



LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

**DEPARTMENT OF
AGRICULTURE AND RURAL DEVELOPMENT**

TENDER NO ACDP 23/16

TENDER DOCUMENT
FOR

**A 3-YEAR FRAMEWORK AGREEMENT FOR THE DEVELOPMENT AND
MAINTENANCE OF IRRIGATION PROJECTS AND SCHEMES FOR THE
LIMPOPO DEPARTMENT OF AGRICULTURE AND RURAL DEVELOPMENT**

NAME OF TENDERER	
TOTAL TENDERED AMOUNT	
TOTAL TENDERED AMOUNT IN WORDS	
VAT NUMBER (if registered for VAT)	
SUPPLIER CSD REGISTRATION NUMBER	
TAX COMPLIANCE STATUS PIN (to verify bidder's tax compliance status)	
PROJECT DURATION	
TEL NUMBER	
FAX NUMBER	

PREPARED FOR:



LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

**DEPARTMENT OF
AGRICULTURE AND RURAL DEVELOPMENT**

**HEAD OF DEPARTMENT
LIMPOPO DEPT OF AGRICULTURE &
RURAL DEVELOPMENT
PRIVATE BAG X 9487
POLOKWANE
0700**

PREPARED BY



LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

**DEPARTMENT OF
AGRICULTURE AND RURAL DEVELOPMENT**

**ENGINEERING SERVICES HEAD OFFICE
LIMPOPO DEPT OF AGRICULTURE &
RURAL DEVELOPMENT
69 BICCARD STREET
POLOKWANE
0700**

CLOSING DATE: 29 JANUARY 2024 TIME 11:00 AM

BRIEFING MEETING: 10 JANUARY 2024 TIME 10:00 AM

**A 3-YEAR FRAMEWORK AGREEMENT FOR THE DEVELOPMENT AND MAINTENANCE
OF IRRIGATION PROJECTS AND SCHEMES FOR THE LIMPOPO DEPARTMENT OF
AGRICULTURE AND RURAL DEVELOPMENT**

TENDERER'S DETAILS

NAME OF TENDERER

.....
.....
.....

PHYSICAL ADDRESS

.....
.....
.....

POSTAL ADDRESS

.....
.....
.....

CONTACT PERSON

(NAME).....

(SURNAME).....

(PHONE No).....

(CELL No).....

(FAX No).....

(E-MAIL).....

LIMPOPO DEPARTMENT OF AGRICULTURE & RURAL DEVELOPMENT

A 3-YEAR FRAMEWORK AGREEMENT FOR THE DEVELOPMENT AND MAINTENANCE OF IRRIGATION PROJECTS AND SCHEMES FOR THE LIMPOPO DEPARTMENT OF AGRICULTURE AND RURAL DEVELOPMENT

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The Tender

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T1.2	Tender Data
T1.3	Standard Conditions of Tender

Part T2: Returnable schedules

T2.1	List of Returnable Documents
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The Contract

Part C1: Agreement and Contract Data

C1.1	Form of Offer and Acceptance
C1.2	Contract Data
C1.3	Form of Guarantee
C1.4	Agreement with Adjudicator
C1.5	Agreement in Terms of Section 37(2) of the Occupational Health and Safety Act No 85 of 1993

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Part C3: Scope of Work

C3.1	Standard Specifications
C3.2	Project Specifications
C3.3	Particular Specifications

Part C4: Site information

C4	Site Information
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Drawings

SCHEDULE OF TENDER DRAWINGS

The following drawings, which are bound in, form part of this Contract in terms of Clause 1(i) (j) of the General Conditions of Contract:

DRAWING NO:	DESCRIPTION:
16933RW-100	Typical trench cross sections for uPVC/HDPE Pipes
16933RW-101	Typical thrust block details & pipe route marker
16933RW-102	Typical Cluster Details
16933RW-103	Typical Lateral Take-off details
16933RW-104	Typical Hydrant Details
16933RW-105	Typical Dragline detail and sprinkler configuration
16933RW-106	Typical Pump suction configuration
16933RW-107	Typical Pump House – Building details 1 of 3
16933RW-108	Typical Pump House – Piping Detail 2 of 3
16933RW-109	Typical Pump House – Reinforced and crawl beam detail 3 of 3
16933RW-110	Typical Pump House with filter bank – Building Details 1 of 3
16933RW-111	Typical Pump House with filter bank – Piping Detail 2 of 3
16933RW-112	Typical Pump House with filter bank – Reinforced and crawl beam detail 3 of 3
16933RW-113	Typical Secure Pump Cage Detail
16933RW-114	Typical Borehole Secure Pump Cage

The Tenderer shall satisfy himself that the sets of drawings are complete in accordance with the above schedule, and if any are found to be missing or duplicated, or the writing or figures indistinct, he shall apply to the Engineer immediately and have the discrepancy rectified. No liability whatsoever will be admitted by the Employer in respect of errors in Tenders attributed to any such discrepancy.

PART T1: TENDERING PROCEDURES

TABLE OF CONTENTS		Page	Colour
T1.1:	TENDER NOTICE AND INVITATION TO TENDER	T.2	White
T1.2:	TENDER DATA	T.7	Pink
T1.3:	ANNEXURE F: STANDARD CONDITIONS OF TENDER	T.14	Pink

T1.1: TENDER NOTICE AND INVITATION TO TENDER

LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

**DEPARTMENT OF
AGRICULTURE AND RURAL DEVELOPMENT**

TENDER NO ACDP 21/28

A 3-YEAR FRAMEWORK AGREEMENT FOR THE DEVELOPMENT AND MAINTENANCE OF IRRIGATION PROJECTS AND SCHEMES FOR THE LIMPOPO DEPARTMENT OF AGRICULTURE AND RURAL DEVELOPMENT

T1.1 Tender Notice and Invitation to Tender

Tenders are hereby invited to tender for an Irrigation Framework Agreement for the Development of Irrigation Projects of 30Ha and less and the Repair and Maintenance of existing Irrigation Schemes in the Limpopo Province. **Tenderers should have a CIDB contractor grading of 5SH or 5CE and Higher.**

Tender documents will be obtainable from 14 December 2023, from the Departmental Website, on the following link: www.ldard.gov.za No payment is required to down-load the document from the Website.

Duly completed tenders enclosed in a sealed envelope marked “**TENDER: A 3-YEAR FRAMEWORK AGREEMENT FOR THE DEVELOPMENT AND MAINTENANCE OF IRRIGATION PROJECTS AND SCHEMES, TENDER NO ACDP 23/16, CLOSING DATE: 29 January 2024**” with the name of the Tenderer, shall be deposited in the clearly marked tender box provided at Limpopo Department of Agriculture, 67 Biccard Street, Temo Towers Ground Floor, Polokwane before 11h00 on the closing date. The tenders will be opened in public.

A Compulsory briefing session will be conducted on **10 January 2024** and prospective Contractors are requested to meet the Engineer at 10:00 at the Offices of the Department of Agriculture and Rural Development in the Foyer of the Agrivillage 1 Building at 69 Biccard Street, Polokwane, Limpopo. Contract documentation will **not** be available on the Tender Briefing, and the Engineer will not be available for consultation purposes on any other occasion.

A preferential point system shall apply whereby a contract will be allocated to a tenderer in accordance with the Preferential Procurement Policy Framework Act, Act No 5 of 2000 and as defined in the Conditions of Tender in the tender document, read in conjunction with the Preferential Procurement Policy of Limpopo Department of Agriculture & Rural Development where 80 points will be allocated in respect of price and 20 points in respect of targeted goals. Tenderers must have the necessary skills, experience and capacity to perform the required work.

Employer:	Engineer:
Limpopo Department of Agriculture and Rural Development Head of Department Private Bag X9487 Polokwane, 0700 <u>For Administrative Enquiries:</u> Mr VS Ndlozi Tel: 015 294 3564 E-mail: ndloziv@agric.limpopo.gov.za	Limpopo Department of Agriculture and Rural Development <u>For Technical Enquiries:</u> Mr. MJ Gouws Tel: 015 294 3539 / 060 967 4127 E-mail: gouwsmj@agric.limpopo.gov.za

T1.2. TENDER DATA

The Conditions of Tender in the Standard Conditions of Tender as contained in Annex F of CIDB Standard Uniformity in Construction Procurement. (See www.cidb.org.za) which are reproduced without amendment or alteration for the convenience of Tenderers in this Tender in the section T1.3 of the Tender Data.

The Standard Conditions of Tender make several references to the Tender Data for details that apply specifically to this Tender. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the Standard Conditions of Tender. Each item of Tender Data given below is cross-referenced to the relevant clause in the standard Conditions of Tender.

F.1.1 The Employer for this Contract is: **Limpopo Department of Agriculture and Rural Development**

F.1.2 Tender Documents

The Tender Document consists of the following:

TENDER

T1: Tendering Procedures

- T1.1: Tender Notice and Invitation to Tender
- T1.2: Tender Data
- T1.3: Standard Conditions of Tender

T2 : Returnable Documents

- T2.1: List of Returnable Documents
- T2.2: Returnable schedules

CONTRACT

Part 1: Agreements and Contract Data

- C1.1: Form of Offer and Acceptance
- C1.2: Contract Data
- C1.3: Form of Guarantee
- C1.4: Agreement with Adjudicator
- C1.5: Agreement in terms of Section 37(2) of the Occupational Health and Safety Act (No 85, 1993)

Part 2: Pricing Data

- C2.1: Pricing Instructions
- C2.2: Bill of Quantities

Part 3: Scope of Work

- C3.1: Standard Specifications
- C3.2: Project Specifications
- C3.3: Particular Specifications

Part 4: Site Information

- C4.1: Locality Plan
- C4.2: Construction Notice Board

DRAWINGS

Drawings are bound in this document.

The Tender Document and the drawings shall be obtained from the Employer or his authorized representative from the Departmental Website, on the following link: www.ldard.gov.za No payment is required to off-load the document from the Website.

F.1.4 The Employer's agent is:

Name : District Engineer (Capricorn; Mopani; Sekhukhune; Vhembe; Waterberg)
 Name : Limpopo Department of Agriculture & Rural Development
 Address : District Office (Capricorn; Mopani; Sekhukhune; Vhembe; Waterberg)

Telephone

E-Mail Address :

F.1.5 The Employer's right to accept or reject any Tender Offer

The Employer may accept or reject any variation, deviation, Tender Offer, or alternative Offer, and may cancel the Tender process and reject all Tender Offers at any time before the formation of a Contract. The Employer shall not accept or incur any liability to a Tenderer for such cancellation and rejection, but will give written reasons for such action upon written request to do so. The Employer will reserve the right to appoint more than one (1) tenderer.

F.2.1 Eligibility

A Tenderer will not be eligible to submit a Tender if:

- (a) The Contractor submitting the Tender is under restrictions or has principals who are under restriction to participate in the Employer's procurement due to corrupt or fraudulent practices;
- (b) The Tenderer does not have the legal capacity to enter into the Contract;
- (c) The Contractor submitting the Tender is insolvent, in receivership, bankrupt or being wound up, has his affairs administered by a court or a judicial officer, has suspended his business activities, or is subject to legal proceedings in respect of the foregoing;
- (d) The Tenderer does not comply with the legal requirements stated in the Employer's procurement policy;
- (e) The Tenderer cannot demonstrate that he possesses the necessary professional and technical qualifications and competent, financial resources, equipment and other physical facilities, managerial capability, personnel, experience and reputation to perform the Contract;
- (f) The Tenderer cannot provide proof that he is in good standing with respect to duties, taxes, levies and contributions required in terms of legislation applicable to the work in the Contract.
- (g) Only those Tenderers who have in their employ management and supervisory staff satisfying the requirements of the Scope of Work for Labour Intensive Competencies for supervisory and management staff are eligible to submit Tenders.
- (h) Only those Tenderers who are registered with the CIDB as defined in the Regulations 09 June 2004 and 22 July 2005), in terms of the CIDB Act No 38 of 2000 or are capable of being so prior to the evaluation of submissions, in a Contractor grading designation equal to or higher than a Contractor grading designation determined in accordance with the Sum Tendered for a 5SH or 5CE or higher class of construction work, are eligible to submit Tenders.
- (i) The Contractor submitting the Tender is not registered on the Employer's Supplier Database
- (j) Irrigation Companies that have in-house irrigation design and construction abilities must have a CIDB registration of 5SH or 5CE and higher.
- (k) A Joint Venture or a Company that Sub-contract the construction part or design part, only the Construction Partner must have a minimum CIDB registration of 5SH or 5CE and higher.

Joint Ventures are eligible to submit Tenders provided that:

1. At least one (1) member of the Joint Venture is registered with the CIDB and the partner with the CIDB grading has a Contractor grading designation in the 5SH or 5CE or higher class of construction work.
2. In terms of the Preferential Procurement Regulations, 2017 pertaining to the Preferential Procurement Policy Framework Act 5 of 2000, a trust, consortium or joint venture must submit a consolidated B-BBEE Status Level Verification Certificate for every separate bid.
3. Should this bid be submitted by a joint venture, the joint venture agreement must accompany the bid document before the closing date and time of bid. The joint venture agreement must clearly specify the percentage of the contract to be undertaken by each company participating therein.
4. The non-submission of a B-BBEE Certificate by a trust, consortium or joint venture will result in disqualification.

5. Each party to a Joint Venture/ Consortium must submit an original valid Tax Clearance Certificate together with the bid before the closing date and time of bid.
6. The joint venture or consortium must submit a formal agreement that outlines the roles and responsibilities of each member of the joint venture or consortium, nomination of an authorised person to represent the joint venture or consortium in all matters relating to this bid and the details of the bank account for payments to be effected.
7. The joint venture or consortium must comply with Central Suppliers Database (CSD) registration requirements as per National Treasury directive.

F.2.7 Site visit and clarification meeting

The arrangements for the compulsory tender briefing meeting are as follows:

Location: Foyer of Agrivillage 1 Building
69 Biccard Street, Polokwane, Limpopo

Date: 10 January 2024

Starting time: 10H00

Enquiries and confirmation of attendance at least one full working day in advance regarding the meeting may be directed to:

Name : MJ Gouws
Name : Limpopo Department of Agriculture & Rural Development
Address : 67/69 Biccard Street
Polokwane, 0699
Telephone : 015 294 3539 / 060 967 4127
E-Mail : gouwsmj@agric.limpopo.gov.za

Bidders must sign the attendance list and name of the Bidding entity. Addenda will be issued and Bids will be received only from those Bidding entities appearing on the attendance list.

F.2.10 Pricing the Tender Offer

(a) Value Added Tax

- The Valued Added Tax (VAT) rate shall be 15% or as otherwise provided for by Legislation.
- The successful Tenderer shall be required to produce a VAT invoice that shall only be prepared once measurements and valuations for work done in Terms of Contract Offer have been agreed with the Employers agent and a Certificate of Payment issued.
- Payment of VAT to non-VAT vendors shall be processed from the month in which the Tenderer's liability with the South African Revenue Services is effective.

F.2.11 Alterations to document

A Tender Offer shall not be considered if alterations have been made to the Forms of Tender data or Contract data (unless such alterations have been duly authenticated by the Tenderer) or if any particulars required therein have not been completed in all respects.

F.2.12 Alternative Tender Offers

No alternative Offers will be considered.

F2.13 Submitting a Tender Offer

F.2.13.3 Tender Offers shall be submitted as an original only.

Under no circumstances whatsoever may the Tender forms be retyped or redrafted.

Photocopies of the original Tender documentation may be used, but an original signature must appear

on such photocopies.

F.2.13.5 The Employer's address for delivery of Bid Offers and identification details to be shown on such Bid Offer package are:

Location of Bid box: Limpopo Department of Agriculture and Rural Development
Physical address: 67/69 Biccard Street
Polokwane, 0700

Identification details: **A 3-YEAR FRAMEWORK AGREEMENT FOR THE DEVELOPMENT AND MAINTENANCE OF IRRIGATION PROJECTS AND SCHEMES**

Tender No: **ACDP 23/16**

Closing Date: **29 January 2024 at 11:00**

F.2.15 Closing Time

The closing time for submission of Tender Offers is: **11h00** on 29 January 2024 as stated in the Tender Notice and Invitation to Tender.

Telephonic, telegraphic, telex, facsimile, electronic or e-mailed Tenders will not be accepted.

F.2.16 Tender Offer validity

The Tender Offer validity period is 120 days from the closing time for submission of Tenders.

F.2.17 Clarification of tender offer after submission

Provide clarification of a tender offer in response to a request to do so from the employer during the evaluation of tender offers. This may include providing a breakdown of rates or prices and correction of arithmetical errors by the adjustment of certain rates or item prices (or both). No change in the total of the prices or substance of the tender offer is sought, offered, or permitted. The total of the prices stated by the tenderer shall be binding upon the tenderer.

Note: Sub-clause F.2.17 does not preclude the negotiation of the final terms of the contract with a preferred tenderer following a competitive selection process, should the Employer elect to do so, this may include negotiations for fair market related prices.

F.2.18 Provide other material

The Tenderer shall, when requested by the Employer to do so, submit the names of all management and supervisory staff that will be employed to supervise the labour-intensive portion of the works together with satisfactory evidence that such staff members satisfy the eligibility requirements

F.2.19 Access

Access shall be provided for inspections and testing by personnel acting on behalf of the Employer.

F.2.20 TENDER EVALUATION CRITERIA

F.2.20.1 Qualifying Criteria

Pre-Compliance Evaluation

Criteria	Requirements
Pre-compliance criteria.	The Service Provider must submit all documents as outlined below.
Preferential points for specific goals.	Bidders will be allocated preferential points for specific goals as per table 7.2.2 c. in SBD 6.1.

The evaluation process entails the following:

Phase 1: Pre-Compliance evaluation

- i. During this phase, tender responses are registered to ascertain the number of tenders responses received before the closing date and time.

ii. REQUIRED DOCUMENTS

Misrepresentation of facts will render your tender non-responsive.

F.2.20.2 Submission of Required Documents

Bidders will be disqualified if not meeting the following requirements:

Documents that must be submitted	Non-submission will result in disqualification	Requirement
Invitation to Bid – SBD 1	YES	Complete and sign the supplied pro forma document. In case of JV, both partners must submit/ be represented on the submission.
Pricing Schedule – SBD 3.2	YES	Complete and sign the supplied pro forma document. In case of JV, both partners must submit/ be represented on the submission.
Bidders Disclosure – SBD 4	YES	Complete and sign the supplied pro forma document. (Must declare if they have interests in other Companies. Refer to Paragraph 2.3). In case of J/V's bidders should complete separate SBD 4's.
Preference Point Claim Form – SBD 6.1	YES	Non-Returnable of the supplied pro forma document will lead to Disqualification. Non-claiming of points on this form will lead to zero (0) even if supporting documentation is attached.
Joint Ventures (JV)	YES	Attach a valid JV agreement. Non-submission will lead to disqualification. In the case of an award, the company need to register on CSD as a JV. The process is that the service providers must register the JV at SARS and then open a JV bank account. With those documents they can then register the JV on the CSD. The department will only make payment to a JV account.
Form of intent by a bank or insurance company to provide a 10% performance guarantee and insurance of the works.	YES	Must be submitted with the tender by the closing date and time of the bid. In case of JV, both partners must submit/ be represented on the submission.
Workmen's Compensation Registration Certificate	NO	Must submit valid copy of COIDA certificate or proof of payment thereof. In case of JV, both partners must submit.
Completeness of the tender document.	YES	Bidders are required to complete the entire bid document without omission of pages and in the provided sequence. Supporting documents must be attached with list of indexes/ Annexures and in order of the indicated index sequence. The tender document to be fully completed in Black ink (not typed)
Specification	YES	Must comply with the specification
Current works load declaration.	YES	Wrong declaration on current works and / or if the bidder is in default, will lead to disqualification.
Bank Rating	YES	Bank rating letter from a financial institution with track record of at least 6 months. Bidders must have a minimum rating of C. In case of JV, both partners must submit.
Bill of Quantities	YES	All items of the BOQs must be fully completed (rates, amounts and sums), responsive and submitted with the bid by the closing date and time.
CIDB grading certificate	YES	Bidder must submit CIDB grading certificate of 5SH or 5CE and higher. In case of JV, Calculated CIDB grading must be submitted.

Compulsory Questionnaire	Enterprise	YES	Must be fully completed, signed by the authorized person/s and submitted with the bid by the closing date and time. In case of J/V's bidders should complete separate forms or be represented.
Attendance Register for the Compulsory site briefing		YES	Must attend the compulsory site briefing as per scheduled date and time and ensure to sign the attendance register.

- iii. The Service Provider must ensure that they meet the following requirements before the bid can be awarded:

CRITERIA	REQUIREMENT
Tax compliance status	Tenderer must be tax compliant before the bid is awarded, i.e. <i>Where the recommended tenderer is not tax compliant, the tenderer will be notified of their non-compliant status and must be requested to submit written proof from SARS of their tax compliance status or proof that they have made an arrangement to meet their outstanding tax obligations within 7 working days. The tenderer should thereafter provide the accounting officer or accounting authority with proof of their tax compliance status which should be verified via the Central Supplier Database or e-Filing</i>
Business registration	The Company must be in business
Company registration with central supplier database (CSD)	Company must be registered on central supplier database (CSD). If not registered must proceed to complete the registration prior to submitting your proposal. Visit https://secure.csd.gov.za/ to obtain your vendor number.
In the service of the State status	The bid will not be considered if Shareholders or directors are employed by state/ government departments, municipalities, municipal entities, or public entities unless the approval from executive authority to do business with the state is submitted with the proposal
Tender defaulting and restriction status	Entity and directors must not be restricted

F.2.20.3 Functionality Evaluation Criteria = 100 points

The minimum score required for functionality is 70 points in order to qualify to be registered into the Departmental Data base for the Drilling, Testing and equipping of Boreholes. A tenderer who scores less than 70 points on functionality will be disqualified.

Misrepresentation of facts will render a bid non-responsive.

