JOHANNESBURG WATER

CONTRACT NO **JW 14463**

FOR **HALFWAY HOUSE WATER UPGRADE PROJECT**

SUMMARY OF SCHEDULE OF QUANTITIES: BULK WATER PIPELINE

SANS 1200 A	:	GENERAL	R
SANS 1200 A.1	:	GENERAL (SMME VALUE OF WORK)	R
SANS 1200 C	:	SITE CLEARANCE	R
SANS 1200 D	:	EARTHWORKS	R
SANS 1200 DB	:	EARTHWORKS (PIPE TRENCHES)	R
SANS 1200 DK	:	GABIONS AND PITCHING	R
SANS 2001 CC1	:	CONCRETE (STRUCTURAL)	R
SANS 1200 HA	:	STRUCTURAL STEELWORK (SUNDRY ITEMS)	R
SANS 1200 L	:	MEDIUM-PRESSURE PIPELINES	R
SANS 1200 LB	:	BEDDING (PIPES)	R
SANS 1200 LE	:	STORMWATER DRAINAGE	R
SANS 1200 LG	:	PIPE JACKING	R
SANS 1200 ME	:	SUBBASE	R
SANS 1200 MF	:	BASE	R
PARTICULAR SPECIFICATION PC: DIRECTIONAL DRILLING			R
PARTICULAR SPECIFICATION PD: BUILDING WORK			R
ELECTRICAL	:		R
MECHANICAL	:		R

TOTAL OF SCHEDULE OF QUANTITIES CARRIED TO CALCULATION OF TENDER SUM R

CALCULATION OF TENDER SUM

TOTAL OF SCHEDULE OF QUANTITIES	R
CONTINGENCIES The tenderer shall add 10% of the total of Schedule of Quantities for Contingencies	R
ESCALATION (6.7%)	R
SUBTOTAL	R
VALUE-ADDED TAX (VAT) The tenderer shall add 15% of the subtotal for value-added tax	R

TENDER SUM CARRIED TO FORM OF TENDER R

GENERAL

PAYMENT REFERS	ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
SANS 1200 A	**110.00**	**GENERAL**				
		FIXED CHARGE ITEMS				
8.3	**110.01**	**Contractual Requirements**	Sum	1		
8.3.2	**110.02**	**Establishment of Facilities on Site**				
SANS 1200 AB	**110.02.01**	**Facilities for the Engineer**				
PSA 8.2.1	110.02.01.01	Furnished offices (3 No - 1 No Type 1, 1 No Type 2, 1 No Type 3)	Sum	1		
PSA 8.2.1	110.02.01.02	Computer equipment	Sum	1		
PSA 8.2.1	110.02.01.03	Nameboards (2 No)	Sum	1		
PSA 8.2.1	110.02.01.04	Carport	Sum	1		
SANS 1200 A 8.3.2.1	110.02.01.05	Kitchen	Sum	1		
	110.02.01.06	Ablution and latrine facilities both male and female	Sum	1		
	110.02.01.07	Survey equipment and assistance	Sum	1		
	110.02.01.08	Safety equipment, including safety shoes, hard hat, eye protection, gloves, ear protection, dust mask, removable revolving orange light for vehicle & reflective vest for 10 No people	Prov sum	1	30,000.00	30,000.00
	110.02.01.09	Overheads, charges and profit on safety equipment	%	30,000.00	10%	3,000.00
8.3.2.2	**110.02.02**	**Facilities for the Contractor**				
	110.02.02.01	Offices and storage sheds	Sum	1		
	110.02.02.02	Workshops	Sum	1		
	110.02.02.03	Laboratories	Sum	1		
	110.02.02.04	Ablution and latrine facilities	Sum	1		
	110.02.02.05	Tools and equipment	Sum	1		
	110.02.02.06	Water Supply, Electrical power and communications	Sum	1		
	110.02.02.07	Dealing with water	Sum	1		
	110.02.02.08	Access	Sum	1		
	110.02.02.09	Transport to and establish on site all Construction plant and equipment	Sum	1		
	110.02.02.10	Mobile Toilets on Site	Sum	1		
1200 A	Carried forward					

GENERAL

PAYMENT REFERS	ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Brought forward				
SANS 1200A 8.3.4	**110.03**	**Remove Contractors Site Establishment and make good**	Sum	1		
	110.03.01	Other fixed charge obligations not covered above (Tenderer to list)				
	110.03.01.01		Sum	1		
	110.03.01.02		Sum	1		
	110.03.01.03		Sum	1		
	110.03.01.04		Sum	1		
PSA 8.3.5	**110.04**	**Additional Contractual Obligations**				
PSA 8.3.5.1	110.04.01	Notice and warning to consumers	Sum	1		
PSA 8.3.5.2	110.04.02	OHS Act Obligations	Sum	1		
PSA 8.3.5.3	110.04.03	EMP Obligations	Sum	1		
8.3.5.4	110.04.04	Dilapidation Survey	Sum	1		
		TIME RELATED ITEMS				
PSA 8.4.1	**110.05**	**Contractual Requirements**	Sum	1		
8.4.2	**110.06**	**Operation and maintenance of facilities on site, for duration of construction, except where otherwise stated**				
SANS 1200 AB	**110.06.01**	**Facilities for the Engineer**				
PSAB 8.2.2	110.06.01.01	Furnished offices (3 No - 1 No Type 1, 1 No Type 2, 1 No Type 3)	Sum	1		
PSAB 8.2.2	110.06.01.02	Telephone (and computer equipment)	Sum	1		
PSAB 8.2.2	110.06.01.03	Carport	Sum	1		
SANS 1200 A PSAB 8.3.2.1	110.06.01.04	Kitchen	Sum	1		
	110.06.01.06	Ablution and latrine facilities both male and female	Sum	1		
	110.06.01.07	Survey equipment and assistance	Sum	1		
	110.06.01.08	Safety equipment, including safety shoes, hard hat, eye protection, gloves, ear protection, dust mask, removable revolving orange light for vehicle & reflective vest for 10 No people	Sum	1		
1200 A	Carried forward					

PAYMENT REFERS	ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Brought forward				
SANS 1200A 8.4.2.2	**110.06.02**	**Facilities for the Contractor**				
	110.06.02.01	Offices and storage sheds	Sum	1		
	110.06.02.02	Workshops	Sum	1		
	110.06.02.03	Laboratories	Sum	1		
	110.06.02.04	Ablution and latrine facilities	Sum	1		
	110.06.02.05	Tools and equipment	Sum	1		
	110.06.02.06	Water Supply, Electrical power and communications	Sum	1		
	110.06.02.07	Dealing with water	Sum	1		
	110.06.02.08	Plant	Sum	1		
	110.06.02.09	First aid & medical services	Sum	1		
	110.06.02.10	Transport arrangements for labour from all communities to and from workplace to central collection / drop-off point	Sum	1		
	110.07	**Supervision for Duration of Contract**				
8.4.3	110.07.01	Company and head office overhead costs for the duration of the Contract	months	18		
8.4.5	110.08	Other time related obligations not covered above (Tenderer to list)				
	110.08.01		months	18		
	110.08.02		months	18		
	110.08.03		months	18		
	110.08.04		months	18		
PSA 8.4.6	**110.09**	**Additional Obligations**				
PSA 8.4.6.1	110.09.01	OHS Act Obligations	Sum	1		
PSA 8.4.6.2	110.09.02	Security Services Costs	Month	18		
PSA 8.4.6.3	110.09.03	Electrical Safety Officer	Month	18		
PSA 8.4.6.4	110.09.04	CLO	Prov sum	1	900,000.00	900,000.00
	110.09.05	Overheads, charges and profit on item 110.09.04	%	900,000.00	10%	90,000.00
1200 A	Carried forward					

GENERAL

PAYMENT REFERS	ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Brought forward				
SANS 1200 A PSA 8.5	**110.10**	**Sums stated provisionally by the Engineer:**				
	110.10.01	**Works executed by Nominated Subcontractors**				
PSA 8.5.2	110.10.01.01	Alteration to existing services by authorities	Prov sum	1	714,609.60	714,609.60
	110.10.01.02	Overheads, charges and profit on item 110.10.01.01	%	714,609.60	10%	71,460.96
	110.10.01.03	Control survey by independent surveyor	Prov sum	1	360,000.00	360,000.00
	110.10.01.04	Overheads, charges and profit on item 110.10.01.03	%	360,000.00	10%	36,000.00
	110.10.01.05	Control tests by independent laboratory	Prov sum	1	119,101.60	119,101.60
	110.10.01.06	Overheads, charges and profit on item 110.10.01.05	%	119,101.60	10%	11,910.16
	110.10.01.07	Provision of photographic records	Prov sum	1	100,000.00	100,000.00
	110.10.01.08	Overheads, charges and profit on item 110.10.01.07	%	100,000.00	10%	10,000.00
	110.10.01.09	Temporary protection of services	Prov sum	1	595,508.00	595,508.00
	110.10.01.10	Overheads, charges and profit on item 110.10.01.09	%	595,508.00	10%	59,550.80
	110.10.01.11	Reinstatement of asphalt by JRA	Prov sum	1	2,000,000.00	2,000,000.00
	110.10.01.12	Overheads, charges and profit on item 110.10.01.11	%	2,000,000.00	10%	200,000.00
	110.10.01.13	Supply or hire of specialist equipment	Prov sum	1	2,000,000.00	2,000,000.00
	110.10.01.14	Overheads, charges and profit on item 110.10.01.13	%	2,000,000.00	10%	200,000.00
	110.10.01.15	Training of labour and SMMEs	Prov sum	1		
	110.10.01.16	Overheads, charges and profit on item 110.10.01.15	%	-		
PSA 8.4.2	110.10.01.17	Telephone and data charges for Engineers	Prov sum	1	50,000.00	50,000.00
	110.10.01.18	Overheads, charges and profit on item 110.10.01.17	%	50,000.00	10%	5,000.00
PSA 8.5.2	110.10.01.19	Fixed-Charge items for the sub-contractors Contractual Requirements	Prov sum	1	297,754.00	297,754.00
	110.10.01.20	Overhead, charges and profit for the Main Contractor to provide for fixed-charge items for the sub-contractors Contractual Requirements	%	297,754.00	10%	29,775.40
1200 A	Carried forward					

GENERAL

PAYMENT REFERS	ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Brought forward				
SANS 1200 A						
PSA 8.5.2	110.10.01.21	Time Related items for the sub-contractors Contractual Requirements	Prov sum	1	535,960.00	535,960.00
	110.10.01.22	Overhead, charges and profit for the Main Contractor to provide for time related items for the sub-contractors Contractual Requirements	%	535,960.00	10%	53,596.00
PSA 8.5.2	110.10.01.23	Specials and fittings for tie-in to existing Water meter Chamber (Dale Road)	Prov sum	1	100,000.00	100,000.00
	110.10.01.24	Overheads, charges and profit on item 110.10.01.23	%	100,000.00	10%	10,000.00
PSA 8.5.2	110.10.01.25	Specials and fittings for tie-in to existing water pipe (Harry Galaun Drive)	Prov sum	1	100,000.00	100,000.00
	110.10.01.26	Overheads, charges and profit on item 110.10.01.25	%	100,000.00	10%	10,000.00
PSA 8.5.2	**110.11**	**Remove and grub trees as instructed by JPCZ**	Prov sum	1	200,000.00	200,000.00
	110.11.01	Overheads, charges and profit on control tests by independent laboratory	%	200,000.00	10%	20,000.00
PSA 8.7	**110.12**	**Daywork (Provisional)**				
	110.12.01	Allowance for labour	Prov sum	1	595,510.00	595,510.00
	110.12.02	Percentage adjustment to item 110.12.01	%	595,510.00	10%	59,551.00
	110.12.03	Alowance for material	Prov sum	1	595,510.00	595,510.00
	110.12.04	Percentage adjustment to item 110.12.03	%	595,510.00	10%	59,551.00
	110.12.05	Allowance for plant	Prov sum	1	595,510.00	595,510.00
	110.12.06	Percentage adjustment to item 110.12.05	%	595,510.00	10%	59,551.00
PSA 8.8	**110.13**	**Temporary Works**				
PSA 8.8.2	110.13.01	Accommodation of traffic	Sum	1		
	110.13.02	Location and protection of existing services				
PSA 8.8.4	110.13.02.01	Electrical and other cables	Sum	1		
PSA 8.8.5	110.13.03	Survey and setting out of works	Sum	1		
PSA 8.8.6	110.13.04	Special water control	Sum	1		
PSA 8.8.7	110.13.05	Dealing with other service authorities, application for wayleaves, etc.	Sum	1		
1200 A	Carried forward					

GENERAL

PAYMENT REFERS	ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Brought forward				
SANS 1200A						
PSA 8.9	**110.14**	**Compliance with OHS Act Regulations (including the Construction Regulations, 2014)**	Sum	1		
PSA 8.10	**110.15**	**Quality Assurance and Management Plan**	Sum	1		
PSA 8.11	**110.16**	**Compliance with the Environmental Management Plan**	Sum	1		
	TOTAL SECTION 1200 A CARRIED TO SUMMARY					

GENERAL

PAYMENT REFERS	ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
SANS 1200 A SMME	**111.00**	**GENERAL**				
PSSC 1	110.11.01.19	Value of Subcontracted works	Prov sum	1	12,959,777.02	12,959,777.02
PSSC 2	110.11.01.20	Management fee for the Main Contractor	%	12,959,777.02		
	TOTAL SECTION 1200 A SMME CARRIED TO SUMMARY					12,959,777.02

