

Tender No.:  
Description:

Construction of B16 pipeline from Zuikerbosch to Slangfontein: Portion B

B16 Pipeline-Part B  
Section 1 : P&G Time Related

Item No.	Payment Refers	Description	Unit	Qty	Rate	Amount
	SABS 1200A	<b>SECTION 1: PRELIMINARY &amp; GENERAL FIXED CHARGES</b>				
1.1	8.3.1	<b>Contractual Requirements</b>				
1.1.1		Contractual Requirements	Sum	1		
1.2	8.3.2.1	<b>Facilities for Engineer (SABS 1200AB)</b>				
1.2.1		Provision of Office for the Engineer's Representative as per PSAB 3.2, including toilet facilities as per PSAB 5.2	Sum	1		
1.2.2		Provision of wifi connection as per PSAB 4.1	Sum	1		
1.2.3		Provision of survey equipment as per PSAB 4.2	Sum	1		
1.2.4		Name Board as per drg no. R0 28537 and Engineer's instruction	No.	2		
1.2.5		Provision of survey assistants as per PSAB 5.5	Sum	1		
1.3		<b>Facilities for Contractor</b>				
1.3.1	8.3.2.2	Offices, storage sheds, fencing, workshops, laboratories, etc.	Sum	1		
1.3.2	8.3.2.2	Ablution and latrine facilities	Sum	1		
1.3.3	8.3.2.2	Tools and equipment	Sum	1		
1.3.4	8.3.2.2	Water supplies, electric power and communications	Sum	1		
1.3.5	8.3.2.2	Dealing with water (See PSA 8.8.7)	Sum	1		
1.3.6	8.3.3	Other fixed charge obligations, including setting out of works, security of contractor's plant & personnel	Sum	1		
1.3.7	8.3.4	Remove all site establishment on completion	Sum	1		
1.4		<b>Temporary Works</b>				
1.4.1	8.2.1	Access to works including all temporary roads, and signage (road signs), excavations, ramps, and develop and maintenance traffic management plan, including submission and approval of relevant authorities	Sum	1		
1.5		<b>Quality Control</b>				
1.5.1	PSA 8.10	Quality control and all activities necessary to comply with all requirements of the specified quality control system as per PS 5 and TS 2.32	Sum	1		
1.6		<b>High Voltage Safe Working Procedures</b>				
1.6.1	PSA 8.10	Comply with Safe Working Procedures for pipeline construction within High Voltage Transmission Lines Servitude (See TS041 in Specification <i>Rand Water Cathodic Protection System Technical Specification</i> )	Sum	1		

<b>SECTION 1 CARRIED FORWARD TO SUMMARY</b>						

Contract No.:

B16 Pipeline-Part B

Description:

Construction of B16 pipeline from Zuikerbosch to Slangfontein:  
Portion B

Section 2: P&G Time Related

Item No.	Payment Refers	Description	Unit	Qty	Rate	Amount
	SABS 1200A	<b>SECTION 2: PRELIMINARY &amp; GENERAL TIME RELATED ITEMS</b>				
2.1	8.4.1	<b>Contractual Requirements</b>				
2.1.1		Contractual Requirements	Sum	1		
2.2	8.4.2.1	<b>Operate and maintain facilities: Facilities for Engineer for duration of contract</b>				
2.2.1		Provision of office for the Engineer's representative, incl. toilet facilities as per PSAB 3.2 and PSAB 5.2	Sum	1		
2.2.2		Provision of wifi connection as per PSAB 4.1	Sum	1		
2.2.3		Provision of survey equipment as per PSAB 4.2	Sum	1		
2.2.4		Name Board as per drg no. R0 28537 and Engineer's instruction	Sum	1		
2.2.5		Provision of survey assistants as per PSAB 5.5	Sum	1		
2.3		<b>Operate and maintain facilities: Facilities for Contractor for duration of contract</b>				
2.3.1	8.4.2.2	Offices, storage sheds, fencing, workshops, laboratories, etc.	Sum	1		
2.3.2	8.4.2.2	Ablution and latrine facilities	Sum	1		
2.3.3	8.4.2.2	Tools and equipment	Sum	1		
2.3.4	8.4.2.2	Water supplies, electric power and communications	Sum	1		
2.3.5	8.4.2.2	Dealing with water (See PSA 8.8.7)	Sum	1		
2.3.6	8.4.3	Supervision for duration of construction including Quality Assurance as per TS 3.2 and TS2.32 including equipment factory acceptance tests	Sum	1		
2.3.7	8.4.4	Company and head office overhead costs	Sum	1		
2.3.8	8.4.5	Other time related charges, including security of contractor's plant & personnel	Sum	1		
2.4		<b>Temporary Works</b>				
2.4.1	8.2.2	Access to works including all temporary roads, and signage (road signs), excavations, ramps, and develop and maintenance traffic management plan, including submission and approval of relevant authorities	Sum	1		
2.5		<b>Quality Control</b>				
2.5.1	PSA 8.10	Quality control and all activities necessary to comply with all requirements of the specified quality control system as per PS 5 and TS 2.32.	Sum	1		
2.6		<b>High Voltage Safe Working Procedures</b>				
2.6.1	PSA 8.10	Comply with Safe Working Procedures for pipeline construction within High Voltage Transmission Lines Servitude (See TS041 in Specification <i>Rand Water Cathodic Protection System Technical Specification</i> )	Sum	1		
2.7		<b>Service Detection as per TS 4.3</b>				

2.7.1	PSA 8.10	Underground service detection by nominated specialist	Sum	1		
<b>SECTION 2 CARRIED FORWARD TO SUMMARY</b>						

Contract No.:

Description:

Construction of B16 pipeline from Zuikerbosch to Slangfontein: Portion B

B16 Pipeline-Part B

Section 3: Health and Safety

Item No.	Payment Refers	Description	Unit	Qty	Rate	Amount
	PSA 8.11	<b>SECTION 3 : OCCUPATIONAL HEALTH AND SAFETY</b>				
3.1		Preparation of the Contractor's site specific Health and Safety Plan	Lump sum	1		
3.2		Principal Contractor's initial obligations in respect of the Occupational Health and Safety Act and Construction Regulations	Lump sum	1		
3.3		Principal Contractor's time related obligations in respect of the Occupational Health and Safety Act and Construction Regulations	Month	24		
3.4		Provision of Personal Protective Equipment (PPE)	Lump sum	1		
3.5		Provision of a full time Construction Health and Safety Officer	Month	24		
3.6		Cost of medical certificates and medical surveillance				
3.6.1		(a) Initial (baseline) medical examinations	Lump sum	1		
3.6.2		(b) Periodic examinations	Lump sum	1		
3.6.3		(c) Exit examinations	Lump sum	1		
3.7		Induction training	Lump sum	1		
3.8		Provision of First Aid Boxes and other emergency safety equipment such as fire extinguishers.	Lump sum	1		
3.9		Transportation of Workers	Lump sum	1		
3.10		Welfare Facilities	Lump sum	1		
3.11		Occupational Hygiene Surveys	Lump sum	1		
3.12		Training (OH&S requirements)	Lump sum	1		
3.13		Security requirements at Estates	Lump sum	1		
3.14		Employee wellness programs	Lump sum	1		
3.15		Submission of the Health and Safety File (hard and soft copies)	Lump sum	1		

<b>SECTION 3 CARRIED FORWARD TO SUMMARY</b>						

Contract No.:

Section 4: Environment

Description: Construction of B16 pipeline from Zuikerbosch to Slangfontein: Portion B

Item No.	References	Description	Unit	Qty	Rate	Amount
	PSA 8.12	<b>SECTION 4 : ENVIRONMENT AND QUALITY ASSURANCE</b>				
<b>4.1</b>	<b>Payment References</b>	<b>ENVIRONMENTAL</b>				
4.1.1		Signage	Lump sum	1		
4.1.2		Pollution prevention	Lump sum	1		
4.1.3		Erosion control and silt management	Lump sum	1		
4.1.4		Work in sensitive areas	Lump sum	1		
4.1.5		Waste disposal provision	Lump sum	1		
4.1.6		Administration and documentation	Lump sum	1		
		<b>Signage</b>				
4.1.7		Environmental information sign at gate (metal - A2 size)	Each	1		
4.1.8		No go area signage (corex board with wooden peg - A2 size)	Each	5		
4.1.9		Sensitive areas (corex board with wooden peg - A2 size)	Each	5		
4.1.10		Topsoil (corex board with wooden peg A3 size)	Each	20		
		<b>Dermacated Areas</b>				
4.1.11		Fencing for no go area	m	500		
4.1.12		Screening unsightly works 2 m height shade cloth)	m	500		