CRITERIA	EVIDENCE	Value	Weighting
1. Irrigation Construction Team: Qualified and/or Experience Staff Evidence Bidders must attach brief CV with certified copies of qualification and Identity document for each Key member of the Irrigation Construction Team for evaluation.	No information.	0	20
	Comply <u>only partly</u> with the minimum: of a Project Manager with 2 years and more Irrigation construction experience and at least 2 of each of the 2 groups of the Construction Staff with 3 years and more applicable experience: 1) Technician and Site Agent or Site Foreman 2) Civil Artisan or Mechanical Artisan and Electrician	1	
	Have a Project Manager with 2 years and more Irrigation construction experience and at least 2 of each of the 2 groups of the Construction Staff with 3 years and more applicable experience: 1) Technician and Site Agent or Site Foreman 2) Civil Artisan or Mechanical Artisan and Electrician	3	
	Have a Project Manager with 5 years and more Irrigation construction experience and at least 2 of each of the Staff of the 2 groups of the Construction Team with more than 5 years applicable experience: 1) Technician and Site Agent and Site Foreman 2) Civil Artisan and Mechanical Artisan and Electrician	5	
2. Construction Vehicles, Plant & Equipment.	No information or None	0	
	<u>Only comply (Own or Hire) with 1 of the 3 groups</u> of the following number of Vehicles, Plant and Equipment available for	1	

Evidence: Bidders must attach copies of Ownership documents or copies of Hire contracts or Letter of intention to Hire from the Hire Company with their submission. (Hire Company proof of ownership documents) Copies must be certified.	this contract: 1) <u>One</u> of: Earthmoving equipment: Trencher or Backhoe loader (TLB) or Excavator 2) <u>One</u> of: Transport vehicle for material: Tractor and Trailer or Truck 3) <u>One</u> of: Applicable support vehicles.		20
	Own or Hire the following number of Vehicles, Plant and Equipment available for this contract: 1) <u>One</u> of: Earthmoving equipment: Trencher or Backhoe loader (TLB) or Excavator 2) <u>One</u> of: Transport vehicle for material: Tractor and Trailer or Truck 3) <u>One</u> of: Applicable support vehicles.	3	
	Own or Hire the following number of Vehicles, Plant and Equipment available for this contract: 1) <u>Two</u> of: Earthmoving equipment: Trencher or Backhoe loader (TLB) or Excavator 2) <u>Two</u> of: Transport vehicle for material: Tractor and Trailer or Truck 3) <u>Two</u> of: Applicable support vehicles.	5	
3. Experience and demonstrated capacity to implement Irrigation Construction projects timeously, according to specifications and within budget Evidence/ means to verify. Bidders must attach a table indicating the Irrigation projects that they have successfully constructed and completed. The table must state: 1. Client with contact information, 2. Project name, 3. Date of site handover, 4. Date of completion. Also attached copies of appointment letters and or documents that state the contract period, site handover certificates / letters, completion certificates / letters and contact information of the clients for verification.	No information or information is not relevant to enable a proper evaluation.	0	35
	One to two Irrigation projects completed after the "Due Completion Date" including approved "Extension of Time" (Contract period) since January 2017. Table and means of verification attached.	1	
	Three to Four Irrigation projects successfully completed within the "Due Completion Date" including approved "Extension of Time" (Contract period) since January 2017 Table and means of verification attached.	3	
	Five and Above Irrigation projects successfully completed within the "Due Completion Date" including approved "Extension of Time" (Contract period) since January 2017 Table and means of verification attached.	5	
4. Current Obligation Works. NB!! Completion of this provided Table is mandatory for points to be allocated. Do not refer to any attachment. If no projects at the moment, the tenderer must indicate on the table (Not applicable will be deemed as non-responsive).	Current obligation value is equal or greater than twice the maximum value of the required CIDB grade	0	15
	Current obligation value is greater than the maximum value of the required CIDB grade but less than twice the maximum value of the required CIDB grade	1	
	Current obligation value is within the required CIDB threshold	3	
	Current obligation value is less than the minimum value of the required CIDB grade	5	
5. Proof of physical address Evidence Bidders must submit proof of residence from Local Municipality (Utility bill) or Confirmation of pre-paid utility from ESKOM (not older than 3 months) and Title Deed or Lease agreement or PTO and any other proof of address.	Office of bidder outside borders of Limpopo Province	0	10
	Office of bidder within borders of Limpopo Province	5	
TOTAL			100

F.3.11 Evaluation of Offers
Evaluation in terms of 90/10 preference point system.

- a) The preferential points will be allocated for specific goals as prescribed in Section 2 of the Preferential Procurement Policy Framework Act (5 of 2000), Paragraph 3.2.1 and 7.7 of the Reconstruction and Development Programme White Paper of 1994 and the Broad-Based Economic Empowerment Act, 2003.
- b) When calculating prices:
- Unconditional discounts must be taken into account for evaluation purposes; and
 - Conditional discounts must not be taken into account for evaluation purposes but should be implemented when payment is affected.
- c) The formulae to be utilized in calculating points scored for price are as follows:
80/20 Preference point system [(for acquisition of goods or services for a Rand value equal to or above R30 000 and up to R50 million) (all applicable taxes included)]

$$Ps = 90(1 - ((Pt - Pmin) / Pmin))$$

Where

Ps = Points scored for comparative price of bid or offer under consideration

Pt = Comparative price of bid or offer under consideration

Pmin = Comparative price of lowest acceptable bid or offer.

- d) A maximum of 10 points will be awarded in accordance with the table below:

NO	PREFERANTIAL GOALS	10 POINTS	MEANS OF VERIFICATION
1	Black People ownership > 51%	7	CSD and/ or copy of company registration report
2	Women Ownership > 51%	1	CSD Report
3	Persons with Disability Ownership >51%	1	CSD and Medical Certificate from recognized Medical Practitioner
4	Youth Ownership >51%	1	CSD Report
TOTAL POINTS		10	

- e) The points scored by a tenderer in respect of the specific goals above must be added to the points scored for price and the total must be rounded off to the nearest two decimal places.
- f) Only the tender with the highest number of points scored may be selected for an award.

Special Conditions

- All costs incurred in the preparation and presentation of the proposal shall be wholly absorbed by the bidder. Supporting documentation submitted with the proposal will become the property of the Limpopo Provincial Government unless otherwise requested by the bidder at the time of submission.
- General Conditions of Contract 2010 2nd edition (GCC2010) shall be used to manage the contract. Service provider must acquire their own copy.
- All works under this contract are re-measurable.
- The documentation required before commencement with Works execution is:
 - Health and Safety Plan (Refer to GCC Clause 4.3)
 - Initial programme (Refer to GCC Clause 5.6)
 - Security (Refer to GCC Clause 6.2 – Performance Guarantee)
 - Insurance (Refer to GCC Clause 8.6)

- The penalty for failing to complete the works is **0.05%** of the Total Tender Sum per Calendar Day.
- The limit of retention money is 10% of the Tender offer, excluding VAT and limited to 5% of the Contract amount, excluding Contract Price Adjustment, Contingencies and VAT. A Retention Money Guarantee will not be permitted.
- **It is compulsory for a person to register for VAT if the value of taxable supplies made or to be made, is in excess of R1 million**
- The defects liability period is **12 months**.
- The latent defect period is **5 years**
- Bidders who intend to cede their rights to payment to an institution as prescribed in 9.1 should attach cession agreement with their bid proposal.
- Payment will only be made in accordance with the delivery of service that will be agreed upon by both parties and upon receipt of an original invoice.
- The service provider is required to provide a quote for all items, failure to quote according to the specification will invalidate your bid.
- The Department will not make any upfront payment to a successful service provider.
- The department reserves the right to conduct a risk assessment for the recommended service provider to verify the provided information and authenticate the supporting documentation and may disqualify the service provider if the risk analysis feedback is negative.

Inspection of Bidders

The premises of all the Tenders that achieved the minimum score of 70% will be inspected. The inspection will be done on the following:

- a) Physical structure or business where business activities take place.
- b) Main business activities
- c) Track record will be verified.
- d) Relatedness of the main business activities to the tender under review.
- e) Office furniture and space.
- f) Office Equipment, IT facilities and computer software used to produce the required service.
- g) Registration documents and accredited certificates.
- h) Audited Financial annual statements to verify financial position.
- i) Verification of Drilling and Testing Equipment, including 3rd party premises if required.

Joint Ventures

1. Should this bid be submitted by a joint venture, the joint venture agreement must accompany the bid document before the closing date and time of bid. The joint venture agreement must clearly specify the percentage of the contract to be undertaken by each company participating therein.
2. Each party to a Joint Venture/ Consortium must submit an original valid Tax Clearance Certificate together with the bid before the closing date and time of bid.
3. The joint venture or consortium must submit a formal agreement that outlines the roles and responsibilities of each member of the joint venture or consortium, nomination of an authorised person to represent the joint venture or consortium in all matters relating to this bid and the details of the bank account for payments to be effected.
4. The joint venture or consortium must comply with Central Suppliers Database (CSD) registration requirements as per National Treasury directive.
5. Both companies to a J/V should complete separate forms or be represented for Compulsory Enterprise Questionnaire.
6. Both companies to a J/V should submit Bank Rating
7. Both companies to a J/V should submit should complete separate SBD 4 for each company
8. In case of JV, Calculated CIDB grading must be submitted.

Cession

1. Cession of payments will only be permissible to a registered financial institution in terms of the Financial Advisory and Intermediary Services Act 37 of 2002 or an approved credit provider in terms of the National Credit Act of 2005
2. Bidders who intend to cede their rights to payment to an institution as prescribed in 8.1 attach cession agreement with their bid proposal.

Unsatisfactory Performance

Unsatisfactory performance occurs when performance is not in accordance with the contract conditions.

- (i) The departmental official shall warn the contractor in writing that action will be taken in accordance with the contract conditions unless the contractor complies with the contract conditions and delivers satisfactory supplies or services within a specified reasonable time (7 days minimum). If the contractor does not perform satisfactorily despite the warning, the official will:
 - (a) Take action in terms of its delegated powers; and
 - (b) Make a recommendation to the Accounting Officer for cancellation of the contract concerned.
- (ii) When correspondence is addressed to the contractor, reference will be made to the contract number/item number/s and an explanation of the complaint.

Validity Period of Bid and Extension thereof

1. The validity (binding) period for the bid will be 120 days from close of bid. However, circumstances may arise whereby the department may request bidders to extend the validity (binding) period. Should this occur, the department will request bidders to extend the validity (binding) period under the same terms and conditions as originally offered for by bidders. This request will be done before the expiry of the original validity (binding) period.
2. VAT vendors must calculate VAT at 15% VAT.

Site Inspection

1. As part of the evaluation process of this bid, the Department will conduct site inspections of premises of all service bidders who have submitted bids and
2. The purpose of the site inspections is to confirm validity and accuracy of the information submitted in the bidder's bid document. Where the validity and accuracy of the information submitted in the bidder's bid document cannot be confirmed during the site visit, the bidder will be disqualified.

Completion of Bid Document

The following are minimum requirements for completion of the bid document: -

1. Bidders are required to complete the entire bid document in terms of the requirements contained herein.
2. Where the space provided in the bid document is insufficient, separate schedules may be drawn up in accordance with the given formats. These schedules shall then be bound together with suitable contents page and submitted with the bid documents.
3. All bid documents, certificates, schedules (including additional schedules as mentioned above) and all forms required by this bid must be completed in black ink and signed by the authorized signatory.
4. Bid document should be returned in the provided sequence. Attachments must be inline with the index sequence of the bidder.
5. Bidders must ensure that there are no missing or duplicated pages. LDARD shall not accept liability regarding claims by bidders that pages are missing or duplicated.
6. Correction fluid is not allowed and any cancellation, alteration or amendment on the bid document must be signed for by the authorized signatory.
7. Completed bid document with supporting documents shall be packaged, bound, sealed, marked, and submitted strictly as stipulated in this bid document.

F.3.13 Acceptance of Tender Offer**F.3.13.1 Tender Offers will only be accepted on condition that:**

- (a) The Tender Offer is signed by a person authorised to sign on behalf of the Tenderer;
- (b) the Tenderer's declaration of compliance with the Occupational Health and Safety Act No. 85 of 1993 and the Construction Regulations 2003, is included with his Tender submission;
- (c) a Tenderer who submitted a Tender as a Joint Venture has included an acceptable Joint Venture Agreement with his Tender;
- (d) the Tenderer or a competent authorised representative of the Contractor who submitted the Tender has attended the compulsory clarification meeting or site inspection;

- (e) the Contractor who submits the Tender has been registered with the Construction Industry Development Board in accordance with the Construction Industry Development Board Act No. 38 of 2000 and the CIDB Regulations 2003 promulgated in terms of the Act, or if the Contractor can submit proof or evidence that he will be able to register within 10 days of the closing date for submission of Tenders;
- (f) the Tenderer or any of its principals is not listed on the register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the Public Sector;
- (g) the Tenderer has not abused the Employer's Supply Chain Management System or has failed to perform on any previous Contract and has been given a written notice to this effect;
- (h) The Tenderer or any of its Principals, Directors or Managers is not employed in the service of the State or any Municipality. In the event that such Principals are involved, official approval from the Executing Authority regarding carrying out remunerative work outside of the Public Service must be included in the Tender Submission.
- (i) the Employer is satisfied that the Tenderer or any of his Principals have not influenced the Tender Offer and acceptance by the following criteria:
 - a. having Offered, promised or given a bribe or other gift or remuneration to any person in connection with the obtaining or execution of this Contract;
 - b. having acted in a fraudulent or corrupt manner in obtaining or executing this Contract;
 - c. having approached an Officer or employee of the Employer or the Employer's Agent with the objective of influencing the award of a Contract in the Tenderer's favour;
 - d. having entered into any agreement or arrangement, whether legally binding or not, with any other Person, Firm or Company to refrain from Tendering for this Contract or as to the amount of the Tender to be submitted by either party;
 - e. having disclosed to any other Person, Firm or Company other than the Employer, the exact or approximate amount of his proposed Tender;
 - f. The Employer may, in addition to using any other legal remedies, repudiate the Tender Offer and acceptance and declare the Contract invalid should it have been concluded already.

F.2.22 Return of Bid Documents

Not applicable.

F.2.23 Certificates

The Bidder is required to submit with his Bid the following:

- Joint Venture Agreement and Power of Attorney in case of Joint Ventures;
- VAT Registration Certificate from South African Revenue Services (SARS);
- Workmen's Compensation Registration Certificate (or proof of payment of contributions in terms of the Compensation for Occupational Injuries and Diseases Act No. 130 of 1993);
- Form of intent by a bank or insurance company to provide a performance guarantee; (for open Bids)
- Company / CC / Trust / Partnership registration certificates;
- Certified Copies of Identity Document of all members of the entity (certification should not be more than 3 months old).

Bidders must ensure that they meet the following requirements before the bid can be awarded.

Criteria	Requirement
Tax compliance status	Bidder must be tax compliant before the bid is awarded, i.e. <i>Where the recommended bidder is not tax compliant, the bidder will be notified of their non-compliant status and be granted reasonable timeframe to rectify their tax compliance status with the South African Revenue Service. The bidder must thereafter provide the procuring entity with proof of its tax compliance status which must be verified via the Central Supplier Database or e-filing</i> ”.
Business registration	The Company must be in business
Company registration with central supplier database (CSD)	Company must be registered on central supplier database (CSD)
In the service of the state status	Shareholders or directors must not be employed by state departments, municipalities, municipal entities, public entities
Tender defaulting and restriction status	Bidders Must not be listed as defaulters and/or restricted
Workmen's Compensation Registration Certificate	Appointed bidders must submit a valid COIDA certificate or proof of payment thereof

F.3.4 Opening of Bid Submissions

Bid will be opened immediately after the closing time for Bids. The time and location for opening of the Bid Offers are:

Time: **11:00**

Date: 29 January 2024

Venue: Limpopo Department of Agriculture and Rural Development, at the Tender Box

F.3.5 The two-envelope system will **not** apply to this Tender.

F.3.18 Copies of Contract

The number of paper copies of the signed Contract to be provided by the Employer is ONE.

T1.3: Annex F: Standard Conditions of Tender

(As contained in Annexure F of South African National Standard: Construction procurement processes, Methods and procedures: SANS 294: 2004 Edition)

F.1 General

F.1.1 Actions

The employer and each tenderer submitting a tender offer shall comply with these conditions of tender. In their dealings with each other, they shall discharge their duties and obligations as set out in F.2 and F.3, timeously and with integrity, and behave equitably, honestly and transparently.

F.1.2 Tender Documents

The documents issued by the employer for the purpose of a tender offer are listed in the tender data.

F.1.3 Interpretation

F.1.3.1 The tender data and additional requirements contained in the tender schedules that are included in the returnable documents are deemed to be part of these conditions of tender.

F.1.3.2 These conditions of tender, the tender data and tender schedules which are only required for tender evaluation purposes, shall not form part of any contract arising from the invitation to tender.

F.1.3.3 For the purposes of these conditions for the calling for expressions of interest, the following definitions apply:

- a) **Comparative offer** means the tenderer's financial offer after the factors of non-firm prices, all unconditional discounts and any other tendered parameters that will affect the value of the financial offer have been taken into consideration
- b) **corrupt practice** means the offering, giving, receiving or soliciting of anything of value to influence the action of the employer or his staff or agents in the tender process; and
- c) **Fraudulent practice** means the misrepresentation of the facts in order to influence the tender process or the award of a contract arising from a tender offer to the detriment of the employer, including collusive practices intended to establish prices at artificial levels
- d) **Quality (functionality)** means the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs

F.1.4 Communication and employer's agent

Each communication between the employer and a tenderer shall be to or from the employer's agent only, and in a form that can be read, copied and recorded. Writing shall be in the English language. The employer shall not take any responsibility for non-receipt of communications from or by a tenderer. The name and contact details of the employer's agent are stated in the tender data.

F.1.5 The employer's right to accept or reject any tender offer

F.1.5.1 The employer may accept or reject any variation, deviation, tender offer, or alternative tender offer, and may cancel the tender process and reject all tender offers at any time before the formation of a contract. The employer shall not accept or incur any liability to a tenderer for such cancellation and rejection but will give written reasons for such action.

F.1.5.2 After the cancellation of a tender process or the rejection of all tender offers the employer may abandon the proposed procurement and re-issue a similar tender notice and invitation to tender not less than three months after the closing dated for tender offers or have it performed in another manner at any time.

F.2 Bidder's obligations

The Bidder shall comply with the following obligations:

F.2.1 Eligibility

Submit a Bid offer only if the Bidder complies with the criteria stated in the Bid data and the tenderer, or any of his principals, is not under any restriction to do business with employer.

F.2.2 Cost of tendering

Accept that the employer will not compensate the tenderer for any costs incurred in the preparation and submission of a tender offer, including the costs of any testing necessary to demonstrate that aspects of the offer satisfy requirements.

F.2.3 Check documents

Check the tender documents on receipt for completeness and notify the employer of any discrepancy or omission.

F.2.4 Confidentiality and copyright of documents

Treat as confidential all matters arising in connection with the tender. Use and copy the documents issued by the employer only for the purpose of preparing and submitting a tender offer in response to the invitation.

F.2.5 Reference documents

Obtain, as necessary for submitting a tender offer, copies of the latest versions of standards, specifications, conditions of contract and other publications, which are not attached but which are incorporated into the tender documents by reference.

F.2.6 Acknowledge addenda

Acknowledge receipt of addenda to the tender documents, which the employer may issue, and if necessary apply for an extension to the closing time stated in the tender data, in order to take the addenda into account.

F.2.7 Clarification meeting

Attend, where required, a clarification meeting at which tenderers may familiarize themselves with aspects of the proposed work, services or supply and raise questions. Details of the meeting(s) are stated in the tender data.

F.2.8 Seek clarification

Request clarification of the tender documents, if necessary, by notifying the employer at least five working days before the closing time stated in the tender data.

F.2.9 Insurance

Be aware that the extent of insurance to be provided by the employer (if any) may not be for the full cover required in terms of the conditions of contract identified in the contract data. The tenderer is advised to seek qualified advice regarding insurance.

F.2.10 Pricing the tender offer

F.2.10.1 Include in the rates, prices, and the tendered total of the prices (if any) all duties, taxes (except Value Added Tax (VAT)), and other levies payable by the successful tenderer, such duties, taxes and levies being those applicable 14 days before the closing time stated in the tender data.

F.2.10.2 Show VAT payable by the employer separately as an addition to the tendered total of the prices.

F.2.10.3 Provide rates and prices that are fixed for the duration of the contract and not subject to adjustment except as provided for in the conditions of contract identified in the contract data.

F.2.10.4 State the rates and prices in Rand unless instructed otherwise in the tender data. The conditions of contract identified in the contract data may provide for part payment in other currencies.

F.2.11 Alterations to documents

Not make any alterations or additions to the tender documents, except to comply with instructions issued by the employer, or necessary to correct errors made by the tenderer. All signatories to the tender offer shall initial all such alterations. Erasures and the use of masking fluid are prohibited.

F.2.12 Alternative tender offers

F.2.12.1 Submit alternative tender offers only if a main tender offer, strictly in accordance with all the requirements of the tender documents, is also submitted. The alternative tender offer is to be submitted with the main tender offer together with a schedule that compares the requirements of the tender documents with the alternative requirements the tenderer proposes.

F.2.12.2 Accept that an alternative tender offer may be based only on the criteria stated in the tender data or criteria otherwise acceptable to the employer.

F.2.13 Submitting a tender offer

F.2.13.1 Submit a tender offer to provide the whole of the works, services or supply identified in the contract data and described in the scope of works, unless stated otherwise in the tender data.

F.2.13.2 Return all returnable documents to the employer after completing them in their entirety, either electronically (if they were issued in electronic format) or by writing in black ink.

F.2.13.3 Submit the parts of the tender offer communicated on paper as an original plus the number of copies stated in the tender data, with an English translation of any documentation in a language other than English, and the parts communicated electronically in the same format as they were issued by the employer.

F.2.13.4 Sign the original and all copies of the tender offer where required in terms of the tender data. The employer will hold all authorized signatories liable on behalf of the tenderer. Signatories for tenderers proposing to contract as joint ventures shall state which of the signatories is the lead partner whom the employer shall hold liable for the purpose of the tender offer.

F.2.13.5 Seal the original and each copy of the tender offer as separate packages marking the packages as "ORIGINAL" and "COPY". Each package shall state on the outside the employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address.

F.2.13.6 Where a two-envelope system is required in terms of the tender data, place and seal the returnable documents listed in the tender data in an envelope marked "financial proposal" and place the remaining returnable documents in an envelope marked "technical proposal". Each envelope shall state on the outside the employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address.

F.2.13.7 Seal the original tender offer and copy packages together in an outer package that states on the outside only the employer's address and identification details as stated in the tender data.

F.2.13.8 Accept that the employer shall not assume any responsibility for the misplacement or premature opening of the tender offer if the outer package is not sealed and marked as stated.

F.2.14 Information and data to be completed in all respects

Accept that tender offers, which do not provide all the data or information requested completely and in the form required, may be regarded by the employer as non-responsive.

F.2.15 Closing time

F.2.15.1 Ensure that the employer receives the tender offer at the address specified in the tender data not later than the closing time stated in the tender data. Proof of posting shall not be accepted as proof of delivery. The employer shall not accept tender offers submitted by telegraph, telex, facsimile or e-mail, unless stated otherwise in the tender data.

F.2.15.2 Accept that, if the employer extends the closing time stated in the tender data for any reason, the requirements of these conditions of tender apply equally to the extended deadline.

F.2.16 Tender offer validity

F.2.16.1 Hold the tender offer(s) valid for acceptance by the employer at any time during the validity period stated in the tender data after the closing time stated in the tender data.

F.2.16.2 If requested by the employer, consider extending the validity period stated in the tender data for an agreed additional period.

F.2.17 Clarification of tender offer after submission

Provide clarification of a tender offer in response to a request to do so from the employer during the evaluation of tender offers. This may include providing a breakdown of rates or prices and correction of arithmetical errors by the adjustment of certain rates or item prices (or both). No change in the total of the prices or substance of the tender offer is sought, offered, or permitted. The total of the prices stated by the tenderer shall be binding upon the tenderer.