SECTION 1200 C

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
SANS 1200 C	**130.00**	**SITE CLEARANCE**				
PSC 8.2.1	**130.01**	**Clear and grub:**				
		.01 Areas (chambers, structures, etc)	m²	1,322		
		.02 Strips, 3,0 m wide (water)	m	6,847		
8.2.2	**130.02**	**Remove and grub large trees and tree stumps of girth:**				
		.01 Over 1,0 m and up to and including 2,0 m	number	50		
		.02 Over 2,0 m and up to and including 3,0 m	number	10		
	130.03	**Extra over item 130.02 above to Reinstate Trees:**				
		.01 Over 1,0 m and up to and including 2,0 m	number	30		
8.2.4	**130.04**	**Reclear surfaces (only on instructions from the Engineer):**				
		.01 Areas	m²	50		
		.02 Strips, 3,0 m wide (water)	m	100		
8.2.5	**130.05**	**Take down existing fences**	km	10		
8.2.8	**130.06**	**Demolish and remove structures or buildings and dismantle steelwork etc.**				
		.01 Carport and Name Boards	Number	115		
		.02 Carefully remove paving blocks for re-use (car parking)	m²	28,187		
		.03 Asphalt surfacing (car parking)	m²	1,000		
		.04 Carefully remove paving blocks for re-use (Erf 3544)	m²	775		
		.05 Remove existing block retaining wall, 2300mm high	m	20		
		.06 Carefully remove kerb for re-use	m	100		
	130.07	**Extra over item 130.06 above for:**				
		.01 Re-erection and Reinstatement of Carport	Number	115		
		.02 Reinstatement of Paving Blocks (car parking)	m²	14,094		
		.03 Reinstatement of Asphalt/ concrete paving (car parking)	m²	1,000		
		.04 Reinstatement of paving blocks for re-use (Erf 3544)	m²	775		
		.05 Reinstate kerbs	m	100		
	130.08	**Transport materials and debris to unspecified site and dump**	m³	10		
1200 C	Carried forward					

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		Brought forward				
8.2.10	**130.09**	**Remove topsoil to nominal depth of 150 mm and stockpile**	m^3	3,074		
PSC 8.2.11	**130.10**	**Temporary fencing or hoarding:**				
		.01 1,8 m barbed wire class B fence	m	2,730		
PSC 8.2.12	**130.11**	**Take down and re-erect existing fences**				
		.01 Weldmesh fencing	m	30		
		.02 Boundary Brick wall	m	30		
		.03 Double Brick wall with Palisade fence	m	30		
		.04 Palisade fence	m	60		
		.05 Clear View(vu) fence or similar	m	150		
		.06 Electrical fence, 5 lines installed above clear view fence	m	150		
		.07 Sliding gates with clearview fencing	number	2		
		.08 Turnstile gate	Number	1		
	130.12	**Re-erect fences**				
		.01 Weldmesh fencing	m	15		
		.02 Palisade fence	m	30		
		.03 Clear View(vu) fence or similar	m	75		
		.04 Electrical fence, 5 lines installed above clear view fence	m	75		
		.05 Turnstile gate	Number	1		
	130.13	**Extra over for supply and erection of new fencing material**				
		.01 Supply and install complete weldmesh fencing including excavation, concrete and backfill to posts, etc	m	15		
		.02 Excavate for boundry wall, including excvation, concrete and backfilling	m	15		
		.03 Construct boundry wall complete, including plaster and paint	m^2	36		
		.04 Construct double Brick wall with Palisade fence complete, including excvation, concrete and backfilling	m	30		
		.05 Supply and install complete palisade fence including excvation, concrete and backfilling	m	15		
1200 C	Carried forward					

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		Brought forward				
PSC 8.2.12	**130.13**	.06 Supply and install complete clear-vu fence or similar including excvation, concrete and backfilling	m	75		
		.07 Supply and install complete electrical fence with five lines above clear view fence	m	75		
		.08 Supply and install complete sliding gate	number	2		
		.09 Construct new block retaining wall	m^2	23		
PSC 8.2.13	**130.14**	**Final finishing and cleaning up of the Site of the Works**	sum	1		
	TOTAL SECTION 1200 C CARRIED TO SUMMARY					

SECTION 1200 D

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
SANS 1200 D	**140.00**	**EARTHWORKS**				
PSD 8.3.3	**140.01**	**Restricted excavation:**				
		.01 Excavate for chambers, restricted foundations, etc. in all materials, and use for backfill or embankment, or dispose:				
		.01 Depth up to 2,0 m	m³	362		
		.02 Depth over 2,0 m and up to 4,0 m	m³	362		
		.03 Depth over 4,0 m and not exceeding 6m deep	m³	362		
		.04 Depth over 6,0 m and up to 15,0 m	m³	228		
		.02 Excavate for gabion boxes or mattresses in all all materials, and use for backfill or embankment, or dispose	m³	126		
		.03 Extra over items 140.01.01 to 140.01.03 above for:				
		.01 Intermediate excavation	m³	394		
		.02 Hard rock excavation	m³	131		
		.04 Extra over item 140.01 for hand excavation	m³	50		
8.3.5	**140.02**	**Extra excavation in all materials to provide working space around structure**	m²	263		
8.3.9	**140.04**	**Extra over items 140.01 and 140.02 for backfill or for fill material against structures**	m³	166		
PSD 8.3.8	**140.05**	**Existing services:**				
		.01 Hand excavation for locating and exposing existing services:				
		.01 In roadways	m³	50		
		.02 In all other areas	m³	50		
PSD 8.3.10	**140.06**	**Topsoiling**	m³	3,074		
8.3.11	**140.07**	**Grassing or other vegetation cover:**	m²	2,700		
PSD 8.3.14	**140.08**	**Extra over items 140.02.01 and 140.02 for temporary stockpiling**	m³	1,313		
PSD 8.3.15	**140.09**	**Extra over items 140.02.01 and 140.02 for disposing of spoil material on site provided by the Contractor**	m³	1,146		
SANS 1200 DM 8.3.3	**140.10**	**Treatment of roadbed:**				
		.01 Roadbed preparation and compaction of material to (under structure floor slabs):				
		.01 Minimum of 90% of modified AASHTO maximum density	m³	10		
		.02 Minimum of 93% of modified AASHTO maximum density	m³	81		
		.02 Stone layer preparation and compaction of material to (under floor slab)				
		.01 100mm Thick stone layer	m²	18		
	TOTAL SECTION 1200 D CARRIED TO SUMMARY					

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
SANS 1200 DB	**142.00**	**EARTHWORKS (PIPE TRENCHES)**				
		TRENCHES FOR WATER PIPES				
PSDB 8.3.2	**142.01**	**Excavate in all materials for trenches, backfill, compact and dispose of surplus material:**				
		.01 Pipes over 125 mm dia up to 400 mm dia for depths:				
		.02 Over 1,0 m up to 2,0 m	m	62		
		.02 Pipes over 500 mm dia up to 850 mm dia for depths:				
		.01 Up to 1,0 m	m	28		
		.02 Over 1,0 m up to 2,0 m	m	838		
		.03 Over 2,0 m up to 3,0 m	m	4,152		
		.04 Over 3,0 m up to 4,0 m	m	1,311		
		.05 Over 4,0 m	m	513		
PSDB 8.3.2	**142.02**	**Extra over item 142.01 above for:**				
		.01 Intermediate excavation	m^3	3,377		
		.02 Hard rock excavation	m^3	3,608		
		.03 Hand excavation where ordered by the Engineer:				
		.01 Soft material	m^3	200		
		.02 Intermediate material	m^3	100		
		.03 Hard material	m^3	10		
		.04 Backfill stabilized with 5% cement where directed by the Engineer	m^3	10		
		.05 Soilcrete backfill where directed by the Engineer	m^3	100		
8.3.2	**142.03**	**Excavate and dispose of unsuitable material from trench bottom**	m^3	3,608		
8.3.3	**142.04**	**Excavation ancillaries:**				
		.01 Make up deficiency in backfill material:				
		.01 From other necessary excavations on Site	m^3	10		
		.02 By importation from commercial or off-site sources selected by the Contractor	m^3	10		
1200 DB	Carried forward					

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		Brought forward				
8.3.3	**142.04** (cont)	.02 Compaction in road crossings				
		.01 93% of modified AASHTO density	m^3	150		
8.3.4	**142.05**	**Particular items:**				
		.01 Shore trench opposite structure or service	m	2,730		
		.02 Temporary Works: Control water inflow in pipeline:				
		.01 For new tie-in connection to existing chamber pipework (Feeder pipeline)	sum	1		
		.02 For new tie-in connection into exisitng water pipes (Supply pipeline)	sum	5		
PSDB 8.3.5	**142.06**	**Existing services that intersect or adjoin a pipe trench:**				
		.01 Services that intersect a trench:				
		.01 Fence crossings (all types)	number	12		
		.02 Eskom electrical cable crossings	number	10		
		.03 DFA cable crossings	number	5		
		.04 Stormwater pipe crossings	number	5		
		.05 Water pipe crossings	number	5		
		.06 Sewer pipe crossings	number	3		
		.07 3 m wide driveways containing block paving	number	2		
		.08 3 m wide driveways containing concrete paving	number	2		
		.09 6 m wide driveways containing block paving	number	8		
		.10 6 m wide driveways containing concrete paving	number	2		
PSDB 8.3.5	**142.06**	.02 Services that adjoin a trench:				
		.01 Fencing (all types)	m	2,817		
		.02 Stormwater pipes	m	100		
		.03 Water pipes	m	485		
		.04 Sewer pipes	m	580		
		.05 Eskom electrical cable crossings	m	200		
1200 DB	Carried forward					

SECTION 1200 DB

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		Brought forward				
PSDB 8.3.6	**142.07**	**Finishing:**				
		.01 Reinstate road surfaces complete with all courses:				
		.01 Gravel on shoulders	m^3	10		
8.3.6	**142.07** (cont)	.02 Asphalt of thickness 40 mm in parking area	m^2	450		
		.03 Gravel surfacing	m^3	10		
PSDB 8.3.6	**142.06**	.04 Paving blocks/bricks	m^2	450		
		.05 Kerbing	m	50		
PSDB 8.3.7	**142.07**	**Accommodation of traffic**	sum	1		
PSDB 8.3.13	**142.08**	**Supply all barricading and support as required for the construction of the bulk water line (within Erven 3544, Juskei View Property)**	Sum	1		
		TOTAL SECTION 1200 DB CARRIED TO SUMMARY				

SECTION 1200 DK

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
SANS 1200 DK	**146.00**	**GABIONS AND PITCHING**				
8.2.1	**146.01**	**Surface preparation for bedding of gabions: 5 no. Scour Valves**				
		.01 Cavities filled with approved excavated material or rock	m²	126		
8.2.2	**146.02**	**Gabions:**				
		.01 Gabion boxes of galvanized wire:				
		.01 100 mm x 100 mm mesh, 2,7 mm dia wire, 1,0 m x 1,0 m x 0,5 m boxes	m³	25		
		.02 Gabion mattresses of galvanized wire, up to 0,3 m deep:				
		.01 80 mm x 100 mm mesh, 2,6 mm dia wire, 6,0 m x 2,0 m x 0,3 m mattress	m³	38		
8.2.4	**146.03**	**Geotextile:**				
		.01 Grade 4 or approved equivalent	m²	147		
	TOTAL SECTION 1200 DK CARRIED TO SUMMARY					

SECTION 2001 CC1

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
SANS 2001 CC1	**170.00**	**CONCRETE (STRUCTURAL)**				
		SCHEDULED FORMWORK ITEMS				
SD8.2.1	**170.01**	**Rough:**				
		.01 Vertical formwork to:				
		.01 Outsides of sumps (floor edge and sides)	m²	9		
		.02 Outsides of base	m²	47		
		.03 Footing	m²	47		
		.04 Outsides of access chamber 1 walls upto 14m high	m²	333		
		.05 Outsides of access chamber 2 walls upto 6m high	m²	309		
		.02 Boxing out				
		.01 600 x 600 x 750mm deep Sump	number	5		
SD8.2.2	**170.02**	**Smooth:**				
		.01 Vertical formwork to:				
		.01 Insides of chamber walls	m²	10		
		.02 Insides of access chamber 1 walls up to 14m high	m²	292		
		.03 Insides of access chamber 2 walls up to 6m high	m²	293		
		.04 Outsides of chamber walls	m²	10		
		.05 Insides of sumps	m²	6		
		.06 Outsides of plinths and thrust blocks	m²	853		
		.07 Outsides of roof slabs	m²	21		
		.08 Sides of downstand and upstand beams	m²	20		
		.09 Sides of Capping Beams	m²	16		
		.04 Horizontal formwork to:				
		.01 Soffits of roof slabs (propped up exceeding 6,0m up to 7,5m)	m²	14		
		.02 Soffits of roof slabs (propped up exceeding 12,5m up to 14m)	m²	64		
		.03 Soffits of beams (propped up exceeding 6,0m up to 7,5m)	m²	4		
		.04 Soffits of Capping Beams (propped up exceeding 6,0m up to 7,5m)	m²	11		
2001 CC1	Carried forward					