4.1.13	Barricading the demarcation of edge of the working area	km	(as per the total length of the pipeline and both sides)		
	<b>Pollution Prevention</b>				
4.1.14	Fire protection equipment. Two flappers (fire beaters) and one fire extinguisher per team	Sum	1		
4.1.15	Waste bins and receptacles that comply with the waste clauses of the EMP (all types of waste to be catered for throughout the working area)	Lump sum	1		
4.1.16	Adequate serviced ablution facilities as per EMP and OHS Act.	Lump sum	1		
4.1.17	Designated eating and smoking areas as per EMP	Lump sum	1		
4.1.18	Water cart/s to adequately provide dust control of whole site (minimum of three times a day)	Lump sum	1		
4.1.19	Spillage kits must in all construction vehicles and with each team	Lump sum	1		
4.1.20	Drip trays for all vehicles parked overnight	Lump sum	1		
4.1.21	Bunding facility for hazardous products as per OHS Act	Lump sum	1		
4.1.22	Labeled containers for decanting of liquids	Lump sum	1		
	<b>Waste Removal to Registered Waste Facility as per EMP</b>				
4.1.23	General waste	Lump sum	1		
4.1.24	Hazardous waste	Lump sum	1		
	<b>Erosion control and silt management</b>				
4.1.25	Silt fences for inside water courses and all slopes	m	100		
4.1.26	Hay bales	m	100		
4.1.27	Sand bags	m	100		
4.1.28	Tarpaulin cover for stockpiles in erosive area	m2	100		
4.1.29	Crain mats for construction equipment working on wet surfaces	m	50		
4.1.30	Sock filter fitted to all trench pumps	Each	1		
4.1.31	Hessian or similar type product for all slopes that start to erode.	m2	300		
	<b>Soil management</b>				
4.1.32	Removal and storage of soil outside regulated areas as per EMP and WULA	Lump sum	1		
4.1.33	Management of soil stockpiles (Slash weeds before seeding, install soil erosion prevention measures for the entire pipeline)	Lump sum	1		
	<b>Administration and Documentation</b>				
4.1.34	Submission of Environmental File (For approval by Rand Water ECO)	Lump sum	1		
4.1.35	Contractor's appointed Environmental Officer (Environmental Officer must have relevant training).	Lump sum	1		
4.1.36	Maintenance of Environmental file and final documentation for submission	Lump sum	1		

4.2	SAM QA 00030 Pr Clause	QUALITY ASSURANCE AND CONTROL				
4.2.1	7.1	Preparation and submission of Contractors Quality Management Plan (CQMP), for review and approval prior to commencement of works	Lump sum	1		
4.2.2	7.3	Implementing activities of the Quality Control Plan or Inspection Test Plan	Lump sum	1		
4.2.3	7.5.3	Provision of Qualified Quality Officer (The contractor shall provide RW with relevant to the scope of work qualified Quality Officer)	Lump sum	1		
4.2.4	7.4	Maintenance of documents and final documentation for submission	Lump sum	1		
4.2.5	7.5.5	Provision of Quality Officer's relevant training (The contractor to provide related training for the quality officer)	Lump sum	1		
4.2.6	7.6.2	Provision of Compliance Audits (The contractor to audit the project once a year for the duration of the project)	Lump sum	1		
4.2.7	7.5.4	Testing Equipment calibration (The testing Equipments should be calibrated as per the manual)	Lump sum	1		
4.2.8	7.6.2	Welders qualification training as per the code (The contractors must qualify the welders as per API 5L)	Lump sum	1		
4.2.9	7.6.1	Provision of any other testing and inspections requested by the Engineer	Lump sum	1		
SECTION 4 CARRIED FORWARD TO SUMMARY						

Contract No.:

Section 5: P&G Time Related

Description: Construction of B16 pipeline from Zuikerbosch to Slangfontein: Portion B

Item No.	Payment Refers	Description	Unit	Qty	Rate	Amount
5.1	SABS 1200A	<b>SECTION 5: PROVISIONAL SUMS, PRIME COSTS AND OTHER COSTS</b>				
		<b>As Built</b>				
5.1.1	PSA 8.16	The provision of detailed as-built drawings of the completed works as per TS 2.34	Sum	1		
5.2		<b>Access to spoil sites</b>				
5.2.1	PSA 8.10	The identification of spoil sites for the disposal of unsuitable or surplus excavation materials, negotiations and agreement with relevant owners and/or authorities and the provision of access to designated spoil sites as per PS 17	Sum	1		
5.3	SABS 1200A	<b>Provisional Sums allowed for by the Client</b>				
5.3.1		Relocation of existing services				
5.3.1.1	8.5 (b)(1)	Provisional sum for the relocation of existing services (water mains, overhead or underground electrical, etc) by services utilities	Prov. Sum	1	R250,000.00	R250,000.00
5.3.1.2	8.5 (b)(2)	Contractors mark-up on Item 5.3.1.1	%			
5.3.2		Additional surveys				

5.3.2.1	8.5 (b)(1)	Additional topographical surveys and underground service detection by nominated specialist as ordered by Engineer	Prov. Sum	1	R250,000.00	R250,000.00
5.3.2.2	8.5 (b)(2)	Contractors mark-up on Item 5.3.2.1	%			
5.3.3		Office equipment				
5.3.3.1	8.5 (a)	Provisional Sum for supply of office equipment for Engineer's Representative Offices not included under Item 2 of Section 1 of Bill of Quantities	Prov. Sum	1	R10,000.00	R10,000.00
5.3.3.2	8.5 (b)(2)	Contractor's mark up on Item 5.3.3.1	%			
5.3.4		Additional geotechnical investigations				
5.3.4.1	8.5 (b)(1)	Provisional sum for additional geotechnical investigations (including grading analysis, compactibility tests, etc) by nominated specialists, where ordered by the Engineer.	Prov. Sum	1	R500,000.00	R500,000.00
5.3.4.2	8.5 (b)(2)	Contractors mark-up on Items 5.3.4.1	%			
5.3.5		Additional non-destructive pipeline testing				
5.3.5.1	8.5 (b)(1)	Provisional sum for additional non-destructive pipeline testing as directed by Engineer	Prov. Sum	1	R100,000.00	R100,000.00
5.3.5.2	8.5 (b)(2)	Contractors mark-up on Items 5.3.5.1	%			
5.3.6		Traffic Management Plan				
5.3.6.1	8.5 (b)(1)	Provisional sum for Traffic Management Plan as directed by Engineer (Sum to include provision of Traffic signs as per typical drawing)	Prov. Sum	1	R300,000.00	R300,000.00
5.3.6.2	8.5 (b)(2)	Contractors mark-up on Items 5.3.6.1	%			
5.3.6.3		Provisional Sum for changes as requested by the Engineer	Prov. Sum	1	30,000,000.00	30,000,000.00
5.4		<b>Other costs</b>				
5.4.1	PSA 8.8.8	Discontinue operations (where instructed by the Engineer due to lack of access) and transfer plant,equipment and labour				
5.4.1.1		Over a route distance not exceeding 2km	No	2		
5.4.2	PSA 8.8.11	Standing time costs	Days	30		
5.4.3	PSA 8.8.12	Carry out operations in a confined and reduced working strip width	m	1000		
5.5	TS 5.20	Inspection requirements				
5.5.1	TS 5.20	Allow / Sum for the attendance of a RW official, or any person as designated by RW, to attend to design queries, to travel to, inspect manufacturing and testing at the manufacturers premises, to include all travel, accommodation and incidental costs	Prov. Sum	1	R 1,000,000.00	R 1,000,000.00
5.5.2		Radiographic/ Non-destructive testing				
5.5.2.1	TS 5.15	Allow / Sum for radiographic examination of circumferential welds by nominated Specialist as ordered by the Engineer	Prov. Sum	1	R 100,000.00	R 100,000.00
5.6	PSA 8.10	Reinstatement of Existing roads				
5.6.1		Reinstatement of existig road as per Authorities or Road Owner or Design requirements.	Prov. Sum	1	R2,000,000.00	R2,000,000.00
5.7		Testing of Materials				
5.7.1	PSDB 8.3.13	Testing of materials of on site	Prov sum	1	R100,000.00	R100,000.00

5.7.2	PSA 8.10	Contractors mark-up on Item 5.7.1	%			
5.8	PSA 8.10	B16 - Leak and valve repair at end of the existing B16				
5.8.1		Investigate, supply, delivery and install remedial works for the existing B16 pipeline. (Cost breakdown for all works to be provided) as per Engineer's instruction	Prov. Sum	1	R5,000,000.00	R5,000,000.00
5.8.2		Supply and install 1400mm valve (5000kPa)	No	1		
5.9	PSA 8.10	Surge Analysis and Surge Devices				
5.9.1		Surge analysis and supply, deliver and installation of all surge devices as directed by the Design Engineer	Prov. Sum	1	R5,000,000.00	R5,000,000.00
5.10		Compensation for the farmers crops				
5.10.1	PSA 8.10	Compensation for the farmers crops during the construction	Prov sum	1	R500,000.00	R500,000.00
5.10.2	PSA 8.10	Contractors mark-up on Item 5.7.1	%			
<b>SECTION 5 CARRIED FORWARD TO SUMMARY</b>						

Contract No.:

Section 6: Dayworks

Description: Construction of B16 pipeline from Zuikerbosch to Slangfontein: Portion B

Item No	Payment Refers	Description	Unit	Qty	Rate	Amount
6.1	SANS 1200A 8.7	<b>SECTION 6: DAYWORKS</b>				
		<b>Labour by class</b>				
6.1.1		Unskilled Labourers	hrs	250		
6.1.2		Semi Skilled Labourers	hrs	100		