Note: Sub-clause F.2.17 does not preclude the negotiation of the final terms of the contract with a preferred tenderer following a competitive selection process, should the Employer elect to do so.

F.2.18 Provide other material

F.2.18.1 Provide, on request by the employer, any other material that has a bearing on the tender offer, the tenderer's

commercial position (including notarized joint venture agreements), preferencing arrangements, or samples of materials, considered necessary by the employer for the purpose of a full and fair risk assessment. Should the tenderer not provide the material, or a satisfactory reason as to why it cannot be provided, by the time for submission stated in the employer's request, the employer may regard the tender offer as non-responsive.

F.2.18.2 Dispose of samples of materials provided for evaluation by the employer, where required.

F.2.19 Inspections, tests and analysis

Provide access during working hours to premises for inspections, tests and analysis as provided for in the tender data.

F.2.20 Submit securities, bonds, policies, etc.

If requested, submit for the employer's acceptance before formation of the contract, all securities, bonds, guarantees, policies and certificates of insurance required in terms of the conditions of contract identified in the contract data.

F.2.21 Check final draft

Check the final draft of the contract provided by the employer within the time available for the employer to issue the contract.

F.2.22 Return of other tender documents

If so instructed by the employer, return all retained tender documents within 28 days after the expiry of the validity period stated in the tender data.

F.2.23 Certificates

Include in the tender submission or provide the employer with any certificates as stated in the tender data.

NOTE: Failure to submit any of the above documents will result in disqualification

F.3 The employer's undertakings

The employer undertakes to:

F.3.1 Respond to clarification

Respond to a request for clarification received up to five working days prior to the tender closing time stated in the Tender Data and notify all tenderers who drew procurement documents.

F.3.2 Issue Addenda

If necessary, issue addenda that may amend or amplify the tender documents to each tenderer during the period from the date of the Tender Notice until seven days before the tender closing time stated in the Tender Data. If, as a result a tenderer applies for an extension to the closing time stated in the Tender Data, the Employer may grant such extension and, will then notify it to all tenderers who drew documents.

F.3.3 Return late tender offers

Return tender offers received after the closing time stated in the Tender Data, unopened, (unless it is necessary to open a tender submission to obtain a forwarding address), to the tenderer concerned.

F.3.4 Opening of tender submissions

F.3.4.1 Unless the two-envelope system is to be followed, open valid tender submissions in the presence of tenderers' agents who choose to attend at the time and place stated in the tender data. Tender submissions for which acceptable reasons for withdrawal have been submitted will not be opened.

F.3.4.2 Announce at the opening held immediately after the opening of tender submissions, at a venue indicated in the tender data, the name of each tenderer whose tender offer is opened, the total of his prices, preferences claimed and time for completion, if any, for the main tender offer only.

F.3.4.3 Make available the record outlined in F.3.4.2 to all interested persons upon request.

F.3.5 Two-envelope system

F.3.5.1 Where stated in the tender data that a two-envelope system is to be followed, open only the technical proposal of valid

tenders in the presence of tenderers' agents who choose to attend at the time and place stated in the tender data and announce the name of each tenderer whose technical proposal is opened.

F.3.5.2 Evaluate the quality of the technical proposals offered by tenderers, then advise tenderers who remain in contention for the award of the contract of the time and place when the financial proposals will be opened. Open only the financial proposals of tenderers, who score in the quality evaluation above the minimum number of points for quality stated in the tender data, and announce the score obtained for the technical proposals and the total price and any preferences claimed. Return unopened financial proposals to tenderers whose technical proposals failed to achieve the minimum number of points for quality.

F.3.6 Non-disclosure

Not disclose to tenderers, or to any other person not officially concerned with such processes, information relating to the evaluation and comparison of tender offers, the final evaluation price and recommendations for the award of a contract, until after the award of the contract to the successful tenderer.

F.3.7 Grounds for rejection and disqualification

Determine whether there has been any effort by a tenderer to influence the processing of tender offers and instantly disqualify a tenderer (and his tender offer) if it is established that he engaged in corrupt or fraudulent practices.

F.3.8 Test for responsiveness

Determine, on opening and before detailed evaluation, whether each tender offer properly received:

- a) Meets the requirements of these Conditions of Tender,
- b) Has been properly and fully completed and signed, and
- c) is responsive to the other requirements of the tender documents.

A responsive tender is one that conforms to all the terms, conditions, and specifications of the tender documents without material deviation or qualification. A material deviation or qualification is one which, in the Employer's opinion, would:

- Detrimentially affect the scope, quality, or performance of the works, services or supply identified in the Scope of Work,
- change the Employer's or the tenderer's risks and responsibilities under the contract, or
- affect the competitive position of other tenderers presenting responsive tenders, if it were to be rectified.

Reject a non-responsive tender offer, and not allow it to be subsequently made responsive by correction or withdrawal of the non-conforming deviation or reservation.

F.3.9 Arithmetical errors

Check responsive tender offers for arithmetical errors, correcting them in the following manner:

- Where there is a discrepancy between the amounts in figures and in words, the amount in words shall govern.
- If a bill of quantities (or schedule of quantities or schedule of rates) applies and there is an error in the line item resulting from the product of the unit rate and the quantity, the rate shall be binding and the error of extension as entered in the bid offer will be corrected by the Employer in determining the Contract Price.
- Where there is an error in addition, either as a result of other corrections required by this checking process or in the Bidder's addition of prices, such error will be corrected by the Employer in determining the Contract Price.
- The Contract Price for the completed Contract shall be computed from the actual quantities of authorized work done and compliant with the Contract Data, valued at rates contracted against the respective items in the Bill of Quantities, Schedule of Quantities or Schedule of Rates and shall include such authorized Provincial Sums and items of extra work as have become payable in terms of the Contract Data.

F.3.10 Clarification of a tender offer

Obtain clarification from a tenderer on any matter that could give rise to ambiguity in a contract arising from the tender offer.

F.3.11 Evaluation of tender offers

F.3.11.1 General

Appoint an evaluation panel of not less than three persons. Reduce each responsive tender offer to a comparative offer and evaluate it using the tender evaluation method that is indicated in the Tender Data and described below:

Method 1: Financial offer	1) Rank tender offers from the most favorable to the least favorable comparative offer. 2) Recommend highest ranked tenderer for the award of the contract, unless there are compelling and justifiable reasons not to do so.
Method 2: Financial offer and preferences	1) Score tender evaluation points for financial offer. 2) Confirm that tenderers are eligible for the preferences claimed and if so, score tender evaluation points for preferencing. 3) Calculate total tender evaluation points. 4) Rank tender offers from the highest number of tender evaluation points to the lowest. 5) Recommend tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.
Method 3: Financial offer and quality	1) Score quality, rejecting all tender offers that fail to score the minimum number of points for quality stated in the Tender data. 2) Score tender evaluation points for financial offer. 3) Calculate total tender evaluation points. 4) Rank tender offers from the highest number of tender evaluation points to the lowest. 5) Recommend tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.
Method 4: Financial offer, quality and preferences	1) Score quality, rejecting all tender offers that fail to score the minimum number of points for quality stated in the Tender data. 2) Score tender evaluation points for financial offer. 3) Confirm that tenderers are eligible for the preferences claimed, and if so, score tender evaluation points for preferencing. 4) Calculate total tender evaluation points. 5) Rank tender offers from the highest number of tender evaluation points to the lowest. 6) Recommend tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.

Score financial offers, preferences and quality, as relevant, to two decimal places.

F.3.11.2 Scoring Financial Offers

Score the financial offers of remaining responsive tender offers using the following formula:

$N_{FO} = W_1 \times A$ where:

N_{FO} = the number of tender evaluation points awarded for the financial offer.

W_1 = the maximum possible number of tender evaluation points awarded for the financial offer as stated in the Tender Data.

A = a number calculated using either formulas 1 or 2 below as stated in the Tender Data.

Formula	Comparison aimed at achieving	Option 1	Option 2
1	Highest price or discount	$A = (1 + \frac{(P - P_m)}{P_m})$	$A = P / P_m$
2	Lowest price or percentage commission / fee	$A = (1 - \frac{(P - P_m)}{P_m})$	$A = P_m / P$

Where:

P_m = the comparative offer of the most favorable tender offer.

P = the comparative offer of tender offer under consideration.

F.3.11.3 Scoring quality (functionality)

Score quality in each of the categories stated in the Tender Data and calculate total score for quality.

F.3.12 Insurance provided by the employer

If requested by the proposed successful tenderer, submit for the tenderer's information the policies and / or certificates of insurance which the conditions of contract identified in the contract data, require the employer to provide.

F.3.13 Acceptance of tender offer

F.3.13.1 Accept tender offer only if the tenderer satisfies the legal requirements stated in Clause F.2.1 of the Tender Data.

F.3.13.2 Notify the successful tenderer of the employer's acceptance of his tender offer by completing and returning one copy of the form of offer and acceptance before the expiry of the validity period stated in the tender data, or agreed additional period. Providing the form of offer and acceptance does not contain any qualifying statements, it will constitute the formation of a contract between the employer and the successful tenderer as described in the form of offer and acceptance.

F.3.14 Notice to unsuccessful tenderers

After the successful tenderer has acknowledged the employer's notice of acceptance, notify other tenderers that their tender offers have not been accepted.

F.3.15. Prepare contract documents

If necessary, revise documents that shall form part of the contract and that were issued by the employer as part of the tender documents to take account of:

- a) Addenda issued during the tender period,
- b) Inclusion of some of the returnable documents,
- c) Other revisions agreed between the employer and the successful tenderer, and
- d) The schedule of deviations attached to the form of offer and acceptance, if any.

F.3.16 Issue final contract

Prepare and issue the final draft of contract documents to the successful tenderer for acceptance as soon as possible after the date of the employer's signing of the form of offer and acceptance (including the schedule of deviations, if any). Only those documents that the conditions of tender require the tenderer to submit, after acceptance by the employer, shall be included.

F.3.17 Complete adjudicator's contract

Unless alternative arrangements have been agreed or otherwise provided for in the contract, arrange for both parties to complete formalities for appointing the selected adjudicator at the same time as the main contract is signed.

F.3.18 Provide copies of the contracts

Provide to the successful tenderer the number of copies stated in the Tender Data of the signed copy of the contract as soon as possible after completion and signing of the form of offer and acceptance.

PART T2: RETURNABLE SCHEDULES

TABLE OF CONTENTS	Page	Colour
T2.1: LIST OF RETURNABLE DOCUMENTS.....	T.22	Yellow
T2.2: RETURNABLE SCHEDULES TO BE COMPLETED BY TENDERER	T.23	Yellow

T2.1 List of Returnable Documents

The Tenderer must complete the following Returnable Documents:

1 Returnable Schedules required only for Tender Evaluation purposes

- A: Central Database (CSD) Summary Report
- B: Record of Addenda to Tender Documents
- C: Certificate of Authority for Joint Ventures / Close Corporation/ Partnership/ Company/ Sole Proprietor (Certified copies of Identity Documents for all members of Joint Ventures / Close Corporation / Partnership / Company / Sole Proprietor)
- D: Registration Certificates of entities – Joint Ventures / Close Corporation/ Partnership/ Company/ Sole Proprietor
- E: Compulsory Enterprise Questionnaire
- F: Schedule of the Tenderer's Experience
- G: Schedule of Key Personnel
- H: Format of Curriculum Vitae
- I: Proposed Amendments, Qualifications and Alternatives
- J: Schedule of Subcontractors
- K: Schedule of Plant and Equipment available for this contract
- L: Copy of the Workmen's Compensation Registration Certificate (or proof of payment of contributions in terms of the Compensation for Occupational Injuries and Diseases Act No. 130 of 1993)
- M: Company profile, including track record
- N: Construction Industries Development Board (CIBD) Registration – 5SH or 5CE or higher.

2 Other Documents required only for Tender Evaluation purposes

- O: Tax Compliance Status
- P: Financial Standing – Attach Letter of Intent
- Q: SBD Forms Required to be completed
- R: Execution Programme / Program of Works

3 Returnable Schedules that will be incorporated into the Contract

- S: Detailed Method Statement
- T: Contractor's Health and Safety Declaration

4 Other Documents that will be incorporated into the Contract

- U: Contractor's Safety Plan
- V: Proforma Notification form in terms of the Occupational Health and Safety Act 1993, Construction Regulations, 2003
- W: Monthly Labour Report
- X: Bidder's Detailed Experience – Reference Sheet

5 The Offer portion

- Part C1 Agreement and Contract Data
- Part C2 Pricing Data
- Part C3 Scope of Work
- Part C4 Site Information

T2.2 Returnable Schedules to be completed by Tenderer.

A. CENTRAL DATABASE (CSD) SUMMARY REPORT

[Tenderer's CENTRAL SUPPLIER DATABASE (CSD) SUMMARY REPORT to be attached here

B. RECORD OF ADDENDA TO TENDER DOCUMENTS

We confirm that the following communications received from the Employer before the submission of this Tender Offer, amending the Tender Documents, have been taken into account in this Tender Offer:		
1.		
1.		
2.		
3.		
4.		
5.		

Attach additional pages if more space is required.

Signed..... Date.....

Name..... Position.....

Tenderer.....

C. CERTIFICATE OF AUTHORITY OF AN ENTITY

Indicate the status of the Tenderer by ticking the appropriate box hereunder. The Tenderer must complete the Certificate set out below for the relevant category.

(I) Company	(II) Close Corporation	(III) Partnership	(IV) Joint Venture	(V) Sole Proprietor

(I) CERTIFICATE FOR COMPANY

I, chairperson of the Board of Directors of
, hereby confirm that by resolution of the Board (copy attached)
 taken on 20.....,

Mr/Ms, acting in the capacity of
, was authorised to sign all Documents in
 connection with this Tender and any Contract resulting from it on behalf of the Company.

Signature of Chairman:

Signature of Signatory:

As Witnesses:

1..... Name in Block Letters.....

2..... Name in Block Letters.....

Date:

(II) CERTIFICATE FOR CLOSE CORPORATION

We, the undersigned, being the key Members in the business trading as.....
 hereby authorise Mr/Ms
 acting in the capacity of, to sign all Documents
 in connection with the Tender for Contract No and any Contract resulting from it on our behalf.

Signature of Signatory:

As Witnesses:

1..... Name in Block Letters.....

2..... Name in Block Letters.....

Date:

NAME	ADDRESS	SIGNATURE	DATE

Note: *This Certificate is to be completed and signed by all of the key Members upon whom rests the Direction of the Affairs of the Close Corporation as a whole.*

(III) CERTIFICATE FOR PARTNERSHIP

We, the undersigned, being the key Partners in the business trading as,

.....hereby authorise Mr/Ms.....

acting in the capacity of , to sign all Documents in connection

with the Tender for Contract No and any Contract resulting from it on our behalf.

Signature of Signatory:

As Witnesses:

1..... Name in Block Letters.....

2..... Name in Block Letters.....

Date:

NAME	ADDRESS	SIGNATURE	DATE

Note: *This Certificate is to be completed and signed by all of the key Partners upon who rests the Direction of the Affairs of the Partnership as a whole.*

(IV) CERTIFICATE FOR JOINT VENTURE

We, the undersigned, are submitting this Tender Offer in Joint Venture and hereby authorize Mr/Ms
, authorized signatory of the Company,
acting in the capacity of Lead Partner, to sign all Documents in connection with the
 Tender Offer for Contract No and any Contract resulting from it on our behalf.

This authorization is evidenced by the attached power of attorney signed by legally authorized signatories of all the
 Partners to the Joint Venture.

Signature of Signatory:

As Witnesses:

1..... Name in Block Letters.....

2..... Name in Block Letters.....

Date:

NAME OF FIRM	ADDRESS	AUTHORISING SIGNATURE, NAME AND CAPACITY
Lead Partner	
	
	
	
	
	

Note: *This Certificate is to be completed and signed by all of the key Partners upon who rests the Direction of the Affairs of the Joint Venture as a whole.*

V) CERTIFICATE FOR SOLE PROPRIETOR

I....., hereby confirm that I am the Sole Owner of the

business trading as:.....

Signature of Sole Owner:

As Witnesses:

1..... Name in Block Letters.....

2..... Name in Block Letters.....

Date:

D. REGISTRATION CERTIFICATE OF AN ENTITY

[Important note to Tenderer: Registration Certificates for Companies, Close Corporations, Partnerships and ID Documents for Sole Proprietors must be inserted here. In the case of a Joint Venture, a copy of a duly signed Joint Venture Agreement must be included]

E. COMPULSORY ENTERPRISE QUESTIONNAIRE

The following particulars must be furnished. In the case of a Joint Venture, **separate** Enterprise questionnaires in respect of each Partner must be completed and submitted.

Section 1: Name of Enterprise:

Section 2: VAT registration number, if any:

Section 3: CIDB registration number, if any:

Section 4: Particulars of Sole Proprietors and Partners in Partnerships

Name*	Identity number*	Personal income tax number*

* Complete only if Sole Proprietor or Partnership and attach separate page if more than 3 Partners

Section 5: Particulars of Companies and Close Corporations

Company registration number

Close Corporation number

Tax reference number

Section 6: Record in the service of the State

Indicate by marking the relevant boxes with a cross, if any Sole Proprietor, Partner in a Partnership or Director, Manager, Principal Shareholder or Stakeholder in a Company or Close Corporation is currently or has been within the last 12 months in the service of any of the following:

- | | |
|--|---|
| <input type="checkbox"/> a Member of any Municipal Council | <input type="checkbox"/> an employee of any Provincial Department, National or Provincial Public entity or Constitutional Institution within the meaning of the Public Finance Management Act, 1999 (Act 1 of 1999) |
| <input type="checkbox"/> a Member of any Provincial Legislature | <input type="checkbox"/> a Member of an Accounting Authority of any National or Provincial Public Entity |
| <input type="checkbox"/> a Member of the National Assembly or the National Council of Province | <input type="checkbox"/> an employee of Parliament or a Provincial Legislature |
| <input type="checkbox"/> a Member of the Board of Directors of any Municipal entity | |
| <input type="checkbox"/> an Official of any Municipality or Municipal entity | |

If any of the above boxes are marked, disclose the following:

Name of Sole Proprietor, Partner, Director, Manager, Principal Shareholder or Stakeholder	Name of Institution, Public Office, board or organ of State and position held	Status of service (tick appropriate column)	
		Current	Within last 12 months

*insert separate page if necessary

Section 7: Record of spouses, children and parents in the service of the State

Indicate by marking the relevant boxes with a cross, if any spouse, child or parent of a Sole Proprietor, Partner in a

Partnership or Director, Manager, Principal Shareholder or Stakeholder in a Company or Close Corporation is currently or has been within the last 12 months been in the service of any of the following:

- | | |
|--|---|
| <input type="checkbox"/> a Member of any Municipal Council | <input type="checkbox"/> an employee of any Provincial Department, National or Provincial Public Entity or Constitutional Institution within the meaning of the Public Finance Management Act, 1999 (Act 1 of 1999) |
| <input type="checkbox"/> a Member of any Provincial Legislature | <input type="checkbox"/> a Member of an Accounting Authority of any National or Provincial Public entity |
| <input type="checkbox"/> a Member of the National Assembly or the National Council of Province | <input type="checkbox"/> an employee of Parliament or a Provincial Legislature |
| <input type="checkbox"/> a Member of the Board of Directors of any Municipal Entity | |
| <input type="checkbox"/> an Official of any Municipality or Municipal entity | |

Name of spouse, child or parent	Name of Institution, Public Office, Board or Organ of State and position held	Status of service (tick appropriate column)	
		Current	Within last 12 months

*insert separate page if necessary

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the Enterprise:

- i) authorizes the Employer to obtain a tax clearance Certificate from the South African Revenue Services that my / our tax matters are in order;
- ii) confirms that the neither the name of the Enterprise or the name of any Partner, Manager, Director or other Person, who wholly or partly exercises, or may exercise, control over the Enterprise appears on the Register of Tender Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act of 2004;
- iii) confirms that no Partner, Member, Director or other Person, who wholly or partly exercises, or may exercise, control over the Enterprise appears, has within the last five years been convicted of fraud or corruption;
- iv) confirms that I / we are not associated, linked or involved with any other Tendering entities submitting Tender Offers and have no other relationship with any of the Tenderers or those responsible for compiling the Scope of Work that could cause or be interpreted as a conflict of interest; and
- iv) confirms that the contents of this questionnaire are within my personal knowledge and are to the best of my belief both true and correct.

Signed

Date

Name

Position

Enterprise Name

G. KEY PERSONNEL

In terms of the Project Specification and the Conditions of Tender, unskilled Workers may only be brought in from outside the Local Community if such personnel are not available locally.

The Tenderer shall list below the personnel which he intends to utilize on the Works, including key personnel which may have to be brought in from outside if not available locally.

Category of Employee	Number of Persons					
	Key Personnel, Part of the Contractors Organisation		Key Personnel to be imported if not locally available		Unskilled Personnel to be recruited from the local community	
	HDI	NON-HDI	HDI	NON-HDI	HDI	NON-HDI
Project Manager						
Irrigation Technician						
Site Agent						
Electricians						
Welders						
Builders						
Mechanics						
Plumbers						
Civil Technicians						
Quality control & Health and Safety						
Plant operators						
Unskilled Workers						
Others:						
.....
.....
.....
.....
.....

SIGNATURE:
(of person authorised to sign on behalf of the Tenderer)

DATE:

H. CURRICULUM VITAE FORMAT OF KEY PERSONNEL

Name:	Date of birth:
Profession:	Nationality:
Qualifications:	
Professional Registration Number:	
Name of Employer (firm):	
Current position:	Years with firm:
<u>Employment Record:</u>	
<u>Experience Record Pertinent to Required service:</u>	

Certification:

I, the undersigned, certify that, to the best of my knowledge and belief, this data correctly describes me, my qualifications and my experience.

.....
Signature of person named in the Schedule

.....
Date

Certification:

.....
Date

[illegible]**Certification:**

I, the undersigned, certify that, to the best of my knowledge and belief, this data correctly describes me, my qualifications and my experience.

.....
Signature of person named in the Schedule

.....
Date

Name:	Date of birth:
Profession:	Nationality:
Qualifications:	
Professional Registration Number:	
Name of Employer (firm):	
Current position:	Years with firm:
<u>Employment Record:</u>	
<u>Experience Record Pertinent to Required service:</u>	

Certification:

I, the undersigned, certify that, to the best of my knowledge and belief, this data correctly describes me, my qualifications and my experience.

.....
Signature of person named in the Schedule

.....
Date

[illegible]**Certification:**

I, the undersigned, certify that, to the best of my knowledge and belief, this data correctly describes me, my qualifications and my experience.

.....
Signature of person named in the Schedule

.....
Date

I. AMENDMENTS, QUALIFICATIONS AND ALTERNATIVES

(This is not an invitation for amendments, deviations or alternatives, but should the Tenderer desire to make any departures from the Provisions of this Contract he shall set out his proposals clearly hereunder. The Employer will not consider any amendment, unless form (a), has been completed to the satisfaction of the Employer). The Tenderer is referred to Tender Data paragraph F.2.12, where it is clearly stated that no Alternative Offers will be accepted.