SECTION 2001 CC1

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		Brought forward				
SD8.2.6	**170.04**	**Box out holes/form voids:**				
		.01 Small circular, of diameter up to and including 0,35 m, and in the following depth ranges:				
		.01 0 m up to and including 0,5 m (for 100 mm dia ventilator sleeve in roof slab)	number	18		
		.02 Large, circular, of diameter over 0,35 m up to and including 0,7 m and in the following depth ranges:				
		.01 0 m up to and including 0,5 m (for 700 mm dia manhole cover and frame in roof slab)	number	16		
		SCHEDULED REINFORCEMENT ITEMS				
SD8.3.1	**170.05**	**Mild-steel and high-tensile steel bars (all diameters)**	t	37		
		SCHEDULED CONCRETE ITEMS				
SD8.4.2	**170.06**	**Blinding layer:**				
		.01 Class 15 MPa/19 mm concrete of:				
		.01 50 mm thickness	m²	65		
		.02 75 mm thickness	m²	181		
SD8.4.3	**170.07**	**Strength concrete:**				
		.01 Class 20 MPa/19 mm concrete in:				
		.01 Thrust blocks	m³	311		
		.02 Plinths	m³	3		
		.02 Class 30 MPa/19 mm concrete in:				
		.01 Footing	m³	22		
		.02 Surface bed	m³	49		
		.03 Floor slabs and sumps	m³	2		
		.04 Walls	m³	202		
		.05 Roof slabs and upstands	m³	24		
		.06 Beams	m³	4		
		.07 Capping Beams	m³	8		
SD8.4.4	**170.08**	**Unformed surface finishes:**				
		.01 Wood-floated finishes to:				
		.01 Floors and sumps	m²	130		
		.02 Steel-floated finishes to:				
		.01 Roof slabs and upstands	m²	78		
		.02 Plinths and thrust blocks including forming half round segments for pipes	m²	67		
2001 CC1	Carried forward					

SECTION 2001 CC1

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		Brought forward				
SD8.4.4	**170.08** (cont)	.03 Capping beams	m²	30		
SD8.4.8	**170.09**	**Screeds**				
		.01 50mm thick average screed to falls on roof slab (16-75mm thick)	m²	76		
		.02 25mm thick average screed to falls on surface bed	m²	128		
		.03 Cement : sand floor screeds with falls including a smooth towelled finish to inside of jacked culvert	m²	234		
SD8.6	**170.11**	**Manufacture (or supply) and erect precast elements for units bigger than 0,5 m³ of formed concrete:**				
		.01 The following types and sizes, complete with box-outs for covers, etc, lifting handles or hooks, reinforcing (allow 120 kg/m³), smooth off-shutter finish to all surfaces, drip grooves, etc:				
		.01 3,275 m x 1,370 m x 200 mm thick roof slab panel as shown on Drawing No. 111242-0000-DRG-WW-0501	number	15		
		.02 2,820 m x 1,350 m x 200 mm thick roof slab panel as shown on Drawing No. 111242-0000-DRG-WW-0502	number	5		
		.03 2,820 m x 1,050 m x 200 mm thick roof slab panel as shown on Drawing No. 111242-0000-DRG-WW-0502	number	20		
		.04 2,45 m x 2,45 m x 150 mm thick roof slab panel, tapered down to 125 mm thick around edges as shown on Drawing No. 111242-0000-DRG-WW-0500	number	9		
		.05 2,700 m x 1,443 m x 150 mm thick roof slab panel as shown on Drawing No. 111242-0000-DRG-WW-0508	number	6		
		.06 Square manhole shaft unit size 2,0 m x 2,0 m x 1,0 m high internally with 125 mm thick walls complete with toggle type joints as supplied by SPC or equal approved as shown on Drawing No. 111242-0000-DRG-WW-0500	number	18		
		.07 5600 m x 1,200 m x 150 mm thick roof slab complete with and including 12mm stainless round bar lifting hooks,removable slab 111242-0000-DRG-WW-0513	number	2		
		.08 8759 x 1200 x 150mm Precast pre-stressed slab complete with and including 12mm stainless round bar lifting hooks,removable slab 111242-0000-DRG-WW-0513	number	3		
2001 CC1	Carried forward					

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		Brought forward				
SD8.6	**170.11** (cont)	.09 4379 m x 1200 m x 150 mm thick precast lockable lid over concrete slab 111242-0000-DRG-WW-0513	number	2		
SD8.8	**170.12**	**HD bolts and miscellaneous metal work:**				
		.01 Steel strap pipe fixing bracket complete with malthoid packings as shown on Drawing No's 111242-0000-DRG-WW-0502-0503				
		.01 200 mm dia pipe	number	10		
		.02 700 mm dia pipe	number	48		
		.02 10 mm thick x 2.020 m long x 1,60 m girth L-shaped galvanized steel plate fixed with chemical anchors at maximum 200 mm centres in both directions to concrete walls and floors as shown on Drawing No. 111242-0000-DRG-WW-0502	number	5		
		.03 Galvanized mild steel grid formed of 100 mm x 3 mm thick x 1 600 mm long flat section base plate with 20 mm dia x 150 mm long studs welded on at 150 mm centres and six times bolted to concrete with chemical anchors as shown on Drawing No. 111242-0000-DRG-WW-0502	number	70		
SD8.12	**170.13**	**Cast in of pipes with or without puddle flanges:**				
		.01 Up to 300 mm nominal bore:				
		.01 Through 200 mm thick wall	number	10		
		.02 Through 300 mm thick wall	number	5		
		.02 Over 300 mm up to 700 mm nominal bore:				
		.01 Through 200 mm thick floor slab	number	9		
		.02 Through 250 mm thick wall	number	10		
		.03 Through 450 mm thick wall	number	2		
SD8.13	**170.14**	**Miscellaneous work other than metal work:**				
		.01 Malthoid insulation between steel pipes and steel straps:				
		.01 3 mm thick x 50 mm wide strips	m	119		
		.02 3 mm thick x 60 mm wide strips	m	119		
		.03 10 mm thick x 70 mm wide strips	m	10		
		.02 Malthoid insulation between steel pipes and concrete surfaces:				
		.01 3 mm thick x 200 mm wide strips	m	80		
		.02 3 mm thick x 250 mm wide strips	m	80		
2001 CC1	Carried forward					

SECTION 2001 CC1

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		Brought forward				
SD8.8	**170.13** (cont)	.02 .03 HPDE insulation pads 1,6 mm thick between steel pipes and concrete surfaces (at thrust blocks)	m²	10		
SANS 1200 LE 8.2.10	**170.15**	**Accessories:**				
		.01 Manhole covers including frames:				
		.01 700mm diameter manhole cover and frame with lockable cover to SANS 558 Type 4 Mild Steel as seen on Drawing No. 111242-0000-DRG-WW-0501 (Detail B)	number	29		
		.02 Step irons:				
		.01 Calcamite 4 Ever type step irons	number	310		
		.03 Air breather as shown on Drawing No. 111242-0000-DRG-WW-0502 complete including casting into precast or in-situ concrete roof slabs	number	35		
		.04 Submersible pump connected to 160mm dia pipe	number	1		
SANS 1200 DB PSDB 8.3.2	**170.16**	**Soilcrete:**				
		.01 Soilcrete backfill where directed by the Engineer	m³	100		
SANS 1200 DB PSDB 8.3.2	**170.17**	**Pipes in subsurface drains:**				
		.01 Normal duty uPVC pipes complete with couplings:				
		.01 160 mm internal dia, perforated	m	100		
	170.18	**Temporary gunite lateral support including soil nails to specialists' details**				
		.01 150mm Thick gunite	m²	276	1,400.00	386,400.00
		.01 200 mm thick average	m²	109	1,400.00	152,600.00
		.02 200 mm thick average gunite between piles	m²	276	1,400.00	387,070.60
	TOTAL SECTION 2001 CC1 CARRIED TO SUMMARY					

SECTION 1200 HA

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
SANS 1200 HA PSHA	**181.00**	**STRUCTURAL STEELWORK (SUNDRY ITEMS)**				
8.3.1	**181.01**	**Structural steel:**				
		.01 Pipe support brackets complete with 100 x 10mm flat bar clamp lined with 990 x 100 x 10mm thick rubber strip including 6mm thick gusset connected by M16 SS bolts with nyloc nuts and 10mm thick plate connected to 75 x 75 x 6mm SS angle with 6mm thick ribs. Fixed to concrete using 80 x 80 x 8mm SS angle and M16 stainless steel chemical anchors	number	10		
		.02 254 x 146 x 32 I- Section Crawl Beam with manual chain blocks fixed to soffits of culverts with "Hilti Hit RE-500 inside the jacking tunnel drawing no. 111242-0000-DRG-WW-0512	m	92		
8.3.2	**181.02**	**Handrails**				
		.01 Stainless steel balustrading formed with 43mm diameter x 3mm thick stanchions at 1200mm centres, 33mm diameter x 2.6mm thick top and bottom rails, filled with 15mm diameter vertical bars at 125mm centres, finished on all surfaces with epoxy coated painted finish and erected complete in strict accordance with manufactures instructions as per drwg 111242-0000-DRG-SS-3002:				
		.01 Horizontal	m	33		
8.3.3	**181.03**	**Ladders, complete and installed:**				
		.01 Stainless steel access ladders bolted to concrete walls complete as shown on Drawings				
		.01 Air Valve Chambers, exceeding 1m and not exceeding 2m high, drawing 111242-0000-DRG-WW-0500	number	6		
		.02 Air Valve Chambers, exceeding 2m and not exceeding 3m high, drawing 111242-0000-DRG-WW-0500	number	3		
		.03 Isolating Valve Chambers, exceeding 2m and not exceeding 3m high, drawing 111242-0000-DRG-WW-0501	number	1		
		.04 Isolating Valve Chambers, exceeding 3m and not exceeding 4m high, drawing 111242-0000-DRG-WW-0501	number	4		
		.05 Scour Valve Chambers, exceeding 2m and not exceeding 3m high, drawing 111242-0000-DRG-WW-0502	number	3		
		.06 Scour Valve Chambers, exceeding 3m and not exceeding 4m high, drawing 111242-0000-DRG-WW-0502	number	1		
		.07 Scour Valve Chambers, exceeding 4m and not exceeding 5m high, drawing 111242-0000-DRG-WW-0502	number	1		
		.08 Water Meter Chambers, exceeding 2m and not exceeding 3m high, drawing 111242-0000-DRG-WW-0508	number	1		
2001 CC1	Carried forward					

SECTION 1200 HA

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		Brought forward				
8.3.3	**181.03** (Cont)	.01 .09 Water Meter Chambers, exceeding 3m and not exceeding 4m high, drawing 111242-0000-DRG-WW-0508	number	3		
		.10 Water Meter Chambers, exceeding 4m and not exceeding 5m high, drawing 111242-0000-DRG-WW-0508	number	1		
		.02 Galvanized mild steel ladders bolted to concrete walls complete as shown on Drawing no. 111242-0000-DRG-WW-0515				
		.01 Access Chamber 1 (10m high cat-ladder)	number	2		
		.03 Galvanized mild steel ladders bolted to concrete walls complete as shown on Drawing no. 111242-0000-DRG-WW-0513				
		.01 Access Chamber 1 (4.45m high cat-ladder)	number	1		
8.3.4	**181.04**	**25 x 4.5mm Galvanised banded grating, including structural beams and posts complete and installed with frames:**				
		.01 As shown on Drawing No 111242-0000-DRG-SS-3002 & 3003	m²	8		
		40 x 3mm Galvanised and banded mentis grating, including angle and fishtail lugs complete as per drawing 111242-DRG-SS-3001				
		.01 Sump cover	m²	2		
	181.05	**Staircases, complete and installed :**				
		.01 Galvanised ladder, 1.5m high, as shown on Drawing No 111242-0000-DRG-SS-3002 & 3003	number	5		
	TOTAL SECTION 1200 HA CARRIED TO SUMMARY					

SECTION 1200 L

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
SANS 1200 L	**210.00**	**MEDIUM-PRESSURE PIPELINES** 1 Fittings are regarded as special pipes and not measured as extra over items 2 Direction changes < 5° not measured as specials and must be accommodated in the laying of the pipes 3 All new specials to be manufactured and lined and coated as per pipe specifications included in this Project Document 4 All Steel Pipelines shall be Spirally welded and butt welded (Longitudinal Welded pipes shall not be considered in these circumstances)				
8.2.1	**210.01**	**Supply, lay and bed on bedding as shown on Drawings no. 111242-0000-DRG-WW-0301 to -0310 or fixed above ground inside structures, complete with on-site welding joints, testing, etc:** .01 Grade X42 to API 5L welded steel pipes, with Single Coat Solvent Free Liquid Epoxy lining (600 microns DFT) and coating with Rigid Polyurethane (2000 microns DFT) or similar approved by JW: .01 610 mm dia x 8 mm thickness	m	3,166		
		.02 710 mm dia x 8 mm thickness	m	2,886		
8.2.1	**210.02**	**Supply, lay, joint and install inside concrete sleeve pipe including skids, steel straps, malthoid packings, sand, cement, bentonite, grout, etc. complete with on-site welding joints, testing, etc as shown on Drawing no 111242-0000-WW-DRG-0506** .01 Grade X42 to API 5L welded steel pipes, with Single Coat Solvent Free Liquid Epoxy lining (600 microns DFT) and coating with Rigid Polyurethane (2000 microns DFT) or similar approved by JW: .01 609 mm dia x 8 mm thickness (pipes in 18 m lengths)	m	371		
		.02 710 mm dia x 8 mm thickness (pipes in 18 m lengths)	m	291		
8.2.1	**210.03**	**Supply, joint Horizontal Drilling pipes:** .01 HDPE PE 100 PN 16 SDR11 pipes, to SANS 4427, butt welded to SANS 0269 .01 630 mm dia (pipes in 6 m lengths)	m	371		
		.02 710 mm dia (pipes in 6 m lengths)	m	291		
1200 L	Carried forward					