6.1.3		Skilled labour	hrs	40		
6.2	8.7	<b>Labour by trade</b>				
6.2.1		Construction Hand and Operator	hrs	100		
6.2.2		Carpenter	hrs	25		
6.2.3		Clerk	hrs	25		
6.2.4		Artisans	hrs	50		
6.2.5		Foreman	hrs	50		
6.2.6		Gangers and Section Leaders	hrs	50		
6.2.7		Steel fixer	hrs	25		
6.2.8		Bricklayer or Plasterer	hrs	25		
6.2.9		Welder	hrs	25		
6.3	8.7	<b>Materials</b>				
6.3.1		Provisional sum for cost of material	Sum	1	R75,000.00	R75,000.00
6.3.2		Contractors mark-up on material	%			
6.4	8.7	<b>Plant</b>				
		Tenderers to insert the hire rate at which each item will be charged, which is to cover all relevant costs of plant hire, including operating crew				
6.4.1		Lowbed transport of plant to and from site	t.km	1,000		
6.4.2		Bulldozer and ripper (D6 or equivalent)	hrs	20		
6.4.3		Grader (120G or equivalent)	hrs	20		
6.4.4		Front end wheel loaders (Cat 950 or similar)	hrs	20		
6.4.5		Back acting excavators (Hitachi EX200 or similar)	hrs	20		
6.4.6		T L B	hrs	20		
6.4.7		Tractors and drawn trailers and rollers	hrs	20		
6.4.8		Compactors (D72Y or equivalent)	hrs	20		
6.4.9		Compressors (250CFM or equivalent)	hrs	40		
6.4.10		Trucks (7t or equivalent)	hrs	40		
6.4.11		Tip Trucks (10t or equivalent)	hrs	40		
6.4.12		Water Tanker	hrs	40		
6.4.13		Plate Compactor	hrs	40		
6.4.14		Light delivery vehicles (1t or equivalent)	km	3000		
6.4.15		Side Boom	No.	1		
6.4.16		Generator that suite the Contractor's requirements	No.	1		
<b>SECTION 6 CARRIED FORWARD TO SUMMARY</b>						

Contract No.:

Section 7: Site Clearance

Description: Construction of B16 pipeline from Zuikerbosch to Slangfontein: Portion B

Item No.	Payment Refers	Description	Unit	Qty	Rate	Amount

	SABS 1200C	<b>SECTION 7: SITE CLEARANCE AND REHABILITATION</b>				
<b>7.1</b>		<b>Site Clearance</b>				
7.1.1	8.2.1	Clear and grub vegetation and trees of girth up to 2m along the route of the mainline (Within 20m working servitude and excluding trees to be relocated) (See PS2.6 & PSC 5.9)	m	8,159		
7.1.2	8.2.2	Clear large trees of girth and designated obstacles (See PS2.6, PSC5.9 & PSC 5.10)				
7.1.2.1		a) over 1m and up to and including 2m	no	10		
7.1.2.2		b) over 2m m and up to and including 3m	no	50		
7.1.2.3		c) over 3m in steps of 1m	no	50		
<b>7.2</b>		<b>Remove and Stockpile Topsoil</b>				
7.2.1	8.2.10	Remove and stockpile topsoil to a depth of 150mm along the route of the pipeline (within working servitude) and maintain	m <sup>2</sup>	163,180		
<b>7.3</b>		<b>Demolish and Remove Structures</b>				
7.3.1	8.2.8	Demolish and remove existing brick and concrete structures and foundations. (including provision of security at private properties for the duration of the activity)				
7.3.1.1		a) Concrete pavement entrance to property	No	1		
7.3.1.2		b) Brick paving entrance to property	No	1		
7.3.1.3		c) Tar pavement entrance to property	m <sup>2</sup>	100		
7.3.1.4		d) Tar pavement on property	m <sup>2</sup>	100		
7.3.1.5		e) Pipe culvert below property entrance	No	2		
7.3.1.6		d) Concrete v-drain	No	5		
7.3.1.7		e) Concrete catchpit	No	1		
<b>7.4</b>		<b>Dealing with Existing Fences and Walls</b>				
7.4.1	PSC 8.2.11	Removal of fencing, storage during construction and reinstallation once construction is complete				
7.4.1.2		Type 1: Barbed wire fencing up to 1.2m high	m	800		
7.4.1.3		Type 2: Diamond mesh fencing up to 1.2m high	m	500		
7.4.1.4		Type 3: Razor mesh wire fencing up to 2.4m high	m	500		
7.4.1.5		Type 4: Diamond mesh fencing up to 2.4m high	m	200		
7.4.1.6		Type 5: Concrete Palisade fencing up to 2.4m high	m	500		
7.4.1.7		Type 6: Prefabricated concrete walls up to 2.4m high	m	500		
7.4.1.8		Type 7: Double brick walls up to 2.4m high	m	100		
7.4.1.9		Type 8: Steel Palisade fencing up to 2.4m high	m	300		
7.4.1.10		EO Type 1 to 8: Electrical Fencing	m	100		
<b>7.5</b>		<b>Crossing Existing Fences/Walls</b>				
7.5.1	PSC 8.2.12	Install 5m wide x 1.2m high double gate with 20m refurbished fencing	No	10		
7.5.2	PSC 8.2.12	Removal of double brick walls up to 2.4m high and reinstatement after construction.	m	100		
7.5.3	PSC 8.2.12	Removal of concrete palisade walls up to 2.4m high and reinstatement after construction.	m	50		
<b>7.6</b>		<b>Fire Breaks</b>				

7.6.1	PSC 8.2.13	Form fire breaks on Engineer's Instruction	m²	32,636		
7.7		<b>Final Grading</b>				
7.7.1	PSA 8.10	Ripping of compacted and disturbed areas to 150mm depth	m²	163,180		
7.7.2	PSA 8.10	Hand trimming	m²	5,000		
7.8		<b>Topsoiling</b>				
7.8.1	PSDB 8.3.6.2	Place topsoil to a depth of 150mm	m²	163,180		
7.9	PSA 8.10	<b>Reposition Existing Cathodic Protection TRU and Monitoring points along the pipeline</b>				
7.9.1		Remove and reposition existing Cathodic Protection monitoring point	No	10		
7.9.2		Remove and reposition existing Cathodic Protection TRU's	No	3		

SECTION 7 CARRIED FORWARD TO SUMMARY						

Contract No.:

Description:

Construction of B16 pipeline from Zuikerbosch to Slangfontein: Portion B

Section 8: Earthworks

Item No.	Payment Refers	Description	Unit	Qty	Rate	Amount
<b>SECTION 8 : EARTHWORKS &amp; BEDDING</b>						
<i>Earthworks for Pipe Jackings are measured separately under Section 10. Topsoil measured in Section 5: Site Clearance</i>						
<b>8.1</b>	SABS 1200DA	<b>Excavation for Chambers</b>				
8.1.1	8.3.2(a)	Excavation in all materials for chambers and other minor structures outside the limits of the trench excavation, backfill, compact and dispose of surplus / unsuitable material. Including shoring	m³	584		
8.1.2	8.3.2(b)	Extra over Item 8.1.2 for excavation in hard rock.	m³	117		
8.1.3	1200DB 8.3.2 (c)	Excavate unsuitable material from chamber bottom and dispose	m³	23		
8.1.4	8.3.3.1	Make up deficiency in backfill material: a) Imported G5 material compacted in layers not exceeding 100mm in thickness compacted to 95%MOD AASHTO Density at -1% to +2% OMC	m³	21		
8.1.5		b) Imported G7 material compacted in layers not exceeding 150mm in thickness compacted to 93%MOD AASHTO Density at -1% to +2% OMC	m³	643		
<b>8.2</b>	SABS 1200DB	<b>Pipeline Trench Excavation</b> <i>Note: Rate to include for forming joint and lifting holes to facilitate welding in the field (and other details included on Drg. R027141. Stage 2 / Main fill cost is part of this pipe trench excavation as per SANS</i>				
8.2.1	8.3.2	Machine excavation in all materials for trenches 3.3m wide, backfill, compact and dispose of surplus and/or unsuitable material (No additional payment for overhaul), for pipes 2140 mm outside diameter for the depths below (Rate to include for all temporary works, including benching, shoring and dewatering where necessary):				
		Over Up to and including				
8.2.1.1	a) 0m	2,0m	m	0		
8.2.1.2	b) 2,0m	3m	m	120		
8.2.1.3	c) 3m	4m	m	9,060		
8.2.1.4	d) 4,0m	5m	m	420		
8.2.1.5	e) >5,0m		m	192		
8.2.1.6	PSDB 8.3.2(b)(2)	Extra over Items 8.2.1 for excavation in hard rock and boulder excavation	m³	14,541		
8.2.2	8.3.2	Hand excavation in all material for trenches 3.3 m wide, backfill, compact and dispose of surplus and/or unsuitable material (No additional payment for overhaul), for pipes 2140 mm outside diameter for the depths below (Rate to include for all temporary works including benching, shoring and dewatering where necessary):				

