

MPUMALANGA TOURISM AND PARKS AGENCY



SCHEDULE OF QUANTITIES

**CONSTRUCTION OF THE BULK WATER SUPPLY AND RETICULATION NETWORK
AT BLYDE RIVER CANYON NATURE RESERVE**

BILL OF QUANTITIES

CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE RESERVE

SECTION 1: CIVIL WORKS

SCHEDULE 1: GENERAL

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (Rand)
	SANS 1200A	SCHEDULE 1: GENERAL				
	8.3	SCHEDULED FIXED-CHARGE AND VALUE RELATED ITEMS				
1.01	8.3.1	Contractual Requirements	Sum	1		
	8.3.2	Establishment of Facilities on the Site:				
	8.3.2.1	Facilities for Engineer (SANS 1200 AB)				
1.02	PSA 8.3.2.1(a)	Engineers Office	Sum	1		
1.03	PSA 8.3.2.1(b)	Communication costs (cellular phone)	Sum	1		
1.04	PSA 8.3.2.1 c)	Nameboards (1 No.)	Sum	1		
1.05	PSA 8.3.2.1(d)	Computer facilities complete with printer, modem with 4G connection	Sum	1		
1.06	PSA 8.3.2.1 e)	Provision of survey equipment	Sum	1		
	8.3.2.2	Facilities for Contractor				
1.07	8.3.2.2(a)	Offices and storage sheds	Sum	1		
1.08	8.3.2.2(b)	Workshops	Sum	1		
1.09	8.3.2.2(c)	Laboratories	Sum	1		
1.10	8.3.2.2(e)	Ablution and latrine facilities	Sum	1		
1.11	8.3.2.2(f)	Tools and equipment	Sum	1		
1.12	PSA 8.3.2.2(g)	Water supplies, electric power and communications	Sum	1		
1.13	8.3.2.2(h)	Dealing with water (Sub-clause 5.5)	Sum	1		
1.14	8.3.2.2(i)	Access (Sub-clause 5.8)	Sum	1		
1.15	8.3.2.2.(j)	Plant.	Sum	1		
1.16	8.3.3	Other fixed-charge obligations	Sum	1		
1.17	8.3.4	Removal of Site establishment	Sum	1		
1.18	PSA 8.3.5.1	Issuing of notices to consumers	Sum	1		
Total Carried Forward						

CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE RESERVE

SECTION 1: CIVIL WORKS

SCHEDULE 1: GENERAL

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (Rand)
Total Brought Forward						
	PSA 8.3.3.2	OHS Act Obligations:				
1.19		i) General Safety obligations (incl. provision of personal protective equipment)	Sum	1		
1.20		ii) Health and Safety plan/file including health and safety training.	Sum	1		
1.21		iii) Fulfil legislated and/or specified requirements for blasting (incl. submission of plans).	Sum	1		
1.22	PSA 8.3.5.3	Environmental Management Plan Obligations	Sum	1		
	8.4	SCHEDULED TIME-RELATED ITEMS				
1.23	PSA 8.2.1.2	Contractual Requirements.	Month	3		
1.24	8.4.2	Operate and maintain facilities on the Site for duration of Construction:	Month	3		
	PSA 8.4.2.1	Facilities for the Employer's Agent:				
1.25	8.4.2.1.a)	Engineers Office	Month	3		
1.26	8.4.2.1.b)	Provision of name board	Month	3		
1.27	8.4.2.1.c)	Provision of cellular phone	Month	3		
1.28	8.4.2.1.d)	Provision of survey equipment	Month	3		
1.29	8.4.2.2	Facilities for Contractor:				
1.30	8.4.2.2(a)	Offices and storage sheds	Month	3		
1.31	8.4.2.2(b)	Workshops	Month	3		
1.32	8.4.2.2(c)	Laboratories	Month	3		
1.33	8.4.2.2(e)	Ablution and latrine facilities	Month	3		
1.34	8.4.2.2(f)	Tools and equipment	Month	3		
1.35	PSA 8.4.2.2.(g)	Water supplies, electric power and communications	Month	3		
1.36	8.4.2.2(h)	Dealing with water (Sub-clause 5.5)	Month	3		
Total Carried Forward						

CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE RESERVE

SECTION 1: CIVIL WORKS

SCHEDULE 1: GENERAL

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (Rand)
Total Brought Forward						
1.37	8.4.2.2(i)	Access (Sub-clause 5.8)	Month	3		
1.38	8.4.3	Supervision for the Duration of Construction	Month	3		
1.39	8.4.4	Company and Head Office Overhead Costs for Duration of Contract	Month	3		
1.40	8.4.5	Other Time-related Obligations	Month	3		
1.4.1	8.4.5.3	Community liaison Officer (CLO)	Month	3		
1.4.2		Contractors overhead, charges and profit on item 1.4.1	%			
	PSA 8.4.6.1	OHS Act Obligations				
1.43		i) General Safety obligations	Month	3		
1.44		ii) Health and Safety plan/file	Month	3		
1.45		(iii) Safety Officer	Month	3		
1.46	PSA 8.4.6.2	Security Services	Month	3		
1.47	PSA 8.4.6.4	EMP Obligations	Month	3		
Total Carried to Summary						

CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE RESERVE

SECTION 1: CIVIL WORKS

SCHEDULE 2: GENERAL - DAYWORKS & PROVISIONAL SUMS

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (Rand)
	8.5	SUMS STATED PROVISIONALLY BY ENGINEER				
2.01		a) Safeguarding of excavations as required by the Engineer	Prov Sum	0	R50 000,00	R50 000,00
2.02		a)(i). Overheads, charges and profit on item 2.01 above	%	50 000		
2.03		b)Additional Control tests by independent laboratory	Prov Sum	1	R50 000,00	R50 000,00
2.04		b)(i) Overheads, charges and profit on item 2.03 above	%	50 000		
2.05		c) Relocation of existing services (water mains, electricity cables/poles, etc.) by Services utility	Prov Sum	0	R100 000,00	R100 000,00
2.06		c)(i) Overheads, charges and profit on item 2.05 above	%	100 000		
2.07		d) Additional surveys and underground service detection by nominated specialist as ordered by Engineer	Prov Sum	1	R50 000,00	R50 000,00
2.08		d)(i) Overheads, charges and profit on item 2.07 above	%	50 000		
2.09		e) Provision for training of targeted labourers	Prov Sum	1	R50 000,00	R50 000,00
2.10		e)(i) Overheads, charges and profit on item 2.09 above	%	50 000		
2.11		f)Safeguarding of excavations as required by the Engineer	Prov Sum	1	R50 000,00	R50 000,00
2.12		f)(i) Overhead, charges and profit on item 2.11 above	%	50 000		
2.13		g) Appoint a Community Liaison Officer from the community for the duration of the contract	Prov Sum	1	R50 000,00	R50 000,00
2.14		g)(i) Overheads, charges and profit on item 2.13	%	50 000		
2.15		h)Tri-gonometrical survey beacons, bench marks and plot boundary pegs, -locate and record and expose on completion of Works	Prov. Sum	0	R50 000,00	R50 000,00
2.16		h)(i)Contractors mark-up on Item 2.15 above	%	50 000		
Total Carried Forward						

CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE RESERVE

SECTION 1: CIVIL WORKS

SCHEDULE 2: GENERAL - DAYWORKS & PROVISIONAL SUMS

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (Rand)
Total Brought Forward						
2.17		i)Tri-gonometrical survey beacons and plot boundary pegs, -protect and re-establish located under item 2.15, above, as ordered, by a Registered Land Surveyor on completion of the Works	Prov. Sum	1	R50 000,00	R50 000,00
2.18		i)(i)Contractors mark-up on Item 2.17 above	%	50 000		
2.19		j)Provisional sum for cost of material	Prov. Sum	1	R50 000,00	R50 000,00
2.20		jj)Contractors mark-up on Item 2.19 above	%	50 000		
	8.7	DAYWORKS				
2.21		Unskilled Labour	hours	322		
2.22		Semi-skilled Labour	hours	38		
2.23		Construction-hand	hours	32		
2.24		Carpenter	hours	38		
2.25		Driver (LDV, machines, trucks, etc.)	hours	32		
2.26		Artisan	hours	38		
2.27		Foreman	hours	50		
2.28		Gangers and section leaders	hours	26		
2.29		Bricklayer or plasterer	hours	32		
2.30		Welder	hours	16		
	8.7	PLANT				
		Tenderers to insert the hire rate at which each item will be charged that will cover all relevant costs of plant hire, including operating crew				
2.31		Lowbed transport of plant to and from site	km	500		
2.32		Excavator (medium), between 93kW & 200kW	hours	26		
2.33		Tractor loader backhoe (TLB)	hours	26		
2.34		Front end wheel loaders (2 cub or larger)	hours	26		
Total Carried Forward						

CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE RESERVE

SECTION 1: CIVIL WORKS

SCHEDULE 2: GENERAL - DAYWORKS & PROVISIONAL SUMS

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (Rand)
Total Brought Forward						
2.35		Generator 5Kw	hours	26		
2.36		Trucks (6 cub or larger)	hours	26		
2.37		Tip trucks (10 Cub or larger)	hours	26		
2.38		Water pump 100mm diameter	hours	32		
2.39		Plate compactor	hours	26		
2.40		Light delivery vehicles (1ton or equivalent)	km	32		
2.41		Sewer pump 100mm diameter	hours	32		
	8.8	TEMPORARY WORKS				
2.42	8.8.1	Contractors Access Road to Works	Sum	1		
	8.8.4	Existing Services				
2.43	8.8.4(a)	Supply (or hire) and use of specialist equipment for the detection of a particular service (electrical) on request of the Employer's Agent	Sum	1		
2.44	8.8.4(b)	The use of equipment for detection referred to in item 1.89 above	Day	1		
2.45	8.8.4(c)	Excavation and backfill by hand in soft material to expose service	m ³	300		
	PSA8.8.7	Provision of PVC sleeves for protection of existing services (as instructed by Employer's agent): (a) Split PVC pipes sleeves, for diameter:				
2.46		(i) 200 mm Ø	m	100		
2.47		(ii) 250 mm Ø	m	100		
2.48	PSA8.8.8	Survey of existing services	Sum	1		
2.49	PSA8.8.9	Liaison with service providers, landusers, land owners regarding shutdowns & connections	Sum	1		
2.5	PSA8.8.10	Provision of record/as-build drawings	Sum	1		
Total Carried Forward To Summary						

CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE RESERVE

SECTION 1: CIVIL WORKS

SCHEDULE 3: SITE CLEARANCE

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (Rand)
3.	SANS 1200 C	SCHEDULE 3 : SITE CLEARANCE				
3.1		CLEAR SITE				
3.1.1	8.2.1	Clear and grub Site	m ²	87		
		Demolish and remove structures/buildings				
3.1.2		Manholes	No	5		
3.1.3		Concrete structures	m ³	10		
Total Carried Forward To Summary						

CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE RESERVE

**SECTION 1: CIVIL WORKS
SCHEDULE 4: PIPE TRENCHES**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (Rand)
4.		SCHEDULE 4: PIPE TRENCHES				
4,1	SANS 1200 DB	PIPE TRENCHES				
4.2	8.3.1	SITE CLEARANCE				
4.2.1	8.3.1	a) Site clearance	m ²	2 116		
4.2	8.3.2	EXCAVATION				
	8.3.2	a) Excavate in all materials for trenches, backfill, compact, and dispose of surplus/ unsuitable material, for pipes: 100 mm diam. to 700 mm for total trench depth:				
4.2.1		Exceeding 0.0 m but not exceeding 1.0 m	m	895.0		
	8.3.2	b) Extra-over items 8.3.1 to 8.3.4 included for (provisional):				
4.2.2		Intermediate excavation	m ³	125.3		
4.2.3		Hard rock excavation	m ³	10.0		
4.2.5	8.3.2	c) Excavate and dispose of unsuitable material from trench bottom (Provisional)	m ³	10,0		
4,3	SABS	BEDDING (PIPES)				
		Provision of Bedding trench excavation within 0,4 km (Sub-clause 3.4.1)				
4.3.1	8.2.1	a) Selected granular material	m ³	140,8		
4.3.2	8.2.1	b) Selected fill material	m ³	1 196.2		
		Supply only of Bedding by Importation				
Total Carried Forward To Summary						

CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE RESERVE

SECTION 1: CIVIL WORKS

SCHEDULE 5: STRUCTURAL STEELWORKS

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (Rand)
5.	SANS	SCHEDULE 5: STRUCTURAL				
5.1.1		Pipe anchors	No.	400		
		STRUCTURAL STEELWORK : ABECO				
5.1.2		1 x Intake Steel Tank : 24kl rectangular Tank (Incl.supply and assemble of the steel	Sum	1		
5.1.3		2 x Circular 12kl Circular steel tanks(Incl.	Sum	2		
Total Carried Forward To Summary						

CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE RESERVE

SECTION 1: CIVIL WORKS

SCHEDULE 6: PUMP STATION

ITEM NO	Payment	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (Rand)
6		SCHEDULE 6: PUMP STATION				
6,1		PUMP STATION (AS PER DWG NO : NT-2023-1159-112-001)				
		<u>Bulk excavation</u>				
		Excavate in all materials and use for embankment or backfill or dispose as ordered, from				
6.1.1		a) Necessary excavations	m ³	16		
6,2		CONCRETE				
	SANS 1200G	<u>SCHEDULED FORMWORK ITEMS</u>				
		8.2.1 Rough (below ground):				
		Vertical:				
6.2.1		(a) To outside of walls	m ²	10		
6.2.2		(c) To sides of pipe supports	m ²	4		
		8.2.2 Horizontal:				
6.2.3		(c) To roof slab including 1/2 round drip on outside	m ²	4		
6.2.4		(e) To ground floor slab	m ²	12		
		8.2.4 Box out holes and form voids:				
6.2.5		Small, circular of diameter up to and including 0,35 m: Over 0 m deep up to 0,5m deep	No.	2		
6.3		<u>SCHEDULED REINFORCEMENT ITEMS</u>				
6.3.1	8.1.2.3a)	Mild steel bars All sizes	t	1		
6.3.2	8.1.2.3a)	High-tensile steel bars All sizes	t	1		
6.3.3	8.4.2	Strength concrete 15 MPa/19mm (a) Blinding layer in 50 mm thickness	m ²	30		
6.3.4	PA 8.2.3	Strength concrete 20 MPa/8mm a) Screed to Floor Slab	m ³	1		
6.3.5	PA 8.2.3	b) Screed to Roof Slab	m ³	1		
6.3.6	8.4.3	Strength concrete 35 Mpa/19 mm (b) In floor slabs	m ³	9		
6.3.7	8.4.3	(c) In concrete surround	m ³	1		
6.3.8	8.4.3	(d) In roof slab	m ³	12		
Total Carried Forward						

CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE RESERVE

**SECTION 1: CIVIL WORKS
SCHEDULE 6: PUMP STATION**

ITEM NO	Payment	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (Rand)
Total Brought Forward						
6.3.9		Test Blocks Making and testing 150 × 150 × 150mm concrete strength test cubes	Sum	1		
		<u>Unformed surface finishes:</u>				
6.3.10	8.4.4	Steel-floated finish				
6.3.11		(a) To top of floor slab	m ²	9		
6.3.12		(b) To top of roof slab	m ²	12		
		(c) To top of plinth	m ²	8		
	8.2.3	Joints				
6.3.13		Joint Sealant (b) 2 Layers of malthoid or hard board between walls and roof slab & Floor slab	m	14		
		2 X Pumps as per specifications				
6.3.14		Pump cost	Sum	2		
Total Carried Forward						

CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE RESERVE

**SECTION 1: CIVIL WORKS
SCHEDULE 6: PUMP STATION**

ITEM NO	Payment	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (Rand)
Total Brought Forward						
6,2		BUILDING WORK				
	PB 8.2.1	BRICKWORK				
		a) Supply and construct double brick wall (230mm), inclusive of mortar and brickforce every third layer, both faces face brick.	m ²	43		
		e) Supply and install lintols (220x150mm)	m	3		
	PB 8.2.10	Supply and install Kilcher bearing strip (40kN/m) between concrete roof and brickwork.	m ²	3		
	PB 8.2.9 (b)	Supply and install two layers 500 micron thick plastic sheeting, 230mm wide between floor slab and brick wall.	m ²	3		
	PB 8.2.10	Supply and construct 10mm Isolation joint between walls and surface bed	m	14		
	PB 8.2.6	PLASTERWORK				
		10mm thick. wood floated finish to internal walls.	m ²	38		
	PB 8.2.4	WINDOW SILL				
	PB 8.2.4	a) Brick on edge on external side of window.	m	3		
	PB 8.2.17	a) JOINERY				
		Supply and install the following doors and windows complete with frame, hinges, locking devices, glass				
		1486mm wide x 924mm high residential steel frame including 12mm dia. burgular proofing on full face window and 4mm clear glass glazed to spec. (Inclusive of one coat steel primer paint and two	No.	1		
	PB 8.2.20	PAINTING				
		All inclusive (1 x Base/Primer Coat, 2 Final Coat):				
		Plastered Walls - Dulux Weatherguard or similar approved.	m ²	38		
		Soffit of Concrete Roof - White Emulsion Paint	m ²	9		
	PB 8.2.23	FIRE PROTECTION & SAFETY				
		a) Danger Signs and Safety Notices.	Sum	1		
		b) Supply and install 7,5kg DCP Extinguisher complete with safety signage.	No.	1		
	PB 8.2.21	LIGHTING AND SMALL POWER				
		Complete electrical installation for Pump Station	Prov Sum	1	50 000,00	R 50 000,00
Total Carried Forward						

CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE RESERVE

**SECTION 1: CIVIL WORKS
SCHEDULE 7: CHAMBERS**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (Rand)
7.1		SCHEDULE 7: CHAMBERS				
7.1.1		500mmx 500mm x 500mm Rocla Grid Inlet	Prov. Sum	1	R 30 000,00	30 000,00
7.1.2		Construct and complete 1 Inlet Chamber including Pipe fittings, valves and connection to bulk pipeline	Prov. Sum	1	R 50 000,00	50 000,00
7.1.3		Construct and complete 1 x Scour Chambers including Pipe fittings, valves and connection to bulk pipeline as per	Prov. Sum	1	R 50 000,00	50 000,00
7.1.4		Construct and complete 5 x Air Valve Chambers including Pipe fittings, valves and connection to bulk pipeline	Prov. Sum	1	R 50 000,00	250 000,00
7.1.5		Refurbishment of the Existing chamber	Prov. Sum	1	R 50 000,00	50 000,00
7.1.6		Construct and complete Level Control Chamber including Pipe fittings, valves and connection to bulk pipeline	Prov. Sum	1	R 50 000,00	50 000,00
Total Carried Forward To Summary						R 480 000,00

CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE RESERVE

SECTION 1: CIVIL WORKS

SCHEDULE 8: MEDIUM PRESSURE PIPELINES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
8		SCHEDULE 8: MEDIUM PRESSURE PIPELINES				
8,1	SANS 1200 L	MEDIUM PRESSURE PIPELINES				
		Supply, handle and lay PE 100 Class PN 16 HDPE pipe above Ground				
8,1,1	8.2.1	110mm dia	m	985		
		Supply, handle and lay HDPE pipe below ground				
8,1,2		125mm dia	m	895		
		Supply, handle and lay Galvanised Steel Pipe above ground				
8,1,3		125mm dia	m	238		
8,2		PIPE FITTINGS				
		Supply and install bends complete with couplings or flanged fittings on site for HDPE Pipes Class PE100 PN16	Prov.sum	1	R 50 000,00	R 50 000,00
8,3		CONNECTION TO EXISTING WATER NETWORK				
8,3,1		Connect to two existing reservoirs and two new steel tanks	Prov. Sum	1	R 50 000,00	R 50 000,00
Total Carried Forward To Summary						

**CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE
RESERVE**

SECTION 1: CIVIL WORKS

SCHEDULE 9: CONCRETE REMEDIAL WORKS

Item No	Payment	Description	Unit	Qty	Rate	Amount (Rand)
9	SANS	SCHEDULE 9: CONCRETE REMEDIAL CONCRETE (STRUCTURAL)				
9,1		Refurbishment of the two existing Reinforced Concrete Reservoirs	Prov. Sum	1	R 100 000,00	R 100 000,00
9,2		Refurbishment of the broad crest weir wall across the river 25m in length	Prov. Sum	1	R 50 000,00	R 50 000,00
Total Carried Forward						R 150 000,00

**CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE
RESERVE**

SECTION 1: CIVIL WORKS

SCHEDULE 9: CONCRETE REMEDIAL WORKS

Item No	Payment	Description	Unit	Qty	Rate	Amount (Rand)
13.		SCHEDULE 13: FENCING				
13,1	PA 8.2	SUPPLY AND ERECT NEW STEEL SEE THROUGH FENCE				
13.1.2	PA 8.2.2	New 2.4m high Concrete Palisade fence complete as shown in the drawing NT06-22-1121-601-PS- 005	m	140,0		
13.3	PA 8.4	SUPPLY AND ERECT NEW SECURITY				
13.3.1	PA 8.4.1	New 2.4m high, 4m wide steel palisade security gate (Double Leaf Type) complete as shown in the drawing NT06-22-1121-601-	No.	1,0		
13.3.2	PA 8.4.2	New 2.4m high, 4m wide steel palisade security gate (Sliding Type) complete as shown in the drawing NT06-22-1121-601-PS-005	No.			
Total Carried Forward To Summary						

CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE RESERVE

SECTION 1: CIVIL WORKS

SUMMARY OF SCHEDULES

ITEM	Description	Amount (Rand)
1	<u>SCHEDULE 1: GENERAL</u>	
2	<u>SCHEDULE 2: GENERAL - DAYWORKS & PROVISIONAL SUMS</u>	
3	<u>SCHEDULE 3: SITE CLEARANCE</u>	
4	<u>SCHEDULE 4: PIPE TRENCHES</u>	
5	<u>SCHEDULE 5: STRUCTURAL STEEL</u>	
6	<u>SCHEDULE 6: PUMP STATION</u>	
7	<u>SCHEDULE 7: CHAMBERS</u>	
8	<u>SCHEDULE 8: MEDIUM PRESSURE PIPES</u>	
9	<u>SCHEDULE 9: CONCRETE REPAIRS</u>	
10	<u>SCHEDULE 9: FENCING</u>	
Total Carried Forward To Summary Of Sections		

CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE RESERVE

SECTION 2: ELECTRICAL WORKS

SCHEDULE 1: CABLES AND ACCESSORIES

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY RATE	INSTALL RATE	SUPPLY PRICE	INSTALL PRICE	TOTAL
	SCHEDULE 1: CABLES AND ACCESSORIES							
1	LOW VOLTAGE PVC INSULATED POWER CABLES Reference Specification: SANS 10142-1							
1.1	Supply and delivery of PVC, SWA, PVC low-voltage cable with copper conductors:							
1.1.1	35 mm ² , 4-core	m	270					
1.1.2	4 mm ² , 3-core	m	300					
1.1.3	2.5 mm ² , 3-core	m	200					
1.1.4	16 mm ² , 4-core	m	270					
1.1.5	10 mm ² , 4-core	m	150					
1.1.6	4 mm ² , Bare Copper Earth Wire	m	300					
1.1.7	2.5 mm ² , Bare Copper Earth Wire	m	200					
1.1.8	10 mm ² , Bare Copper Earth Wire	m	150					
1.1.9	35mm ² , Bare Copper Earth Wire	m	270					
1.1.10	16mm ² , Bare Copper Earth Wire	m	270					
1.2	TERMINATIONS OF LOW VOLTAGE PVC INSULATED POWER CABLES							
1.2.1	35 mm ² , 4-core	No.	2					
1.2.2	10 mm ² , 4-core	No.	2					
1.2.3	16mm ² , 4-core	No.	2					
TOTAL CARRIED TO SUMMARY OF SCHEDULE OF QUANTITIES								

CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE RESERVE

SECTION 2: ELECTRICAL WORKS

SCHEDULE 2: TRENCHING AND EXCAVATIONS

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY RATE	INSTALL RATE	SUPPLY PRICE	INSTALL PRICE	TOTAL
	SCHEDULE 2: TRENCHING AND EXCAVATIONS							
2.1	TRENCHING FOR LOW VOLTAGE CABLES Trenching to be done in line with the requirements of							
2.1.1	Soil_dig,backfill,compact hand pickable	m ³	180					
2.1.2	lose rocks /soil_dig,backfill,compact	m ³	45					
2.1.3	soft soil	m ³	120					
2.1.4	Danger Barriers for Trenches (500m long & 75mm wide)	m	500					
2.1.5	a) In solid rock (material which requires drilling)	m ³	86,4					
	b) In solid rock (material which requires blasting)	m ³	86,4					
TOTAL CARRIED TO SUMMARY OF SCHEDULE OF QUANTITIES								

CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE RESERVE

SECTION 2: ELECTRICAL WORKS

SCHEDULE 3: INTERNAL ELECTRICAL INSTALLATION

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY RATE	INSTALL RATE	SUPPLY PRICE	INSTALL PRICE	TOTAL
	SCHEDULE 3: INTERNAL ELECTRICAL INSTALLATION							
	Complete electrical installation: internal small power and lighting							
3	SMALL POWER AND LIGHTING							
3.1	SWITCHED SOCKET OUTLETS							
	Draw boxes, conduits equipped with draw wire placed in position for casting into concrete or screed, for building in or chased into concrete or brickwork and for surface mounted in ceiling voids included dending threading, jointing, short lengths, draw boxes, and saddles etc. as specified: couplings, bends, tees,							
3.1.1	16 Amp single switched socket outlet complete with cover plate for installation in a 100 mm x 100 mm drawbox, etc.	No.	7					
3.1.2	Isolator three phase	No.	6					
3.1.3	100 mm x 100 mm draw box flush mounted complete chased into brickwork	No.	7					
3.2	DISTRIBUTION BOARDS							
	Allowance should be made for the following electrical equipment.							
	Supply, deliver, install and commissioning of electrical distribution boards painted steel panel complete with doors, frames, sub-frames, chassis, fixtures, fittings, terminations, busbars, wiring, labels danger signs and with spare space etc as per specification.							
	<u>Equipment to be provided in distribution board</u>							
	See attached single line diagram for details of the equipment to be provided in the electrical distribution board where applicable							
	DB-A	No.	1					
	DB-B	No.	1					
	DB-C	No.	1					
3.3	LIGHT FITTINGS							
	Luminaries and accessories as specified in the specification							
	Allowance should be made for the following electrical equipment							
	Light fittings as specified in the specification - the light fitting specified must comply to the quality specified in the specification.							
	600V/1000V grade PVC insulated stranded copper conductor drawn in conduit - 2.5 mm sir PVC conductors and 2.5mm sir BCEW							
	Draw boxes, conduits equipped with draw wire placed in position for casting into concrete or screed, for building in or chased into concrete or brickwork and for surface mounted in ceiling voids including bending threading, short lengths, draw boxes, couplings, bends, tees and saddles etc. as specified:							
	Installed and mounted to round draw boxes in or ceiling voids or roof trusses including all fixing brackets, supports, connectors, connections complete with lamps							
TOTAL CARRIED FORWARD								

CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE RESERVE

SECTION 2: ELECTRICAL WORKS

SCHEDULE 3: INTERNAL ELECTRICAL INSTALLATION

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY RATE	INSTALL RATE	SUPPLY PRICE	INSTALL PRICE	TOTAL
TOTAL BROUGHT FORWARD								
3.3.1	Vapourline 36W	No.	10					
3.3.2	Bulkhead Round black NW 20WLED complete with its holder and cover	No.	16					
3.3.3	Single lever one way light switch complete with all accessories	No.	4					
	Photo cell/ Day night switch with controller	No.	3					
3.3.4	20 mm diameter steel galvanized conduit complete installed with all bends, fixing saddles, adaptors, chased into walls, act. as specified.	m	200					
3.3.5	25 mm diameter Steel Galvanized conduit complete installed with all bends, fixing saddles, adaptors, chased into walls, act. as specified.	m	200					
3.3.6	100 mm x 50 mm draw box surface mounted complete installed into Brickwork	m	10					
3.4	EARTHING AND BONDING							
3.4.1	Complete EARTHING and bonding of all water pipes, waste pipes, trunking, cable ladders, trays, etc.	Sum	1					
3.4.2	Clean earth installation for the voice data installation to be tested and upgrade complete as required, etc.	Sum	1					
TOTAL CARRIED TO SUMMARY OF SCHEDULE OF QUANTITIES								

CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE RESERVE

SECTION 2: ELECTRICAL WORKS

SCHEDULE 4: COMMISSIONING OF INSTALLATION

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY RATE	INSTALL RATE	SUPPLY PRICE	INSTALL PRICE	TOTAL
	SCHEDULE 4: COMMISSIONING OF INSTALLATION							
4	COMMISSIONING OF INSTALLATION							
4,1	Allow for inspection, testing and commissioning of the complete installation.	Sum	1					
4,2	Allow for the preparation of shop drawings or samples for examination as specified.	Sum	1					
4,3	Allow for the provision of a Certificate of Compliance in terms of the SANS specifications for each completed distribution board.	Sum	1					
4,4	Allow for the provision of a complete set (3 Copies) of marked-up record "as-built" drawings of the final layout of the electrical services.	Sum	1					
TOTAL CARRIED TO SUMMARY OF SCHEDULE OF QUANTITIES								

**CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE RESERVE
SECTION 2: ELECTRICAL WORKS**

SUMMARY OF SCHEDULES

ITEM	DESCRIPTION	Amount (Rand)
1	SCHEDULE 1: CABLES AND ACCESSORIES	
2	SCHEDULE 2: TRENCHING AND EXCAVATIONS	
3	SCHEDULE 3: INTERNAL ELECTRICAL INSTALLATION	
4	SCHEDULE 4: COMMISSIONING OF INSTALLATION	
TOTAL CARRIED FORWARD TO SUMMARY OF SECTIONS		

CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE RESERVE
SECTION 3: WET SERVICES
SCHEDULE 1: PRELIMINARIES AND GENERAL

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY RATE AMOUNT	TOTAL AMOUNT
1	Site Establishment	Sum	1		
2	Workshop Drawings	No	3		
3	OPERATING AND MAINTENANCE MANUALS The Contractor shall make provision for 4 x copies of O & M Manuals in accordance with the detail in the Standard specification.	No	3		
4	TRAINING OF CLIENTS STAFF The Contractor shall make provision for 1 full day's training of the Clients Staff, on the operation of the installation.	Sum	1		
5	AS-BUILT LAYOUT DRAWINGS The Contractor shall make provision for a detailed set of As Fitted Layout drawings of the entire installation, as the project progresses.	No	3		
6	COMMISIONING AND TESTING The Contractor shall make provision to commission and pressure test the installation during construction MAINTENANCE AND GUARANTEE	Sum	1		
7	Pressure testing	Sum	1		
8	The Contractor shall make provision for 1 x Full years Maintenance and Guarantee of the entire installation. 11 x Standard Maintenance visits and 1 x Major service is required throughout the 12 months.	Sum	1		
	Total Carried Forward To Summary				

CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE RESERVE

SECTION 3: WET SERVICES

SCHEDULE 2: DOMESTIC HOT AND COLD WATER PIPE INSTALLATION

ITEM	ITEM DESCRIPTION	UNIT	QTY	SUPPLY RATE AMOUNT	INSTALL RATE AMOUNT	TOTAL AMOUNT
1	<u>DOMESTIC HOT AND COLD WATER PIPE INSTALLATION</u>					
1,1	Galvanised Pipe: (Surface Mounted) Water piping in accordance with SANS 460 installed complete with short lengths, cutting, plain couplings, capillary solder and jointing strictly in accordance with the Manufacturer's instructions, support brackets etc. All coldwater pipes to be installed as per SANS 10252 regulations.					
1.1.1	dia 100	m	20			
1.1.2	dia 50	m	20			
1,2	Bends: Extra over Galvanised piping for capillary fittings in accordance with SANS 1067 - 2 complete with hangers, brackets, soldering , etc.					
1.2.1	dia 42	No	5			
1.2.2	dia 35	No	5			
1,3	Tees: Extra over Galvanised piping for capillary fittings in accordance with SANS - 10252 complete with hangers, brackets, soldering , etc.					
1.3.1	dia 50-50-50	No	2			
1.3.2	dia 35-35-35	No	2			
1,4	Reducers Extra over Galvanised piping for capillary fittings in accordance with SANS - 2 complete with hangers, brackets, soldering , etc.					
1.4.1	100-76	No	2			
1.4.2	76-50	No	2			
Total Carried Forward						

CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE RESERVE

SECTION 3: WET SERVICES

SCHEDULE 2: DOMESTIC HOT AND COLD WATER PIPE INSTALLATION

ITEM	ITEM DESCRIPTION	UNIT	QTY	SUPPLY RATE AMOUNT	INSTALL RATE AMOUNT	TOTAL AMOUNT
2	ISOLATING VALVES: Ball type Isolating Valve complete with couplings to piping, etc., all strictly in accordance with Manufacturer's instructions and complying to SANS 1056 - 3					
2,1	dia 100	No	5			
2,2	dia 50	No	5			
3	BALANCING VALVES: Specified Balancing Valve complete with couplings to piping, etc., all strictly in accordance with Manufacturer's instructions.					
3,1	dia 50-50-50	No	2			
3,2	dia 35	No	2			
4	Strainers: Specified Strainer complete with couplings to piping, etc., all strictly in accordance with Manufacturer's instructions.					
4,1	dia 100	No	2			
4,2	dia 50	No	2			
5	ELECTRIC MOTOR PUMPSET Pump specification @ min 100 l/min @ 15 m All control panels with basic alarms. Electrical installation within the confines of the pump house with cable runs not exceeding 6 m between pump & panels supplied. 2 Tier Autostart arrangement c/w pressure switches and gauges. Includes pump house pipe work and tank to pump complete with valves and trim.	No	2			
6	PUMP CONTROLS Supply install pump, Emergency electric power requirement complete with all necessary accessories	No	2			
Total Carried Forward To Summary						

**CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE RESERVE
SECTION 3: WET SERVICES**

SUMMARY OF SCHEDULES

ITEM	DESCRIPTION	AMOUNT
1	SCHEDULE 1: PRELIMINARIES AND GENERAL	
2	SCHEDULE 2: DOMESTIC HOT AND COLD WATER PIPE INSTALLATION	
Total Carried Forward To Summary Of Sections		

Qualifications:

- 1 This Bill of Quantities forms part of the contract documents and is to be read in
- 2 All works billed here shall include for the full scope of service specified including but not
- 3 Quantities indicated here are to be verified by the contractor against the project
- 4 No variation in rates shall be due based on variation in quantities, rate of exchange or
- 5 Errors and omissions of equipment or material required to execute the project solution
- 6 All works required to execute the scope of works in accordance with the project
- 7 Rates provided shall include for fixing, hangers, fittings, transformations, sealant and all
- 8 The bill of quantities shall not be used as the basis for material order.

**CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE RESERVE
SECTION 4: FIRE SERVICES**

SCHEDULE 1: PRELIMINARIES AND GENERAL

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY RATE AMOUNT	TOTAL AMOUNT
1	Site Establishment	Sum	1		
2	Workshop Drawings	No	3		
3	OPERATING AND MAINTENANCE MANUALS The Contractor shall make provision for 4 x copies of O & M Manuals in accordance with the detail in the Standard specification.	No	3		
4	TRAINING OF CLIENTS STAFF The Contractor shall make provision for 1 full day's training of the Clients Staff, on the operation of the installation.	Sum	1		
5	AS-BUILT LAYOUT DRAWINGS The Contractor shall make provision for a detailed set of As Fitted Layout drawings of the entire installation, as the project progresses.	No	3		
6	COMMISSIONING AND TESTING The Contractor shall make provision to commission and pressure test the installation during construction	Sum	1		
7	PRESSURE TESTING	Sum	1		
8	The Contractor shall make provision for 1 x Full years Maintenance and Guarantee of the entire installation. 11 x Standard Maintenance visits and 1 x Major service is required throughout the 12 months.	Sum	1		
9	SHOP DRAWINGS				
9,1	Submission of shop drawings	Sum	1		
10	NON-RETURN VALVE (SIZE TO BE CONFIRMED WITH CIVIL CONTRACTOR - ALLOWED FOR DIAMETER 100 mm)	No	1		
11	FIRE SIGNAGE AS INDICATED IN THE DRAWINGS ISSUED	Sum	1		
12	DESIGN, SUPPLY, AND INSTALLATION OF OBLIQUE ANGLED FIRE HYDRANTS WITH 65 mm DIAMETER INSTANTANEOUS COUPLINGS TO SANS 10400 AND SANS 10252. PIPE TO CONNECT TO UNDERGROUND PIPEWORK (BY CIVIL ENGINEER). ITEM TO INCLUDE THE TESTING OF THE INSTALLATION.	No	1		
	Total Carried Forward To Summary				

CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE RESERVE

**SECTION 4: FIRE SERVICES
SCHEDULE 2: ENTIRE SITE**

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY RATE AMOUNT	LABOUR RATE AMOUNT	TOTAL AMOUNT
1	External Above Ground Fire Equipment Installation					
1,1	65 mm Pillar Type Fire Hydrant	No.	2			
1,2	F13 Signage 190mm x 190mm	No.	2			
1,3	F30 Signage 290mm x 290mm	No.	2			
1,4	100mm piping Underground Class 12 uPVC	No.	150			
1,5	50mm piping Underground Class 12 uPVC	No.	900			
1,7	30 m Fire Hose Reel	No.	2			
	Total Carried Forward To Summary					

CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE RESERVE

**SECTION 4: FIRE SERVICES
SCHEDULE 3: PLANT AREA**

ITEM	ITEM DESCRIPTION	UNIT	QTY	SUPPLY RATE AMOUNT	INSTALL RATE AMOUNT	TOTAL AMOUNT
1	FIRE WATER INSTALLATION					
1,1	Galvanised Pipe: Installed above ground Medium Class Galvanised steel water piping in accordance with SANS 62-1 installed complete with short lengths, cutting, plain couplings, capillary solder and jointing strictly in accordance with the Manufacturer's instructions, support brackets etc. All coldwater pipes to be installed as per SANS 10252 regulations.					
1.1.1	dia 100	m	200			
1.1.2	dia 50	m	100			
1,2	Bends: Extra over Galvanised piping for capillary fittings in accordance with SANS 1067 - 2 complete with hangers, brackets, soldering , etc.					
1.2.1	dia 100	No	8			
1,3	Tees: Extra over Galvanised piping for capillary fittings in accordance with SANS - 10252 complete with hangers, brackets, soldering , etc.					
1.3.1	dia 100-100-100	No	5			
1,4	Reducers Extra over Galvanised piping for capillary fittings in accordance with SANS - 2 complete with hangers, brackets, soldering , etc.					
1.4.1	100 - 50	No	6			
2	ISOLATING VALVES: Ball type Isolating Valve complete with couplings to piping, etc., all strictly in accordance with Manufacturer's instructions and complying to SANS 1056 - 3					
2,1	dia 100	No	5			
3	Strainers: Specified Strainer complete with couplings to piping, etc., all strictly in accordance with Manufacturer's instructions.					
3,1	dia 100	No	2			
4	ELECTRIC MOTOR PUMPSET (COMPLETE) Supply, delivery, installation,connection, testing and commissioning of Pump set with characteristics as per Wet Services Specification.					
4.1	1 off Electrical Booster Pump Entire spec for pump house. Entire Pumphouse spec: 4 off Electric driven pump c/w direct reading flow meter Duty min 15/s @ 430m.; Complete with mild steel base plate, flexible coupling, guard, valves and fittings to complete the function of the pressurised water system. All control panels with basic alarms. Electrical installation within the confines of the pump house with cable runs not exceeding 6m between pumps & panels supplied. 2 Tier Autostart arrangement c/w pressure switches and gauges. Includes a direct reading flow meter 4" -450-B Includes Pump house pipe work and tank to pump work complete with valves and trim. Commisioning and handover	No.	1			
4.2	Electrical Supply from DB. Complete and Handover	No	2			
5	STORAGE TANK 80 kl Sectional steel tank c/w with all accessories and fittings	No	1			
	Total Carried Forward To Summary					

CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE RESERVE

SECTION 4: FIRE SERVICES

SUMMARY OF SCHEDULES

ITEM	DESCRIPTION	AMOUNT
1	SCHEDULE 1: PRELIMINARIES AND GENERAL	
2	SCHEDULE 2: ENTIRE SITE	
3	SCHEDULE 2: PLANT AREA	
Total Carried Forward To Summary Of Sections		

Qualifications:

- 1 This Bill of Quantities forms part of the contract documents and is to be read in conjunction therewith.
- 2 All works billed here shall include for the full scope of service specified including but not limited to supply,
- 3 Quantities indicated here are to be verified by the contractor against the project drawings. All
- 4 No variation in rates shall be due based on variation in quantities, rate of exchange or escalation.
- 5 Errors and omissions of equipment or material required to execute the project solution specified or
- 6 All works required to execute the scope of works in accordance with the project program and quality
- 7 Rates provided shall include for fixing, hangers, fittings, transformations, sealant and all other items required
- 8 The bill of quantities shall not be used as the basis for material order.

CONSTRUCTION OF THE BULK WATER SUPPLY AT BLYDE RIVER CANYON NATURE RESERVE

SUMMARY OF SECTIONS

ITEM	DESCRIPTION	AMOUNT
1	SECTION 1: CIVIL WORKS	
2	SECTION 2: ELECTRICAL WORKS	
3	SECTION 3: WET SERVICES	
4	SECTION 4: FIRE SERVICES	

SUB-TOTAL

ADD 10% CONTINGENCY

SUB-TOTAL

ADD 15% VAT

TOTAL (Carry forward to Form of Offer)
