

BILL OF QUANTITIES

REF. NO.	ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	R
	NOTE	The complete construction and installation must comply to the relevant SABS specification & the quality specification in this document. Therefore tenderers are advised to study the specifications and drawings before the bill is priced.					
	<b>A.</b>	<b>SECTION A: PRELIMINARY AND GENERAL</b>					
		<b>PRELIMINARY AND GENERAL</b>					
	<b>A.1</b>	<b>FIXED-CHARGE AND VALUE-RELATED ITEMS</b>					
	A.1.1	Contractual Requirements	sum	1			
		Establish facilities on Site:					
	A.1.2	1 x Name boards	sum	1			
		b) Facilities for Contractor					
	A.1.3	Offices and storage facilities	sum	1			
	A.1.4	Ablution facilities	sum	1			
	A.1.5	Tools and equipment	sum	1			
	A.1.6	Water supplies, electric power and communications	sum	1			
	A.1.7	Plant	sum	1			
	A.1.8	Compliance to the OSH Act including all site pro-grammes, inductions etc					
	A.1.8.1	Health and Safety plan and compliance with the environmental management requirements - submit for approval	sum	1			
	A.1.9	Public Liaison & Labour Coordinator					
	A.1.9.1	A suitable Public Liaison & Labour Coordinator from the community must be appointed in liaison with Trust	Sum	1			
	A.1.10	Remove Contractor's site establishment on completion	sum	1			
	<b>A.2</b>	<b>TIME-RELATED ITEMS</b>					
	A.2.1	Contractual Requirements	sum	1			
		Operate and maintain facilities on the Site:					
		b) Facilities for Contractor for duration of construction, except where otherwise stated					
	A.2.2	Offices and storage facilities	sum	1			
	A.2.3	Ablution and latrine facilities	sum	1			
Total Carried Forward							

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Brought Forward						
	A.2.4	Tools and equipment	sum	1		
	A.2.5	Water supplies, electrical power and communications	sum	1		
	A.2.6	Plant	sum	1		
	<b>A.3</b>	<b>TESTING</b>				
	A.3.1	Testing of materials by Engineer (additional to that specified in the SABS)	prov sum			10 000.00
	A.3.1.2	Contractor's cost and profit on Item A.3.1 (state % and extend as an amount)	%			
<b>Total Carried Forward to Summary</b>						

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REF. NO.	ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	R
	B.	SECTION B: FILTRATION SYSTEM					
	<b>B.3</b>	<b>FILTRATION SYSTEM INSIDE BUILDING</b>					
		Supply, deliver and install and commission the following filters and related items (TABLE D FLANGES):					
	B.3.1	250 mm Ø flanged galvanized steel pipe section, 4000 mm long each with 3 x 80 mm radial flanged outlets, 1 x 25 mm Ø threaded socket and 1 x 50 mm Ø threaded socket	no	3			
	B.3.2	80 mm x 3" flanged backflush valves complete with sagiv and 24 volt solenoid	no	9			
	B.3.3	Sandfill vertical inlet Con40 or similar sand filters capable of filtering 35 m <sup>3</sup> /h/filter.	no	9			
	B.3.4	40 kg bags filter sand (0.6 - 1.5 mm)	no	90			
	B.3.5	80 mm Ø 200 micron disc filters/cw all required fittings.	no	9			
	B.3.6	Supply, deliver and installation of a backwash controller unit, installed in the DB board	sum	1			
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Brought Forward							
	B.3.7	Supply and install electrical control cables from the solar panel to the backflush valves.	sum	1			
	B.3.8	Supply and install 110 mm Ø Class 6 PVC pipe for backwash purposes.	m	40			
	B.3.9	Supply and install saddles to fit the 110 mm Ø backwash pipe connecting the backflush valves and the backwash pipe with all related fittings	no	9			