		Over Up to and including				
8.2.2.1		a) 0m 1.5m	m	700		
8.2.3	PSDB 8.3.2(b)(2)	Extra over Items 8.2.2.1 for excavation in hard rock and boulder excavation	m³	500		
8.2.3.1	PSDB 8.3.16	Trial Blasting	Sum	1		
8.2.3.1	PSDB 8.3.17	Controlled Blasting as per PS 9.14	m³	14541		
8.2.4	PSDB 8.3.8	Hand excavation in all material, backfill and compact, to locate and prove existing services to a maximum depth of 2m (Rate to include for all temporary works including benching, shoring and dewatering where necessary):	m³	600		
8.2.5	1200DB 8.3.2 (c)	Excavate unsuitable material from trench bottom and dispose	m³	16,157		
8.2.6	8.3.3.1	Make up deficiency in backfill material:				
8.2.6.1		a) From other necessary excavations on site	m³	7,755		
8.2.6.2		b) By importation from commercial sources	m³	15,511		
<b>8.3</b>		<b>Unstable trench bottom</b>				
8.3.1	PSA 8.10	Supply and install 38mm crushed stone (Complete as indicated on Drawing R027141)	m³	102		
8.3.2	PSDB 8.3.11	Supply and install geotextile filter blanket (Grade A4) (Complete as indicated on Drawing R027141)	m²	840		
<b>8.4</b>	1200DB 8.3.5(a)	<b>Existing Services that intersect a trench:</b>				
8.4.1		Stormwater pipes up to 600mm diameter	No	8		
8.4.2		Stormwater pipes and culverts larger than 600mm diameter	No	3		
8.4.3		Midvaal up to 800mm DN dia steel pipeline	No	5		
8.4.4		Water mains up to 250mm diameter	No	15		
8.4.5		Water mains larger than 250mm diameter	No	15		
8.4.6		Sewer mains up to 250mm diameter	No	10		
8.4.7		Sewer mains larger than 250mm diameter	No	5		
8.4.8		Underground Electrical Cables (LT and HT)	No	20		
8.4.9	PSDB 8.3.5(b)	Overhead Electrical Cables	No	5		
8.4.10	PSDB 8.3.5(b)	Overhead Communication Cables (incl Telkom)	No	10		
8.4.11	PSDB 8.3.5(b)	Underground Communication Cables (incl Telkom)	No	10		
<b>8.5</b>	1200DB 8.3.5(b)	<b>Existing Services that adjoin a trench:</b>				
		Note: Price tendered for excavation is to include for working close to existing Rand Water pipelines				
8.5.1		Stormwater pipes up to 600mm diameter	m	150		
8.5.2		Stormwater pipes and culverts larger than 600mm diameter	m	200		
8.5.3		Water mains up to 250mm diameter	m	250		
8.5.4		Water mains larger than 250mm diameter	m	100		
8.5.5		Sewer mains up to 250mm diameter	m	100		
8.5.6		Sewer mains larger than 250mm diameter	m	100		
8.5.7		Underground Electrical Cables (LT and HT)	m	100		
8.5.8		Overhead Electrical Cables	m	100		

8.5.9		Overhead Communication Cables (incl Telkom)	m	150		
8.5.10		Underground Communication Cables (incl Telkom)	m	200		
8.5.11		Rand Water pipeline 2100mm diameter	m	8159		
<b>8.6</b>	1200LB	<b>Pipe Bedding</b>				
8.6.1	PSLB 8.2.1	Provision of bedding from trench excavation:				
8.6.1.1		a) Selected granular and selected fill material (Bedding cradle and fill blanket) (Stage 1)	m³	17,330		
8.6.2	PSLB 8.2.2.2	Provision of bedding by importation from approved borrow pits including all costs for additional handling and transport (provisional):				
8.6.2.1		a) Selected granular and selected fill material (Bedding cradle and fill blanket) (Stage 1)	m³	50		
8.6.3	PSLB 8.2.2.3	Provision of bedding by importation from commercial or off site sources:				
8.6.3.1		a) Selected granular and selected fill material (Bedding cradle and fill blanket) (Stage 1)	m³	12,829		
8.6.4	8.2.4	Concrete encasement to pipes in Class 20MPa/19mm concrete including reinforcement according to Drawing R027141 as directed by Engineer (Rate to include for any temporary formwork required).	m³	871		
8.6.5	PSDB 8.2.1	Soilcrete encasement to pipes according to Drawing R027141 as directed by the Engineer (Rate to include for any temporary formwork required).	m³	20,522		
8.6.6	PSDB 8.2.1	Cellular lightweight Concrete encasement to pipes according to Drawing R027141 as directed by the Engineer (Rate to include for any temporary formwork required).	m³	20,522		
<b>8.7</b>	SABS 1200DB	<b>Finishing</b>				
8.7.1	8.3.3.3	Compaction of selected fill material for the main fill to 93% Mod AASHTO in areas subjected to loads from road traffic.	m³	370		
8.7.2	PSDB 8.3.9	Supply, mix and place soilcrete with 8% OPC with approved selected fill material in road crossings where instructed by Engineer	m³	108		
<b>8.8</b>		<b>Photographic records</b>				
8.8.1	PSDA 8.3.10	Take and provide photographic records	sum	1		

<b>SECTION 8 CARRIED FORWARD TO SUMMARY</b>						

Contract No.:

Description:

Construction of B16 pipeline from Zuikerbosch to Slangfontein: Portion B

Section 9: Pressure Pipework

Item No	Payment Refers	Description	Unit	Qty	Rate	Amount
	SAM DOP 00001 TS	<b>SECTION 9: SUPPLY INSTALLATION OF STEEL PIPES AND PIPE SPECIALS</b>				
9.1	TS 5.4	<b>Transporting of pipes from Rand Water Storage to Contractor's camp site or temporary Laydown areas to side of trench as per TS 2.3</b>				
		Supply and operation of plant and cost of labour to load pipes from temporary laydown areas, transport the pipes to the excavated trench or point for installation, regardless of distance and unload the pipes.				
9.1.1		2140mm diameter Grade X42 steel pipe, 20mm thick	m	8159		
	TS 5.1.2	<b>Examination the pipes as described in Clauses TS 2.1, TS 2.2, TS 3.3 and TS 3.4, either at the storage area or when delivered to site, internally and externally for lining and coating defects.</b>				
9.1.2		2140mm diameter Grade X42 steel pipe, 20mm thick	m	8159		
9.1.3	PSA 8.10	<b>Refurbishment of coating and lining on damaged pipes after inspection</b>				
9.1.3.1		a) Coating	m <sup>2</sup>	6,723		
9.1.3.2		a) Lining	m <sup>2</sup>	6,723		
9.2	TS 5.2	<b>Unload Pipes as per TS 2.3</b>				
		Supply and operation of plant and the supply of labour to unload the pipes from the supplier's vehicles and string pipes along the route of the pipeline. The cost to supply and to form storage mounds and measures taken to protect the pipes during this procedure will be included in this item.				
9.2.1		2140mm diameter Grade X42 steel pipe, 20mm thick	m	8,159		
9.3	TS 5.3	<b>Removal / Installation of Internal Bracing</b>				

		Removal the supplier's internal bracing, return the supplier's bracing to the supplier's manufacturing plant, the installation of the Contractor's own temporary bracing and the removal thereof on completion of installation and backfilling. The cost to repair subsequent damage due to the removal and installation of the bracing will be included in this item. Mounds and measures taken to protect the pipes during this procedure will be included in this item.				
9.3.1		2140mm diameter Grade X42 steel pipe, 20mm thick	m	8,159		
9.4	TS 5.5	<b>Install Pipes in Trenches</b>  Examine pipes prior to placing in the trench, repair all defects, placing the pipe in the prepared trench including the supply and operation of plant and supply of labour to execute the work, cleaning of joints, vertical and horizontal lining up of the pipe including the supply and operation of plant and supply of labour to execute the work, supply, installation and removal of protective measures and internal welding of the joints.				
9.4.1		2140mm diameter Grade X42 steel pipe, 20mm thick	m	8,095		
9.5	TS 5.6	<b>Install Pipes through culverts or sleeves (Pipe Jacking)</b>  Examine pipes prior to placing through the culvert or sleeve, repair all defects, prepare the pipes for installation through sleeves, placing the pipe in the existing culvert or sleeve including the supply and operation of plant and supply of labour to execute the work, cleaning of joints, vertical and horizontal lining up of the pipe including the supply and operation of plant and supply of labour to execute the work, supply, installation and removal of protective measures and internal welding of the joints.				
9.5.1		2140mm diameter Grade X42 steel pipe, 20mm thick	m	75		
9.6	TS 5.7	<b>External Welds</b>  Supply and operation of plant and supply of material and labour to execute the completion of external welds as per Clause TS2.6				
9.6.1		2140mm diameter Grade X42 steel pipe, 20mm thick	No	550		
9.7	TS 5.8	<b>Installation of Internal and External Field Joint Corrosion Protection</b>  Supply and operation of plant and supply of material and cost of labour to install internal and external field joint protection at welded joints as per Clause TS 2.5.4, for 2100 mm diameter Grade X42 mild steel pipe, 20mm wall thickness.				
9.7.1		External field joint protection (Modified Bitumen Field Joint membrane).	No	550		
9.7.2		Internal field joint protection (Epoxy coating).	No	550		
9.8		<b>Steel Pipe Mitre Bends</b>				
9.8.1	TS 5.9	Line-up, cut, clean joints and weld, internally and externally, mitres over 1° and up to and including 15°.	No	15		
9.8.2	TS 5.8	Supply and operate plant and supply of material and labour to apply internal field joint corrosion protection to the entire mitre as per Clause TS 2.5.4	No	15		
9.8.3	TS 5.8	Supply and operate plant and supply of material and labour to apply external field joint corrosion protection to the entire mitre as per Clause TS 2.5.4	No	15		
9.9	TS 5.10	<b>Steel Pipe Fabricated Bends</b>				