SECTION 1200 L

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		Brought forward				
8.2.1	**210.03**	**Supply, lay and bed on flexible pipe bedding, complete with couplings:** .02 mPVC class 16, to SANS 966 Part 2 pipes with spigot and socket ends: .01 315 mm dia pipe	m	62		
8.2.2	**210.04**	**Extra over items 210.01 and 210.02 for the supplying laying, jointing and bedding below ground or installed in structures, of fittings, specials and valves on Grade X42 to API 5L welded or flanged steel pipes, with Single Coat Solvent Free Liquid Epoxy lining and coating with Rigid Polyurethane (2000 microns DFT) or similar approved by JW:** <u>ISOLATING VALVE CHAMBER (x 5):</u> .01 Drawing No. 111242-0000-DRG-WW-0501: Steel grade X42, 8 mm wall thickness, Single Coat Solvent Free Liquid Epoxy lined and coated with Rigid Polyurethane, flange drilling to SANS 1123 T1600/3: .01 711 mm dia x 610 mm dia x 430 mm steel reducer with 1 500 mm long integral straight pipe, item 1	number	10		
		.02 610 mm dia x 1500mm integral straight pipe, item 1	number	10		
		.03 610 mm dia x 1 450 mm steel puddle pipe, flanged one end, item 2	number	10		
		.04 610 mm dia x 219 mm dia steel tee, all ends flanged, item 3	number	5		
		.05 600 mm dia VOSA non-rising wedge gate valve or similar approved, item 4 (Mech)	number	5		
		.06 610 mm dia x 219 mm dia steel tee, all ends flanged, item 5	number	5		
		.07 219 mm dia x 90 degree steel bend, flanged, item 6	number	10		
		.08 219 mm dia x 446 mm steel straight pipe, flanged both sides, item 7	number	10		
		.09 200 mm dia VOSA non-rising wedge gate valve or similar approved, item 8 (Mech)	number	5		
1200 L	Carried forward					

SECTION 1200 L

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		Brought forward				
8.2.2	**210.04** (cont)	AIR VALVE CHAMBERS (x 9):				
		.02 Drawing No. 111242-0000-DRG-WW-0500: Steel grade X42, 8 mm wall thickness, Single Coat Solvent Free Liquid Epoxy lining and coating with Rigid Polyurethane, flange drilling to SANS 1123 T1600/3:				
		.01 711 mm dia x 355 mm dia x 1181 mm steel tee, flanged both ends, with crotch plates, item 1	number	5		
		.02 610 mm dia x 355 mm dia x 1181 mm steel tee, flanged both ends, with crotch plates, item 1	number	4		
		.03 150 mm x 60 mm x 25 mm triangular shaped support bracket welded on, item 2	number	36		
		.04 520 mm dia x 30 mm thick flange one end fitting with 100 mm dia x 250 mm steel spool pipe with 220 mm dia x 14 mm thick flange one end, and lifting hooks, item 3	number	7		
		.05 520 mm dia x 30 mm thick flange one end fitting with 200 mm dia x 250 mm steel spool pipe with 340 mm dia x 22 mm thick flange one end, and lifting hooks, item 3	number	2		
		.06 100 mm dia non-rising spindle resilient seal gate valve, item 4	number	7		
		.07 200 mm dia VOSA non-rising spindle wedge gate valve, or similar approved, item 4	number	2		
		.08 100 mm dia Vent-O-Mat Series RBX double orifice air valve with anti shock orifice mechanism, item 5	number	7		
		.09 200 mm dia Vent-O-Mat Series RBX double RBX double orifice air valve with anti shock orifice mechanism, item 5	number	2		
		.10 Site welding, testing and repairs:				
		.01 711 mm dia pipe to fitting or special	number	7		
		.02 610 mm dia pipe to fitting or special	number	2		
1200 L	Carried forward					

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		Brought forward				
8.2.2	**210.04** (cont)	SCOUR VALVE CHAMBERS (x 5):				
		.03 Drawing No. 111242-0000-DRG-WW-0502: Steel grade X42, 8 mm wall thickness, Single Coat Solvent Free Liquid Epoxy lining and coating with Rigid Polyurethane, flange drilling to SANS 1123 T1600/3:				
		.01 711 mm dia x 4 800 mm double puddle pipe combination fitting with CP connection point, comprising 711 mm dia x 219 mm dia flanged scour outlet, item 1	number	3		
		.02 610 mm dia x 4 800 mm double puddle pipe combination fitting with CP connection point, comprising 610 mm dia x 219 mm dia flanged scour outlet, item 1	number	2		
		.03 200 mm dia wedge gate valve, both ends, flanged, item 2 (Mech)	number	10		
		.04 219 mm dia x 614 mm spool pipe, both ends flanged, item 3	number	5		
		.05 219 mm dia x 1 062 mm puddle pipe with CP connection point, item 5	number	5		
		.06 Site welding, testing and repairs:				
		.01 711 mm dia pipe to fitting or special	number	3		
		.02 610 mm dia pipe to fitting or special	number	2		
		WATER METER CHAMBERS (x 5):				
		.06 Drawing No. 111242-0000-DRG-WW-0508: Steel grade X42, 8 mm wall thickness, 16 bar, Single Coat Solvent Free Liquid Epoxy lining and coating with Rigid Polyurethane, flange drilling to SANS 1123 T1600/3:				
		.01 315 mm dia x 219 mm dia steel reducer with 315 mm dia integral straight mPVC pipe, both ends flanged, item 1	number	10		
		.02 219 mm dia x 1 200 mm steel puddle pipe, both ends flanged, item 2	number	10		
		.03 200 mm dia VOSA non-rising wedge gate valve or similar approved, item 3 (Mech)	number	10		
		.04 219 mm dia x 1 000 mm dia steel pipe, both ends flanged, item 4	number	5		
		.05 Woltman WP-type water meter or similar approved, item 5	number	5		
		.06 219 mm dia x 582 mm dia steel pipe, one end flanged, item 6	number	5		
		.07 219 mm dia x 200 mm dia steel straight pipe, flanged both ends, item 7	number	5		
		.08 Sensus DN200 water strainer or similar approved, item 8	number	5		
1200 L	Carried forward					

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		Brought forward				
		ACCESS CHAMBER 1 (x 1):				
8.2.2	**210.04** (cont)	.07 Drawing No. 111242-0000-DRG-WW-0509: Steel grade X42, 8 mm wall thickness, Single Coat Solvent Free Liquid Epoxy lining and coating with Rigid Polyurethane, flange drilling to SANS 1123 T1600/3:				
		.01 711 mm dia x 1500mm integral straight pipe, flanged one end, item 1	number	1		
		.02 711 mm dia x 1 550 mm steel puddle pipe, flanged both ends, item 2	number	1		
		.03 711 mm dia x 90 degree steel bend, flanged both ends, item 3	number	2		
		.04 711 mm dia x 8 389 mm steel straight pipe, flanged both ends, (length to be confirmed on site), item 4	number	1		
		.05 711 mm dia x 1 420 mm steel straight pipe, flanged both ends, item 5	number	1		
		.06 711 mm dia x 4 000 mm steel straight pipe, flanged both ends, item 6	number	1		
		ACCESS CHAMBER 2 (x 1):				
		.08 Drawing No. 111242-0000-DRG-WW-0513: Steel grade X42, 8 mm wall thickness, Single Coat Solvent Free Liquid Epoxy lining and coating with Rigid Polyurethane, flange drilling to SANS 1123 T1600/3:				
		.01 711 mm dia x 1 000 mm steel straight pipe, flanged both ends, item 1	number	1		
		.02 711 mm dia x 2 795 mm steel puddle pipe, flanged both ends, item 2	number	1		
		.03 711 mm dia x 4 540 mm steel straight pipe, flanged both ends, item 3	number	1		
		.04 711 mm dia x 4 000 mm steel flanged both ends, item 5	number	1		
8.2.2	**210.05**	**Extra over item 210.01.01 for the supplying laying, jointing and bedding below ground or installed in structures, of fittings, specials and valves on Grade X42 to API 5L (16 bar) flanged steel pipes with Single Coat Solvent Free Liquid Epoxy lining and external coating with Rigid Polyurethane or similar approved:**				
		.01 Bends:				
		.01 Bends in change of 610 mm dia pipe directions:				
		.01 Over 5° up to 10°	number	8		
		.02 Over 10° up to 15°	number	4		
		.03 Over 15° up to 20°	number	4		
		.04 Over 20° up to 25°	number	2		
1200 L	Carried forward					

SECTION 1200 L

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		Brought forward				
8.2.2	**210.05** (cont)	.01 .01 .05 Over 25° up to 30°	number	5		
		.06 Over 30° up to 35°	number	3		
		.07 Over 35° up to 40°	number	2		
		.08 Over 40° up to 45°	number	3		
		.09 Over 45° up to 50°	number	1		
		.10 Over 50° up to 55°	number	1		
		.11 Over 55° up to 60°	number	1		
		.12 Over 70° up to 75°	number	1		
		.13 Over 75° up to 80°	number	1		
		.14 Over 80° up to 85°	number	3		
		.15 Over 85° up to 90°	number	4		
		.16 Over 95° up to 100°	number	1		
		.01 .02 Bends in change of 711 mm dia pipe directions:				
		.01 Over 5° up to 10°	number	18		
		.02 Over 10° up to 15°	number	5		
		.03 Over 15° up to 20°	number	3		
		.04 Over 20° up to 25°	number	2		
		.05 Over 25° up to 30°	number	3		
		.06 Over 40° up to 45°	number	2		
		.07 Over 45° up to 50°	number	1		
		.08 Over 55° up to 60°	number	1		
		.09 Over 65° up to 70°	number	1		
		.10 Over 70° up to 75°	number	1		
		.11 Over 80° up to 85°	number	2		
		.12 Over 85° up to 90°	number	4		
		.13 Over 90° up to 95°	number	4		
		.14 Over 105° up to 110°	number	2		
		.03 Site welding, testing and repairs:				
		.01 711 mm dia pipe to pipe fitting or special	number	10		
		.02 610 mm dia pipe to pipe fitting or special	number	10		
1200 L	Carried forward					

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		Brought forward				
8.2.2	**210.05** (cont)	.02 Tees:				
		.01 610 mm dia x 610 mm dia	number	2		
		.02 711 mm dia x 711 mm dia	number	3		
		.03 812 mm dia x 711 mm dia	number	1		
		.03 Reducers:				
		.01 610 mm dia x 315 mm dia	number	2		
		.02 610 mm dia x 500 mm dia	number	3		
		.03 711 mm dia x 315 mm dia	number	3		
		.04 711 mm dia x 610 mm dia	number	1		
		.04 Blank flange:				
		.01 610 mm dia	number	2		
		.02 711 mm dia	number	3		
8.2.2	**210.06**	**Extra over item 210.03.01 for the supplying, laying and bedding of mPVC specials complete with couplings:**				
		.01 Flange adaptor:				
		.01 315 mm dia	number	3		
		.02 Blank flange:				
		.01 315 mm dia	number	3		
		.03 End caps:				
		.01 315 mm dia	number	3		
	210.07	**Extra over item 210.03.02 for the supplying laying, jointing and bedding below ground or installed in structures, of fittings, specials and valves on PE 100 PN 16 SDR11, SANS 10269 HDPE pipes, butt welded:**				
		.01 HDPE stubs and backing rings for the following sizes:				
		.01 630 mm dia	number	12		
		.02 710 mm dia	number	4		
		.03 800 mm dia	number	2		
8.2.15	**210.09**	**Special wrapping in corrosive soil:**				
		.01 Denso tape wrapping to steel pipes, fittings etc:				
		.01 610 mm dia	m	200		
		.02 711 mm dia	m	200		
		.03 812 mm dia	m	100		
1200 L	Carried forward					

SECTION 1200 L

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		Brought forward				
	210.10	**Extra over item 210.01 above for on-site cutting of straight pipes to suite fixed chainage lengths, fittings or specials and chamber positions including site welding, testing and repairing of new joints, for:**				
		.01 610 mm dia x 8 mm thickness	number	30		
		.02 711 mm dia x 8 mm thickness	number	40		
PSL 8.2.18	**210.11**	**Pipeline route markers:**				
		.01 Type as shown on Drawing No. 111242-0000-DRG-WW-0507	number	160		
PSL 8.2.19	**210.12**	**Connection to existing main supply pipe:**				
		.01 Supply and install fittings and specials on bedding, complete with on-site welding, couplings, testing etc at existing water meter chamber tie-in:	number	1		
		.02 Supply and install fittings and specials on bedding, complete with on-site welding, couplings, testing etc at existing 800mm dia. water pipeline at Bridal Veil Road tie-in:	number	1		
		.03 Supply and install fittings and specials on bedding, complete with on-site welding, couplings, testing etc at existing water pipeline at Harry Galaun Drive tie-in:	number	1		
SD8.7	**210.13**	**Grouting**				
		.01 Non shrink grout for water tightness on both sides of jacked culverts	m^3	4		
SD8.8	**210.14**	**HD bolts and miscellaneous metal work:**				
		.01 80mm Thick polystyrene strip	m^2	18		
PSL 8.2.20	**210.15**	**Cathodic Protection Work by Sub-Contractor**	Prov sum	1	875,000.00	875,000.00
	210.16	**Overheads, charges and profit on safety equipment**	%	10%	875,000.00	87,500.00
PSL 8.2.22	**210.17**	**AC Mitigation Work by Sub-Contractor**	Prov sum	1	875,000.00	875,000.00
	210.18	**Overheads, charges and profit on safety equipment**	%	10%	875,000.00	87,500.00
	210.19	**CCTV pipe inspections**	m	6,847		
	210.20	**Non-Destructive Testing (NDT) for pipe welding on site**	sum	194		
	TOTAL SECTION 1200 L CARRIED TO SUMMARY					