	B.3.10	100 mm Ø check valve with fittings to be installed on the 110 mm Ø backwash PVC pipeline	no	1			
	B.3.11	110 mm x 90mm Ø PVC Tee	no	8			
	B.3.12	110 mm Ø 90 deg bends		1			
	B.3.13	All bolts, nuts, packings and other accessories needed for the installation of items under B.3.	sum	1			
	<b>B.4</b>	<b>OUTLET PIPEWORK</b>					
	B.4.1	250 mm Ø flanged galvanised steel pipe section 4000 mm long each with 3 x 80 mm radial flanged inlets	no	3			
	B.4.2	Magnetic flow meter for a 250mm pipe, Endress & Hauser or equal with capacity to accurately show the current flow in cubic meters per hour or litres per second.	no	1			
	B.4.3	Supply and install electrical control cables from the solar panel to the electro magnetic flow meter.	m	20			
	B.4.4	250 mm Ø flanged galvanised steel pipe section 1300 mm long with 1 x 50 mm Ø threaded socket and 1 x 25 mm Ø threaded socket	no	1			
	B.4.5	250 mm Ø flanged S-pipe galvanised steel section 1400 mm long	no	1			
	B.4.6	50 mm Ø ARI airvalve with 50 mm ball valve and connections to the 50 mm threaded socket complete	no	1			
	B.4.7	6 Bar pressure gauge with connections to the 25 mm threaded socket	no	1			
	B.4.8	250mm steel x 250mm PVC flange adaptor c/w VJ coupling and all bolts and nuts to connect steel to PVC mainline.	no	1			
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REF. NO.	ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	R
						Brought Forward	
	<b>B.5</b>	<b>SUPPLY LINES, BACKWASH SYSTEM AND FITTINGS</b>					
		<b>BACKWASH PIPELINE SYSTEM FROM FILTRATION UNIT TO RIVER</b>					
		Supply, deliver pipes & fittings, excavate in all materials for trenches backfill, compact, test and commission and dispose of surplus material:					
		<b>NB: price for pipes should include trenching, levelling, compaction and backfilling to required specifications using soil free of foreign materials (stones etc) which should be imported to site.</b>					
	B.5.1	110mm PVC c6 c/w all fittings	m	500			
		PV solar panels on a mast 4m high c/w all relevant components.			Prov Sum		<b>60 000</b>
		Contractor's cost and profit on Item B5.1 (state % and extend as an amount)	%				
SANS1200L	<b>B.6</b>	<b>PVC SUPPLY LINES</b>					
		Supply, deliver pipes & fittings, excavate in all materials for trenches backfill, compact, test and commission and dispose of surplus material:					
		<b>NB: price for pipes should include trenching, levelling, compaction and backfilling to required specifications using soil free of foreign materials (stones etc) which should be imported to site.</b>					
	B.6.1	250 mm dia PVC Class 4	m	1650			
	B.6.2	200 mm dia PVC Class 4	m	450			
	B.6.3	125 mm dia PVC Class 4	m	460			
	<b>B.7</b>	<b>PVC FITTINGS AND SPECIALS</b>					
		Supply, deliver pipes & fittings, excavate in all materials for trenches backfill, compact, test and commission and dispose of surplus material:					
		<b>NB: price for all items should include trenching, levelling, compaction and backfilling to required specifications using soil free of foreign materials (stones etc) which should be imported to site.</b>					
	B.7.1	250mm dia equal Tee piece	no	6			
	B.7.2	250 x 250 x 125mm dia Tee piece	no	6			
	B.7.3	200x200x125mm Tee piece	no	6			
	B.7.4	250-200mm Reducer	no	6			
	B.7.5	200-125 mm Reducer	no	6			
	B.7.7	250mm 90° Bend	no	4			
	B.7.8	125mm 90° Bend	no	6			
