER FORM ..... **R .....**

SIGNED ON BEHALF OF TENDERER: .....