SECTION 1200 LB

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
SANS 1200 LB	**211.00**	**BEDDING (PIPES)**				
		BEDDING FOR WATER PIPES				
		Note: Beddings as shown on Drawing No 111242-0000-DRG-WW-0504				
PSLB 8.2.1	**211.01**	**Provision of bedding from trench excavation:**				
		.01 Selected granular material	m³	20		
		.02 Selected fill material	m³	20		
PSLB 8.2.2	**211.02**	**Supply only of bedding by importation:**				
		.01 From other necessary excavations:				
		.01 Selected granular material	m³	100		
		.02 Selected fill material	m³	100		
		.02 From commercial sources:				
		.01 Selected granular material	m³	3,389		
		.02 Selected fill material	m³	4,612		
8.2.4	**211.04**	**Encasing of pipes in concrete:**				
		.01 30MPa/19mm concrete encasing, incl formwork				
		.01 710 mm dia steel pipe	m³	100		
8.2.7	**211.05**	**Extra over item 211.04 above for:**				
		.01 Mild steel reinforcement	t	10		
SANS 2001 CC 8.3.2	**211.07**	**High-tensile welded mesh in the following:**				
		.01 Ref 395 in concrete encasing around pipes	m²	100		
		TOTAL SECTION 1200 LB CARRIED TO SUMMARY				

SECTION 1200 LE

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
SANS 1200 LE	**214.00**	**STORMWATER DRAINAGE**				
8.2.10	**214.01**	**Accessories:**				
		.01 Submersible pump connected to 160mm dia pipe	No	2		
PSLE 8.2.14	**214.02**	**Pipes in subsurface drains:**				
		.01 Normal duty uPVC pipes complete with couplings:				
		.01 150 mm internal dia, perforated	m	40		
PSLE 8.2.15	**214.03**	**Geofabric**				
		.01 A4 Bidum Geotextile or similar approved	m^2	66		
PSLE 8.2.16	**214.04**	**Crushed stone in subsurface drains**				
		.01 Single sized crushed stone, ,nominal size 19mm clean washed aggregate	m^3	15		
	TOTAL SECTION 1200 LE CARRIED TO SUMMARY					

SECTION 1200 LG

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
SANS 1200 LG	**216.00**	**PIPE JACKING**				
		ROAD CROSSING:1				
8.2.1	**216.01**	**Jacking establishment:**				
		.01 Fixed charges	sum	1		
		.02 Time-related charges	sum	1		
8.2.2	**216.02**	**Supply of pipes to be jacked:**				
		.01 1 371 mm dia (OD), 100D concrete sleeve pipe (in-the-wall joint), according to SANS 677	m	77		
8.2.3	**216.03**	**Jacking of pipes:**				
		.01 1 371 mm dia (OD), 100D concrete sleeve pipe (in-the-wall joint), according to SANS 677	m	77		
8.2.4	**216.04**	**Excavation for jacking:**				
		.01 Soft excavation	m^3	69		
		.02 Intermediate excavation	m^3	34		
		.03 Hard rock excavation	m^3	11		
8.2.5	**216.05**	**Extra over items 216.01 and 216.04 for unforeseen rock or boulders**	Prov sum	1	20,000.00	20,000.00
8.2.9	**216.06**	**Stabilization of unstable areas or grouting of voids where ordered:**				
		.01 Provision and establishment of equipment on site, and removal on completion of operation	sum	1		
		.02 Operation of equipment	day	2		
		.03 Materials used	m^3	53		
8.2.10	**216.07**	**Standing time for pipe jacking gang and the jacking equipment covered by item 216.01**	h	40		
		ROAD CROSSING:2				
8.2.1	**216.11**	**Jacking establishment:**				
		.01 Fixed charges	sum	1		
		.02 Time-related charges	sum	1		
8.2.2	**216.12**	**Supply of pipes to be jacked:**				
		.01 1 371 mm dia (OD), 100D concrete sleeve pipe (in-the-wall joint), according to SANS 677	m	46		
8.2.3	**216.13**	**Jacking of pipes:**				
		.01 1 371 mm dia (OD), 100D concrete sleeve pipe (in-the-wall joint), according to SANS 677	m	46		
8.2.4	**216.14**	**Excavation for jacking:**				
		.01 Soft excavation	m^3	42		
		.02 Intermediate excavation	m^3	20		
		.03 Hard rock excavation	m^3	7		
1200 LG	Carried forward					

SECTION 1200 LG

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		Brought forward				
8.2.5	**216.15**	**Extra over items 216.11 and 216.14 for unforeseen rock or boulders**	Prov sum	1	20,000.00	20,000.00
8.2.9	**216.16**	**Stabilization of unstable areas or grouting of voids where ordered:**				
		.01 Provision and establishment of equipment on site, and removal on completion of operation	sum	1		
		.02 Operation of equipment	day	2		
		.03 Materials used	m^3	32		
8.2.10	**216.17**	**Standing time for pipe jacking gang and the jacking equipment covered by item 216.11**	h	40		
		ROAD CROSSING:3				
8.2.1	**216.21**	**Jacking establishment:**				
		.01 Fixed charges	sum	1		
		.02 Time-related charges	sum	1		
8.2.2	**216.22**	**Supply of pipes to be jacked:**				
		.01 1 371 mm dia (OD), 100D concrete sleeve pipe (in-the-wall joint), according to SANS 677	m	62		
8.2.3	**216.23**	**Jacking of pipes:**				
		.01 1 371 mm dia (OD), 100D concrete sleeve pipe (in-the-wall joint), according to SANS 677	m	62		
8.2.4	**216.24**	**Excavation for jacking:**				
		.01 Soft excavation	m^3	56		
		.02 Intermediate excavation	m^3	28		
		.03 Hard rock excavation	m^3	9		
8.2.5	**216.25**	**Extra over items 216.21 and 216.24 for unforeseen rock or boulders**	Prov sum	1	20,000.00	20,000.00
8.2.9	**216.26**	**Stabilization of unstable areas or grouting of voids where ordered:**				
		.01 Provision and establishment of equipment on site, and removal on completion of operation	sum	1		
		.02 Operation of equipment	day	2		
		.03 Materials used	m^3	43		
8.2.10	**216.27**	**Standing time for pipe jacking gang and the jacking equipment covered by item 216.21**	h	40		
		ROAD CROSSING:4				
8.2.1	**216.31**	**Jacking establishment:**				
		.01 Fixed charges	sum	1		
		.02 Time-related charges	sum	1		
1200 LG	Carried forward					

SECTION 1200 LG

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		Brought forward				
8.2.2	**216.32**	**Supply of pipes to be jacked:**				
		.01 1 371 mm dia (OD), 100D concrete sleeve pipe (in-the-wall joint), according to SANS 677	m	49		
8.2.3	**216.33**	**Jacking of pipes:**				
		.01 1 371 mm dia (OD), 100D concrete sleeve pipe (in-the-wall joint), according to SANS 677	m	49		
8.2.4	**216.34**	**Excavation for jacking:**				
		.01 Soft excavation	m^3	45		
		.02 Intermediate excavation	m^3	22		
		.03 Hard rock excavation	m^3	7		
8.2.5	**216.35**	**Extra over items 216.31 and 216.34 for unforeseen rock or boulders**	Prov sum	1	20,000.00	20,000.00
8.2.9	**216.36**	**Stabilization of unstable areas or grouting of voids where ordered:**				
		.01 Provision and establishment of equipment on site, and removal on completion of operation	sum	1		
		.02 Operation of equipment	day	2		
		.03 Materials used	m^3	34		
8.2.10	**216.37**	**Standing time for pipe jacking gang and the jacking equipment covered by item 216.31**	h	40		
		ROAD CROSSING:5				
8.2.1	**216.41**	**Jacking establishment:**				
		.01 Fixed charges	sum	1		
		.02 Time-related charges	sum	1		
8.2.2	**216.42**	**Supply of pipes to be jacked:**				
		.01 1 371 mm dia (OD), 100D concrete sleeve pipe (in-the-wall joint), according to SANS 677	m	52		
8.2.3	**216.43**	**Jacking of pipes:**				
		.01 1 371 mm dia (OD), 100D concrete sleeve pipe (in-the-wall joint), according to SANS 677	m	52		
8.2.4	**216.44**	**Excavation for jacking:**				
		.01 Soft excavation	m^3	47		
		.02 Intermediate excavation	m^3	23		
		.03 Hard rock excavation	m^3	8		
1200 LG	Carried forward					

SECTION 1200 LG

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		Brought forward				
8.2.5	**216.45**	**Extra over items 216.41 and 216.44 for unforeseen rock or boulders**	Prov sum	1	20,000.00	20,000.00
8.2.9	**216.46**	**Stabilization of unstable areas or grouting of voids where ordered:**				
		.01 Provision and establishment of equipment on site, and removal on completion of operation	sum	1		
		.02 Operation of equipment	day	2		
		.03 Materials used	m³	36		
8.2.10	**216.47**	**Standing time for pipe jacking gang and the jacking equipment covered by item 216.41**	h	40		
		ROAD CROSSING:6				
	216.51	**Jacking establishment:**				
		.01 Fixed charges	sum	1		
		.02 Time-related charges	sum	1		
8.2.2	**216.52**	**Supply of pipes to be jacked:**				
		.01 1 371 mm dia (OD), 100D concrete sleeve pipe (in-the-wall joint), according to SANS 677	m	65		
8.2.3	**216.53**	**Jacking of pipes:**				
		.01 1 371 mm dia (OD), 100D concrete sleeve pipe (in-the-wall joint), according to SANS 677	m	65		
8.2.4	**216.54**	**Excavation for jacking:**				
		.01 Soft excavation	m³	60		
		.02 Intermediate excavation	m³	30		
		.03 Hard rock excavation	m³	10		
8.2.5	**216.55**	**Extra over items 216.51 and 216.54 for unforeseen rock or boulders**	Prov sum	1	20,000.00	20,000.00
8.2.9	**216.56**	**Stabilization of unstable areas or grouting of voids where ordered:**				
		.01 Provision and establishment of equipment on site, and removal on completion of operation	sum	1		
		.02 Operation of equipment	day	10		
		.03 Materials used	m³	38		
8.2.10	**216.57**	**Standing time for pipe jacking gang and the jacking equipment covered by item 216.51**	h	40		
		ROAD CROSSING:8				
8.2.1	**216.61**	**Jacking establishment:**				
		.01 Fixed charges	sum	1		
		.02 Time-related charges	sum	1		
1200 LG	Carried forward					

SECTION 1200 LG

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		Brought forward				
8.2.2	**216.62**	**Supply of pipes to be jacked:**				
		.01 1 371 mm dia (OD), 100D concrete sleeve pipe (in-the-wall joint), according to SANS 677	m	61		
8.2.3	**216.63**	**Jacking of pipes:**				
		.01 1 371 mm dia (OD), 100D concrete sleeve pipe (in-the-wall joint), according to SANS 677	m	61		
8.2.4	**216.64**	**Excavation for jacking:**				
		.01 Soft excavation	m^3	55		
		.02 Intermediate excavation	m^3	27		
		.03 Hard rock excavation	m^3	9		
8.2.5	**216.65**	**Extra over items 216.61 and 216.64 for unforeseen rock or boulders**	Prov sum	1	20,000.00	20,000.00
8.2.9	**216.66**	**Stabilization of unstable areas or grouting of voids where ordered:**				
		.01 Provision and establishment of equipment on site, and removal on completion of operation	sum	1		
		.02 Operation of equipment	day	2		
		.03 Materials used	m^3	35		
8.2.10	**216.67**	**Standing time for pipe jacking gang and the jacking equipment covered by item 216.61**	h	40		
		ROAD CROSSING:9 (N1 Crossing)				
		Appointment of a specialist jacking contractor for the full N1 Crossing jacking scope of 3000 mm dia x 2500 mm dia x 275 mm thick concrete box culverts. Complete inlcuding pre-casting of culverts units on site as well as trust and reception pits	Prov sum	1	12,650,000.00	12,650,000.00
		Overheads, charges and profit on subitem above	%	12,650,000	10%	1,265,000.00
8.2.1	**216.71**	**Jacking establishment:**				
		.01 Fixed charges	sum	1		
		.02 Time-related charges	sum	1		
8.2.2	**216.72**	**Supply of culverts to be jacked:**				
		.01 3000 mm dia x 2500 mm dia x 275mm thick, concrete jacking box culvert with bolts holes for longitudinal ties interlocking joint	m	83		
1200 LG	Carried forward					

SECTION 1200 LG

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		Brought forward				
8.2.3	**216.73**	**Jacking of culverts:**				
		.01 3000 mm dia x 2500 mm dia x 275mm thick, concrete jacking box culvert with bolts holes for longitudinal ties interlocking joint, including but not limited to drag sheet inserted in slots on jacking shield	m	83		
8.2.4	**216.74**	**Excavation for jacking:**				
		.01 Soft excavation	m^3	709		
		.02 Intermediate excavation	m^3	285		
		.03 Hard rock excavation	m^3	95		
8.2.5	**216.75**	**Extra over items 216.71 and 216.74 for unforeseen rock or boulders**	Sum	1		
8.2.9	**216.76**	**Stabilization of unstable areas or grouting of voids where ordered:**				
		.01 Provision and establishment of equipment on site, and removal on completion of operation	sum	1		
		.02 Operation of equipment	day	40		
		.03 Grouting to voids with cement/bentonite mix	m^3	93		
		.03 Materials used	m^3	163		
8.2.10	**216.77**	**Standing time for pipe jacking gang and the jacking equipment covered by item 216.71**	h	120		
	216.78	**Miscellaneous**				
		.01 Risk allowance for potential cracking of road	sum	1		
		ROAD CROSSING:10				
8.2.1	**216.81**	**Jacking establishment:**				
		.01 Fixed charges	sum	1		
		.02 Time-related charges	sum	1		
8.2.2	**216.82**	**Supply of pipes to be jacked:**				
		.01 1 371 mm dia (OD), 100D concrete sleeve pipe (in-the-wall joint), according to SANS 677	m	39		
8.2.3	**216.83**	**Jacking of pipes:**				
		.01 1 371 mm dia (OD), 100D concrete sleeve pipe (in-the-wall joint), according to SANS 677	m	39		
8.2.4	**216.84**	**Excavation for jacking:**				
		.01 Soft excavation	m^3	35		
		.02 Intermediate excavation	m^3	17		
		.03 Hard rock excavation	m^3	6		
1200 LG	Carried forward					