	B.7.9	250mm PVC end cap	no	3			
		125mm PVC end cap	no	24			
	B.7.10	Concrete Anchor/Thrust Blocks as per dimensions on drawings to support all the above specials (i.e. bends, tees and end caps) as per drawings detail.	sum	1			
	<b>B.8</b>	<b>Valves and fittings</b>					
	B.8.1	250 mm dia PVC to 250 mm galvanised steel flange adaptor c/w VJ couplings and bolts and nuts.	no	6			
	B.8.2	250mm dia flanged gate valve (RSV)	no	3			
	B.8.3	Valve chambers as per drawing	no	3			
	B.8.4	Concrete Anchor/Thrust Blocks as per dimensions on drawings to support all valves as per drawing	sum	3			
	B.8.5	All bolts, nuts, packings and other accessories needed for the installation of items under B.8	sum	1			
		<b>Total Carried Forward to Summary</b>					

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SANS1200L	C.	<b>SECTION C: IN-FIELD UNDERGROUND PIPES AND EQUIPMENT</b>					
		Supply, deliver pipes & fittings, excavate in all materials for trenches backfill, compact, test and commission and dispose of surplus material:					
		<b>NB: price for pipes &amp; equipment should include trenching, levelling, compaction and backfilling to required specifications using soil free of foreign materials (stones etc) which should be imported to site.</b>					
	C.1	<b>UNDERGROUND IRRIGATION MANIFOLD PIPELINES AND ACCESSORIES</b>					
		<b>MANIFOLD PIPES &amp; FITTINGS</b>					
	C.1.1	160 mm dia PVC Class 4	m	71			
	C.1.2	140 mm dia PVC Class 4	m	159			
	C.1.3	125 mm dia PVC Class 4	m	428			
	C.1.4	110 mm dia PVC Class 4	m	1431			
	C.1.5	90 mm dia PVC Class 4	m	395			
	C.1.6	75 mm dia PVC Class 4	m	98			
	C.1.7	63 mm dia PVC Class 4	m	833			
	C.1.8	160 x 140mm Reducer	no	11			
	C.1.9	140 x 125mm Reducer	no	21			
	C.1.10	140 x 110mm Reducer	no	1			
	C.1.11	125 x 110mm Reducer	no	24			
	C.1.12	110 x 90mm Reducer	no	9			
	C.1.13	110 x 63mm Reducer	no	9			
	C.1.14	90 x 63mm Reducer	no	6			
	C.1.15	90 x 75mm Reducer	no	3			
	C.1.16	75 x 63mm Reducer	no	2			
	C.1.17	75 mm Backwash system for manifold	no	3			
	C.1.18	90 mm Backwash system for manifold	no	6			
	C.1.19	110 mm Backwash system for manifold	no	15			
	C.2	<b>VALVE CLUSTERS (200mm &amp; 150mm)</b>					
	C.2.1	150mm automatic hydraulic valve	no	24			
	C.2.2	150x1200mm Flanged S pipe c/w 1" barrel nipple	no	24			
	C.2.3	150x1200mm Flanged S pipe c/w 2" barrel nipple	no	24			
	C.2.4	2" Dual purpose air valve	no	24			
	C.2.5	25mm Hydromatic c/w sagiv & pressure reducing pilot	no	24			
	C.2.6	2"Ball valve	no	24			
	C.2.7	6 Bar pressure gauges to be installed downstream of the valve.	no	24		-	
	C.2.8	150mm steel to 125 mm PVC flanged adaptor c/w vj couplings	no	24			
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	<b>D.</b>	<b>SECTION D: ABOVE GROUND IRRIGATION SYSTEM IN VINEYARD</b>					
		Supply, deliver pipes & fittings, excavate in all materials for trenches backfill, compact, test and commission and dispose of surplus material:					
		<b>NB: All laterals to be installed and secured on trellising wire at approximately 1.8m high above ground level.</b>					
	D.1	15mm Class 3 Poly Agriflo (100m coils)	coils	49			
	D.2	20mm Class 3 Poly Agriflo (100m coils)	coils	319			
	D.3	25mm Class 3 Poly Agriflo (100m coils)	coils	311			
	D.4	32mm Class 3 Poly Agriflo (100m coils)	coils	125			
	D.5	40mm Nylon Elbow PXP	no	10			
	D.6	32mm Nylon Elbow PXP	no	950			
	D.7	25mm Nylon Elbow PXP	no	400			
	D.8	20mm Nylon Elbow PXP	no	75			