I / We herewith propose the amendments, as set out in the table below:

(a) AMENDMENTS

PAGE, CLAUSE OR ITEM NO	PROPOSED AMENDMENT

- Notes:**
- (1) Amendments to the General and Special Conditions of Contract are not acceptable;
 - (2) The Tenderer must give full details of all the financial implications of the amendments and qualifications in a covering letter attached to his Tender.

J. SCHEDULE OF PROPOSED SUBCONTRACTORS

We notify you that it is our intention to employ the following Subcontractors for work in this Contract.

If we are awarded a Contract, we agree that this notification does not change the requirement for us to submit the names of proposed Subcontractors in accordance with requirements in the Contract for such appointments. If there are no such requirements in the Contract, then your written acceptance of this list shall be binding between us.

	Name and address of proposed Subcontractor	Nature and extent of Work / Service	Previous experience with Subcontractor.
1.			
2.			
3.			
4.			
5.			

Signed

Date

Name

Position

Tenderer

K. SCHEDULE OF PLANT AND EQUIPMENT

The following are lists of major items of relevant equipment that I / we presently own or lease and will have available for this Contract or will acquire or hire for this Contract if my / our Tender is accepted.

(a) Details of major equipment that is owned by and immediately available for this Contract.

Quantity	Description, size, capacity, etc.

Attach additional pages if more space is required.

(b) Details of major equipment that will be hired, or acquired for this Contract if my / our Tender is acceptable.

Quantity	Description, size, capacity, etc.

Attach additional pages if more space is required.

Signed

Date

Name

Position

Tenderer

Proof of ownership and/or rental agreement should form part of the tender document.

L. COPY OF WORKMEN'S COMPENSATION REGISTRATION CERTIFICATE (OR PROOF OF PAYMENT OF CONTRIBUTIONS IN TERMS OF THE COMPENSATION FOR OCCUPATIONAL INJURIES AND DISEASES ACT NO. 130 OF 1993)

[Certified Copy of the Certificate or Proof of Payment thereof obtained from the Workmen's Compensation Commissioner to be inserted here]

M. COMPANY PROFILE, INCLUDING TRACK RECORD

[Abbreviated company profile, giving history, status, activities, staff and track record of the tendering entity, to be inserted here. In case of a Joint Venture, a separate profile for each partner must be submitted]

N. CONSTRUCTION INDUSTRIES DEVELOPMENT BOARD (CIDB) REGISTRATION

[Certified copy of the Tenderer's CIDB registration indicating the Contractor grading designation, to be inserted here. For a Joint Venture, each partner's CIDB certificate is to be included, as applicable]

O. TAX COMPLIANCE STATUS

IMPORTANT NOTES:

1. The Central Supplier Database and tax compliance status PIN are approved methods that will be used to verify tax compliance as SARS does not issue tax clearance certificate anymore but has made an online provision available via eFiling for bidders to print their own tax clearance certificates which can be submitted with this bid.
2. Tax Clearance submitted by bidders will be verified on eFiling and/or Central Supplier database.
3. Bidders must provide a tax compliance status PIN and Central Supplier Database Number to access their records and verify tax compliance status.

APPLICATION FORM FOR TAX CLEARANCE CERTIFICATE*(In respect of Tender see note at bottom)*

1. NAME OF TAXPAYER/TENDERER:.....
2. TRADE NAME:
3. IDENTIFICATION No. (if applicable):.....
4. COMPANY/CLOSE CORPORATION REG No:.....
5. INCOME TAX REFERENCE No:.....
6. VAT REGISTRATION No:.....
7. PAYE EMPLOYERS REG No. (if applicable) :.....

NB: Copy of the Tender request must be attached to this application.

CONTACT PERSON REQUIRING TAX CLEARANCE CERTIFICATE:

SIGNATURE:

NAME :

TELEPHONE NUMBER : CODE: NUMBER:

ADDRESS :

DATE : 20..../..../.....

Please note that the Commissioner for the South African Revenue Service (SARS) will not exercise his discretionary powers in favour of any person with regard to any interest, penalties and/or additional tax leviable due to the late or underpayment of taxes, duties or levies or the rendition of returns by any person.

NAME OF PERSON RESPONSIBLE FOR CONTRACT:

(ST 5.1) March 1999

NB: *This is a pro forma application form that has to be submitted to SARS to enable them to issue the required Tax Clearance Certificate. The original and valid Tax Clearance Certificate furnished by the Receiver of Revenue must be submitted with the Tender (to be attached to the next page).*

TAX CLEARANCE CERTIFICATE

[Valid Original Tax Clearance Certificate obtained from SARS to be inserted here after or CSD Summary Report]

P. TENDERER'S FINANCIAL STANDING

In terms of Clause F.2.18.1 of the Contract-specific Tender Data the Tenderer shall provide information about his commercial position, which includes information necessary for the Employer to evaluate the Tenderer's financial standing.

To that end the Tenderer must provide with his tender a bank rating, certified by his banker, to the effect that he will be able to successfully complete the contract at the tendered amount within the specified time for completion.

However, should the Tenderer be unable to provide a bank rating with his tender, he shall state the reasons as to why he is unable to do so, and in addition provide the following details of his banker and bank account that he intends to use for project:

Name of account holder:

Name of Bank: Branch:

Account number: Type of account:

Telephone number: Facsimile number:

Name of contact person (at bank):

Failure to provide either the required bank details or a certified bank rating with his tender, will lead to the conclusion that the Tenderer does not have the necessary financial resources at his disposal to complete the contract successfully within the specified time for completion.

The Employer undertakes to treat the information thus obtained as confidential, strictly for the use of evaluation of the tender submitted by the Tenderer.

SIGNATURE: DATE:
(of person authorised to sign on behalf of the Tenderer)

P1 FINANCIAL INFORMATION OF TENDERER

This information sheet has to be filled in by the financier of the Tenderer, duly signed and stamped on behalf of the financial institution he represents.

Tenderer / Tender Details

Tender Description:

Contract Period:

Name of Tenderer:

Bank Account Number:

Tender Amount:

State amount of Demand Guarantee: R.....

Attach Letter of Intent from Financial Institution**Financial Institution**

Name of Commercial Bank:

Branch:

Name of Bank Manager:

Telephone Number:

We acting on behalf of the above Commercial Bank confirm that

..... (Tenderer)

has operated an account with us for the last years.

We have been requested to provide a bank rating based in relation to the financial capability of the Tenderer, taking into account directives set out in the following two tables.

FINANCIAL CAPABILITY

Maximum value of contract that the Tenderer is considered capable of	Value on which Bank Rating must be used
Up to R300 000	R24 000
R1 000 000	R78 000
R3 000 000	R240 000
R5 000 000	R480 000
R10 000 000	R900 000
R30 000 000	R2 400 000
R100 000 000	R7 800 000

BANK RATING

Bank Code	Description of Bank Code
A	Undoubted for the amount of enquiry
B	Good for the amount of enquiry
C	Good for the amount quoted if strictly in the way of business
D	Fair trade risk for amount of enquiry
E	Figures considered too high
F	Financial position unknown
G	Occasional dishonours
H	Frequent dishonours

The value on which our Bank Rating of the Tenderer is based is R.....

In words only)

The Bank Rating is code:

.....
Signature: Manager Financial Institution

.....
Print Name

.....
Date

RUBBER STAMP OF INSTITUTION

Q: SBD FORMS REQUIRED TO BE COMPLETED

- **SBD 1 – INVITATION TO BID (REVISED 2022)**
- **SBD 3.2 – PRICING SCHEDULE – NON-FIRM PRICES WITH ESCALATION**
- **SBD 4 – BIDDERS DISCLOSURE**
- **SBD 6.1 – PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022**

PART A INVITATION TO BID

SBD 1

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE AGRICULTURE AND RURAL DEVELOPMENT					
BID NUMBER:	ACDP 23/16	CLOSING DATE: 29 JANUARY 2024		CLOSING TIME:	11H00
DESCRIPTION	A 3-Year Framework Agreement for the Development and maintenance of Irrigation Projects and schemes for the Limpopo Department of Agriculture and Rural Development				
BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT (STREET ADDRESS)					
67/69 BICCARD STREET DEPARTMENT					
DEPARTMENT OF AGRICULTURE AND RURAL DEVELOPMENT					
POLOKWANE					
0699					
BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO			TECHNICAL ENQUIRIES MAY BE DIRECTED TO:		
CONTACT PERSON	VS Ndlozi		CONTACT PERSON	MJ Gouws	
TELEPHONE NUMBER	015 294 3564		TELEPHONE NUMBER	(015) 294 3539	
FACSIMILE NUMBER			FACSIMILE NUMBER		
E-MAIL ADDRESS	ndloziv@agric.limpopo.gov.za		E-MAIL ADDRESS	gouwsmj@agric.limpopo.gov.za	
SUPPLIER INFORMATION					
NAME OF BIDDER					
POSTAL ADDRESS					
STREET ADDRESS					
TELEPHONE NUMBER	CODE		NUMBER		
CELLPHONE NUMBER					
FACSIMILE NUMBER	CODE		NUMBER		
E-MAIL ADDRESS					
VAT REGISTRATION NUMBER					
SUPPLIER COMPLIANCE STATUS	TAX COMPLIANCE SYSTEM PIN:		OR	CENTRAL SUPPLIER DATABASE No:	MAAA
ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED?	<input type="checkbox"/> Yes <input type="checkbox"/> No [IF YES ENCLOSE PROOF]		ARE YOU A FOREIGN BASED SUPPLIER FOR THE GOODS /SERVICES /WORKS OFFERED?		<input type="checkbox"/> Yes <input type="checkbox"/> No [IF YES, ANSWER THE QUESTIONNAIRE BELOW]
QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS					
IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)?			<input type="checkbox"/> YES <input type="checkbox"/> NO		
DOES THE ENTITY HAVE A BRANCH IN THE RSA?			<input type="checkbox"/> YES <input type="checkbox"/> NO		
DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA?			<input type="checkbox"/> YES <input type="checkbox"/> NO		
DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA?			<input type="checkbox"/> YES <input type="checkbox"/> NO		
IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION?			<input type="checkbox"/> YES <input type="checkbox"/> NO		
IF THE ANSWER IS "NO" TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO REGISTER FOR A TAX COMPLIANCE STATUS SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 BELOW.					

PART B TERMS AND CONDITIONS FOR BIDDING

SBD 1

1. BID SUBMISSION:
1.1. BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.
1.2. ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED-(NOT TO BE RE-TYPED) OR IN THE MANNER PRESCRIBED IN THE BID DOCUMENT.
1.3. THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT, 2000 AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2017, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.
1.4. THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (SBD7).
2. TAX COMPLIANCE REQUIREMENTS
2.1 BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.
2.2 BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VERIFY THE TAXPAYER'S PROFILE AND TAX STATUS.
2.3 APPLICATION FOR TAX COMPLIANCE STATUS (TCS) PIN MAY BE MADE VIA E-FILING THROUGH THE SARS WEBSITE WWW.SARS.GOV.ZA.
2.4 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.
2.5 IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED, EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.
2.6 WHERE NO TCS PIN IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.
2.7 NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE, COMPANIES WITH DIRECTORS WHO ARE PERSONS IN THE SERVICE OF THE STATE, OR CLOSE CORPORATIONS WITH MEMBERS PERSONS IN THE SERVICE OF THE STATE."

NB: FAILURE TO PROVIDE / OR COMPLY WITH ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID INVALID.

SIGNATURE OF BIDDER:

.....

CAPACITY UNDER WHICH THIS BID IS SIGNED:

.....

(Proof of authority must be submitted e.g. company resolution)

DATE:

.....

SBD 3.2**PRICING SCHEDULE – NON-FIRM PRICES
(PURCHASES)**

NOTE: PRICE ADJUSTMENTS WILL BE ALLOWED AT THE PERIODS AND TIMES SPECIFIED IN THE BIDDING DOCUMENTS.

IN CASES WHERE DIFFERENT DELIVERY POINTS INFLUENCE THE PRICING, A SEPARATE PRICING SCHEDULE MUST BE SUBMITTED FOR EACH DELIVERY POINT

Name of Bidder.....Bid number.....

Closing Time 11:00 Closing date.....

OFFER TO BE VALID FOR 120 DAYS FROM THE CLOSING DATE OF BID.

ITEM NO.	QUANTITY	DESCRIPTION	BID PRICE IN RSA CURRENCY **(ALL APPLICABLE TAXES INCLUDED)
----------	----------	-------------	--

- | | | |
|---|--|----------------|
| - | Required by: | |
| - | At: | |
| - | Brand and model | |
| - | Country of origin | |
| - | Does the offer comply with the specification(s)? | *YES/NO |
| - | If not to specification, indicate deviation(s) | |
| - | Period required for delivery | |
| - | Delivery: | *Firm/not firm |

** "all applicable taxes" includes value- added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies.

*Delete if not applicable

SBD 3.2**PRICE ADJUSTMENTS****A NON-FIRM PRICES SUBJECT TO ESCALATION**

1. IN CASES OF PERIOD CONTRACTS, NON FIRM PRICES WILL BE ADJUSTED (LOADED) WITH THE ASSESSED CONTRACT PRICE ADJUSTMENTS IMPLICIT IN NON FIRM PRICES WHEN CALCULATING THE COMPARATIVE PRICES
2. IN THIS CATEGORY PRICE ESCALATIONS WILL ONLY BE CONSIDERED IN TERMS OF THE FOLLOWING FORMULA:

$$Pa = (1 - V)Pt \left(D1 \frac{R1t}{R1o} + D2 \frac{R2t}{R2o} + D3 \frac{R3t}{R3o} + D4 \frac{R4t}{R4o} \right) + VPt$$

Where:

Pa	=	The new escalated price to be calculated.
(1-V)Pt	=	85% of the original bid price. Note that Pt must always be the original bid price and not an escalated price.
D1, D2..	=	Each factor of the bid price eg. labour, transport, clothing, footwear, etc. The total of the various factors D1, D2...etc. must add up to 100%.
R1t, R2t.....	=	Index figure obtained from new index (depends on the number of factors used).
R1o, R2o	=	Index figure at time of bidding.
VPt	=	15% of the original bid price. This portion of the bid price remains firm i.e. it is not subject to any price escalations.

3. The following index/indices must be used to calculate your bid price:

Index..... Dated..... Index..... Dated..... Index..... Dated.....

Index..... Dated..... Index..... Dated..... Index..... Dated.....

4. FURNISH A BREAKDOWN OF YOUR PRICE IN TERMS OF ABOVE-MENTIONED FORMULA. THE TOTAL OF THE VARIOUS FACTORS MUST ADD UP TO 100%.

FACTOR (D1, D2 etc. eg. Labour, transport etc.)	PERCENTAGE OF BID PRICE

SBD 3.2**B PRICES SUBJECT TO RATE OF EXCHANGE VARIATIONS**

1. Please furnish full particulars of your financial institution, state the currencies used in the conversion of the prices of the items to South African currency, which portion of the price is subject to rate of exchange variations and the amounts remitted abroad.

PARTICULARS OF FINANCIAL INSTITUTION	ITEM NO	PRICE	CURRENCY	RTE	PORTION OF PRICE SUBJECT TO ROE	AMOUNT IN FOREIGN CURRENCY REMITTED ABROAD
				ZAR=		
				ZAR=		
				ZAR=		
				ZAR=		
				ZAR=		
				ZAR=		

2. Adjustments for rate of exchange variations during the contract period will be calculated by using the average monthly exchange rates as issued by your commercial bank for the periods indicated hereunder: (Proof from bank required)

AVERAGE MONTHLY EXCHANGE RATES FOR THE PERIOD:	DATE DOCUMENTATION MUST BE SUBMITTED TO THIS OFFICE	DATE FROM WHICH NEW CALCULATED PRICES WILL BECOME EFFECTIVE	DATE UNTIL WHICH NEW CALCULATED PRICE WILL BE EFFECTIVE

FAILURE TO COMPLETE THE ABOVE WILL RESULT IN NO PRICE INCREASE ON A NON- FIRM PRICE

.....
Signature of Bidder

.....
Date

SBD4**BIDDER'S DISCLOSURE****1. PURPOSE OF THE FORM**

Any person (natural or juristic) may make an offer or offers in terms of this invitation to bid. In line with the principles of transparency, accountability, impartiality, and ethics as enshrined in the Constitution of the Republic of South Africa and further expressed in various pieces of legislation, it is required for the bidder to make this declaration in respect of the details required hereunder.

Where a person/s are listed in the Register for Tender Defaulters and / or the List of Restricted Suppliers, that person will automatically be disqualified from the bid process.

2. Bidder's declaration

- 2.1 Is the bidder, or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest¹ in the enterprise, employed by the state? **YES/NO**

- 2.1.1 If so, furnish particulars of the names, individual identity numbers, and, if applicable, state employee numbers of sole proprietor/ directors / trustees / shareholders / members/ partners or any person having a controlling interest in the enterprise, in table below.

Full Name	Identity Number	Name of State institution

- 2.2 Do you, or any person connected with the bidder, have a relationship with any person who is employed by the procuring institution? **YES/NO**

- 2.2.1 If so, furnish particulars:

.....

- 2.3 Does the bidder or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest in the enterprise have any interest in any other related enterprise whether or not they are bidding for this contract? **YES/NO**

- 2.3.1 If so, furnish particulars:

.....

¹ the power, by one person or a group of persons holding the majority of the equity of an enterprise, alternatively, the person/s having the deciding vote or power to influence or to direct the course and decisions of the enterprise.

3 DECLARATION

I, the undersigned, (name)..... in submitting the accompanying bid, do hereby make the following statements that I certify to be true and complete in every respect:

- 3.1 I have read and I understand the contents of this disclosure;
- 3.2 I understand that the accompanying bid will be disqualified if this disclosure is found not to be true and complete in every respect;
- 3.3 The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium² will not be construed as collusive bidding.
- 3.4 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications, prices, including methods, factors or formulas used to calculate prices, market allocation, the intention or decision to submit or not to submit the bid, bidding with the intention not to win the bid and conditions or delivery particulars of the products or services to which this bid invitation relates.
- 3.4 The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.
- 3.5 There have been no consultations, communications, agreements or arrangements made by the bidder with any official of the procuring institution in relation to this procurement process prior to and during the bidding process except to provide clarification on the bid submitted where so required by the institution; and the bidder was not involved in the drafting of the specifications or terms of reference for this bid.
- 3.6 I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

I CERTIFY THAT THE INFORMATION FURNISHED IN PARAGRAPHS 1, 2 and 3 ABOVE IS CORRECT.
 I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME IN TERMS OF PARAGRAPH 6 OF PFMA SCM INSTRUCTION 03 OF 2021/22 ON PREVENTING AND COMBATING ABUSE IN THE SUPPLY CHAIN MANAGEMENT SYSTEM SHOULD THIS DECLARATION PROVE TO BE FALSE.

.....
 Signature

.....
 Date

.....
 Position

.....
 Name of bidder

SBD 6.1

PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS

² Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.

2022

This preference form must form part of all tenders invited. It contains general information and serves as a claim form for preference points for specific goals.

NB: BEFORE COMPLETING THIS FORM, TENDERERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF THE TENDER AND PREFERENTIAL PROCUREMENT REGULATIONS, 2022

1. GENERAL CONDITIONS

1.1 The following preference point systems are applicable to invitations to tender:

- the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included); and
- the 90/10 system for requirements with a Rand value above R50 000 000 (all applicable taxes included).

1.2 To be completed by the organ of state

(delete whichever is not applicable for this tender).

- a) The applicable preference point system for this tender is the 90/10 preference point system.
- b) The applicable preference point system for this tender is the 80/20 preference point system.
- c) Either the 90/10 or 80/20 preference point system will be applicable in this tender. The lowest/highest acceptable tender will be used to determine the accurate system once tenders are received.

1.3 Points for this tender (even in the case of a tender for income-generating contracts) shall be awarded for:

- (a) Price; and
- (b) Specific Goals.

1.4 To be completed by the organ of state:

The maximum points for this tender are allocated as follows:

	POINTS
PRICE	90
SPECIFIC GOALS	10
Total points for Price and SPECIFIC GOALS	100

1.5 Failure on the part of a tenderer to submit proof or documentation required in terms of this tender to claim points for specific goals with the tender, will be interpreted to mean that preference points for specific goals are not claimed.

1.6 The organ of state reserves the right to require of a tenderer, either before a tender is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the organ of state.

2. DEFINITIONS

- (a) “**tender**” means a written offer in the form determined by an organ of state in response to an invitation to

provide goods or services through price quotations, competitive tendering process or any other method envisaged in legislation.

- (b) **“price”** means an amount of money tendered for goods or services and includes all applicable taxes less all unconditional discounts.
- (c) **“Rand value”** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes.
- (d) **“tender for income-generating contracts”** means a written offer in the form determined by an organ of state in response to an invitation for the origination of income-generating contracts through any method envisaged in legislation that will result in a legal agreement between the organ of state and a third party that produces revenue for the organ of state, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auctions; and
- (e) **“The Act”** means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000).

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1. POINTS AWARDED FOR PRICE

3.1.1 THE 80/20 OR 90/10 PREFERENCE POINT SYSTEMS

A maximum of 80 or 90 points is allocated for price on the following basis:

$$Ps = 80 \left(1 - \frac{Pt - P_{min}}{P_{min}} \right) \quad \text{or} \quad Ps = 90 \left(1 - \frac{Pt - P_{min}}{P_{min}} \right)$$

Where:

- Ps = Points scored for price of tender under consideration
- Pt = Price of tender under consideration
- Pmin = Price of lowest acceptable tender

3.2. FORMULAE FOR DISPOSAL OR LEASING OF STATE ASSETS AND INCOME GENERATING PROCUREMENT

3.2.1. POINTS AWARDED FOR PRICE

A maximum of 80 or 90 points is allocated for price on the following basis:

$$Ps = 80 \left(1 + \frac{Pt - P_{max}}{P_{max}} \right) \quad \text{or} \quad Ps = 90 \left(1 + \frac{Pt - P_{max}}{P_{max}} \right)$$

Where:

- Ps = Points scored for price of tender under consideration
- Pt = Price of tender under consideration
- Pmax = Price of highest acceptable tender

4. POINTS AWARDED FOR SPECIFIC GOALS

- 4.1. In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1 below as may be supported by proof/documentation stated in the conditions of this tender:
- 4.2. In cases where organs of state intend to use Regulation 3(2) of the Regulations, which states that, if it is unclear whether the 80/20 or 90/10 preference point system applies, an organ of state must, in the tender documents, stipulate in the case of—
- (a) an invitation for tender for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system; or
 - (b) any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system,
- then the organ of state must indicate the points allocated for specific goals for both the 90/10 and 80/20 preference point system.

Table 1: Specific goals for the tender and points claimed are indicated per the table below.

(Note to organs of state: Where either the 90/10 or 80/20 preference point system is applicable,

corresponding points must also be indicated as such.