SECTION 1200 LG

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		Brought forward				
8.2.5	**216.85**	**Extra over items 216.01 and 216.04 for unforeseen rock or boulders**	Prov sum	1	20,000.00	20,000.00
8.2.9	**216.86**	**Stabilization of unstable areas or grouting of voids where ordered:**				
		.01 Provision and establishment of equipment on site, and removal on completion of operation	sum	1		
		.02 Operation of equipment	day	2		
		.03 Materials used	m^3	22		
8.2.10	**216.87**	**Standing time for pipe jacking gang and the jacking equipment covered by item 216.81**	h	40		
		ROAD CROSSING:11				
8.2.1	**216.91**	**Jacking establishment:**				
		.01 Fixed charges	sum	1		
		.02 Time-related charges	sum	1		
8.2.2	**216.92**	**Supply of pipes to be jacked:**				
		.01 1 371 mm dia (OD), 100D concrete sleeve pipe (in-the-wall joint), according to SANS 677	m	45		
8.2.3	**216.93**	**Jacking of pipes:**				
		.01 1 371 mm dia (OD), 100D concrete sleeve pipe (in-the-wall joint), according to SANS 677	m	45		
8.2.4	**216.94**	**Excavation for jacking:**				
		.01 Soft excavation	m^3	41		
		.02 Intermediate excavation	m^3	20		
		.03 Hard rock excavation	m^3	7		
8.2.5	**216.95**	**Extra over items 216.91 and 216.94 for unforeseen rock or boulders**	Prov sum	1	20,000.00	20,000.00
8.2.9	**216.96**	**Stabilization of unstable areas or grouting of voids where ordered:**				
		.01 Provision and establishment of equipment on site, and removal on completion of operation	sum	1		
		.02 Operation of equipment	day	2		
		.03 Materials used	m^3	26		
8.2.10	**216.97**	**Standing time for pipe jacking gang and the jacking equipment covered by item 216.91**	h	40		
1200 LG	Carried forward					

SECTION 1200 LG

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		Brought forward				
		ROAD CROSSING:12				
8.2.1	**217.01**	**Jacking establishment:**				
		.01 Fixed charges	sum	1		
		.02 Time-related charges	sum	1		
8.2.2	**217.02**	**Supply of pipes to be jacked:**				
		.01 1 371 mm dia (OD), 100D concrete sleeve pipe (in-the-wall joint), according to SANS 677	m	30		
8.2.3	**217.03**	**Jacking of pipes:**				
		.01 1 371 mm dia (OD), 100D concrete sleeve pipe (in-the-wall joint), according to SANS 677	m	30		
8.2.4	**217.04**	**Excavation for jacking:**				
		.01 Soft excavation	m^3	18		
		.02 Intermediate excavation	m^3	13		
		.03 Hard rock excavation	m^3	4		
8.2.5	**217.05**	**Extra over items 217.01 and 217.04 for unforeseen rock or boulders**	Prov sum	1	20,000.00	20,000.00
8.2.9	**217.06**	**Stabilization of unstable areas or grouting of voids where ordered:**				
		.01 Provision and establishment of equipment on site, and removal on completion of operation	sum	1		
		.02 Operation of equipment	day	2		
		.03 Materials used	m^3	21		
8.2.10	**217.07**	**Standing time for pipe jacking gang and the jacking equipment covered by item 217.01**	h	40		
		ROAD CROSSING:13				
8.2.1	**217.21**	**Jacking establishment:**				
		.01 Fixed charges	sum	1		
		.02 Time-related charges	sum	1		
8.2.2	**217.22**	**Supply of pipes to be jacked:**				
		.01 1 371 mm dia (OD), 100D concrete sleeve pipe (in-the-wall joint), according to SANS 677	m	55		
8.2.3	**217.23**	**Jacking of pipes:**				
		.01 1 371 mm dia (OD), 100D concrete sleeve pipe (in-the-wall joint), according to SANS 677	m	55		
1200 LG	Carried forward					

SECTION 1200 LG

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		Brought forward				
8.2.4	**217.24**	**Excavation for jacking:**				
		.01 Soft excavation	m^3	50		
		.02 Intermediate excavation	m^3	24		
		.03 Hard rock excavation	m^3	8		
8.2.5	**217.25**	**Extra over items 217.21 and 217.24 for unforeseen rock or boulders**	Prov sum	1	20,000.00	20,000.00
8.2.9	**217.26**	**Stabilization of unstable areas or grouting of voids where ordered:**				
		.01 Provision and establishment of equipment on site, and removal on completion of operation	sum	1		
		.02 Operation of equipment	day	2		
		.03 Materials used	m^3	38		
8.2.10	**217.27**	**Standing time for pipe jacking gang and the jacking equipment covered by item 217.21**	h	40		
SANS 1200LE 8.2.9	**217.28**	**Brickwork:**				
		.01 230mm Thick engineering bricks	m^2	35		
	TOTAL SECTION 1200 LG CARRIED TO SUMMARY					

SECTION 1200 ME

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
SABS 1200 ME	**223.00**	**SUBBASE**				
PSDM 8.3.3	**223.01**	**Treatment of roadbed**				
		Roadbed preparation and compaction of material to (Rip and compact in-situ) :				
PSME 8.3.3	**223.02**	.01 Minimum of 90% of modified AASHTO maximum density	m³	20		
PSME 8.3.3	**223.03**	**Construct the subbase course with material from commercial sources**				
		.01 G5 material compacted to 97% modified AASHTO	m³	20		
	TOTAL SECTION 1200 ME CARRIED TO SUMMARY					

SECTION 1200 MF

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
SANS 1200 MF	**224.00**	**BASE**				
8.3.3	**224.01**	**Construct base with material from commercial sources or designated borrow areas:**				
		.01 Graded crushed stone	m^3	14		
	TOTAL SECTION 1200 MF CARRIED TO SUMMARY					

PARTICULAR SPECIFICATION PC

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
PART PC	**PC 10**	**DIRECTIONAL DRILLING** **DRILLING: ROAD CROSSING 2**				
	PC.11	**Design and site establishment**	sum	1		
	PC.12	**Temporary works for directional drilling**	sum	1		
	PC.13	**Directional drilling and installation of pipe or cable sleeve:**				
		.01 630 mm dia hdpe pipe	m	46		
	PC.14	**Extra over items PC 12 and PC 13 for unforeseen rock or boulders**	m^3	14		
	PC.16	**De-establish quipment on site**	sum	1		
	PC.17	**Standing time for directional drilling team and equipment**	h	40		
	PC.18	**Stabilization of unstable areas or grouting of voids where ordered:**				
		.01 Provision and establishment of equipment on Site, and removal on completion of operation	sum	1		
		.02 Operation of equipment	day	10		
		.03 Materials used	m^3	10		
	PC 20	**DIRECTIONAL DRILLING** **DRILLING: ROAD CROSSING 3**				
	PC.21	**Design and site establishment**	sum	1		
	PC.22	**Temporary works for directional drilling**	sum	1		
	PC.23	**Directional drilling and installation of pipe or cable sleeve:**				
		.01 630 mm dia hdpe pipe	m	62		
	PC.24	**Extra over items PC 22 and PC 23 for unforeseen rock or boulders**	m^3	19		
	PC.26	**De-establish quipment on site**	sum	1		
	PC.27	**Standing time for directional drilling team and equipment**	h	40		
	PC.28	**Stabilization of unstable areas or grouting of voids where ordered:**				
		.01 Provision and establishment of equipment on Site, and removal on completion of operation	sum	1		
		.02 Operation of equipment	day	10		
		.03 Materials used	m^3	10		
PART PC	Carried forward					

PARTICULAR SPECIFICATION PC

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		Brought forward				
	PC 30	**DIRECTIONAL DRILLING** **DRILLING: ROAD CROSSING 4**				
	PC.31	**Design and site establishment**	sum	1		
	PC.32	**Temporary works for directional drilling**	sum	1		
	PC.33	**Directional drilling and installation of pipe or cable sleeve:**				
		.01 630 mm dia hdpe pipe	m	49		
	PC.34	**Extra over items PC 32 and PC 33 for unforeseen rock or boulders**	m^3	15		
	PC.36	**De-establish quipment on site**	sum	1		
	PC.37	**Standing time for directional drilling team and equipment**	h	40		
	PC.38	**Stabilization of unstable areas or grouting of voids where ordered:**				
		.01 Provision and establishment of equipment on Site, and removal on completion of operation	sum	1		
		.02 Operation of equipment	day	10		
		.03 Materials used	m^3	10		
	PC 40	**DIRECTIONAL DRILLING** **DRILLING: ROAD CROSSING 5**				
	PC.41	**Design and site establishment**	sum	1		
	PC.42	**Temporary works for directional drilling**	sum	1		
	PC.43	**Directional drilling and installation of pipe or cable sleeve:**				
		.01 630 mm dia hdpe pipe	m	52		
	PC.44	**Extra over items PC 42 and PC 43 for unforeseen rock or boulders**	m^3	16		
	PC.46	**De-establish quipment on site**	sum	1		
	PC.47	**Standing time for directional drilling team and equipment**	h	40		
	PC.48	**Stabilization of unstable areas or grouting of voids where ordered:**				
		.01 Provision and establishment of equipment on Site, and removal on completion of operation	sum	1		
		.02 Operation of equipment	day	10		
		.03 Materials used	m^3	10		
PART PC	Carried forward					

PARTICULAR SPECIFICATION PC

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		Brought forward				
	PC 50	**DIRECTIONAL DRILLING**				
		DRILLING: ROAD CROSSING 10				
	PC.51	**Design and site establishment**	sum	1		
	PC.52	**Temporary works for directional drilling**	sum	1		
	PC.53	**Directional drilling and installation of pipe or cable sleeve:**				
		.01 710 mm dia hdpe pipe	m	38		
	PC.54	**Extra over items PC 52 and PC 53 for unforeseen rock or boulders**	m^3	15		
	PC.56	**De-establish quipment on site**	sum	1		
	PC.57	**Standing time for directional drilling team and equipment**	h	40		
	PC.58	**Stabilization of unstable areas or grouting of voids where ordered:**				
		.01 Provision and establishment of equipment on Site, and removal on completion of operation	sum	1		
	PC.58	.02 Operation of equipment	day	10		
		.03 Materials used	m^3	10		
	PC 60	**DIRECTIONAL DRILLING**				
		DRILLING: ROAD CROSSING 11				
	PC.61	**Design and site establishment**	sum	1		
	PC.62	**Temporary works for directional drilling**	sum	1		
	PC.63	**Directional drilling and installation of pipe or cable sleeve:**				
		.01 710 mm dia hdpe pipe	m	45		
	PC.64	**Extra over items PC 62 and PC 63 for unforeseen rock or boulders**	m^3	18		
	PC.66	**De-establish quipment on site**	sum	1		
	PC.67	**Standing time for directional drilling team and equipment**	h	40		
	PC.68	**Stabilization of unstable areas or grouting of voids where ordered:**				
		.01 Provision and establishment of equipment on Site, and removal on completion of operation	sum	1		
		.02 Operation of equipment	day	10		
		.03 Materials used	m^3	10		
PART PC	Carried forward					

PARTICULAR SPECIFICATION PC

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		Brought forward				
	PC 70	**DIRECTIONAL DRILLING**				
		DRILLING: ROAD CROSSING 12				
	PC.71	**Design and site establishment**	sum	1		
	PC.72	**Temporary works for directional drilling**	sum	1		
	PC.73	**Directional drilling and installation of pipe or cable sleeve:**				
		.01 630 mm dia hdpe pipe	m	30		
	PC.74	**Extra over items PC 72 and PC 73 for unforeseen rock or boulders**	m^3	9		
	PC.76	**De-establish quipment on site**	sum	1		
	PC.77	**Standing time for directional drilling team and equipment**	h	80		
	PC.78	**Stabilization of unstable areas or grouting of voids where ordered:**				
		.01 Provision and establishment of equipment on Site, and removal on completion of operation	sum	1		
		.02 Operation of equipment	day	10		
		.03 Materials used	m^3	10		
	TOTAL SECTION PARTICULAR SPECIFICATION PC CARRIED TO SUMMARY					

PARTICULAR SPECIFICATION PD

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
PD 10		**BUILDING WORK**				
	PD.08	**Miscellaneous work:**				
		.01 Cast-in 50mm dia sleeves for electric cable access to the water meter	sum	1		
	PD.09	**Miscellaneous items:**				
		Measured by area:				
		Soil insecticide				
		.01 Soil insecticide poisoning under footings, bases, floors, etc as specified by the Architect with a ten year guarantee	m²	256		
		Waterproofing				
		250 Micron damp proof sheeting to under floor slab				
		.01 Chamber 1 & 2	m²	181		
		Derbigum (or similar approved) fusion bonded waterproofing including turn-ups, sealing along edges andbituminous paint coat:				
		.02 Flat roofs including sides and tops of upstand beams	m²	82		
	TOTAL PARTICULAR SPECIFICATION PD CARRIED TO SUMMARY					