		Supply of complete bends, transport to and unload at point of installation, line-up, install, clean joints and weld, internally and externally, bends over 15° and up to and including 90°. Supply and operate plant and supply of material and labour to apply internal and external field joint corrosion protection to the entire bend as per Clause TS 2.5.4, and as per drg no. RA 26732 <b>Note: Confirm the number required before manufacturing</b>				
9.9.1		Lobster bends over 15° up to and including 30° - 2 mitres, 1 full segment.				
9.9.1.1		2140mm diameter Grade X42 steel pipe, 20mm thick	No	5		
9.9.2		Lobster bends over 30° up to and including 45° - 2 mitres, 2 full segments.				
9.9.2.1		2140mm diameter Grade X42 steel pipe, 20mm thick	No	9		
9.9.3		Lobster bends over 45° up to and including 60° - 2 mitres, 3 full segments.				
9.9.3.1		2140mm diameter Grade X42 steel pipe, 20mm thick	No	5		
9.9.4		Lobster bends over 60° up to and including 75° - 2 mitres, 4 full segments.				
9.9.4.1		2140mm diameter Grade X42 steel pipe, 20mm thick	No	0		
9.9.5		Lobster bends over 75° up to and including 90° - 2 mitres, 5 full segments.				
9.9.5.1		2140mm diameter Grade X42 steel pipe, 20mm thick	No	2		
9.11	TS 5.16	<b>Acceptance Tests</b>				
		Supply and operate all plant, equipment (including temporary 2:1 steel taper and steel dome welded to pipeline if required) and machinery and the cost of labour to execute pressure tests as per the requirements of TS 2.30 for the pipeline sections in lengths of 4km and to the test pressure specified by the Engineer.				
9.11.1		2100mm diameter pipeline, from start of Part B to CH 13476 (Isolating valve to isolating valve)	Sum	1		
9.11.2		2100mm diameter pipeline, from CH 13476 to end of section (Isolating valve to isolating valve)	Sum	1		
9.12	TS 5.18	<b>Cleaning and disinfection</b>				
9.12.1		Supply and operate plant and labour to keep the entire pipeline clean and disinfection of the pipeline after pressure testing in accordance with the Project Specifications and as per Clause TS 2.27	Sum	1		
9.13	TS 5.19	<b>Charging of the Pipeline</b>				
9.13.1		Charging of Pipeline (Water supplied for pipeline hydraulic testing and disinfection by Rand Water) as per Clause TS 2.28	Sum	1		
9.14	TS 5.22	<b>Tie into Existing Pipelines</b>				
		Planning of all activities required prior to shut down of existing pipes as per Clause TS 2.22. Supply, operate plant and supply of material and labour to cut into existing pipe, cleaning of joints, internal and external welding and repair internal and external coating to the joints as per Clauses TS 2.6 and TS 2.9				
9.14.1		Proposed 2140mm OD steel pipe to tie into 2140mm OD B16 pipeline Part A.	No	1		
9.14.2		Proposed 2100mm outside diameter steel pipe to tie into existing 2300mm diameter B16 pipeline.	No	1		
9.15	PSA 8.10	<b>CCTV as per clause TS 2.35</b>	Sum	1		

SECTION 9 CARRIED FORWARD TO SUMMARY						

Tender No.:

Description:

Section 10: Valve Chambers

Construction of B16 pipeline from Zuikerbosch to Slangfontein: Portion B

Item No	Payment Refers	Description	Unit	Qty	Rate	Amount
10.1		SECTION 10: VALVE CHAMBERS - VALVES AND PIPE SPECIALS  Fittings for Inline (Isolating) - Sluice Valve Chamber - Refer to Drg. No. R028366/14/5				
10.1.1	TS 5.11	Manufacture of Pipe specials				

		Manufacture of pipe fittings, complete as shown on the drawings, including for the supplying of materials, handling and installation in accordance with the specifications. Rate to include cutting into the pipeline and welding (Or jointing with flanges as required) and for making good of coating and lining as per specification. Flanges according to Rand Water Specification (Dwg A11791).					
10.1.1.1		Item 2: DN 1400mm Grade X42 steel pipe, one side flanged, complete with item 6	No.	2			
10.1.1.2		Item 3: DN 300mm 90° bend end, Grade X42 steel, both plain ends	No.	2			
10.1.1.3		Item 4: DN 300mm Grade X42 steel pipe, one side flanged	No.	2			
10.1.1.4		Item 6: Collar Plate DN 300mm on DN 1600mm pipe (item 2), Grade X42 steel	No.	4			
10.1.1.5		Item 7: DN 300mm Grade X42 Unequal Tee, flanged on two sides	No.	2			
10.1.1.6		Item 8: DN 300mm Grade X42 steel pipe, one side flanged	No.	2			
10.1.1.7		Item 9: DN 2100mm x 1400mm Grade X42 Reducer,	No.	2			
<b>10.1.2</b>	<b>TS 5.11</b>	<b>Installation of Pipe specials</b>					
		Installation of pipe fittings, complete as shown on the drawings, including for the supplying of materials, handling and installation in accordance with the specifications. Rate to include cutting into the pipeline and welding (Or jointing with flanges as required) and for making good of coating and lining as per specification. Flanges according to Rand Water Specification (Dwg A11791).					
10.1.2.1		Item 2: DN 1400mm Grade X42 steel pipe, one side flanged, complete with item 6	No.	2			
10.1.2.2		Item 3: DN 300mm 90° bend end, Grade X42 steel, both plain ends	No.	2			
10.1.2.3		Item 4: DN 300mm Grade X42 steel pipe, one side flanged	No.	2			
10.1.2.4		Item 6: Collar Plate DN 300mm on DN 1600mm pipe (item 2), Grade X42 steel	No.	4			
10.1.2.5		Item 7: DN 300mm Grade X42 Unequal Tee, flanged on two sides	No.	2			
10.1.2.6		Item 8: DN 300mm Grade X42 steel pipe, one side flanged	No.	2			
10.1.2.7		Item 9: DN 2100mm x 1400mm Grade X42 Reducer,	No.	2			
<b>10.1.3</b>	<b>TS 5.12</b>	<b>Valves</b>					
		All valve to be according to RW Specifications. (All valves to be supplied and installed as indicated on drawings including valve supports).					
10.1.3.1		Item 1: DN 1400mm Sluice Gate Valve (5000kPa)	No.	1			
10.1.3.2		Item 5: DN 300mm Sluice Gate valve (5000kPa)	No.	4			
<b>10.2</b>		<b>Fittings for Meter Connection Chambers for Municipality - Refer to Drg. No. R028366/14/5</b>					
<b>10.2.1</b>	<b>TS 5.11</b>	<b>Manufacture of Pipe specials</b>					
		Manufacture of pipe fittings, complete as shown on the drawings, including for the supplying of materials, handling in accordance with the specifications. Rate to include coating and lining as per specification. Flanges according to Rand Water Specification (Dwg A11791). Note: Main pipe 2140mm diameter - Grade X42, 20mm thick steel pipe.					
10.2.1.1		Item 1: Collar plate DN 150mm on DN 2100	No.	1			
10.2.1.2		Item 2: DN 150mm steel pipe, flanged both sides	No.	1			
10.2.1.3		Item 3: DN 150mm 90° bend, steel, both plain ends	No.	1			

10.2.1.4		Item 4: DN 150mm steel pipe, flanged both sides	No.	1		
10.2.1.5		Item 6: DN 150mm Dirt Box, Seamless Steel flanged on one side and plain ended on the other	No.	1		
10.2.1.6		Item 7: DN 150mm steel pipe, flanged both sides	No.	1		
10.2.1.7		Item 8: DN 150mm Rigid Dismantling Joint	No.	1		
10.2.1.8		Item 10: DN 150mm steel pipe, flanged both sides one side insulation flange	No.	1		
10.2.1.9		Item 11: DN 150mm steel pipe, insulation flange one end and domed on other end	No.	1		
10.2.2	TS 5.11	<b>Installation of Pipe specials</b>  Installation of pipe fittings, complete as shown on the drawings, including for the supplying of materials, handling and installation in accordance with the specifications. Rate to include cutting into the pipeline and welding (Or jointing with flanges as required) and for making good of coating and lining as per specification. Flanges according to Rand Water Specification (Dwg A11791). Note: Main pipe 2140mm diameter - Grade X42, 20mm thick steel pipe.				
10.2.2.1		Item 1: Collar plate DN 150mm on DN 2100	No.	1		
10.2.2.2		Item 2: DN 150mm steel pipe, flanged both sides	No.	1		
10.2.2.3		Item 3: DN 150mm 90° bend, steel, both plain ends	No.	1		
10.2.2.4		Item 4: DN 150mm steel pipe, flanged both sides	No.	1		
10.2.2.5		Item 6: DN 150mm Dirt Box, Seamless Steel flanged on one side and plain ended on the other	No.	1		
10.2.2.6		Item 7: DN 150mm steel pipe, flanged both sides	No.	1		
10.2.2.7		Item 8: DN 150mm Rigid Dismantling Joint	No.	1		
10.2.2.8		Item 10: DN 150mm steel pipe, flanged both sides one side insulation flange	No.	1		
10.2.2.9		Item 11: DN 150mm steel pipe, insulation flange one end and domed on other end	No.	1		
10.2.3	TS1.16.12	<b>Valves and Meters</b>  All valve to be according to RW Specifications. (All valves to be supplied and installed as indicated on drawings including valve supports).				
10.2.3.1		Item 9: DN 150mmØ Magflow Meter (5000kPa)	No.	1		
10.2.3.2		Item 5: DN 150mm Sluice Gate valve (5000kPa)	No.	2		
10.4		<b>STOP COCK</b>  Collect and install stop cock on either side on large sluice valves. ate to include cutting into the pipeline and welding				
10.4.1		25mm Stop Cock	No	4		

SECTION 10 CARRIED FORWARD TO SUMMARY						

Tender No.:

Section 11: Valve Chambers

Description: Construction of B16 pipeline from Zuikerbosch to Slangfontein: Portion B