Note to tenderers: The tenderer must indicate how they claim points for each preference point system.)

The specific goals allocated points in terms of this tender	Number of points allocated (90/10 system) (To be completed by the organ of state)	Number of points allocated (80/20 system) (To be completed by the organ of state)	Number of points claimed (90/10 system) (To be completed by the tenderer)	Number of points claimed (80/20 system) (To be completed by the tenderer)
Black People ownership>51%	7			
Women ownership>51%	1			
People with Disability ownership>51%	1			
Youth ownership>51%	1			
Total	10			

DECLARATION WITH REGARD TO COMPANY/FIRM

4.3. Name of company/firm.....

4.4. Company registration number:

4.5. TYPE OF COMPANY/ FIRM

- ☐ Partnership/Joint Venture / Consortium
- ☐ One-person business/sole propriety
- ☐ Close corporation
- ☐ Public Company
- ☐ Personal Liability Company
- ☐ (Pty) Limited
- ☐ Non-Profit Company
- ☐ State Owned Company

[TICK APPLICABLE BOX]

4.6. I, the undersigned, who is duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the specific goals as advised in the tender, qualifies the company/ firm for the preference(s) shown and I acknowledge that:

- i) The information furnished is true and correct;
- ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
- iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;

- iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –
- (a) disqualify the person from the tendering process;
 - (b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
 - (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
 - (d) recommend that the tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and
 - (e) forward the matter for criminal prosecution, if deemed necessary.

.....
SIGNATURE(S) OF TENDERER(S)

SURNAME AND NAME:

DATE:

ADDRESS:

.....

.....

.....

R. EXECUTION PROGRAMME / PROGRAM OF WORKS

The Tenderer shall detail below or attach a preliminary programme reflecting the proposed sequence and tempo of execution of the various activities comprising the Work for this Contract. The programme shall be in accordance with the information supplied in the Contract, requirements of the Project Specifications and with all other aspects of his Tender.

The Execution Programme must be based on the completion time as specified in the Contract Data. The activities identified and filled in below, are specifically to be carried forward to Schedule T, the contractor's Method Statement.

PLEASE NOTE: the cash flow projections from the Contractor (to be submitted before commencement of the execution of the Contract) must be in accordance with this execution plan in order to ensure proper Cash flow management by the Department and to minimise delayed payments.

PROGRAMME										
ACTIVITY	MONTHS									

S. DETAILED METHOD STATEMENT

[The adjudication of the responsiveness of a bid also relies on the extent to which a tenderer can prove an understanding of the scope of works. The tenderer should describe below the methods and procedures he will employ to successfully complete the various activities as identified for the foregoing Schedule S, the Execution Programme]

[illegible]

[Add more pages as required]

T: CONTRACTOR'S HEALTH AND SAFETY DECLARATION

In terms of Clause 4(4) of the OHS Act 1993 Construction Regulations 2014 (referred to as "the Regulations" hereafter), a Contractor may only be appointed to perform construction Work if the Employer is satisfied that the Contractor has the necessary competencies and resources to carry out the Work safely in accordance with the Occupational Health and Safety Act No 85 of 1993 and the OHS Act 1993 Construction Regulations 2014.

To that effect a person duly authorised by the Tenderer must complete and sign the declaration hereafter in detail.

Declaration by Tenderer

1. I the undersigned hereby declare and confirm that I am fully conversant with the Occupational Health and Safety Act No 85 of 1993 (as amended by the Occupational Health and Safety Amendment Act No 181 of 1993), and the OHS Act 1993 Construction Regulations 2014.
2. I hereby declare that my Company has the competence and the necessary resources to safely carry out the construction Work under this Contract in compliance with the Construction Regulations and the Employer's Health and Safety Specifications.
3. I propose to achieve compliance with the Regulations by one of the following:
 - (a) From my own competent resources as detailed in 4(a) hereafter: ***Yes / No**
 - (b) From my own resources still to be appointed or trained until competency is achieved, as detailed in 4(b) hereafter: ***Yes / No**
 - (c) From outside sources by appointment of competent specialist Subcontractors as detailed in 4(c) hereafter: ***Yes / No**

(* = delete whatever is not applicable)

4. Details of resources I propose:

(Note: Competent resources shall include safety personnel such as a construction supervisor and Construction Safety Officer as defined in Regulation 6, and Competent Persons as defined in Regulations 7, 8, 10, 11, 12, 14, 15, 18, 21(1), 22, 26 and 27, as applicable to this Contract)

- (a) Details of the competent and qualified key persons from my Company's own resources, who will form part of the Contract team:

NAMES OF COMPETENT PERSONS	POSITIONS TO BE FILLED BY COMPETENT PERSONS

(b) Details of training of persons from my Company's own resources (or to be hired) who still have to be trained to achieve the necessary competency:

(i) By whom will training be provided?

(ii) When will training be undertaken?

(iii) List the positions to be filled by persons to be trained or hired:

.....

.....

.....

(c) Details of competent resources to be appointed as Subcontractors if Competent Persons cannot be supplied from own Company:

Name of proposed Subcontractor:

Qualifications or details of competency of the Subcontractor:

.....

.....

.....

5. I hereby undertake, if my Tender is accepted, to provide, before commencement of the Works under the Contract, a suitable and sufficiently Documented Health and Safety Plan in accordance with Regulation 5(1) of the Construction Regulations, which plan shall be subject to approval by the Employer.

6. I confirm that copies of my Company's approved Health and Safety Plan, the Employer's Safety Specifications as well as the OHSA 1993 Construction Regulations 2014 will be provided on Site and will at all times be available for inspection by the Contractor's personnel, the Employer's personnel, the Engineer, visitors, and Officials and Inspectors of the Department of Labour.

7. I hereby confirm that adequate provision has been made in my Tendered rates and prices in the Schedule of Quantities to cover the cost of all resources, actions, training and all health and safety measures envisaged in the OHSA 1993 Construction Regulations 2014, and that I will be liable for any penalties that may be applied by the Employer in terms of the said Regulations (Regulation 30) for failure on the Contractor's part to comply with the Provisions of the Act and the Regulations.

8. I agree that my failure to complete and execute this declaration to the satisfaction of the Employer will mean that I am unable to comply with the requirements of the OHSA 1993 Construction Regulations 2014, and accept that my Tender will be prejudiced and may be rejected at the discretion of the Employer.

SIGNATURE:
(of person authorised to sign on behalf of the Tenderer)

DATE:

U: CONTRACTOR'S SAFETY PLAN

[The Contractor shall submit the Contractor's Health and Safety Plan as required in terms of Regulation 5 of the Occupational Health and Safety Act 1993 Construction Regulations 2014, and referred to in T2.1, before commencement of the Works.]

V. PRO FORMA NOTIFICATION FORM IN TERMS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT 1993, CONSTRUCTION REGULATIONS 2003

[This form must be completed and forwarded, prior to commencement of Work on Site, by all Contractors that qualify in terms of Regulation 3 of the Construction Regulations 2003, to the Office of the Department of Labour]

1. (a) Name and postal address of Contractor:.....
.....
(b) Name of Contractor's contact person:
Telephone number:
2. Contractor's Workman's compensation registration number:
3. (a) Name and postal address of Client:
.....
(b) Name of Client's contact person or Agent:.....
Telephone number
4. (a) Name and postal address of designer(s) for the Project:
.....
(b) Name of Designer's contact person:
Telephone number
5. Name of Contractor's Construction Supervisor on Site appointed in terms of Regulation 6(1): Telephone number:
6. Name/s of Contractor's sub-ordinate supervisors on Site appointed in terms of Regulation 6(2).
.....
7. Exact physical address of the construction Site or Site Office:
8. Nature of the construction Work:
9. Expected Commencement Date:
10. Expected Completion Date:
11. Estimated maximum number of persons on the construction Site:
12. Planned number of Subcontractors on the construction Site accountable to Contractor:
13. Name(s) of Subcontractors already chosen:
.....
.....
.....

SIGNED BY:

CONTRACTOR: DATE:

CLIENT: DATE:

W. MONTHLY LABOUR REPORT**MONTHLY LABOUR REPORT FOR CERTIFICATE OF PAYMENT NO.****JOBS CREATED.....****AS PER BUSINESS PLAN**

A	B	C	D	E	F	G	H	I	J
Category	Number of persons employed in category	Rate (R/d)	Local P-days	Non-local P-Days	Total P-days (D+E)	Amount expended on labour (C x F)	P-days by women	P-days by youth	P-days by disabled
Clerical									
Managerial									
Supervisory									
Skilled									
Semi-skilled									
Unskilled									
All operations									

ACTUAL TO DATE

A	B	C	D	E	F	G	H	I	J
Category	Number of persons employed in category	Rate (R/d)	Local P-days	Non-local P-Days	Total P-days (D+E)	Amount expended on labour (C x F)	P-days by women	P-days by youth	P-days by disabled
Clerical									
Managerial									
Supervisory									
Skilled									
Semi-skilled									
Unskilled									
All operations									

SUMMARY

Planned person-days target

Tendered construction period (months):

Overall person-days target per month:

Months represented by this report:

Person-day target for this month:

Achieved person-days to date:

Person-days ahead/behind target:

X: BIDDER'S DETAILED EXPERIENCE – REFERENCE SHEET**BIDDER'S DETAILED EXPERIENCE – REFERENCE SHEET**

The following are to be completed by the Client and Principal Agent/ Consultant and is to be supported in each case by a letter of award and the works completion certificate. Both client and Principal Agent must stamp the documents, failure to obtain both stamp will result in no allocation of points.

Project Name and scope of work:

Scope of work :

Contract duration:

Actual Contract Duration:

Name of Institution/company /place where contract was undertaken/ Client	Principal Agent/ Consultant	Value of contract	Contract Duration (<i>in days, weeks, months, years</i>)	Actual Contract Duration (in days, weeks, months, years)

To be filled by Principal Agent

Description/Performance	Very Poor (1)	Poor (2)	Fair (3)	Good (4)	Excellent (5)
Quality of office administration					
Quality of Site Management					
Competence Foreman					
Co-operation during contract					
Quality of workmanship					
Quality of materials					
Programme management					
Rectification of condemned work					
Tidiness of site					
Adequacy of equipment					
Adequacy of labour force					
Procurement of material					
Labour relations					

Any other additional remarks considered necessary to assist in evaluation of the contractor?

.....

.....

Principal Agent/consultant Firm.....

Telephone

Principal Agent/consultant Signature

Date

STAMP

BIDDER'S DETAILED EXPERIENCE – REFERENCE SHEET

The following are to be completed by the Client and Principal Agent/ Consultant and is to be supported in each case by a letter of award and the works completion certificate. Both client and Principal Agent must stamp the documents, failure to obtain both stamp will result in no allocation of points.

Project Name and scope of work:

Scope of work :

Contract duration:

Actual Contract Duration:

Name of Institution/company /place where contract was undertaken/ Client	Principal Agent/ Consultant	Value of contract	Contract Duration (<i>in days, weeks, months, years</i>)	Actual Contract Duration (in days, weeks, months, years)

To be filled by Principal Agent

Description/Performance	Very Poor (1)	Poor (2)	Fair (3)	Good (4)	Excellent (5)
Quality of office administration					
Quality of Site Management					
Competence Foreman					
Co-operation during contract					
Quality of workmanship					
Quality of materials					
Programme management					
Rectification of condemned work					
Tidiness of site					
Adequacy of equipment					
Adequacy of labour force					
Procurement of material					
Labour relations					

Any other additional remarks considered necessary to assist in evaluation of the contractor?

.....

Principal Agent/consultant Firm.....

Telephone

Principal Agent/consultant Signature

Date

STAMP

BIDDER'S DETAILED EXPERIENCE – REFERENCE SHEET

The following are to be completed by the Client and Principal Agent/ Consultant and is to be supported in each case by a letter of award and the works completion certificate. Both client and Principal Agent must stamp the documents, failure to obtain both stamp will result in no allocation of points.

Project Name and scope of work:

Scope of work :

Contract duration:

Actual Contract Duration:

Name of Institution/company /place where contract was undertaken/ Client	Principal Agent/ Consultant	Value of contract	Contract Duration (<i>in days, weeks, months, years</i>)	Actual Contract Duration (in days, weeks, months, years)

To be filled by Principal Agent

Description/Performance	Very Poor (1)	Poor (2)	Fair (3)	Good (4)	Excellent (5)
Quality of office administration					
Quality of Site Management					
Competence Foreman					
Co-operation during contract					
Quality of workmanship					
Quality of materials					
Programme management					
Rectification of condemned work					
Tidiness of site					
Adequacy of equipment					
Adequacy of labour force					
Procurement of material					
Labour relations					

Any other additional remarks considered necessary to assist in evaluation of the contractor?

.....

Principal Agent/consultant Firm.....

Telephone

Principal Agent/consultant Signature

Date

STAMP

BIDDER'S DETAILED EXPERIENCE – REFERENCE SHEET

The following are to be completed by the Client and Principal Agent/ Consultant and is to be supported in each case by a letter of award and the works completion certificate. Both client and Principal Agent must stamp the documents, failure to obtain both stamp will result in no allocation of points.

Project Name and scope of work:

Scope of work :

Contract duration:

Actual Contract Duration:

Name of Institution/company /place where contract was undertaken/ Client	Principal Agent/ Consultant	Value of contract	Contract Duration (<i>in days, weeks, months, years</i>)	Actual Contract Duration (in days, weeks, months, years)

To be filled by Principal Agent

Description/Performance	Very Poor (1)	Poor (2)	Fair (3)	Good (4)	Excellent (5)
Quality of office administration					
Quality of Site Management					
Competence Foreman					
Co-operation during contract					
Quality of workmanship					
Quality of materials					
Programme management					
Rectification of condemned work					
Tidiness of site					
Adequacy of equipment					
Adequacy of labour force					
Procurement of material					
Labour relations					

Any other additional remarks considered necessary to assist in evaluation of the contractor?

.....

Principal Agent/consultant Firm.....

Telephone

Principal Agent/consultant Signature

Date

STAMP

BIDDER'S DETAILED EXPERIENCE – REFERENCE SHEET

The following are to be completed by the Client and Principal Agent/ Consultant and is to be supported in each case by a letter of award and the works completion certificate. Both client and Principal Agent must stamp the documents, failure to obtain both stamp will result in no allocation of points.

Project Name and scope of work:

Scope of work :

Contract duration:

Actual Contract Duration:

Name of Institution/company /place where contract was undertaken/ Client	Principal Agent/ Consultant	Value of contract	Contract Duration (<i>in days, weeks, months, years</i>)	Actual Contract Duration (in days, weeks, months, years)

To be filled by Principal Agent

Description/Performance	Very Poor (1)	Poor (2)	Fair (3)	Good (4)	Excellent (5)
Quality of office administration					
Quality of Site Management					
Competence Foreman					
Co-operation during contract					
Quality of workmanship					
Quality of materials					
Programme management					
Rectification of condemned work					
Tidiness of site					
Adequacy of equipment					
Adequacy of labour force					
Procurement of material					
Labour relations					

Any other additional remarks considered necessary to assist in evaluation of the contractor?

.....

Principal Agent/consultant Firm.....

Telephone

Principal Agent/consultant Signature

Date

STAMP

THE CONTRACT

PART C1: AGREEMENTS AND CONTRACT DATA

PART C2: PRICING DATA

PART C3: SCOPE OF WORK

PART C4: SITE INFORMATION

LIMPOPO DEPARTMENT OF AGRICULTURE & RURAL DEVELOPMENT

A 3-YEAR FRAMEWORK AGREEMENT FOR THE DEVELOPMENT AND MAINTENANCE OF IRRIGATION PROJECTS AND SCHEMES FOR THE LIMPOPO DEPARTMENT OF AGRICULTURE AND RURAL DEVELOPMENT

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PART C1: AGREEMENTS AND CONTRACT DATA

C1.1: FORM OF OFFER AND ACCEPTANCE

C1.2: CONTRACT DATA

C1.2.1: CONDITIONS OF CONTRACT

C1.2.2: PART A: CONTRACT DATA PROVIDED BY THE EMPLOYER

PART B: CONTRACT DATA PROVIDED BY THE CONTRACTOR

C1.3: FORM OF GUARANTEE

C1.4: AGREEMENT IN TERMS OF SECTION 37(2) OF THE OCCUPATIONAL HEALTH AND SAFETY ACT (No 85 OF 1993)

LIMPOPO DEPARTMENT OF AGRICULTURE & RURAL DEVELOPMENT

A 3-YEAR FRAMEWORK AGREEMENT FOR THE DEVELOPMENT AND MAINTENANCE OF IRRIGATION PROJECTS AND SCHEMES FOR THE LIMPOPO DEPARTMENT OF AGRICULTURE AND RURAL DEVELOPMENT

C1.1 Form of Offer and Acceptance

Offer

The Employer, identified in the Acceptance Signature block, has solicited Offers to enter into a Contract for the procurement of:

Contract No **ACDP 23/16: A 3-YEAR FRAMEWORK AGREEMENT FOR THE DEVELOPMENT AND MAINTENANCE OF IRRIGATION PROJECTS AND SCHEMES FOR THE LIMPOPO DEPARTMENT OF AGRICULTURE AND RURAL DEVELOPMENT**

The Tenderer, identified in the Offer Signature block, has examined the Documents listed in the Tender Data and addenda thereto as listed in the Returnable Schedules, and by submitting this Offer has accepted the Conditions of Tender.

By the representative of the Tenderer, deemed to be duly authorized, signing this part of this Form of Offer and Acceptance, the Tenderer Offers to perform all of the obligations and liabilities of the Contractor under the Contract including compliance with all its Terms and Conditions according to their true intent and meaning for an amount to be determined in accordance with the Conditions of Contract identified in the Contract Data.

THE OFFERED TOTAL OF THE PRICES INCLUSIVE OF VALUE ADDED TAX IS:

.....
Rand (in words);

R (in figures)

This Offer may be accepted by the Employer by signing the Acceptance part of this Form of Offer and Acceptance and returning one copy of this Document to the Tenderer before the end of the period of validity stated in the Tender Data, whereupon the Tenderer becomes the Party named as the Contractor in the Conditions of Contract identified in the Contract Data.

Signature Block: Tenderer	
Signature	Date
Name	
Capacity	
Name of organization.	
Address of organization	
.....	
Signature of witness	Date
Name of witness	

Acceptance

By signing this part of this Form of Offer and Acceptance, the Employer identified below accepts the Tenderer's Offer. In consideration thereof, the Employer shall pay the Contractor the amount due in accordance with the conditions of Contract identified in the Contract Data. Acceptance of the Tenderer's Offer shall Form an Agreement between the Employer and the Tenderer upon the Terms and Conditions contained in this Agreement and in the Contract that is the subject of this Agreement.

The terms of the Contract, are contained in:

- Part C1: Agreements and Contract Data, (which includes this Agreement)
- Part C2: Pricing Data
- Part C3: Scope of work.
- Part C4: Site Information and Drawings and Documents or parts thereof, which may be incorporated by reference into Parts C1 to C4 above.

Deviations from and amendments to the Documents listed in the Tender Data and any addenda thereto as listed in the Tender Schedules as well as any changes to the Terms of the Offer agreed by the Tenderer and the Employer during this process of Offer and Acceptance, are contained in the Schedule of Deviations attached to and Forming part of this Agreement. No amendments to or deviations from said Documents are valid unless contained in this schedule.

The Tenderer shall within two weeks after receiving a completed copy of this Agreement, including the Schedule of Deviations (if any), contact the Employer's agent (whose details are given in the Contract Data) for delivery of any Bonds, Guarantees, proof of Insurance and any other Documentation to be provided in terms of the Conditions of Contract Identified in the Contract Data. Failure to fulfil any of these Obligations in accordance with those terms shall constitute a repudiation of this Agreement.

Notwithstanding anything contained herein, this Agreement comes into effect on the date when the Tenderer receives one fully completed original copy of this Document, including the Schedule of Deviations (if any). Unless the Tenderer (now Contractor) within five working days of the date of such receipt notifies the Employer in writing of any reason why he cannot accept the Contents of this Agreement, this Agreement shall constitute a binding Contract between the Parties.

Signature Block: Employer	
Signature	Date
Name	
Capacity	
for the Employer Limpopo Department of Agriculture and Rural Development	
Signature of witness	Date
Name of witness	

Schedule of Deviations

1 Subject . **Adjustment of Rates**

Details . **Attached hereto is the adjusted rates as agreed during the negotiation process.**

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2 Subject

Details

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3 Subject

Details

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4 Subject

Details

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5 Subject

Details

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By the duly Authorised Representatives signing this Agreement, the Employer and the Tenderer agree to and accept the foregoing Schedule of Deviations as the only deviations from and amendments to the Documents listed in the Tender Data and addenda thereto as listed in the Tender Schedules, as well as any confirmation, clarification or changes to the terms of the Offer agreed by the Tenderer and the Employer during this process of Offer and Acceptance.

It is expressly agreed that no other matter whether in writing, oral communication or implied during the period between the issue of the Tender Documents and the receipt by the Tenderer of a completed signed copy of this Agreement shall have any meaning or effect in the Contract between the parties arising from this Agreement.

For the Tenderer:

Signature(s) _____

Name(s) _____

Capacity _____

(Name and address of organisation)Name &
Signature of
Witness

Date

For the Employer:

Signature(s) _____

Name(s) _____

Capacity _____

(Name and address of organisation)

LIMPOPO DEPARTMENT OF AGRICULTURE & RURAL DEVELOPMENT**A 3-YEAR FRAMEWORK AGREEMENT FOR THE DEVELOPMENT AND MAINTENANCE OF IRRIGATION PROJECTS AND SCHEMES FOR THE LIMPOPO DEPARTMENT OF AGRICULTURE AND RURAL DEVELOPMENT****C1.2 CONTRACT DATA**

Section 1.01 The General Conditions of Contract for Construction Works (2010) published by the South African Institution of Civil Engineering, is applicable to this Contract. Copies of these Conditions of Contract may be obtained from the South African Institution of Civil Engineering (Tel: 011-805 5947).

The General Conditions of Contract for Construction Works make several references to the Contract Data for Specific Data, which together with these Conditions collectively describe the risks, liabilities and obligations of the Contracting parties and the procedures for the administration of the Contract. The Contract Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the General Conditions of Contract.

Each item of Data given below is cross-referenced to the clause in the General Conditions of Contract for Construction Works to which it mainly applies.

LIMPOPO DEPARTMENT OF AGRICULTURE & RURAL DEVELOPMENT

A 3-YEAR FRAMEWORK AGREEMENT FOR THE DEVELOPMENT AND MAINTENANCE OF IRRIGATION PROJECTS AND SCHEMES FOR THE LIMPOPO DEPARTMENT OF AGRICULTURE AND RURAL DEVELOPMENT

C1.2.1: CONDITIONS OF CONTRACT

GENERAL CONDITIONS OF CONTRACT

SPECIAL CONDITIONS OF CONTRACT

- 1. GENERAL**
- 2. AMENDMENTS TO THE GENERAL CONDITIONS OF CONTRACT / DATA PROVIDED BY THE EMPLOYER**
- 3. TRANSFER OF RIGHTS**

C1.2.1 CONDITIONS OF CONTRACT

GENERAL CONDITIONS OF CONTRACT

This Contract will be based on the "General Conditions of Contract for Construction Works - 1st Edition 2010", issued by the South African Institution of Civil Engineering (Short title: "**General Conditions of Contract 2010**") and can be obtained from:

SAICE

Waterfall Park
Howick Gardens
Vorna Valley Half way House
Becker Street
MIDRAND
1685
Gauteng Province
Tel: (011) 805-5947/8
Fax: (011) 805-5971.