	D.9	15mm Nylon Elbow PXP	no	18			
	D.10	32 x 25mm Nylon Reducer PXP	no	975			
	D.11	25 x 20mm Nylon Reducer PXP	no	1156			
	D.12	20 x 15mm Nylon Reducer PXP	no	227			
	D.13	40mm Grommets	no	10			
	D.14	32mm Grommets	no	950			
	D.15	25mm Grommets	no	400			
	D.16	20mm Grommets	no	75			
	D.17	15mm Grommets	no	18			
	D.18	Brown nozzle, swivel medium range Gulf microsprinkler or equal c/w all fittings, tubing, stake plastic and accessories to secure the sprinkler approx 300mm above ground and to connect it to the lateral on the trellising wire. i.e. Approximately 1.8m above ground. Sprinkler to provide 30litres/hr at 10m pressure.	no	60100			
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	<b>E.</b>	<b>SECTION E: IRRIGATION CONTROL</b>					
		Supply and install the following above, irrigation control components complete with accessories:					
	E.1	Motech in-field control system and 2 moisture probes per irrigation block (1 Ha each). System to be linked to computer system at the pump house.	sum	1			
	E.2	HP Elitebook 850 G2-Intel Core i7-550U Processor (see attached specifications).	sum	1			
	E.3	Any additional items required to smoothly operate the irrigation control unit.	sum	1			
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	<b>F.</b>	<b>SECTION F: LIQUID FERTILIZER DOSAGE SYSTEM</b>					
	<b>F.1</b>	<b>PLASTIC TANKS</b>					
		Supply and install the following chemical resistant, SG1.6 type plastic tanks complete with 40 mm Ø outlet:					
	F.1.1	10 000 liter Tank	no	1			
	F.1.2	5 000 liter Tank	no	1			
	F.1.3	2 000 liter Tank	no	1			
	<b>F.2</b>	<b>PIPE LINES</b>					
		Supply and install the following pipes between the plastic tank and delivery pipe:					
	F.2.1	40 mm Ø HDPE Class 10 pipe	m	25			
	<b>F.3</b>	<b>VALVES</b>					
		Supply and install the following inline valves:					
	F.3.1	40 mm Ø non-return Valve	no	3			
	F.3.2	40 mm Ø gate Valve	no	4			
	F.3.3	40 mm ball valve	no	3			
	<b>F.4</b>	<b>PUMP</b>					
		Supply the following pump complete:					
	F.4.1	Grundfoss CRN1-9 or equal	no	1			
	<b>F.5</b>	<b>FLOW MEASURING TUBE</b>					
		Supply and install the following complete:					
		Flow measuring tube	no	1			
	<b>F.6</b>	<b>AUTOMATION</b>					
	F.6.1	Provision of an auxiliary switch in the starter to ensure that fertiliser system operates concurrently with the whole irrigation system. i.e. It switches on and off at the same time as the main irrigation system	sum	1			
	<b>G</b>	<b>Structure</b>					
	G.1	150 mm thick 30 Mpa wood float finished concrete slab c/w welded steel mesh reinforcement fabric, ref 311, set in position for imbedding in floor, including all cutting and bending, lapping 400 mm at joints and maintaining in position with approved spacers whilst concreting	m <sup>3</sup>	7.5			
	G.2	Design, supply, fabricate, deliver on site and construct the portal frame steel structure. The steel frame structure should have the following dimensions. 14m long x 3m wide and 3m high. 0.6 mm IBR galvanized roof sheeting with standard Bull nose roof pitch to be 5 Degrees. Structural engineers certificate for the design must be submitted.	no	1			
	<b>H</b>	<b>Trellising</b>					
	H.1	Labour to construct a trellis system as per specifications, including all excavations.	ha	25			
	H.2	Manufacturing of anchors (See specifications in drawing). Apply two coats of red-oxide on anchor rods	no	1455			
<b>Total Carried Forward to Summary</b>							