Item No	Payment Refers	Description	Unit	Qty	Rate	Amount
11.1	SABS 1200GA	<b>SECTION 11: VALVE CHAMBERS - CONCRETE AND STEELWORK</b>				
11.1.1		<b>Isolation -, Cross connection -, Non Return -, Meters Connection Valve Chambers:</b>				
11.1.1.1		<b>Concrete</b>				
11.1.1.1.1	8.4.2	50mm Class 15/19MPa Blinding Layer and Mass concrete steps	m³	35		
11.1.1.1.2	8.4.3	Strength concrete Grade 35MPa/19mm for floor slab.	m³	264		
11.1.1.1.3	8.4.3	Strength concrete Grade 60MPa/19mm for roof slab.	m³	120		
11.1.1.2		<b>Chamber roof access panels</b>				
11.1.1.4	8.4.3	Removable cover panel with 4 No. of 50mm PVC sleeve - panels size 2.56m x 3.23m complete with reinforcement and formwork	No	2		
11.1.2		<b>Formwork</b>				
11.1.2.1	8.2.3	Supply all materials, install and remove formwork (rate to include for forming of 20 x 20 chamfers to all exposed edges for:				
11.1.2.1.1		Narrow Widths				
11.1.2.1.1.1		Sides of roof slab 280mm high	m	30		
11.1.2.1.2		Sides of downstand beams 150mm high	m	30		
11.1.2.1.3		Sides of base slab 500mm high	m	39		
11.1.2.2	8.2.6	Box out Holes / Form Voids				
11.1.2.2.1		To box out hole for 2.1m diameter pipe for depth exceeding 500mm thick	No.	6		
11.1.2.2.2		To box out hole for 0.15m up to 0.35m diameter pipe for depth exceeding 500mm thick	No.	4		
11.1.2.2.3		To box out hole for 0.11m diameter pipe for depth exceeding 500mm thick	No.	8		
11.1.2.2.4		To box out hole for 0.11m diameter pipe for depth exceeding 280mm thick	No.	8		
11.1.2.2.5		To box out hole for 0.3m diameter pipe for depth exceeding 400mm thick	No.	3		
11.1.2.2.6		To box out hole for 0.2m diameter pipe for depth exceeding 400mm thick	No.	2		
11.1.2.2.7		To box out hole for in roof 560mm x 560mm x 280mm manhole	No.	5		
11.1.2.2.8		To box out hole in floor 500mm x 500mm x 200mm (Sump)	No.	2		
11.1.2.3	8.2.2	Smooth Formwork				
11.1.2.3.1		To walls	m²	368		
11.1.2.4	8.4.4	Unformed surface finishes				
11.1.2.4.1	8.4.4.1	Wood floated finish to top of floor slab	m²	163		
11.1.2.4.2	8.4.4.2	Steel trowel floated finish to top of floor slab	m²	168		

11.1.3	8.1.2	<b>Reinforcement</b>					
11.1.3.1	8.3.4	High Tensile Steel Bars	t	62.0			
11.1.3.2	8.3.1	Mild Steel Bars (including Mesh reinforcement)	t	13.5			
11.2	PSGA 8.13	<b>Scour Valve Chambers (see drawing number R028366/16/1) Supply, deliver and install complete with pipe specials, fittings, valves, precast elements and sealants</b>					
11.2.1		<b>Concrete</b>					
11.2.1.1	8.4.2	50mm Class 15/19MPa Blinding Layer	m³	10			
11.2.1.2	8.4.3	Strength concrete Grade 30MPa/19mm for floor slab.	m³	115			
11.2.2	PSGA 8.13	<b>Precast Scour Valve Chamber</b>					
11.2.2.1		Precast chambers as per drawing complete with galvanised access steps.	No.	8			
11.2.3	TS 5.11	<b>Pipe work: Scour Valve Chamber</b>					
11.2.3.1		Pipe work and all associated items (including valves) for scour, including welding and testing of works	No.	3			
11.2.4	PSGA 8.14	<b>Precast elements : Raise Scour Valve Chambers (Only to be used when the Chamber needs to be raised)</b>					
11.2.4.1		Precast elements as per drg complete with galvanized access steps for folloeing standard heights					
11.2.4.1.1		a) 250mm high	No.	5			
11.2.4.1.2		b) 500mm high	No.	3			
11.2.4.1.3		c) 1000mm high	No.	1			
11.2.5		<b>Roof Slab</b>					
11.2.5.1		4750mm x 2500mm roof slab (100mm thickness with (2) 590mm x 490mm access manhole) complete with reinforcement and formwork	No.	8			
11.2.6		<b>Formwork</b>					
		Supply all materials, install and remove formwork (rate to include for forming of 20 x 20 chamfers to all exposed edges for:					
11.2.6.1	8.2.3	Narrow Widths					
11.2.6.1.1		Sides of base slab and walls	m²	202			
11.2.6.2	8.4.4	Unformed surface finishes					
11.2.6.2.1		Wood floated finish to top of floor slab	m²	193			
11.3(a)	PSGA 8.10	<b>Air Valve Chambers Type A,: (see drawing number RA28366/16/3) Supply, deliver and install complete with pipe specials, fittings, valves, precast elements and sealants</b>					
11.3.1(a)		<b>Concrete</b>					
11.3.1.1(a)	8.4.2	50mm Class 15/19MPa Blinding Layer	m³	7.2			
11.3.1.2(a)	8.4.3	Strength concrete Grade 30MPa/19mm	m³	65			
11.3.2(a)	PSGA 8.10	<b>Precast Air Valve Chamber Type A</b>					
11.3.2.1(a)		Precast elements as per drawing sizes, complete with galvanised access steps for the following standard heights	No.	7			
11.3.3(a)	PSGA 8.12	<b>Precast elements : Raise Air Valve Chambers (Only to be used when the Chamber needs to be raised)</b>					

		Precast elements as per drawing sizes, complete with galvanised access steps for the following standard heights				
11.3.3.1(a)		a) 250mm high	No.	5		
11.3.3.2(a)		b) 500mm high	No.	5		
11.3.3.3(a)		c) 1000mm high	No.	3		
11.3.4(a)	PSGA 8.10	<b>Roof Slab</b>				
11.3.4.1(a)		a) With manhole access : 3300 mm x 2800 mm roof slab (150 mm thick with 590 mm x 490 mm access manhole) complete with reinforcement and formwork	No.	7		
11.3.5(a)		<b>Formwork</b>				
		Supply all materials, install and remove Class 3A shuttering (rate to include for forming of 20 x 20 chamfers to all exposed edges for:				
11.3.5.1(a)	8.2.3	Narrow Widths				
11.3.5.1.1(a)		Sides of base slab 200mm high + Wall	m²	217		
11.3.5.2(a)	8.4.4	Unformed surface finishes				
11.3.5.2.1(a)		Wood floated finish to top of floor slab	m²	134		
11.3.6(a)	TS 5.11	<b>Pipe work: Air Valve Chamber</b>				
11.3.6.1(a)		Pipe work and all associated items (including valves), including welding and testing of works	No.	7		
11.3	PSGA 8.10	<b>Air Valve Chambers - Type B: (see drawing number RA28366/16/3) Supply, deliver and install complete with pipe specials, fittings, valves, precast elements and sealants</b>				
11.3.1		<b>Concrete</b>				
11.3.1.1	8.4.2	50mm Class 15/19MPa Blinding Layer	m³	5		
11.3.1.2	8.4.3	Strength concrete Grade 30MPa/19mm	m³	43		
11.3.2	PSGA 8.10	<b>Precast Air Valve Chamber</b>				
11.3.2.1		Precast chambers as per drawing complete with galvanised access steps.	No.	4		
11.3.3	TS 5.11	<b>Pipe work: Air Valve Chamber</b>				
11.3.3.1		Pipe work and all associated items (including valves), including welding and testing of works	No.	4		
11.3.4	PSGA 8.12	<b>Precast elements: Raise Air Valve Chamber (Only to be used when the Chamber needs to be raised)</b>				
		Precast elements as per drg complete with galvanized access steps for folloeing standard heights				
11.3.4.1		a) 250mm high	No.	5		
11.3.4.2		b) 500mm high	No.	3		
11.3.4.3		c) 1000mm high	No.	1		
11.3.5		<b>Roof Slab</b>				
11.3.5.1		a) With manhole access : 4300 mm x 2800 mm roof slab (150 mm thick with 590 mm x 490 mm access manhole) complete with reinforcement and formwork	No.	8		
11.3.6		<b>Formwork</b>				
		Supply all materials, install and remove Class 3A shuttering (rate to include for forming of 20 x 20 chamfers to all exposed edges for:				
11.3.6.1	8.2.3	Narrow Widths				