It is agreed that the only variations from the General Conditions of Contract 2010 are those set out hereafter under "Special Conditions of Contract".

SPECIAL CONDITIONS OF CONTRACT

1. GENERAL

These Special Conditions of Contract (SCC) form an integral part of the Contract. The Special Conditions shall amplify, modify or supersede, as the case may be, the General Conditions of Contract 2010 to the extent specified below, and shall take precedence and shall govern.

The clauses of the Special Conditions hereafter are numbered "SCC" followed in each case by the number of the applicable clause or sub clause in the General Conditions of Conditions 2010, and the applicable heading, or (where a new special condition that has no relation to the existing clauses is introduced) by a number that follows after the last clause number in the General Conditions, and an appropriate heading.

2. FOR CONTRACT ABOVE R3M (THREE MILLION RAND), THE FOLLOWING SPECIAL CONDITIONS APPLY

- (a)
 - (i) All bidders from outside the province must enter into a Consortium or Joint Venture with local SMMEs or suppliers.
 - (ii) Preference must be given to local bidders entering into Joint Ventures with local SMME's or suppliers.
 - (iii) The members of consortium or Joint venture, formed in response to preferential procurement conditions, must share in the control and management of such consortium.
 - (iv) The percentage of the contract value managed or executed by the local partner must not be less than 40% of the project value.
 - (v) All white owned bidders must enter into join venture with black owned local contractor and percentage of management and control for equity owned by black must not be less than 25% in the venture arrangement.
- (b) The AO/AA may, after consulting the departmental or public entities demand management unit, in the bid documentation, exempt bidders from complying with the provisions of clause (a), if there are no SMME's or suppliers in Limpopo with the skills or knowledge required to execute the project.
- (c) In the case of construction works, applicable to the construction industry;
- (d)
 - (i) The Consortium or Joint Venture that benefits from the preference system, must within 30 days of receiving notice of the contract, must organize themselves into legal entity or provide with a working agreement between members of the Joint venture or consortium. Successful suppliers, both from in and outside the province, must upon implementation of the project, establish fully fledged office, branch or plant in the province.

- The department reserves the right to retain a percentage of contract value to ensure that the above condition is complied with.
- (ii) The retained fee must be paid to the supplier or service provider on successfully completing the contract and after having complied with the special conditions.
 - (iii) Where the supplier or service provider fails to successfully complete the contract or comply with any condition, such supplier or service provider will forfeit the retained percentage.
 - (iv) Notwithstanding the forfeiture of the retained percentage of the contract value, if the failure to comply with conditions in clause (i) amounts to breach of the contract, the department or public entity may invoke any remedy available to it in law.
 - (v) A performance guarantee of 10% is applicable to all contracts above R2 000 000.00 and must be obtained from either commercial bank or insurance company prior to award of bids. The performance security shall be dominated in the currency of the contract and shall be in the form of a bank guarantee or an irrevocable letter of credit issued by a reputable bank located in South Africa. The accounting officer reserves the right to cancel the award of the bid when the bidder fails to present the required security as stipulated in the special conditions.
- (e) In all labour intensive projects, at least 70% of the labourers must be employed from the local community where the project will be executed.

C1.2.2 PART A: DATA PROVIDED BY THE EMPLOYER

The following Contract Specific Data are applicable to this Contract.

REFERENCE	CONTRACT SPECIFIC DATA BY THE EMPLOYER	
Clause 1.1.1.13	The defects liability period is 12 months .	
Clause 1.1.1.14	The Works shall be completed within the agreed time frame excluding special non-working days and the year-end break	
Clause 1.1.1.15	Name of Employer: Limpopo Department of Agriculture & Rural Development, Polokwane	
Clause 1.1.1.26	The pricing strategy is re-measurement Contract .	
Clause 1.2.1.2	Address of Employer:	
	<u>Physical:</u>	<u>Postal:</u>
	Limpopo Department of Agriculture and Rural Development 67/69 Biccard Street Polokwane 0699	Limpopo Department of Agriculture and Rural Development P Bag X9487 Polokwane 0700
	<u>E-Mail:</u>	
	Telephone No: (015) 294 3000	Fax No: (015) 294 4535
Clause 1.1.1.16	Name of Engineer: District Engineer (Capricorn; Mopani; Sekhukhune; Vhembe; Waterberg)	
Clause 1.2.1.2	Address of Engineer: Limpopo Department of Agriculture & Rural Development	
	District Office (Capricorn; Mopani; Sekhukhune; Vhembe; Waterberg)	

- Clause 1.3.5 *Replace the second paragraph of Clause 1.3.5 with the following:*
 “Documents submitted by the Contractor may be used by the Engineer and the Employer for no other purpose than the following:
 (a) evaluating designs;
 (b) preparing operation and maintenance manuals;
 (c) completing, operating, maintaining, modifying, adjusting, repairing and/or extending the Works, plant and equipment.”
- Clause 3.1.3 The Engineer shall obtain the specific approval of the Employer before executing any of his functions or duties according the following Clauses in the General Conditions of Contract:
- Clause 6.3 for any expenditure in excess of the Tender Sum plus 10% Contingencies.
- Clause 4.1.2 The Contractor is responsible for the preparing detail designs, line diagrams, shop drawings and operation and maintenance manuals of:
 (a) Temporary works,
 (b) Electrical plant and equipment to be built into the Works,
 (c) Mechanical plant and equipment to be built into the Works,
 (d) Irrigation system and equipment to be installed; and
 (e) All other ancillary works as required for the project.
- Clause 4.4.3 *Add to clause 4.4.3:*
 All subcontractors shall be registered with the CIDB and have respective minimum CIDB contractor grading of 4ME for mechanical engineering works, and of 4EB or 4EP for Electrical Works.
- Clause 4.12.2 *Add to Clause 4.12.2:*
 “The person as approved of by the Engineer in writing, shall not be replaced or removed from Site without the written approval of the Engineer.”
- Clause 4.12.3 *Add to Clause 4.12.2:*
 “The Contractor’s Site Agent shall be on Site at all times when work is being performed.”
- Clause 5.3.1 The documentation required before commencement with Works execution are:
 Health and Safety Plan (Refer to Clause 4.3)
 Initial programme (Refer to Clause 5.6)
 Security (Refer to Clause 6.2)
 Insurance (Refer to Clause 8.6)
- Clause 5.3.2 The time to submit the documentation required before commencement with Works execution is **14 days**.
- Clause 5.4.2 The access and possession of the site shall not be exclusive to the Contractor but shall be shared with various other activities such as farming, Cattle ranching operations, Soil conservation works and Civil and Building Construction.
- The Contractor shall ensure that neither his operations nor his employees shall interfere with or hinder the operations of the Employer or of other Contractors and he shall indemnify the Employer against all claims arising through default of this requirement
- Clause 5.8.1 The non-working days are **Sundays**.

- Clause 5.8.2 Special non-working days are Public Holidays, and 23 days during the annual year end break.
- Clause 5.9.3 Adequate notice is defined as **28 days**.
- Clause 5.9.6 *Add to Clause 5.9.6:*
"Notwithstanding the requirements above, the Contractor shall provide written notice to the Engineer of any outstanding requirements in terms of Clause 5.9.3 within 3 days of the Contractor becoming aware of any possible delay to Practical Completion and/or proven additional costs that might be incurred due to the Engineer not complying with the provisions of Clause 5.9.3."
- Clause 5.9.7.1 *Add Clause 5.9.7.1:*
"Within **14 days** of site handover, the Contractor is required to prepare and submit for approval by the Engineer, in triplicate, the following Documents:
a) Detail designs, general arrangement drawings and shop drawings of all mechanical plant and equipment to be built into the permanent Works, showing all details, including interfaces with existing and proposed new structures;
b) Detail designs, line diagrams, and shop drawings of all electrical plant and equipment, showing all details, including interfaces with existing and proposed new structures; and
c) Method statements and design information of temporary works.

Within 14 days of a request by the Engineer, the Contractor is required to prepare and submit for approval by the Engineer, in triplicate, any further relevant document that the Engineer may require."
- Clause 5.9.7.2 *Add Clause 5.9.7.2:*
"At least **14 days** before the programmed date of Practical Completion, the Contractor is required to submit for approval by the Engineer, in triplicate, the following Documents:

a) Operation and maintenance manuals of all electrical and mechanical plant and equipment built into the Works;
b) As-built shop drawings and line diagrams of all and mechanical plant and equipment built into the Works.

The Works shall not be considered completed unless all Documents have been submitted to the Engineer."
- Clause 5.9.7.3 *Add Clause 5.9.7.3:*
"Within **14 days** of receipt of a Document from the Contractor, the Engineer shall either return one copy thereof to the Contractor with his approval endorsed thereon, or he shall notify the Contractor giving reasons for his disapproval thereof. Failure by the Engineer to signify his approval or disapproval of a Document within 14 days of receipt of such Document, such Document shall be deemed to be approved.

Any Document disapproved by the Engineer shall be forthwith modified to meet the requirements of the Engineer and shall be resubmitted.

Documents approved by the Engineer, shall not be departed from in any way except with written consent of the Engineer. Approval of Documents by the Engineer shall in no way relieve the Contractor of any of his responsibilities."

Add Clause 5.12.5:

“Extension of Time for Abnormal Rainfall (Option 1)

Extensions of time in respect of clause 42 in respect of abnormal rainfall shall be calculated using the following formula for each calendar month or part thereof:

$$V = (N_w - N_n) + \left(\frac{R_w - R_n}{X} \right)$$

Where:

V	=	Extension of time in calendar days in respect of the calendar month under consideration.
N _w	=	Actual number of days during the calendar month on which a rainfall of 10 mm or more has been recorded.
N _n	=	Average number of days in the relevant calendar month, as derived from existing rainfall records, as stated in the Site Information, on which a rainfall of 20 mm or more has been recorded for the calendar month.
R _w	=	Actual average rainfall in mm recorded for the calendar month under consideration.
R _n	=	Average rainfall in mm for the calendar month as derived from existing rainfall records as stated in the Site Information.
X	=	20, unless otherwise provided in the project specifications.
Y	=	10, unless otherwise provided in the project specifications.

If V is negative and its absolute value exceeds N_n, then V shall be taken as equal to minus N_n.

The total extension of time shall be the algebraic sum of all monthly totals for the period under consideration, but if the total is negative the time for completion shall not be reduced due to subnormal rainfall.

Extensions of time for part of a month shall be calculated using pro rata values of N_n and R_n.

This formula does not take account flood damage which could cause further or concurrent delays and will be treated separately as far as extension of time is concerned.

The factor (N_w – N_n) shall be considered to represent a fair allowance for variations from the average in the number of days during which rainfall exceeds 10 mm. The factor (R_w-R_n) shall be considered to represent a fair allowance for variations from the average in the number of days during which the rainfall did not exceed 10 mm but wet conditions prevented or disrupted work.

For the purpose of applying the formula, accurate rain gauging shall be taken at a suitable point on the Site and the Contractor shall at his own expense, take all necessary precautions to ensure that rain gauges cannot be interfered with by unauthorized persons.

Clause 5.13.1 The penalty for failing to complete the works is 0.05% of the Total Tender Sum per Calendar Day.

Clause 5.16.3 The latent defect period is **5 years**.

Clause 5.17	<p><i>Add Clause 5.17:</i></p> <p>“Reporting</p> <p>The Contractor shall provide a monthly progress report for the Works showing, as a minimum, the following information to a format acceptable by the Employer:</p>
Clause 5.17.1	Detail of supervisory staff and the number of categorized classes of labour employed each day for the said period by the Contractor for execution of the Contract.
Clause 5.17.2	A detailed inventory of Plant kept on Site, full particulars given for each day of the month. Distinction shall be made between owned and hired Plant as well as Plant in working order and Plant out of order. Such inventory shall be submitted by the seventh day of the month following the month to be reported.
Clause 5.17.3	A Health and Safety report, including detailed report on complacence with regulations and of any safety incidents and “near misses”.
Clause 5.17.4	Progress of each portion of the Works.
Clause 5.17.5	All other relevant information.”
Clause 6.5.1.2.3	The percentage allowance to cover overhead charges is 15%
Clause 6.2.3	<p><i>Replace Clause 6.2.3 with the following:</i></p> <p>“If the Contractor has selected a performance guarantee as security, such performance guarantee shall be issued by a registered Commercial Bank or Insurance Company registered in terms of the Short-term Insurance Act (Act 53 of 1998). The Contractor shall ensure that such performance guarantee remains valid and enforceable until the Certificate of Completion is issued. The performance guarantee shall specify an expiry date not less than 84 days after the Due Completion Date, and if the Contractor has not become entitled to receive the Certificate of Completion of the Works by the date 28 days prior to the expiry date of the performance guarantee, the Contractor shall extend the validity of the performance guarantee until such time that the Works have been completed.”</p>

Clause 6.8.2

Contract Price Adjustment will be allowed for this Contract.

The tendered rates will be adjusted annually as follows:

- All rates which are based on current market prices with a tendered mark-up will remain unchanged for the duration of the contract.
- All other rates will be adjusted annually as follows:
- The rates will be adjusted annually by a calculated factor, every 12 calendar months, starting 12 months from the end of the month in which the tender was awarded.
- The formula is as follows

$$(1-x) \left[\frac{aLt}{Lo} + \frac{bPt}{Po} + \frac{cMt}{Mo} + \frac{dFt}{Fo} - 1 \right]$$

Where:

X = Fixed 10% (0,10) of the original bid price. Are portion of the bid price remains firm, it is not subject to any price escalations.

a = Factor of the bid price for Labour

b = Factor of the bid price for Contractors Equipment

c = Factor of the bid price for Material

d = Factor of the bid price for Fuel

The total of the various factors "a", "b", "c", "d" must add up to 100%

"Lt", "Pt", "Mt" & "Ft" = Index figure obtained from a Statistic South Africa and published by SAFCEC from time to time (**As defined in C1.2.3 – Clause 6.8.2**)

"Lo", "Po", "Mo", "Fo" = Index figures at time of bidding

The following index/indices must be used to calculate your bid price: (As per C1.2.3 Contract data: THE INDICES WILL BE BASED DATE ON AT TIME OF TENDER - CLAUSE 6.8.2)

The base month used for the calculation will be 30 days before the closing date of the bid.

FACTORS ("a", "b", "c" & "d".)	PERCENTAGE OF BID PRICE
a	
b	
c	
d	
TOTAL	1

Clause 6.8.3

Price adjustments for variations in the costs of special materials **are allowed**.

Clause 6.10.1.5

The percentage advance on materials not yet built into the Permanent Works is **80%**

Clause 6.11.1.3

Replace the wording: "greater than 15 percent" with "greater than 20 percent".

- Clause 7.2.2 *Add Clauses 7.2.2 to 7.2.7:*
“The Engineer shall be entitled at all times to have access to any premises where work is being carried out or where plant or equipment is being manufactured, for the purpose of inspecting and observing the carrying out of tests on such plant and equipment. If plant or equipment is being manufactures on other premises, the Contractor shall obtain permission for the Engineer to carry out such inspection and observations on those premises.
- Clause 7.2.3 The Contractor shall carry out such off-site tests he considered necessary or as the Engineer instructs before delivering to the site the plant or equipment to which the off-site tests relate. Whenever the Contractor is ready to carry out any off-site tests on plant or equipment, he shall notify the Engineer at least **7 days** in advance of the place and the time that he intends to carry out such test. The Contractor shall carry out every test at the time and place so notified.
- Clause 7.2.4 As soon as the plant or any appropriate part thereof is, in the opinion of the Contractor, substantially complete and ready for testing, the Contractor shall propose a programme for demonstrations and testing of plant and equipment, commencing no sooner than **7 days** after notifying the Engineer.
- The Contractor is to ensure that every component is operating satisfactorily and the total plant shall be operated for at least one week by the Contractor during which time he shall also train the operators in the correct running and maintenance of the plant.
- The Contractor shall provide all labour, materials, fuels, storage, apparatus, facilities, and instruments necessary to carry out such demonstrations or tests effectively.
- If the Engineer does not attend any demonstration or test, the Contractor shall carry out such demonstration or test in the absence of the Engineer and certified copies of the test results shall be deemed to be a correct record thereof.
- Clause 7.2.5 The Contractor shall provide the Engineer with three certified copies of all test results.
- Clause 7.2.6 If, as a result of the inspections, demonstrations or tests, the Engineer decides that any plant or equipment is defective or otherwise not in accordance with the Contract, the Engineer shall notify the Contractor thereof within **3 working day** that such plant or equipment is rejected, stating the Engineer’s objections with reasons. The Contractor shall make good any such defect or ensure that such plant or equipment fully complies with the Contract.
- Rejected plant and/or equipment shall again be demonstrated or tested under the same terms and conditions. Any cost incurred due to repeating any demonstration and/or testing of plant or equipment shall be recovered from the Contractor.”
- Clause 7.2.7 The contract will not be deemed to have been completed, and a completion certificate shall not be issued until the Engineer is fully satisfied that every component of the plant is operating satisfactorily.
- Clause 7.5.3 Adequate notice is defined as **3 working days**.

Clause 6.10.3	The limit of retention money is 10% of the Tender offer, excluding VAT and limited to 5% of the Contract amount, excluding Contract Price Adjustment, Contingencies and VAT. A Retention Money Guarantee will not be permitted.
Clause 8.6.1.1.2	The value of Plant and Materials supplied by the Employer to be included in the insurance sum is R 0.00
Clause 8.6.1.1.3	The amount to cover professional fees for repairing damage and loss to be included in the insurance sum is R 5 000 000.00
Clause 8.6.1.2	A Coupon Policy for Special Risks Insurance issued by the South African Special Risks Insurance Association is required.
Clause 8.6.1.3	The limit of indemnity for liability insurance is R 5 000 000.00 for any single liability claim. Liability insurance shall include spread of fire risk.
Clause 8.6.1.5	No additional insurances are required.
Clause 10.5.1	This Contract does not allow for dispute resolution by a standing Adjudication Board.
Clause 10.5.3	The number of Adjudication Board Members to be appointed is three.
Clause 10.7.1	The determination of disputes shall be by arbitration.
Clause 11.1	<i>Add Clause 11.1:</i> Payment for the labour-intensive component of the works Payment for works identified in the Scope of Work as being labour-intensive shall only be made in accordance with the provisions of the Contract if the works are constructed strictly in accordance with the provisions of the scope of work. Any non-payment for such works shall not relieve the Contractor in any way from his obligations either in Contract or in delict.
Clause 11.2	<i>Add Clause 11.2:</i> Applicable labour laws The Ministerial Determination, Special Public Works Programmes, issued in terms of the Basic Conditions of Employment Act of 1997 by the Minister of Labour in Government Notice No R63 of 25 January 2002, as reproduced below, shall apply to work which are undertaken by unskilled or semi-skilled workers.

Introduction

- (a) This document contains the Standard Terms and Conditions for workers employed in elementary occupations on a Special Public Works Programme (SPWP). These terms and Conditions do NOT apply to persons employed in the supervision and management of a SPWP.
- (b) In this document –
 - (i) “Department” means any department of State, implementing Agent or Contractor;
 - (ii) “Employer” means any Municipality, implementing Agency or Contractor that hires workers to work in elementary occupations on a SPWP;
 - (iii) “worker” means any person working in an elementary occupation on a SPWP.;
 - (iv) “elementary occupation” means any occupation involving unskilled or semi-skilled work;
 - (v) “Management” means any person employed by a Municipality or implementing Agency to administer or execute an SPWP.;
 - (vi) “task” means a fixed quantity of work;
 - (vii) “task-based work” means work in which a worker is paid a fixed rate for performing a task;
 - (viii) “task-rated worker” means a worker paid on the basis of the number of tasks completed;
 - (ix) “time-rated worker” means a worker paid on the basis of the length of time worked.

Terms of Work

- (a) Workers on a SPWP are employed on a temporary basis.
- (b) A worker may NOT be employed for longer than 24 months in any five year cycle on a SPWP.
- (c) Employment on a SPWP does not qualify as employment as a contributor for the purpose of the Unemployment Insurance Act 30 of 1966.

Normal Hours of Work

- (a) An Employer may not set tasks or hours of work that require a worker to work–
 - (i) more than forty-five hours in any week
 - (ii) on more than six days in any week; and
 - (iii) for more than nine hours on any day.
- (b) An Employer and worker may agree that a worker will work four days per week. The worker may then work up to ten hours per day.
- (c) A task-rated worker may not work more than a total of 55 hours in any week to complete the tasks allocated (based on a 40-hour week) to that worker.

Meal Breaks

- (a) A worker may not work for more than five hours without taking a meal break of at least thirty minutes duration.
- (b) An Employer and worker may agree on longer meal breaks.
- (c) A worker may not work during a meal break. However, an Employer may require a worker to perform duties during a meal break if those duties cannot be left unattended and cannot be performed by another worker. An Employer must take reasonable steps to ensure that a worker is relieved of his or her duties during the meal break.
- (d) A worker is not entitled to payment for the period of a meal break. However, a worker who is paid on the basis of time worked must be paid if the worker is required to work or to be available for work during the meal break.

Special Conditions for Security Guards

- (a) A security guard may work up to 55 hours per week and up to eleven hours per day.
- (b) A security guard who works more than ten hours per day must have a meal break of at least one hour or two breaks of at least 30 minutes each.

Daily Rest Period

Every worker is entitled to a daily rest period of at least eight consecutive hours. The daily rest period is measured from the time the worker ends work on one day until the time the worker starts work on the next day.

Weekly Rest Period

Every worker must have two days off every week. A worker may only work on their day off to perform work which must be done without delay and cannot be performed by workers during their ordinary hours of work (“emergency work”).

Work on Sundays and Public Holidays

- (a) A worker may only work on a Sunday or Public holiday to perform emergency or security work.
- (b) Work on Sundays is paid at the ordinary rate of pay.
- (c) A task-rated worker who works on a public holiday must be paid –
 - (i) the worker's daily task rate, if the worker works for less than four hours;
 - (ii) double the worker's daily task rate, if the worker works for more than four hours.
- (d) A time-rated worker who works on a public holiday must be paid –
 - (i) the worker's daily rate of pay, if the worker works for less than four hours on the public holiday;
 - (ii) double the worker's daily rate of pay, if the worker works for more than four hours on the public holiday.