ELECTRICAL WORKS

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		ELECTRICAL WORKS				
		BILL 1: ELECTRICAL APPLICATION				
		1. This Bill of Quantities shall be read in conjunction with the Installer's Scope of Work, Technical Specifications and the Engineer design drawings with all other Engineering decipline drawings. **2. All rates shall include Supply and Install. The items in this Bill shall include all wiring, cabling, connections, terminations, installation and termination accessories, possible cable-joints, cable-glands, cable-ties, cable-clips, clamps, shrouds, couplers, lugs, screw-caps, nuts, connectors, terminal strips, heat-shrink, insulating material, etc. for the electrical cables and conductors. It is the responsibility of the contractor to make a fully working system.** **3. It is the responsibility of the contractor to ensure all items are allowed for in this Bill of Quantities.** **4. NB: It is the responsibility of the contractor to supply a fully operational and compliant system.** **5. All items in this Bill of quantities are remeasurable and only installed Quantities will be paid for.**				
	100.00	**Electricity application**				
	100.01	Application to the electricity power supply authority of Eskom for an 80A 400V coonection	Sum	1		
	100.02	Liaison with Eskom including all documentation as may be required.	Sum	1		
	100.03	Liaison with main contractor	Sum	1		
	100.04	Notices and safety / danger signs as per the OHS Act.	Sum	1		
	101.00	**Ancillaries and accessories**				
	101.01	Any other item required for completion of the installation, not specified else where - specify	Sum	1		
		Total carried to summary				

ELECTRICAL WORKS

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		BILL 2: PRELIMINARY AND GENERAL				
		1. This Bill of Quantities shall be read in conjunction with the Installer's Scope of Work, Technical Specifications and the Engineer design drawings with all other Engineering decipline drawings.				
		2. All rates shall include Supply and Install. These items shall the items in this Bill shall include all wiring, cabling, connections, terminations, installation and termination accessories, possible cable-joints, cable-glands, cable-ties, cable-clips, clamps, shrouds, couplers, lugs, screw-caps, nuts, connectors, terminal strips, heat-shrink, insulating material, etc. for the electrical cables and conductors. It is the responsibility of the contractor to make a fully working system.				
		3. It is the responsibility of the contractor to ensure all items are allowed for in this Bill of Quantities.				
		4. NB: It is the responsibility of the contractor to supply a fully operational and compliant system.				
		5. All items in this Bill of quantities are remeasurable and only installed Quantities will be paid for.				
	200.00	**Liason with other parties**				
	200.01	Liaison with main contractor	Sum	1		
	201.00	**Documentation**				
	201.01	For Construction drawings, hard copy and CD	Sets	3		
	201.02	Detailed Scope of Works, Project Safety Plan and Safe Work Method Statement	Sets	3		
	201.03	As-built drawings in Auto CAD/Revit format, on a CD	Sets	3		
	201.04	Operators and Maintenance Manuals, hard copy and CD	Sets	3		
	201.05	Commissioning Sheets and Installation Checklists	Sets	3		
	201.06	Labeling of all devices, equipment and cables	Sum	1		
	201.07	Drawings for approval (Engineers approval)	Sum	1		
	202.00	**Testing and commissioning**				
	202.01	Test and commission of the electrical installation and area lighting system and issue reports and certificates as required by the standards and specifications	Sum	1		
	Carried forward					

ELECTRICAL WORKS

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
	203.00	**Training**				
	203.01	End-user training	Sum	1		
	204.00	**Warranty**				
	204.01	Mounting structure: Workmanship guarantee/Product replacement warranty of 10 years	Sum	1		
	204.02	All inclusive post practical completion 12 month SLA for complete installation	Sum	1		
	204.03	Balance of mechanical and electrical Works: Workmanship guarantee/Product replacement warranty of 10 years	Sum	1		
	205.00	**Preliminary and General**				
	205.01	Time related P&G's	Sum	1		
	205.02	Fixed P&G's	Sum	1		
	205.03	Site establishment and disestablishment	Sum	1		
	206.00	**Other costs**				
	206.01	Allow for all costs which the Contractor may incur in terms of any or all of description in these documents and of the drawings which costs are not specifically covered in the schedule below. Submit full details. NOTE: *Value related P&G's should be included in the tendered rates*	Sum	1		
	Total carried to summary					

ELECTRICAL WORKS

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		BILL 3: DISTRIBUTION BOARDS **1. This Bill of Quantities shall be read in conjunction with the Installer's Scope of Work, Technical Specifications and the Engineer design drawings with all other Engineering decipline drawings.** **2. All rates shall include Supply and Install. These items shall the items in this Bill shall include all wiring, cabling, connections, terminations, installation and termination accessories, possible cable-joints, cable-glands, cable-ties, cable-clips, clamps, shrouds, couplers, lugs, screw-caps, nuts, connectors, terminal strips, heat-shrink, insulating material, etc. for the electrical cables and conductors. It is the responsibility of the contractor to make a fully working system.** **3. It is the responsibility of the contractor to ensure all items are allowed for in this Bill of Quantities.** **4. NB: It is the responsibility of the contractor to supply a fully operational and compliant system.** **5. The electrical cable and wiring shall comply with the SANS wiring colour codes:** **Protective earth (PE) - green-yellow** **Neutral (N) - black** **Line, single phase (L) - red** **Line, three phase (L1) - red** **Line, three phase (L2) - yellow** **Line, three phase (L3) - blue** **6. Supply, testing, deliver, off-loading, and commissioning of distribution boards complete with test certifications as per SANS 61439-1 and IEC 61439-1 standards for distribution boars, including factory inspection, all equipment pre fitted in the factory complete with busbars, accessories, earthing and conduit terminations in accordance with electrical specifications.** **7. The distribution board requirements are shown on the single line diagrams (schematic diagrams) drawings.** **8. Shop drawings shall be submitted to the Engineer for formal approval before any manufacturing commences.**				
	300.00	**Distribution Boards**				
	300.01	DB - 01 (Valve Access Chamber) Refer to single line diagram for size and rating	No	1		
	301.00	**Ancillaries and accessories**				
	301.01	Any other item required for completion of the installation, not specified else where - specify	Sum	1		
	302.00	**Certificate of Compliance**				
	302.01	Issue CoC completion of complete electrical installation	Sum	1		
	Total carried to summary					

ELECTRICAL WORKS

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		BILL 4: LOW VOLTAGE CABLES **1. This Bill of Quantities shall be read in conjunction with the Installer's Scope of Work, Technical Specifications and the Engineer design drawings with all other Engineering decipline drawings.** **2. All rates shall include Supply and Install. These items shall the items in this Bill shall include all wiring, cabling, connections, terminations, installation and termination accessories, possible cable-joints, cable-glands, cable-ties, cable-clips, clamps, shrouds, couplers, lugs, screw-caps, nuts, connectors, terminal strips, heat-shrink, insulating material, etc. for the electrical cables and conductors. It is the responsibility of the contractor to make a fully working system.** **3. It is the responsibility of the contractor to ensure all items are allowed for in this Bill of Quantities.** **4. NB: It is the responsibility of the contractor to supply a fully operational and compliant system.** **5. The electrical cable and wiring shall comply with the SANS wiring colour codes:** **Protective earth (PE) - green-yellow** **Neutral (N) - black** **Line, single phase (L) - red** **Line, three phase (L1) - red** **Line, three phase (L2) - yellow** **Line, three phase (L3) - blue** **6. The Contractor shall supply, install and commission all the reticulation and distribution cables as specified in the cable schedules. The rate shall include for all the labeling materials required to complete the instalaltion. All cables will be installed in the ground and enter the DB's via sleeves.**				
	400.00	**PVC/PVC/SWA/PVC Cu**				
	400.01	25mm², 4-Core	m	300		
	400.02	10mm², 4-Core	m	250		
	400.03	6mm², 3-Core	m	100		
	400.04	4mm², 4-Core	m	300		
	400.05	4mm², 3-Core	m	100		
	401.00	**BCEW (Bare Cu Earth Wire)**				
	401.01	16mm², 1-Core	m	300		
	Carried forward					

ELECTRICAL WORKS

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
	401.02	6mm², 1-Core	m	250		
	401.03	4mm², 1-Core	m	100		
	401.04	2.5mm², 1-Core	m	300		
	402.00	**Ancillaries and accessories**				
	402.01	Any other item required for completion of the installation, not specified else where - specify	Sum	1		
		Total carried to summary				

ELECTRICAL WORKS

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		BILL 5: CABLE ROUTING & WIRE WAYS				
		1. This Bill of Quantities shall be read in conjunction with the Installer's Scope of Work, Technical Specifications and the Engineer design drawings with all other Engineering decipline drawings.				
		2. All rates shall include Supply and Install. These items shall the items in this Bill shall include all wiring, cabling, connections, terminations, installation and termination accessories, possible cable-joints, cable-glands, cable-ties, cable-clips, clamps, shrouds, couplers, lugs, screw-caps, nuts, connectors, terminal strips, heat-shrink, insulating material, etc. for the electrical cables and conductors. It is the responsibility of the contractor to make a fully working system.				
		3. It is the responsibility of the contractor to ensure all items are allowed for in this Bill of Quantities.				
		4. NB: It is the responsibility of the contractor to supply a fully operational and compliant system.				
		5. All items in this Bill of quantities are remeasurable and only installed Quantities will be paid for.				
	500.00	**Marker tape**				
	500.01	Supply and install PVC marker type suitably to be laid in cable trenches, 150mm wide, yellow coloured and marked "DANGER: ELECTRIC CABLE BELOW"	m	450		
	501.00	**Cable route marker**				
	501.01	500x300x300mm Concrete cable route marker plate as per specification drawing	No	4		
	502.00	**Cable trenching**				
	502.01	Excavation, backfilling, leveling and carting away of excess material to cable trenches as specified, 600mm deep for LV cabling.	m	450		
	502.02	Extra over excavation for excavation in soft rock (Provisional)	m	225		
	502.03	Extra over excavation for excavation in hard rock (Provisional)	m	100		
	502.04	Backfilling and compact of trench with imported soil (Provisional)	m	225		
	502.05	Backfilling of cable trench with imported sifted soft soil 200mm thick (Provisional)	m	225		
		Carried forward				

ELECTRICAL WORKS

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
	503.00	**Services holes (Man holes)**				
	503.01	800mm deep, 800mm x 800mm services holes (manhole) with a heavy duty cast iron cover and frame for sleeves and to pull cabling and wiring through	No	6		
	504.00	**Trunking, for *Electrical Wiring-(Gray)*** ***Cross-arm supports shall be wide enough to accommodate specified tray only, unless otherwise satted. Hangers to be M8, not not exceeding 1,2m spacings***				
	504.01	P9000	m	150		
	504.02	Bend	No	20		
	504.03	T-Off	No.	10		
	505.00	**Cable tray** **MILD STEEL HOT DIPTED GALV.** **PT-76 mild duty** **Supply and install galv steel cable trays complete with all wall and floor mounting P2000 supports, splicing other fixing materials required as per suppliers speifications. Cable tray earth wire at every joint.**				
	505.01	300mm x 76mm - striaght runs (excluding cover)	m	150		
	506.00	**Cable tray - Wire Mesh** **MILD STEEL HOT DIPTED GALV.** **GS-50 gridspan Wire Mesh** **Supply and install galv steel cable trays complete with all wall and floor mounting P2000 supports, splicing other fixing materials required as per suppliers speifications. Cable tray earth wire at every joint.**				
	506.01	300mm x 50mm - striaght runs	m	300		
	506.02	300mm - T-off	No	4		
	507.00	**Cable ladder -** **MILD STEEL HOT DIPTED GALV.** **Supply and install galv steel cable ladders complete with all wall and floor mounting supports, splicing other fixing materials required as per suppliers speifications. Cable tray earth wire at every joint.**				
	507.01	300mm x 76mm	m	300		
	507.02	T-offs	No	12		
	508.00	**Conduits & Wire Ways**				
	508.01	110mm diameter PVC sleeves	m	250		
	Carried forward					

ELECTRICAL WORKS

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
	508.02	50mm diameter PVC sleeves	m	250		
	508.03	25mm GALV. steel conduit	m	500		
	508.04	32mm GALV. steel conduit	m	300		
	508.05	25mm PVC. conduit	m	300		
	509.00	**Ancillaries and accessories**				
	509.01	Any other item required for completion of the installation, not specified else where - specify	Sum	1		
		Total carried to summary				

ELECTRICAL WORKS

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		BILL 6: SMALL POWER & LIGHTING				
		1. This Bill of Quantities shall be read in conjunction with the Installer's Scope of Work, Technical Specifications and the Engineer design drawings with all other Engineering decipline drawings.				
		2. All rates shall include Supply and Install. These items shall the items in this Bill shall include all wiring, cabling, connections, terminations, installation and termination accessories, possible cable-joints, cable-glands, cable-ties, cable-clips, clamps, shrouds, couplers, lugs, screw-caps, nuts, connectors, terminal strips, heat-shrink, insulating material, etc. for the electrical cables and conductors. It is the responsibility of the contractor to make a fully working system.				
		3. It is the responsibility of the contractor to ensure all items are allowed for in this Bill of Quantities.				
		4. NB: It is the responsibility of the contractor to supply a fully operational and compliant system.				
		5. All items in this Bill of quantities are remeasurable and only installed Quantities will be paid for.				
	600.00	**Supply, and install switched & unswitched socket outlets points, surface/flush mounted or flush in power skirting mounted, complete with cradle, galvanized wall-draw box, cover plate, including PVC/GALV. conduits and all conduit accessories, all mounting accessories, and 2.5mm² wiring:**				
	600.01	16A, Dual switched socket outlet, New ZA Plug recessed in wall. (SANS-164-1&2)	No	6		
	600.02	16A, Dedicated switched socket outlet (RED)	No	6		
	600.03	16A, IP65 (water & dust proof) single switched socket outlet, surface mounted on wall. (SANS-164-1&2)	No	6		
	600.04	32A, IP65 (water & dust proof) 5-PIN, 400V, industrial welding socket outlet, surface mounted on wall. (IEC 60 309-1, -2, -4)	No	6		
	600.05	Power Skirting 2 Tier - Grey	m	20		
	601.00	**Supply, and install isolator switch power outlets points, surface/flush mounted, complete with conduits and all conduit accessories, mounting accessories, and 4mm² wiring:**				
	Carried forward					