11.3.6.1.1		Sides of base slab and walls	m²	73		
11.3.6.2	8.4.4	Unformed surface finishes				
11.3.6.2.1		Wood floated finish to top of floor slab	m²	84		
11.4	PSGA 8.10	<b>Air Valve Chambers - Type C: (see drawing number RA28366/16/01) Supply, deliver and install complete with pipe specials, fittings, valves, precast elements and sealants</b>				
11.4.1		<b>Concrete</b>				
11.4.1.1	8.4.2	50mm Class 15/19MPa Blinding Layer	m³	3		
11.4.1.2	8.4.3	Strength concrete Grade 30MPa/19mm	m³	15		
11.4.2	PSGA 8.10	<b>Precast Cast: Air Valve Chamber</b>				
11.4.2.1		Precast chambers as per drawing complete with galvanised access steps.	No.	2		
11.4.3	TS 5.11	<b>Pipe work: Scour Valve Chamber</b>				
11.4.3.1		Pipe work and all associated items (including valves) for scour, including welding and testing of works	No.	2		
11.4.4	PSGA 8.12	<b>Precast elements: Raise Air Valve Chamber (Only to be used when the Chamber needs to be raised)</b>				
		Precast elements as per drg complete with galvanized access steps for folloeing standard heights				
11.4.4.1		a) 250mm high	No.	5		
11.4.4.2		b) 500mm high	No.	3		
11.4.4.2		c) 1000mm high	No.	1		
11.4.5		<b>Roof Slab</b>				
11.4.5.1		a) With manhole access : 4300 mm x 2800 mm roof slab (150 mm thick with 590 mm x 490 mm access manhole) complete with reinforcement and formwork and finishes	No.	2		
11.4.6		<b>Formwork</b>				
		Supply all materials, install and remove Class 3A shuttering (rate to include for forming of 20 x 20 chamfers to all exposed edges for:				
11.4.6.1	8.2.3	Narrow Widths				
11.4.6.1.1		Sides of base slab and walls	m²	37		
11.4.6.2	8.4.4	Unformed surface finishes				
11.4.6.2.1		Wood floated finish to top of floor slab	m²	42		
11.5		<b>Scour Valve Chambers (see drawing number R028366/16/1) Supply, deliver and install complete with pipe specials, fittings, valves, precast elements and sealants - Wet Well Chamber Only</b>				
11.5.1		<b>Concrete</b>				
11.5.1.1	8.4.2	50mm Class 15/19MPa Blinding Layer	m³	4		
11.5.1.2	8.4.3	Strength concrete Grade 30MPa/19mm for floor slab.	m³	38		
11.5.2	PSGA 8.14	<b>Precast Chambers: Scour Valve Chamber</b>				
11.5.2.1		Precast chambers as per drawing complete with galvanised access steps	No.	4		
11.5.3	TS 5.11	<b>Pipe work: Scour Valve Chamber</b>				
11.5.3.1		Pipe work and all associated items (including valves) for scour, including welding and testing of works	No.	4		



11.5.4	PSGA 8.15	<b>Precast elements : Raise Scour Valve Chambers (Only to be used when the Chamber needs to be raised)</b>				
11.5.4.1		Precast elements as per drg complete with galvanized access steps for folloeing standard heights				
11.5.4.1.1		a) 250mm high	No.	4		
11.5.4.1.2		b) 500mm high	No.	3		
11.5.4.1.3		c) 1000mm high	No.	1		
11.5.5		<b>Roof Slab</b>				
11.5.5.1		Roof slab (100mm thickness with 590mm x 490mm access manhole) complete with reinforcement and formwork	No.	4		
11.5.6		<b>Formwork</b>				
		Supply all materials, install and remove formwork (rate to include for forming of 20 x 20 chamfers to all exposed edges for:				
11.5.6.1	8.2.3	Narrow Widths				
11.5.6.1.1		Sides of base slab and walls	m²	653		
11.5.6.2	8.4.4	Unformed surface finishes				
11.5.6.2.1		Wood floated finish to top of floor slab	m²	64		
11.6	PSGA 8.16	<b>Meter Chambers: (see drawing number RA28366/16/2) Supply, deliver and install complete with pipe specials, fittings, valves, precast elements and sealants</b>				
11.6.1		<b>Concrete</b>				
11.6.1.1	8.4.2	50mm Class 15/19MPa Blinding Layer	m³	5		
11.6.1.2	8.4.3	Strength concrete Grade 30MPa/19mm	m³	25		
11.6.2	PSGA 8.16	<b>Precast Meter Chamber</b>				
11.6.2.1		Precast chambers as per drawing complete with galvanised access steps.	No.	7		
11.6.3	TS 5.11	<b>Pipe work: Meter Chamber</b>				
11.6.3.1		Pipe work and all associated items (including valves) for scour, including welding and testing of works	No.	7		
11.6.4	PSGA 8.17	<b>Precast elements: Raise Meter Chamber (Only to be used when the Chamber needs to be raised)</b>				
		Precast elements as per drg complete with galvanized access steps for folloeing standard heights				
11.6.4.1		a) 250mm high	No.	5		
11.6.4.2		b) 500mm high	No.	3		
11.6.4.2		c) 1000mm high	No.	1		
11.6.5		<b>Roof Slab</b>				
11.6.5.1		a) With manhole access : 3000 mm x 2800 mm roof slab (150 mm thick with 590 mm x 490 mm access manhole) complete with reinforcement and formwork and finishes	No.	7		
11.6.6		<b>Formwork</b>				
		Supply all materials, install and remove Class 3A shuttering (rate to include for forming of 20 x 20 chamfers to all exposed edges for:				
11.6.6.1	8.2.3	Narrow Widths				
11.6.6.1.1		Sides of base slab and walls	m²	137		
11.6.6.2	8.4.4	Unformed surface finishes				

11.6.6.2.1		Wood floated finish to top of floor slab	m²	94		
11.7		<b>Miscellaneous</b>				
11.7.1		Supply all materials and install galvanised steel ladders complete as detailed on Rand Water Detail Drg A7406 with lengths of:				
11.7.1.1		3,5m - 4,0m	No.	3		
11.7.1.2		4,0m - 4,5m	No.	2		
11.7.1.3		5,0m -5,5m	No.	2		
11.7.2	PSHA 8.3.10	Collect from Rand Water Supply and install 590 x 490mm square steel fibre concrete lockable manhole cover as per Rand Water Detail Drg 11860	No.	26		
11.7.3		<b>Supply and install locks for manholes.</b>				
11.7.3.1		Manco locking device with 20mm locking bar as per Rand Water details	No.	2		
11.7.5	SANS 1200DK 8.2.1 8.2.2	<b>Dished Reno Mattresses (or SimilarApproved) at Scour Valves</b>				
11.7.5.1		a) 5000 mm x 80 mm mattress (including surface preparation)	No.	7		
11.8	PSA 8.10	<b>Survey pegs and marking</b>				
11.8.1		Supply and install survey reference and benchmark details on pipeline route as per Rand Water Standards	No.	13		
11.8.2		Marking of concrete chambers. Chamber names/numbers stencilled in 100mm high black paint on all chambers	No.	26		
11.8	PSA 8-10	<b>Joint sealant</b>				
		Supply and install "Sika Swell S" or similar approved joint sealant for sealing of pipes through chamber walls. Two strips to be applied 30mm apart before casting concrete for the following diameters:				
11.8.1		a) 100mm up to 1400mm diameter	No.	6		
11.8.2		b) 100 up to 300mm diameter	No.	12		
11.9	PSA 8.10	<b>Water Tightness Test</b>				
11.9.1		Test water tightness of all concrete valve chambers (excluding air valves)	No.	2		
11.10		<b>Grab rails and platforms</b>				
11.10.1	PSHA 8.3.7	Supply and install Grab Rails as detailed on Rand Water Detail Drg. A9858	No.	26		
11.11		<b>Pipe markers</b>				
11.11.1	PSGA 8.15	Collect from Rand Water and install pipe markers/beacons on pipeline route as per Rand Water Standards.	No.	20		
11.12		<b>Platform</b>				
		Supply, deliver and install platforms as per manufacture details				
11.12.1		Isolating chamber	No.	1		

<b>SECTION 11 CARRIED FORWARD TO SUMMARY</b>						

Contract No.:

Section 12: Pressure Sundries

Description: Construction of B16 pipeline from Zuikerbosch to Slangfontein: Portion B

Item No	Payment Refers	Description	Unit	Qty	Rate	Amount
<b>12.1</b>	<b>SABS 1200 DK</b>	<b>SECTION 12: PIPELINE SUNDRIES</b>				
		<b>Gabions and Pitching</b>				
12.1.1	8.2.1, 8.2.2, 8.2.5	Supply and construct ordinary stone pitching including preparation and compacting of foundation, placing of 150mm nominal size stones in a 300mm thick grouting layer.	m <sup>2</sup>	120		
<b>12.2</b>		<b>Supply and erect fences and gates for working strip or servitude as per drawing no A4085</b>				
12.2.1	PSA 8.10	1.2 high temporary fence (to be erected on both sides of the temporary working strip or servitude strip and to be re-used along the pipeline) to be erected prior to commencing works and dismantling on completion	m	16,318		
12.2.2	PSA 8.10	Double leaf gate 5m wide, 1.2m high (with 20m of refurbished fencing either side) in temporary and/or permanent fences.	No	2		
<b>SECTION 12 CARRIED FORWARD TO SUMMARY</b>						

Contract No.:

RW10378794/19

Section 13: Road & Rail Crossings

Description: Construction of B16 pipeline from Zuikerbosch to Slangfontein: Portion B

Item No	Payment Refers	Description	Unit	Qty	Rate	Amount
	<b>SABS 1200LG</b>	<b>SECTION 13: PIPE JACKING</b>				
		<b>Refer to Drg. No RA28366/11/6-8 for pipe jacking at road and railway crossings</b>				
<b>13.1</b>	<b>8.2.1</b>	<b>Jacking Establishment</b>				
13.1.1		a) Fixed charges for jacking operations at:				
13.1.1.1		1) Essexwold road	Sum	1		
13.1.1.2		2) Hewitt road No. 2	Sum	1		
13.1.1.3		3) Hahn street	Sum	1		