Sick Leave

- (a) Only workers who work four or more days per week have the right to claim sick-pay in terms of this clause.
- (b) A worker who is unable to work on account of illness or injury is entitled to claim one day's paid sick leave for every full month that the worker has worked in terms of a Contract.
- (c) A worker may accumulate a maximum of twelve days' sick leave in a year.
- (d) Accumulated sick-leave may not be transferred from one Contract to another Contract.
- (e) An Employer must pay a task-rated worker the worker's daily task rate for a day's sick leave.
- (f) An Employer must pay a time-rated worker the worker's daily rate of pay for a day's sick leave.
- (g) An Employer must pay a worker sick pay on the worker's usual payday.
- (h) Before paying sick-pay, an Employer may require a worker to produce a certificate stating that the worker was unable to work on account of sickness or injury if the worker is –
 - (i) absent from work for more than two consecutive days; or
 - (ii) absent from work on more than two occasions in any eight-week period.
- (i) A medical certificate must be issued and signed by a Medical Practitioner, a qualified Nurse or a Clinic staff member authorised to issue medical certificates indicating the duration and reason for incapacity.
- (j) A worker is not entitled to paid sick-leave for a work-related injury or occupational disease for which the worker can claim compensation under the Compensation for Occupational Injuries and Diseases Act.

Maternity Leave

- (a) A worker may take up to four consecutive months' unpaid maternity leave.
- (b) A worker is not entitled to any payment or employment-related benefits during maternity leave.
- (c) A worker must give her Employer reasonable notice of when she will start maternity leave and when she will return to work.
- (d) A worker is not required to take the full period of maternity leave. However, a worker may not work for four weeks before the expected date of birth of her child or for six weeks after the birth of her child, unless a medical practitioner, midwife or qualified nurse certifies that she is fit to do so.
- (e) A worker may begin maternity leave –
 - (i) four weeks before the expected date of birth; or
 - (ii) on an earlier date –
 - (1) if a medical Practitioner, Midwife or Certified Nurse certifies that it is necessary for the health of the worker or that of her unborn child; or
 - (2) if agreed to between Employer and worker; or
 - (iii) on a later date, if a medical Practitioner, Midwife or Certified nurse has certified that the worker is able to continue to work without endangering her health.
- (f) A worker who has a miscarriage during the third trimester of pregnancy or bears a stillborn child may take maternity leave for up to six weeks after the miscarriage or stillbirth.
- (g) A worker who returns to work after maternity leave has the right to start a new cycle of twenty-four months employment, unless the SPWP on which she was employed has ended.

Family responsibility leave

Workers, who work for at least four days per week, are entitled to three days paid family responsibility leave each year in the following circumstances –

- (a) when the employee's child is born;
- (b) when the employee's child is sick;
- (c) in the event of a death of –
 - (i) the employee's spouse or life partner;
 - (ii) the employee's parent, adoptive parent, grandparent, child, adopted child, grandchild or sibling.

Statement of Conditions

- (a) An Employer must give a worker a statement containing the following details at the start of employment –
 - (i) the Employer's name and address and the name of the SPWP;
 - (ii) the tasks or job that the worker is to perform; and
 - (iii) the period for which the worker is hired or, if this is not certain, the expected duration of the Contract;
 - (iv) the worker's rate of pay and how this is to be calculated;
 - (v) the training that the worker will receive during the SPWP.
- (b) An Employer must ensure that these terms are explained in a suitable language to any employee who is unable to read the statement.
- (c) An Employer must supply each worker with a copy of these Conditions of employment.

Keeping Records

- (a) Every Employer must keep a written record of at least the following –
 - (i) the worker's name and position;
 - (ii) in the case of a task-rated worker, the number of tasks completed by the worker;
 - (iii) in the case of a time-rated worker, the time worked by the worker;
 - (iv) payments made to each worker.
- (b) The Employer must keep this record for a period of at least three years after the completion of the SPWP.

Payment

- (a) An Employer must pay all wages at least monthly in cash or by cheque or into a bank account.
- (b) A task-rated worker will only be paid for tasks that have been completed.
- (c) An Employer must pay a task-rated worker within five weeks of the work being completed and the work having been approved by the manager or the Contractor having submitted an invoice to the Employer.
- (d) A time-rated worker will be paid at the end of each month.
- (e) Payment must be made in cash, by cheque or by direct deposit into a bank account designated by the worker.
- (f) Payment in cash or by cheque must take place –
 - (i) at the workplace or at a place agreed to by the worker;
 - (ii) during the worker's working hours or within fifteen minutes of the start or finish of work;
 - (iii) in a sealed envelope which becomes the property of the worker.
- (g) An Employer must give a worker the following information in writing –
 - (i) the period for which payment is made;
 - (ii) the numbers of tasks completed or hours worked;
 - (iii) the worker's earnings;
 - (iv) any money deducted from the payment;
 - (v) the actual amount paid to the worker.
- (h) If the worker is paid in cash or by cheque, this information must be recorded on the envelope and the worker must acknowledge receipt of payment by signing for it
- (i) If a worker's employment is terminated, the Employer must pay all monies owing to that worker within one month of the termination of employment.

Deductions

- (a) An Employer may not deduct money from a worker's payment unless the deduction is required in terms of a law.
- (b) An Employer must deduct and pay to the SA Revenue Services any income tax that the worker is required to pay.
- (c) An Employer who deducts money from a worker's pay for payment to another person must pay the money to that person within the time period and other requirements specified in the agreement law, court order or arbitration award concerned.
- (d) An Employer may not require or allow a worker to –
 - (i) repay any payment except an overpayment previously made by the Employer by mistake;
 - (ii) state that the worker received a greater amount of money than the Employer actually paid to the worker; or
 - (iii) pay the Employer or any other person for having been employed.

Health and Safety

- (a) Employers must take all reasonable steps to ensure that the working environment is healthy and safe.
- (b) A worker must –
 - (i) work in a way that does not endanger his/her health and safety or that of any other person;
 - (ii) obey any health and safety instruction;
 - (iii) obey all health and safety rules of the SPWP;
 - (iv) use any personal protective equipment or clothing issued by the Employer;
 - (v) report any accident, near-miss incident or dangerous behaviour by another person to their Employer or manager.

Compensation for Injuries and Diseases

- (a) It is the responsibility of the Employers (other than a Contractor) to arrange for all persons employed on a SPWP to be covered in terms of the Compensation for Occupational Injuries and Diseases Act, 130 of 1993.
- (b) A worker must report any work-related injury or occupational disease to their Employer or manager.
- (c) The Employer must report the accident or disease to the Compensation Commissioner.
- (d) An Employer must pay a worker who is unable to work because of an injury caused by an accident at work 75% of their earnings for up to three months. The Employer will be refunded this amount by the Compensation Commissioner. This does NOT apply to injuries caused by accidents outside the workplace such as road accidents or accidents at home.

Termination

- (a) The Employer may terminate the employment of a worker for good cause after following a fair procedure.
- (b) A worker will not receive severance pay on termination.
- (c) A worker is not required to give notice to terminate employment. However, a worker who wishes to resign should advise the Employer in advance to allow the Employer to find a replacement.
- (d) A worker who is absent for more than three consecutive days without informing the Employer of an intention to return to work will have terminated the Contract. However, the worker may be re-engaged if a position becomes available for the balance of the 24-month period.
- (e) A worker who does not attend required training events, without good reason, will have terminated the Contract. However, the worker may be re-engaged if a position becomes available for the balance of the 24-month period.

Certificate of Service

On termination of employment, a worker is entitled to a certificate stating –

- (i) the worker's full name;
- (ii) the name and address of the Employer;
- (iii) the SPWP on which the worker worked;
- (iv) the work performed by the worker;
- (v) any training received by the worker as part of the SPWP;
- (vi) the period for which the worker worked on the SPWP;
- (vii) any other information agreed on by the Employer and worker.

Reporting

The Contractor shall report the breakdown of each payment certificate into the broad categories of:

- a) Overheads,
- b) Supervision,
- c) Materials,
- d) Plant, and
- e) Labour.

The Contractor shall further report for each payment certificate the person-days of employment as set out in the Pro Forma: Monthly Labour Report.

In the calculation of person-days, a day shall be taken as 8 hours and no time over and above 8 hours per day shall be used to contribute to the number of person-days reported.

Source of Labour

The Contractor shall source his labour from the local area through the services of an appropriate Councillor or Community Liaison Officer or another appointed person who has contact with a labour pool in the area.

4. TRANSFER OF RIGHTS

The successful tenderer should complete and submit a Transfer of Rights Form to claim for materials on site with every progress payment for the project. No payment for materials on site would be granted if this Document is not submitted with the progress payment being considered.

TRANSFER OF RIGHTS

TRANSFER OF RIGHTS AND INDEMNITY (To be completed during construction by successful Tenderer only)

Claim for materials on site, Payment Certificate No. Date:

Contract No: For (Contract title)

I, the undersigned (name of signatory) in my capacity as

..... of (name of Contractor)

duly authorised hereto on behalf of the Contractor hereby transfer, cede and assign all the Contractor's rights, title and interest in and to the materials and goods, for which evidence of bona fide ownership is attached hereto, unto and in favour of (name of Employer) insofar as the Contractor retains actual control of the materials and goods, the right of ownership thereof passes to the Employer by *constitutum possessorium*.

I herewith indemnify the Employer against any claim to and in respect of said materials by reason of the Contractor's sequestration or liquidation or of any defect in the Contractor's title to the materials and agree that no payment for materials on site will be made by the Employer until such time as I have submitted documentary proof of bona fide ownership of the said materials and goods.

This transfer shall become effective upon conclusion of the Contractor receiving payment from the Employer or from any other person on behalf of the Employer for the materials and goods as Materials on Site, payment of retention money thereon excluded.

I further confirm that I am fully responsible for all materials and goods listed under this Transfer of Rights and that they have been insured adequately against all risks and will remain insured until they are built into or used in the permanent works and taken over by the Employer.

This certificate of Transfer of Rights applies only to the materials and goods as listed in the following table.

Description of Item	Unit	Quantity	Rate	Amount	Supplier
Total Value of Materials and goods					

Signed by: Date:
for and on behalf of the Contractor.

Witnessed by: Date:

NOTE: This form, together with the documentary proof of ownership or proof of payment by the Contractor to the supplier, shall accompany the Contractor's claim for payment for materials on site in terms of Clause 49.1.5 of the General Conditions of Contract 2010.

C1.2.2: PART B: DATA PROVIDED BY THE CONTRACTOR

Each item of Data given below is cross-referenced to the clause in the General Conditions of Contract for Construction Works to which it mainly applies.

Clause	Data												
1.1.1.9	<p>The Contractor is:</p> <p>[Enter the Legal name of the Contractor]</p> <p>.....</p>												
1.2.1.2	<p>The address of the Contractor is::</p> <p>Telephone: Facsimile:</p> <p>E-mail :</p> <p>Address (Postal) : Address (Physical) :</p> <p>.....</p> <p>.....</p> <p>.....</p>												
6.2.1	<p>The security to be provided by the Contractor shall be one of the following:</p> <table border="1"> <tr> <td> Type of Security: <i>Value Added tax is excluded from the Contract Sum and the value of the Works for calculating the percentages.</i> </td><td> Contractor's choice: Indicate "Yes" or "No" </td></tr> <tr> <td>Retention of 10% of the value of the Works</td><td></td></tr> <tr> <td>Cash Deposit of 10% of the Contract Sum plus retention of 5% of the value of the Works</td><td></td></tr> <tr> <td>Performance Guarantee of 10% of the Contract Sum plus retention of 5% of the value of the Works</td><td></td></tr> </table>	Type of Security: <i>Value Added tax is excluded from the Contract Sum and the value of the Works for calculating the percentages.</i>	Contractor's choice: Indicate "Yes" or "No"	Retention of 10% of the value of the Works		Cash Deposit of 10% of the Contract Sum plus retention of 5% of the value of the Works		Performance Guarantee of 10% of the Contract Sum plus retention of 5% of the value of the Works					
Type of Security: <i>Value Added tax is excluded from the Contract Sum and the value of the Works for calculating the percentages.</i>	Contractor's choice: Indicate "Yes" or "No"												
Retention of 10% of the value of the Works													
Cash Deposit of 10% of the Contract Sum plus retention of 5% of the value of the Works													
Performance Guarantee of 10% of the Contract Sum plus retention of 5% of the value of the Works													
6.8.3	<p>The variation in cost of special materials is :</p> <table border="1"> <thead> <tr> <th>Type of Material</th><th>Unit</th><th>Base Rate or Price</th></tr> </thead> <tbody> <tr> <td>.....</td><td>.....</td><td>.....</td></tr> <tr> <td>.....</td><td>.....</td><td>.....</td></tr> <tr> <td>.....</td><td>.....</td><td>.....</td></tr> </tbody> </table> <p>Contractor to indicate the type, unit and rate of special material to be listed. When called upon to do so, the Contractor shall substantiate the above rates or prices with acceptable documentary evidence. Contractor to provide any other Special Materials if deemed necessary</p>	Type of Material	Unit	Base Rate or Price
Type of Material	Unit	Base Rate or Price											
.....											
.....											
.....											

C1.3 FORM OF GUARANTEE - PRO FORMA

Contract No.

WHEREAS **The Limpopo Department of Agriculture & Rural Development** (hereinafter referred to as the Employer") entered into, a Contract with:

.....
(Hereinafter called "the Contactor") on the day of 20.....

A 3-YEAR FRAMEWORK AGREEMENT FOR THE DEVELOPMENT AND MAINTENANCE OF IRRIGATION PROJECTS AND SCHEMES FOR THE LIMPOPO DEPARTMENT OF AGRICULTURE AND RURAL DEVELOPMENT

AND WHEREAS it is provided by such Contract that the Contractor shall provide the Employer with security by way of a Guarantee for the due and faithful fulfilment of such Contract by the Contractor;

AND WHEREAS has / have at the request of the Contractor, agreed to give such Guarantee;

NOW THEREFORE WE do hereby Guarantee and bind ourselves jointly and severally as Guarantor and Co-principal Debtors to the Employer under renunciation of the benefits of division and execution for the due and faithful performance by the Contractor of all the Terms and Conditions of the said Contract, subject to the following Conditions:

1. The Employer shall, without reference and / or notice to us, have complete liberty of action to act in any manner authorized and/or contemplated by the terms of the said Contract, and/or to agree to any modifications, variations, alterations, directions or extensions of the completion date of the works under the said Contract, and that its rights under this Guarantee shall in no way be prejudiced nor our liability hereunder be affected by reason of any steps which the Employer may take under such Contract, or of any modification, variation, alterations of the completion date which the Employer may make, give, concede or agree to under the said Contract.
2. This Guarantee shall be limited to the payment of a sum of money.
3. The Employer shall be entitled, without reference to us, to release any Guarantee held by it, and to give time to or compound or make any other arrangement with the Contractor.
4. This Guarantee shall remain in full force and effect until the issue of the Certificate of Completion in terms of the Contract, unless we are advised in writing by the Employer before the issue of the said Certificate of his intention to institute claims, and the particulars thereof, in which event this Guarantee shall remain in full force and effect until all such claims have been paid or liquidated.
5. Our total liability hereunder shall not exceed the Guaranteed Sum of:
.....
..... Rand (in words);
R..... (in figures)
6. The Guarantor reserves the right to withdraw from this Guarantee by depositing the Guaranteed Sum with the beneficiary, whereupon our liability hereunder shall cease.
7. We hereby choose our address for the serving of all notices for all purposes arising here from as

.....
.....
.....

.....

IN WITNESS WHEREOF this Guarantee has been executed by us at
on this day of 20

Signature

Duly authorized to sign on behalf of

Address

.....

.....

As witnesses:

1

2

C1.4: AGREEMENT IN TERMS OF SECTION 37(2) OF THE OCCUPATIONAL HEALTH AND SAFETY ACT NO 85 OF 1993

THIS AGREEMENT is made between **The Limpopo Department of Agriculture & Rural Development**

(hereinafter called the EMPLOYER of the one part, herein represented by:

.....
in his capacity as: ;

AND:

(hereinafter called the CONTRACTOR) of the other part, herein represented by

.....
in his capacity as:

duly authorised to sign on behalf of the Contractor.

WHEREAS the CONTRACTOR is the Mandatory of the EMPLOYER in consequence of an Agreement between the CONTRACTOR and the EMPLOYER in respect of

CONTRACT NO: ACDP 23/16: A 3-YEAR FRAMEWORK AGREEMENT FOR THE DEVELOPMENT AND MAINTENANCE OF IRRIGATION PROJECTS AND SCHEMES FOR THE LIMPOPO DEPARTMENT OF AGRICULTURE AND RURAL DEVELOPMENT

AND WHEREAS the EMPLOYER and the CONTRACTOR have agreed to enter into an agreement in terms of the provisions of Section 37(2) of the Occupational Health and Safety Act No 85 of 1993, as amended by OHS Act Amendment Act No 181/1993 (hereinafter referred to as the ACT);

NOW THEREFORE the parties agree as follows:

1. **The CONTRACTOR undertakes to acquaint the appropriate officials and employees of the CONTRACTOR with all relevant provisions of the ACT and the regulations promulgated in terms thereof.**
2. The CONTRACTOR undertakes to fully comply with all relevant duties, obligations and prohibitions imposed in terms of the ACT and Regulations: Provided that should the EMPLOYER have prescribed certain arrangements and procedures that same shall be observed and adhered to by the CONTRACTOR, his officials and employees. The CONTRACTOR shall bear the onus of acquainting himself/herself/itself with such arrangements and procedures.
3. The CONTRACTOR hereby accepts Sole Liability for such due compliance with the relevant duties, obligations, prohibitions, arrangements and procedures, if any, imposed by the ACT and Regulations, and the CONTRACTOR expressly absolves the EMPLOYER and the Employer's CONSULTING ENGINEERS from being obliged to comply with any of the aforesaid duties, obligations, prohibitions, arrangements and procedures in respect of the work included in the Contract.
4. The CONTRACTOR agrees that any duly authorised officials of the EMPLOYER shall be entitled, although not obliged, to take such steps as may be necessary to ensure that the CONTRACTOR has complied with his undertakings as more fully set out in paragraphs 1 and 2 above, which steps may include, but shall not be limited to, the right to inspect any appropriate site or premises occupied by the CONTRACTOR, or to take such steps it may deem necessary to remedy the default of the CONTRACTOR at the cost of the CONTRACTOR.
5. The CONTRACTOR shall be obliged to report forthwith to the EMPLOYER any investigation, complaint or criminal charge which may arise as a consequence of the provisions of the ACT and Regulations, pursuant to work performed in terms of this agreement, and shall, on written demand, provide full details in writing of

such investigation, complaint or criminal charge.

Thus signed at for and on behalf of the CONTRACTOR

on this the day of 20.....

SIGNATURE:

NAME AND SURNAME:

CAPACITY:

WITNESSES: 1.

2.

Thus signed at for and on behalf of the EMPLOYER on this

the day of 20.....

SIGNATURE:

NAME AND SURNAME:

CAPACITY:

WITNESSES: 1.

2.

PART C2: PRICING DATA

C2.1: PRICING INSTRUCTIONS

C2.2: BILL OF QUANTITIES

LIMPOPO DEPARTMENT OF AGRICULTURE AND RURAL DEVELOPMENT**A 3-YEAR FRAMEWORK AGREEMENT FOR THE DEVELOPMENT AND MAINTENANCE OF IRRIGATION PROJECTS AND SCHEMES FOR THE LIMPOPO DEPARTMENT OF AGRICULTURE AND RURAL DEVELOPMENT****C2.1 Pricing Instructions**

1. The General Conditions of Contract, the Special Conditions of Contract (if any), the Specifications (including Project specifications), and the Drawings are to be read in conjunction with the Schedule of Quantities.
2.
 - a. The Schedule comprises items covering the Contractor's profit and costs of general liabilities and of the construction of temporary and permanent works.
 - b. The Tenderer is at liberty to insert a rate of his own choosing for each item in the Schedule, and his attention is drawn to the fact that the Contractor has the right, under various circumstances, to payment for additional works carried out and that the Engineer is obliged to base his assessment of the rates to be paid for such additional work on the rates inserted in the Schedule by the Contractor.
 - c. Clause 8 of each Standardized Specification and the measurement and payment clause of each particular specification, read together with the relevant clauses of the Project Specification, set out what ancillary or associated activities are included in the rate for the operations specified.
3. Descriptions in the Schedule of Quantities are abbreviated and the schedule has been drawn up generally in accordance with the latest issue of Civil Engineering Quantities. Should any requirement of the measurement and payment clause of the applicable Standardized Specification, or the Project Specification, conflict with the terms of the Schedule of Quantities or, when relevant, Civil Engineering Quantities, the requirement of the Project Specification, as applicable, shall prevail.
4. Unless otherwise stated, items are measured in accordance with the Drawings, and no allowance has been made for waste.
5. The prices and rates to be inserted in the Schedule of Quantities are to be full inclusive prices to the Employer for the work described under the several items. Such prices shall cover all costs and expenses that may be required in and for the construction of the Work described, and shall cover the cost of all general risks, liabilities, and obligations set forth or implied in the Documents on which the Tender is based.
6. A price or rate is to be entered against each item in the Schedule of Quantities, whether the quantities are stated or not. An item against which no price is entered will be considered to be covered by the other prices or rates in the schedule.
7. The Tenderer must price each item in the Schedule of Quantities in BLACK INK.

8. All quantities in the Schedule of Quantities are provisional quantities and will be subjected to final remeasurement of actual work done.
9. Ordering materials: The quantities of work or material stated in the Schedule of Quantities shall not be regarded as constituting authorization to the contractor to order material.
10. Units of measurement: The units of measurement described in the Schedule of Quantities are metric units.

Abbreviations used in the schedule of Quantities are as follows:

%	=	percent
h	=	hour
ha	=	hectare
kg	=	kilogram
kl	=	kilolitre
km	=	kilometre
km-pass	=	kilometre-pass
kPa	=	kilopascal
kW	=	kilowatt
l	=	litre
m	=	metre
mm	=	millimetre
m ²	=	square metre
m ² -pass	=	square metre-pass
m ³	=	cubic metre
m ³ -km	=	cubic metre-kilometre
MN	=	meganewton
MN.m	=	meganewton-metre
MPa	=	megapascal
No.	=	number
Prov sum	=	Provisional sum
PC sum	=	Prime Cost sum
R/only	=	Rate only
sum	=	lump sum
t	=	ton (1000 kg)
W/day	=	Work day

All rates and sums of money quoted in the Schedule of Quantities shall be in the Rand.

The Standard System of Measurement of Civil Engineering Quantities for South Africa, and South West Africa published by the South African Institute of Civil Engineers.