ELECTRICAL WORKS

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
	601.01	32A, IP65 (water & dust proof) 3-Ph lockable isolator switch, for extractor fans, surface mounted.	No	6		
	602.00	**Supply, deliver and install luminaires, complete with all mounting accessories, 2.5mm² wiringand terminations. Install luminaires as per luminaire schedule in Annexure 3**				
	602.01	**Type L5: 49W LED, 4000K (2.5M INSTALLATION)** LED vapor proof industrial luminaire, surface mounted, IP66,	No	30		
	602.02	**Type L5E: 49W LED, 4000K** LED vapour proof industrial luminaire, surface mounted IP66, with electronic control gear, 60min self maintained battery back-up,	No	10		
	602.03	**Type L6: 52W LED, 4000K (6M INSTALLATION)** LED Linear Floodlight industrial luminaire, surface mounted, IP66,	No	15		
	602.04	**Type L6E: 52W LED, 4000K** LED Linear Floodlight industrial luminaire, surface mounted IP66, with electronic control gear, 60min self maintained battery back-up,	No	5		
	602.05	**Type L8: 15-18W LED LINEAR VAPORPROOF 4000K** LED industrial luminaire, surface mounted, IP65,	No	10		
	602.06	**Type L9: 170-200W LED LOW BAY LIGHT FITTING 4000K** LED industrial luminaire, surface mounted IP65 (14M INSTALLATION)	No	2		
	602.07	**Type L9E: 170-200W LED LOW BAY LIGHT FITTING 4000K** LED industrial luminaire, surface mounted, IP65,	No	1		
	602.08	Allow for a Jerry picker for installation of 6m & 14m high installations	Sum	1		
	603.00	**Supply, deliver and install light switch points complete with cradle, cover plate, including all mounting and installation accessories with PVC/GALV. conduits and all conduit accessories, wall boxes, wiring, etc.:**				
	603.01	1 lever 1 way light switch, surface mounted	No.	2		
	603.02	1 lever 1 way WATER TIGHT light switch (water & dust proof), surface mounted	No.	2		
	603.03	Weather proof photo-cell light switch	No.	2		
	604.00	**Ancillaries and accessories**				
	604.01	Any other item required for completion of the installation, not specified else where - specify	Sum	1		
	605.00	**Test Commission and Issue CoC**	Sum	1		
	Total carried to summary					

ELECTRICAL WORKS

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		BILL 7: CCTV				
		1. This Bill of Quantities shall be read in conjunction with the Installer's Scope of Work, Technical Specifications and the Engineer design drawings with all other Engineering decipline drawings.				
		2. It is the responsibility of the contractor to ensure all items are allowed for in this Bill of Quantities.				
		3. NB: It is the responsibility of the contractor to supply a fully operational and compliant system.				
		4. All items in this Bill of quantities are remeasurable and only installed Quantities will be paid for.				
		Design, supply, deliver and install all equipment and materials required to complete a remote based CCTV monitoring installation for the complete pump station by a specialist installation contractor. All rates shall allow for material and labour required per item to complete the installation.				
	700.00	**Design, Supply and Install**				
	700.01	Design, supply, install and commissioning of a complete CCTV system by a specialist contractor	Sum	1		
	701.00	**Cameras**				
	701.01	Surface mounted IP dome camera, with HD resolution, wide dynamic range, PoE, PTZr (Pan Tilt Rotate) with remote adjustment functionality at processor, 15m range, IP 66, vandal proof, including brackets, mounting pipes and accessories.	No	8		
	702.00	**Network Video Recorder**				
	702.01	NVR with at least 30 days storage capacity c/w 24 channels pre-licensed, video management system, including CPU, Hardware, Software,	No	1		
	702.02	2kVA Rack mounted UPS with 120min battery back up	No	1		
	703.00	**Ethernet Switch and Network**				
	703.01	Access Switch with the minimum requirements of:layer 3 routing. VLAN technology will be used to separate voice, data or video traffic from interfering with each other. (installed in 19" cabinet supplied by others) IP Based, SFP based Gigabit Ethernet Ports & c/w transmitter module for remote montioring of the CCTV.	No	2		
	703.02	Ethernet to Optical Fibre Converters	No	6		
	704.00	**Accessories**				
	704.01	All accessories required for a complete working system	Sum	1		
	Total carried to summary					

ELECTRICAL WORKS

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
		BILL 8: EARTHING & BONDING				
		1. This Bill of Quantities shall be read in conjunction with the Installer's Scope of Work, Technical Specifications and the Engineer design drawings with all other Engineering decipline drawings.				
		2. It is the responsibility of the contractor to ensure all items are allowed for in this Bill of Quantities.				
		3. NB: It is the responsibility of the contractor to supply a fully operational and compliant system.				
		4. All items in this Bill of quantities are remeasurable and only installed Quantities will be paid for.				
	800.00	**Design, supply, deliver and install all equipment and materials required to complete the earthing and bonding installation system for the complete valve valve, reservior, water tower, guard house and external light poles as indicated below, by a specialist installation contractor. All rates shall allow for material and labour required per item to complete the installation.**				
	800.01	E&L, Bonding Protection: Access Chamber Including cable containment	Sum	1		
	800.02	E&L, Bonding Protection: All conductive equipment in the Valve chambers inlcuding cable containment	Sum	1		
	800.03	Final testing of equipment earth grid systems on completion and issuing of test certificate	Sum	1		
	801.00	**Ancillaries and accessories**				
	801.01	Any other item required for completion of the installation, not specified else where - specify	Sum	1		
		Total carried to summary				

ELECTRICAL WORKS

REFERENCES	BILL	ITEM	UNIT	QUAN-TITY	RATE	AMOUNT
	Bill 1:	ELECTRICAL APPLICATION				
	Bill 2:	PRELIMINARY AND GENERAL				
	Bill 3:	DISTRIBUTION BOARDS				
	Bill 4:	LOW VOLTAGE CABLES				
	Bill 5:	CABLE ROUTING & WIRE WAYS				
	Bill 6:	SMALL POWER & LIGHTING				
	Bill 7:	CCTV				
	Bill 8:	EARTHING & BONDING				
	TOTAL ELECTRICAL WORKS CARRIED TO SUMMARY					

OPERATING AND MAINTENANCE MANUALS

PAYMENT REFERS	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
ZUT 0002	**20**	**OPERATING AND MAINTENANCE MANUALS** **DRAWING 111242-0000-DR-WW-0516 to 0519**				
	20.01	Supply and Deliver O&M manual (for all components shown and referenced in drawings)	Sum	1		
Total carried to summary						

MANUALLY OPERATED CHAIN HOIST

PAYMENT REFERS	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
ZUT 1003	**30**	**MANUALLY OPERATED CHAIN HOIST**				
1003.15.1	**30.01**	**Supply and Deliver**				
	30.01.01	1 Ton manually operated chain hoist complete with accessories	No.	1		
1003.15.2	**30.02**	**Installation, Testing and Commissioning**				
	30.02.01	1 Ton manually operated chain hoist complete with accessories	No.	1		
Total carried to summary						

VENTILATION

PAYMENT REFERS	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
ZUT 1008	**40**	**VENTILATION**				
		DRAWING 111242-0000-DR-WW-0516 and 0518				
1008.17.1	**40.01**	**Supply and Deliver**				
	40.01.01	Louvred roof cowls, complete with shoe, upstand base bracket and vermin mesh 1000 mm (W) x 1000 mm (B) x 660 mm (H)	No.	2		
	40.01.02	400 Diam. Jet Fans, complete with anti-vibration ceiling mount foot brackets and earthing connections	No.	3		
1008.17.2	**40.02**	**Installation, Testing and Commissioning**				
	40.02.01	Louvred roof cowls, complete with shoe, upstand base bracket and vermin mesh 1000 mm (W) x 1000 mm (B) x 660 mm (H)	No.	2		
	40.02.02	400 Diam. Jet Fans, complete with anti-vibration ceiling mount foot brackets and earthing connections	No.	3		
		DRAWING 111242-0000-DR-WW-0516 to 0517				
1008.17.1	**40.03**	**Supply and Deliver**				
	40.03.01	Ventilation supply system for Chamber 1: - 2 x Axial fans complete with floor mouted foot brackets and earthing connection - 3240 l/s @ 400 Pa. - 2 x 2.2 kW, 3 phase isolators. - Associated air terminals, spiral ducting, fittings, plenums, filter banks, support brackets and ancillaries as per drawing 111242-DR-WW-0516	No.	1		
	40.03.02	Ventilation extraction system for the Chamber 2: - 2 x Axial fans complete with floor mouted foot brackets and earthing connection - 3240 l/s @ 200 Pa. - 2 x 2.2 kW, 3 phase isolators. - Associated air terminals, spiral ducting, fittings, support brackets and ancillaries as per drawing 111242-DR-WW-0517.	No.	1		
	40.03.03	Control panel, thermostats and connections	No.	1		
Total carried to summary						

VENTILATION

PAYMENT REFERS	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
1008.17.2	**40.04**	**Installation, Testing and Commissioning**				
	40.04.01	Ventilation system for the Pressure Reducing Valve Chamber (see item 40.03.01 and 40.03.03)	No.	1		
	40.05	**Others**				
	40.05.01	Others (please state any other items necessary to complete the installation and allow full functionality the ventilation system)	Sum	1		
		P&G's for Ventilation system	**Sum**	**1**		
Total carried to summary						

PRESSURE REDUCING VALVE SYSTEM

PAYMENT REFERS	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
	900	**PRESSURE REDICUNG VALVE SYSTEM**				
		DRAWING 111242-0000-DR-WW-0519 and 0520				
	900.01	**Supply, Deliver**				
	900.01.01	Concentric Reducer, DN700 x DN300 x 6 mm SANS 719 Grade C; Flanged both ends SANS 1123 Table 1600/3 (RF)	No	2		
	900.01.02	DN300 x 6 mm 90 Degree Elbow SANS 719 Grade C; Flanged both ends SANS 1123 Table 1600/3 (RF)	No	4		
	900.01.03	DN300 x 10 mm Cross-Tee SANS 719 Grade C; Flanged all ends SANS 1123 Table 1600/3 (RF)	No	2		
	900.01.04	Resilient Seal Gate Valve DN300 PN16; Flanged SANS 1123 Table 1600/3 (RF)	No	6		
	900.01.05	Dismantling Joint DN300 PN16; Flanged SANS 1123 Table 1600/3 (RF)	No	9		
	900.01.06	Spool Piece DN300 x 6 mm SANS 719 Grade C; Flanged both ends SANS 1123 Table 1600/3 (RF)	No	3		
	900.01.07	Orifice Plate DN300 with 159 mm Opening	No	3		
	900.01.08	Spool Piece DN300 x 6 mm SANS 719 Grade C; Flanged both ends SANS 1123 Table 1600/3 (RF) With pipe anchor support	No	3		
	900.01.09	Pressure Reducing Valve DN300 PN16, Flanged both ends SANS 1123 Table 1600/3 (RF)	No	3		
	900.01.10	Spool Piece DN300 x 6 mm SANS 719 Grade C; Flanged both ends SANS 1123 Table 1600/3 (RF) With pipe anchor support	No	3		
	900.01.11	Strainer DN300 PN16; Flanged both ends SANS 1123 Table 1600/3 (RF)	No	3		
	900.02	**Installation Testing and Commissioning**				
	900.02.01	Concentric Reducer, DN700 x DN300 x 6 mm SANS 719 Grade C; flanged both ends SANS 1123 Table 1600/3 (RF)	No	2		
	900.02.02	DN300 x 6 mm 90 Degree Elbow SANS 719 Grade C; Flanged both ends SANS 1123 Table 1600/3 (RF)	No	4		
	900.02.03	DN300 x 10 mm Cross-Tee SANS 719 Grade C; Flanged all ends SANS 1123 Table 1600/3 (RF)	No	2		
	900.02.04	Resilient Seal Gate Valve DN300 PN16; Flanged SANS 1123 Table 1600/3 (RF)	No	6		
	900.02.05	Dismantling Joint DN300 PN16; Flanged SANS 1123 Table 1600/3 (RF)	No	9		
	900.02.06	Spool Piece DN300 x 6 mm SANS 719 Grade C; Flanged both ends SANS 1123 Table 1600/3 (RF)	No	3		
Total carried to summary						

PRESSURE REDUCING VALVE SYSTEM

PAYMENT REFERS	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
	900.02.07	Orifice Plate DN300 with 159 mm Opening	No	3		
	900.02.08	Spool Piece DN300 x 6 mm SANS 719 Grade C; Flanged both ends SANS 1123 Table 1600/3 (RF) With pipe anchor support	No	3		
	900.02.09	Pressure Reducing Valve DN300 PN16, Flanged both ends SANS 1123 Table 1600/3 (RF)	No	3		
	900.02.10	Spool Piece DN300 x 6 mm SANS 719 Grade C; Flanged both ends SANS 1123 Table 1600/3 (RF) With pipe anchor support	No	3		
	900.02.11	Strainer DN300 PN16; Flanged both ends SANS 1123 Table 1600/3 (RF)	No	3		
Total carried to summary						

SUMMARY

PAYMENT REFERS	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
SUM		**SUMMARY**				
ZUT 0002		Operating and Maintenance Manuals				
ZUT 1003		Lifting Equipment				
ZUT 1008		Ventilation				
ZUT		Pressure Reducing Valve System				
TOTAL MECHANICAL WORKS CARRIED TO SUMMARY						