13.1.1.4		4) Hewitt road No. 3	Sum	1		
13.1.2		b) Time-related charges for jacking operations at (period to be stated by the contractor):				
13.1.2.1		1) Essexwold road State period of jacking operation (weeks):	Sum	1		
13.1.2.2		2) Hewitt road No. 2 State period of jacking operation (weeks):	Sum	1		
13.1.2.2		3) Hahn street State period of jacking operation (weeks):	Sum	1		
13.1.2.4		4) Hewitt road No 3 State period of jacking operation (weeks):	Sum	1		
13.2		<b>Supply and Jack Pipes</b>				
13.2.1	8.2.6 & PSLG 8.2.6	Supply and install 2160mm OD diameter concrete pipes (Class 100D with external metal sleeve and butt joint) by pipe jacking method, complete with excavations in soft and intermediate material and grouting of external voids with a 1:2 cement and plasticiser mix, for the following road and railway crossings:				
13.2.1.1		1) Essexwold road	m	19.52		
13.2.1.2		2) Hewitt road No. 2	m	19.52		
13.2.1.3		3) Hahn street	m	14.64		
13.2.1.4		4) Hewitt road No 3	m	21.96		
13.2.2	8.2.8	Extra over 13.2.1.1 to 13.2.1.3 for excavation in rock.				
13.2.2.1		a) Using pneumatic tools (Where blasting is not used)	m <sup>3</sup>	237		
13.2.2.2		b) Using explosives (where permitted)	m <sup>3</sup>	237		
13.3		<b>Grouting Voids</b>				
13.3.1		Grouting voids outside pipe jacking sleeves with bentonite	m <sup>3</sup>	100		
13.3.2		Grouting voids inside pipe jacking sleeves with cement/sand grout (mix ratio 1:2 cement:sand with plasticiser).	m <sup>3</sup>	56		
13.4		<b>Standing Time and Wall Closures</b>				
13.4.1	8.2.10 PSLG 8.2.10	Standing time for pipe jacking gang and the jacking equipment	days	30		
13.4.2	PSLG 8.2.13	Supply and installation of brick wall closure to ends of all concrete jacking pipes.	No	8		
13.5		<b>Miscellaneous Work</b>				
13.5.1	PSA 8.10	Recording of jacking parameters	Sum	1		
13.5.2	PSA 8.10	Recording of movements	Sum	1		
13.5.3	PSA 8.10	Install marker posts at start and end of each jacking section.	No	18		
13.5.4	PSA 8.10	Mass Concrete on either site of the jacking	m <sup>3</sup>	100		
13.5.5	PSA 8.10	Service detection before commencement of jackings	Sum	1		
<b>SECTION 12 CARRIED FORWARD TO SUMMARY</b>						

Contract No.:

Description:

Construction of B16 pipeline from Zuikerbosch to Slangfontein: Portion B

Section 14: Cathodic Protection

Item No	Payment Refers	Description	Unit	Qty	Rate	Amount
		<b>SECTION 14: CATHODIC PROTECTION</b>				
		<b>SACRIFICIAL ANODE CATHODIC PROTECTION</b>				

14.1		<b>Supply Activities</b>			
14.1.1		Supply 10KG high potentials magnesium anodes surrounded by gypsuim/bentonite clay backfill in a cloth bag with 10m long by 10mm² red PVC/PVC cable each	no	77	
14.1.2		Supply 36mm steel galvanized conduit with saddles and end plastic caps @ 6m/chamber	m	48	
14.1.3	Drw. 27645	Supply connection link panel for all valve chamber connections as per drawing	no	8	
14.1.4		Supply 1X16mm² black PVC/PVC pipe to anode connection cable @ 2m per chamber	m	16	
14.1.5	TS015	Supply pipe cable connection and coating repair material	no	8	
14.1.6		Supply cable lugs and cable to pipe weld	sum	1	
14.1.7	Drw. 17300	Supply chamber monitoring point as per drawing	no	8	
14.1.8	Drw. 17300	Supply chamber marker plate as per drawing	no	8	
14.2		<b>Installation Activities</b>			
14.2.1	Drw. 27645	Install magnesium anodes @ 10 per chamber as per drawing	no	77	
14.2.2	Drw. 27645	Install 36mm steel galvanized conduits as per drawing @ 6m per chamber	no	48	
14.2.3	Drw. 27645	Install link panel @ 1 per chamber as per drawing	no	8	
14.2.4	TS015	Install 1X16mm² black PVC/PVC pipe to anode connection cable @ 2m per chamber as per drawing Drw.27645	no	8	
14.2.5	TS015	Install coating make good @ 1 installation per chamber	no	8	
14.2.6	TS019	Service detection, excavations and backfill	m³	9	
14.2.7	TS19	Cable encasement of Anode tails	m³	1.5	
14.2.8	Drw. 17300	Install chamber monitoring point as per drawing allow for 0.5m long by 16mm² black PVC/PVC monitoring cable per chamber	m	4	
14.2.9	Drw. 17300	Install chamber stainless steel marker plate as per drawing	no	8	
14.3		<b>Commissioning and Handover</b>			
14.3.1	TS023	Commissioning and Testing	sum	1	
14.3.2	TS030	Final Documentation and Handover	sum	1	
		<b>Permanent Cathodic Protection System</b>			
14.4		<b>Supply and Installation of cross bond between B16 and Transnet gas pipeline S26 36 26.89, E28 03 50,71</b>			
14.4.1	TS013	Supply and Install crossbond facility as per Rand Water Specification	each	1	
14.4.2	TS013	Supply and install Crossbond Facility as per Petronet Specification	each	1	
14.4.3	TS004	Supply and Install PRE and Coupon with 5 meter cable	each	1	
14.4.4		Liase with Foreign service owners and perfom inteference test	sum	1	
14.4.5		Supply and install 3X16mm² black PVC/PVC pipe connection cable to link panel for crossbonding @5m.	m	10	
14.4.6	TS044	Supply and install concrete mass as per drawing 27645 for cable encasement	m³	0.5	
14.4.7		Supply and install pipe cable connection and coating repair material	No	2	
14.4.8		Service detection, excavations and backfill	m³	0.5	

14.5		<b>Anode Grounbded Upgrade - Vegelfonteine PTN 44 Farm (S26 34 36.25, E28 05 50.15)</b>			
14.5.1	TS042	Construction of a 31m long horizontal grounbded	No	1	
14.5.2	TS019	Service detection, excavate for anode and spacer installation and backfill	sum	1	
14.5.3		Connect anode tails to the ring main (4x35mm <sup>2</sup> ) and terminate ring main on the TRU positive terminal.	m	150	
14.5.4	TS002	Supply Anodes with 2m tail (2m canisters)	each	12	
14.5.5	TS002	Anode Spacers (1m canister)	each	13	
14.5.6	RA22675	Supply Calcined petroleum coke	m <sup>3</sup>	4	
14.6		<b>Supply Cross Bonding Activities - Rand Water Pipelines</b>			
14.6.1	TS013	Supply Cross bond as per Rand Water Specification	each	14	
14.6.2		Supply 36mm steel galvanized conduit with saddles and end plastic caps @ 6m/chamber	each	14	
14.7		<b>Install Cross Bonding Activities - Rand Water Pipelines</b>			
14.7.1	TS013	Install crossbonding cable	each	14	
14.7.2		Install 36mm steel galvanized conduit with saddles and end plastic caps @ 6m/chamber	each	14	
14.7.3		Service detection, excavate, installation and backfill	sum	1	
14.8		<b>Commision and Testing</b>			
14.8.1	TS035	DCVG Survey	km	18	
14.8.2	TS023	Commissioning and Testing	sum	1	
14.8.3	TS030	Final Documentation and Handover	sum	1	
<b>SECTION 14 CARRIED FORWARD TO SUMMARY</b>					

Contract No.:

Description:

Construction of B16 pipeline from Zuikerbosch to Slangfontein:  
Portion B

Section 15: Socio Economic Development

Item No.	Payment Refers	Description	Unit	Qty	Rate	Amount
		<b>SECTION 15 : SOCIO ECONOMIC DEVELOPMENT</b>				
<b>15.1</b>		<b>SKILLS DEVELOPMENT PROGRAM</b>				
15.1.1		Accredited training programmes are targeted which will provide the beneficiaries with significant and recognized credit value in accordance with the National Qualification Framework (NQF).	PSum	2.5%		
15.1.2		Contractors mark-up on Items 15.1.1	%			
<b>15.2</b>		<b>CORPORATE SOCIAL RESPONSIBILITY PROGRAM</b>				
15.2.1		Corporate Social Responsibility programs aimed at improving the livelihood of the community	PSum	1%		
15.2.2		Contractors mark-up on Items 15.2.1	%			
<b>15.3</b>		<b>COMMUNITY LIASON OFFICER</b>				
15.3.1		Community Liason Officer. A key component in aiding the realisation of the SED objectives is effective community liaison with all the relevant role-players, structures, civic organisations and the community at large. The sum is a minimum of 0.5% of the Project Value	PSum	0.5%		
15.3.2		Contractors mark-up on Items 15.3.1	%			
<b>15.4</b>		<b>PARTICIPATION OF LOCAL ENTERPRISES</b>				
15.4.1		Work Allocated to Local Enterprises (Inclusive of P&G's and SHEQ) <b>(Minimum 5% of Project Value)</b>	PSum	1		RATE ONLY
15.4.2		Contractors mark-up on Items 15.4.1	%			
<b>15.5</b>		<b>ADMINISTRATION</b>				
15.5.1		Project administration, e.g. labour management services	PSum	1%		
15.5.2		Contractors mark-up on Items 15.4.1	%			