C2.2 BILL OF QUANTITIES

SCHEDULE A PRELIMINARY & GENERAL

SCHEDULE B EARTHWORKS

SCHEDULE C STEEL PIPES AND FITTINGS

SCHEDULE D HDPE PIPES AND FITTINGS

SCHEDULE E PVC PIPES AND FITTINGS

SCHEDULE F DRIP IRRIGATION

SCHEDULE G SPRINKLER IRRIGATION

SCHEDULE H FILTERS & AIRVALVES

SCHEDULE I PUMPS, MOTORS, CONTROLS & CABLES

SCHEDULE J LDPE PIPES AND FITTINGS

SCHEDULE K VALVES & METERS

SCHEDULE L SHADENET

SCHEDULE M TUNNELS & RESERVOIRS

SCHEDULE N CENTRE PIVOT IRRIGATION

SCHEDULE P BUILDING

SCHEDULE R ELECTRICAL AND PLUMBING

SCHEDULE S POWER GENERATION EQUIPMENT

SUMMARY OF SCHEDULE OF QUANTITIES AND CALCULATION OF TENDER AMOUNT

LIMPOPO DEPARTMENT OF AGRICULTURE AND RURAL DEVELOPMENT: IRRIGATION TERM CONTRACT

SUMMARY OF SECTIONS

TOTAL SECTION A : PRELIMINARY AND GENERAL

SECTION B: EARTHWORKS

SECTION C : STEEL PIPES AND FITTINGS

SECTION D : HDPE PIPES AND FITTINGS

SECTION E : PVC PIPES AND FITTINGS

SECTION F : DRIP IRRIGATION

SECTION G : SPRINKLER IRRIGATION

SECTION H : FILTERS & AIRVALVES

SECTION I : PUMPS & MOTORS,CONTROLS & CABLES

SECTION J : LDPE PIPES AND FITTINGS

SECTION K : VALVES & METERS

SECTION L : SHADENET

SECTION M : TUNNELS & RESEVOIRS

SECTION N: CENTRE PIVOTS IRRIGATION

SECTION P : BUILDING

SECTION R : ELECTRICALS AND PLUMBING

SECTION S: POWER GENERATION EQUIPMENT

SUB TOTAL SECTION

ADD 15% CONTINGENCIES	
SUB TOTAL	
ADD 15% VAT	
GRAND TOTAL, CARRIED TO FORM OF TENDER	

No.	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
SANS 1200 A		<u>SECTION A: PRELIMINARY & GENERAL</u>				
		<p>Note: Contractor to Hire at least 10 LOCAL personnel/labour at not less than R200/day labour rate for a 6 months Contract Period with Sub Total Task Order Amount of R3 000 000,00 before VAT and Contingencies</p> <p>As per the nature and requirement on each project site: the above Note/assumption will be used to determine and adjust offered contract PnG amounts</p> <p>A1</p>				
1,1,1		Works Insurance	Sum	1		
1,1,2		Securities	Sum	1		
1,1,3		Setting out of Works	Sum	1		
1,1,4		Protection of Works	Sum	1		
1,1,5		Management of Contract	Sum	1		
1,1,6		Meetings and reporting	Sum	1		
1,1,7		Main Notice Board	Sum	1		
1,1,8		Construction and safety notices boards	Sum	1		
1,1,9		Water, Electricity and Communication provision	Sum	1		
1,1,10		Office facility, 12m2, Temporal facility Wooden wendy house or mobile container	Sum	1		
1,1,11		Storage facility, 16m2 temporal facility	Sum	1		
1,1,12		Staff housing	Sum	1		
1,1,13		Ablution facilities	Sum	1		
		HEALTH AND SAFETY				
		General:				
1,2,1		Preparation of Contractor's site specific Health and Safety Plan.	Sum	1		
1,2,2		Submission of the Health and Safety File.	Sum	1		
1,2,3		Provision of full time Health and Safety Officer for the entire construction period.	Month	6		
1,2,4		Induction training of personnel activity	Sum	1		
1,2,5		Provision of first aid boxes on site	No	2		
1,2,6		SANS approved weld mesh type temporary barrier fencing 1,8m high covered with a net fixed to and including 100mm diameter gum poles set securely min 300mm deep in ground at max 3m spacing including excavation, backfilling, etc	m	1		
1,2,7		Extra over mesh fence for pedestrian gate size 1.8 x 1,8m high.	No	1		
1,2,8		Provision for Personal Protective Equipment and Protective Clothing:				
1,2,9		Reflective vests.	No	15		
1,2,10		Hard hats.	No	15		
1,2,11		Protective foot wear.	No	15		
1,2,12		Ear Plugs.	No	15		
1,2,13		Dust Masks.	No	15		
1,2,14		Working suite - jacket and pans	No	15		
		Costs of Medical Certificates and Medical Surveillance:				
1,2,15		Entry medical fitness examinations per employee	No	10		
1,2,16		Respiratory prevention kit allocation and routine screening	No	10		
1,2,17		Exit Examinations per employee	No	10		
1,2,18		Dust Suppression:				
1,2,19		Dust suppression by water spraying construction site, with 10 000L Tanker	Day	1		

SECTION A: PRELIMINARY GENERAL

No.	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Covid-19 Compliance Measures				
1,2,19		The Contractor is required to price for Covid 19 compliance and the pricing thereof shall be deemed to include all the mandatory requirements.	Sum	1		
Not to exceed 5% of the Task Order Sub-Total Before Contingencies and VAT					Sub-Total A1	
1.3		<u>TIME RELATED ITEMS (A2)</u>				
1,3,1		Claim Monthly as per Task Order Sub-Total Amount before Contingencies and VAT, Max of 5%	Prov Sum	1	3,000,000	R 3,000,000.00
1,3,2		Claim for Time Related Preliminary and General	%	3,000,000		
1,3,3		Provision and Payment of CLO	Prov Sum	1	40,000	R 40,000.00
1,3,4		Profit over/Mark-up	%	40,000		
TOTAL SECTION "A2"						

No.	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
SANS 1200A DAYWORKS						
A.3	8.7	Daywork Labour				
A.3.1		Contractor's Representative	hour	1		
A.3.2		Surveyor	hour	1		
A.3.3		Irrigation engineer	hour	1		
A.3.4		Plumber	hour	1		
A.3.5		Boilermaker	hour	1		
A.3.6		Bricklayer	hour	1		
A.3.7		Plasterer	hour	1		
A.3.8		Welder with API 1104 Certificate	hour	1		
A.3.9		Electrician	hour	1		
A.3.10		Semi-skilled labourer	hour	1		
A.3.11		Labourer	hour	1		
A.4	8.7	Plant hire : Work Rates on Site				
A.4.1		Crane 20 t - 35 t capacity	hour	1		
A.4.2		Tractor 60 kW - 90 kW	hour	1		
A.4.3		TLB 60 kW - 70 kW	hour	1		
A.4.4		Bulldozer 160 kW - 170 kW	hour	1		
A.4.5		Motor graders 150 kW - 160 kW	hour	1		
A.4.6		Wheel excavators 0,4 - 1,25m³ bucket size	hour	1		
A.4.7		Water tankers 4 000 - 20 000 litre	hour	1		
A.4.8		Drilling rig up to 200 metres	hour	1		
A.4.9		Borehole Testing equipment up 10 litres/s	hour	1		
A.4.10		Dumpers 0,5m³ (Hydraulic tip)	hour	1		
A.4.11		Mono pump with 80mm DN outlet (diesel driven) 2.2 - 7.5 kW	hour	1		
A.4.12		Arc-welding unit (300 A)	hour	1		
A.4.13		10 kVA (petrol) 220V Generator	hour	1		
A.4.14		30 kVA (diesel) 380V - 3ph Generator	hour	1		
TOTAL SECTION "A3"						

No.	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
SANS 1200 A		<u>SECTION A3: TRAINING AND OTHER MARKUPS</u>				
1.5		SUMS STATED PROVISIONALLY BY ENGINEER (Employer) SABI ACCREDITED TRAINING				
1.5.1		Provision of M1 - Basic principles and installation of irrigation systems by an SABI accredited training service provider / institute (25 People)	Sum	1	106,250	106250
1.5.2		Provision of M2 - Irrigation Scheduling and management of irrigation systems an SABI accredited training service provider / institute (5 People)	Sum	1	45,000	45000
1.5.3		Provision of refresher training on the irrigation equipment installed. Training to be done by the Supplier of an SABI accredited training service provider / institue	Sum	1	40,000	40000
1.5.4		Training allowance for direct payments to targeted labour in terms of formal training days	Sum	1	15,000	15000
1.5.5		Transport & accommodation of workers for training where it is not possible to undertake the training in close proximity to the site	Sum	1	8,000	R8,000.00
1.5.6		Extra over 2.3.1 to 2.3.5 above for the administration payment of training, allowances transport and venue arrangements	%	R214,250.00		
		Mark up on other specialists services				
		Geohydrological services	PC sum	15,000	1	R 15,000.00
			%	15,000		
		Electrical and mechanical engineering services	PC sum	40,000	1	R 40,000.00
			%	40,000		
		Geotechnical services	PC sum	50,000	1	R 50,000.00
1.3,1			%	50,000		
1.3,2						
1.3,3		Agricultural Engineering (Anciliry works)	PC sum	50,000	1	R 50,000.00
			%	50,000		
		Provision of Operation and maintenance manual for Irrigation Development Works	Sum	1		
			SUB-TOTAL A4			
TOTAL SECTION "A" CARRIED FORWARD TO SUMMARY						

SECTION B: EARTHWORKS

No.	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		SECTION B: EARTHWORKS				
		SITE CLEARANCE				
		Clear and grub site including vegetation, trees and tree stumps of girth up to 1m	m ²	1		
		Clear and grub vegetation on the pipeline path, 2m wide clearing	m	1		
		De-bushing of virgin land with congested high dense bush/trees	ha	1		
		De-bushing of virgin land with scattered bush/trees	ha	1		
		c) Remove Topsoil				
		Strip to 150 mm deep x 1 m wide on single pipe and 2 m wide				
		on double on pipeline centre line, stockpile and prevent dust	m ²	2000		
		Dams De-Silting				
		Removal of silt in dam basin including free haul of 6m ³ /1km and dumping on approved site as per Engineers instruction.	m ³	100		
		Keeping excavations free of water:				
		Keeping excavations free from mud and storm water	Sum	1		
		Handling and Keeping excavations free from subterranean sources.	Sum	1		
B.2	SANS 1200D	EXCAVATION				
B.2.1		Excavations in all materials for trenches to a depth less than 1000 mm for removal of unsuitable material and dispose of material for 600mm wide trenches	m	1		
B.2.2		Excavations in all materials for trenches to a depth less than 1000 mm for removal of unsuitable material and dispose of material for 800mm wide trenches	m	1		
B.2.3		Excavations in all materials for trenches to a depth less than 1500 mm for removal of unsuitable material and dispose of material for 600mm wide trenches	m	1		
B.2.4		Excavations in all materials for trenches to a depth less 1500 mm for removal of unsuitable material and dispose of material for 800mm wide trenches	m	1		
B.2.5		Excavations in all materials for trenches to a depth over 1500 mm for removal of unsuitable material and dispose of material for 600mm wide trenches	m	1		
B.2.6		Excavations in all materials for trenches to a depth over 1500 mm for removal of unsuitable material and dispose of material for 800mm wide trenches	m	1		
B.2.7		Extra-over Item above				
B.2.8		a) Intermediate excavations	m ³	1		
B.2.9		b) Hard excavations	m ³	1		
B.2.10		c) Boulder excavation, Class A	m ³	1		
B.2.11		d) Boulder excavation, Class B	m ³	1		
		BEDDING (PIPES)				
		Provision of bedding from trench excavation:				
		a) Selected granular material	m ³	1		
		b) Selected fill material	m ³	1		
		Supply only of bedding by importation				
		From other necessary excavations (Provisional)				
		a) Selected granular material	m ³	1		
		b) Selected fill material	m ³	1		
		Dealing with Services that intersect a trench to complete works:				
		1) Stock fences	No	1		
		2) Water Pipes	No	1		
		3) Gravel Roads	No	1		
		4) Power cables	No	1		
		Finishing				
		Reinstate road surfaces complete with all courses:				
		d) Gravel road surfaces	m ²	1	300.00	
		e) Paved road surfaces	m ²	1		
		SUB-TOTAL				
B.3		Soil Preparation				
B.3.1		Plough land earmarked for irrigation to a depth of 300 mm	ha	1		
B.3.2		Disk land earmarked for irrigation	ha	1		
B.3.3		Rip the land earmarked for irrigaion to a depth of 600 mm, One way	ha	1		
B.3.4		Rip the land earmarked for irrigaion to a depth of 600 mm, 2nd Cross Ripping at 45deg	ha	1		
B.3.5		Vegetable crops ridges making with less than 0,5m wide width and 0,5m height in the field	ha	1		
B.3.6		Citrus orchard ridges amking with over 1m wide width and 1m height in the field	ha	1		
B.3.7		Extra over above for operations under Shadenets and Tunnels	ha	1		
		SUB-TOTAL				

SECTION B: EARTHWORKS

TOTAL SECTION "B" CARRIED FORWARD TO SUMMARY						

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
<u>SECTION C : STEEL PIPES AND FITTINGS</u>						
C.1		Supply, deliver,install and test the following steel pipes, fittings and specials complete with gaskets, bolts, nuts and washers. Conforming to SABS 719, SABS 62-1989 and BS534. All steel pipes and fittings to have a wall thickness of 4.5mm and galvanized according to specification SABS 1461 and SABS ISO 14713. All flanges Table D				
C.1.1		<u>Barrel Nipple</u>				
C.1.1.1		8 mm	no	1		
C.1.1.2		10 mm	no	1		
C.1.1.3		15 mm	no	1		
C.1.1.4		20 mm	no	1		
C.1.1.5		25 mm	no	1		
C.1.1.6		32 mm	no	1		
C.1.1.7		40 mm	no	1		
C.1.1.8		50 mm	no	1		
C.1.1.9		65 mm	no	1		
C.1.1.10		80 mm	no	1		
C.1.1.11		100 mm	no	1		
C.1.1.12		150 mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
C.1.2		<u>Nipple Galvanised Hexagonal</u>				
C.1.2.1		8 mm	no	1		
C.1.2.2		10 mm	no	1		
C.1.2.3		15 mm	no	1		
C.1.2.4		20 mm	no	1		
C.1.2.5		25 mm	no	1		
C.1.2.6		32 mm	no	1		
C.1.2.7		40 mm	no	1		
C.1.2.8		50 mm	no	1		
C.1.2.9		65 mm	no	1		
C.1.2.10		80 mm	no	1		
C.1.2.11		100 mm	no	1		
C.1.2.12		150 mm	no	1		
C.1.3		<u>Elbow Galvanised Female/Female 90⁰</u>				
C.1.3.1		8 mm	no	1		
C.1.3.2		10 mm	no	1		
C.1.3.3		15 mm	no	1		
C.1.3.4		20 mm	no	1		
C.1.3.5		25 mm	no	1		
C.1.3.6		32 mm	no	1		
C.1.3.7		40 mm	no	1		
C.1.3.8		50 mm	no	1		
C.1.3.9		65 mm	no	1		
C.1.3.10		80 mm	no	1		
C.1.3.11		100 mm	no	1		
C.1.3.12		150 mm	no	1		
C.1.4		<u>Elbow Galvanised Male/Female 90⁰</u>				
C.1.4.1		8 mm	no	1		
C.1.4.2		10 mm	no	1		
C.1.4.3		15 mm	no	1		
C.1.4.4		20 mm	no	1		
C.1.4.5		25 mm	no	1		
C.1.4.6		32 mm	no	1		
C.1.4.7		40 mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
C.1.4.8		50 mm	no	1		
C.1.4.9		65 mm	no	1		
C.1.4.10		80 mm	no	1		
C.1.4.11		100 mm	no	1		
C.1.4.12		150 mm	no	1		
C.1.5		<u>Elbow Galvanised Gemale/Female 45</u>				
C.1.5.1		8 mm	no	1		
C.1.5.2		10 mm	no	1		
C.1.5.3		15 mm	no	1		
C.1.5.4		20 mm	no	1		
C.1.5.5		25 mm	no	1		
C.1.5.6		32 mm	no	1		
C.1.5.7		40 mm	no	1		
C.1.5.8		50 mm	no	1		
C.1.5.9		65 mm	no	1		
C.1.5.10		80 mm	no	1		
C.1.5.11		100 mm	no	1		
C.1.5.12		150 mm	no	1		
C.1.6		<u>Coupling galvanised swage</u>				
C.1.6.1		8 mm	no	1		
C.1.6.2		10 mm	no	1		
C.1.6.3		15 mm	no	1		
C.1.6.4		20 mm	no	1		
C.1.6.5		25 mm	no	1		
C.1.6.6		32 mm	no	1		
C.1.6.7		40 mm	no	1		
C.1.6.8		50 mm	no	1		
C.1.6.9		65 mm	no	1		
C.1.6.10		80 mm	no	1		
C.1.6.11		100 mm	no	1		
C.1.6.12		150 mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
C.1.7		<u>Crosses galvanised</u>				
C.1.7.1		8 mm	no	1		
C.1.7.2		10 mm	no	1		
C.1.7.3		15 mm	no	1		
C.1.7.4		20 mm	no	1		
C.1.7.5		25 mm	no	1		
C.1.7.6		32 mm	no	1		
C.1.7.7		40 mm	no	1		
C.1.7.8		50 mm	no	1		
C.1.7.9		65 mm	no	1		
C.1.7.10		80 mm	no	1		
C.1.7.11		100 mm	no	1		
C.1.7.12		150 mm	no	1		
C.1.8		<u>Backnut galvanised</u>				
C.1.8.1		8 mm	no	1		
C.1.8.2		10 mm	no	1		
C.1.8.3		15 mm	no	1		
C.1.8.4		20 mm	no	1		
C.1.8.5		25 mm	no	1		
C.1.8.6		32 mm	no	1		
C.1.8.7		40 mm	no	1		
C.1.8.8		50 mm	no	1		
C.1.8.9		65 mm	no	1		
C.1.8.10		80 mm	no	1		
C.1.8.11		100 mm	no	1		
C.1.8.12		150 mm	no	1		
C.1.9		<u>Union galvanised conical</u>				
C.1.9.1		8 mm	no	1		
C.1.9.2		10 mm	no	1		
C.1.9.3		15 mm	no	1		
C.1.9.4		20 mm	no	1		
C.1.9.5		25 mm	no	1		
C.1.9.6		32 mm	no	1		
C.1.9.7		40 mm	no	1		
C.1.9.8		50 mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
C.1.9.9		65 mm	no	1		
C.1.9.10		80 mm	no	1		
C.1.9.11		100 mm	no	1		
C.1.9.12		150 mm	no	1		
C.1.10		<u>Union galvanised conical</u>				
C.1.10.1		8 mm	no	1		
C.1.10.2		10 mm	no	1		
C.1.10.3		15 mm	no	1		
C.1.10.4		20 mm	no	1		
C.1.10.5		25 mm	no	1		
C.1.10.6		32 mm	no	1		
C.1.10.7		40 mm	no	1		
C.1.10.8		50 mm	no	1		
C.1.10.9		65 mm	no	1		
C.1.10.10		80 mm	no	1		
C.1.10.11		100 mm	no	1		
C.1.10.12		150 mm	no	1		
C.1.11		<u>Coupling Galvanised Johnson</u>				
C.1.11.1		8 mm	no	1		
C.1.11.2		10 mm	no	1		
C.1.11.3		15 mm	no	1		
C.1.11.4		20 mm	no	1		
C.1.11.5		25 mm	no	1		
C.1.11.6		32 mm	no	1		
C.1.11.7		40 mm	no	1		
C.1.11.8		50 mm	no	1		
C.1.11.9		65 mm	no	1		
C.1.11.10		80 mm	no	1		
C.1.11.11		100 mm	no	1		
C.1.11.12		150 mm	no	1		
C.1.12		<u>Nipple Galvanised Longscrew</u>				
C.1.12.1		8 mm	no	1		
C.1.12.2		10 mm	no	1		
C.1.12.3		15 mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
C.1.12.4		20 mm	no	1		
C.1.12.5		25 mm	no	1		
C.1.12.6		32 mm	no	1		
C.1.12.7		40 mm	no	1		
C.1.12.8		50 mm	no	1		
C.1.12.9		65 mm	no	1		
C.1.12.10		80 mm	no	1		
C.1.12.11		100 mm	no	1		
C.1.12.12		150 mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
C.1.13		<u>Adaptor Galvanised Swage</u>				
C.1.13.1		8 mm	no	1		
C.1.13.2		10 mm	no	1		
C.1.13.3		15 mm	no	1		
C.1.13.4		20 mm	no	1		
C.1.13.5		25 mm	no	1		
C.1.13.6		32 mm	no	1		
C.1.13.7		40 mm	no	1		
C.1.13.8		50 mm	no	1		
C.1.13.9		65 mm	no	1		
C.1.13.10		80 mm	no	1		
C.1.13.11		100 mm	no	1		
C.1.13.12		150 mm	no	1		
C.1.14		<u>Plug Galvanised Hollow</u>				
C.1.14.1		8 mm	no	1		
C.1.14.2		10 mm	no	1		
C.1.14.3		15 mm	no	1		
C.1.14.4		20 mm	no	1		
C.1.14.5		25 mm	no	1		
C.1.14.6		32 mm	no	1		
C.1.14.7		40 mm	no	1		
C.1.14.8		50 mm	no	1		
C.1.14.9		65 mm	no	1		
C.1.14.10		80 mm	no	1		
C.1.14.11		100 mm	no	1		
C.1.14.12		150 mm	no	1		
C.1.15		<u>Socket Galvanised</u>				
C.1.15.1		8 mm	no	1		
C.1.15.2		10 mm	no	1		
C.1.15.3		15 mm	no	1		
C.1.15.4		20 mm	no	1		
C.1.15.5		25 mm	no	1		
C.1.15.6		32 mm	no	1		
C.1.15.7		40 mm	no	1		
C.1.15.8		50 mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
C.1.15.9		65 mm	no	1		
C.1.15.10		80 mm	no	1		
C.1.15.11		100 mm	no	1		
C.1.15.12		150 mm	no	1		
C.1.16		<u>Endcap Galvanised</u>				
C.1.16.1		8 mm	no	1		
C.1.16.2		10 mm	no	1		
C.1.16.3		15 mm	no	1		
C.1.16.4		20 mm	no	1		
C.1.16.5		25 mm	no	1		
C.1.16.6		32 mm	no	1		
C.1.16.7		40 mm	no	1		
C.1.16.8		50 mm	no	1		
C.1.16.9		65 mm	no	1		
C.1.16.10		80 mm	no	1		
C.1.16.11		100 mm	no	1		
C.1.16.12		150 mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
C.1.17		<u>Holderbat Galvanised</u>				
C.1.17.1		8 mm	no	1		
C.1.17.2		10 mm	no	1		
C.1.17.3		15 mm	no	1		
C.1.17.4		20 mm	no	1		
C.1.17.5		25 mm	no	1		
C.1.17.6		32 mm	no	1		
C.1.17.7		40 mm	no	1		
C.1.17.8		50 mm	no	1		
C.1.17.9		65 mm	no	1		
C.1.17.10		80 mm	no	1		
C.1.17.11		100 mm	no	1		
C.1.17.12		150 mm	no	1		
C.1.18		<u>Socket Galvanised Sprinkler</u>				
C.1.18.1		8 mm	no	1		
C.1.18.2		10 mm	no	1		
C.1.18.3		15 mm	no	1		
C.1.18.4		20 mm	no	1		
C.1.18.5		25 mm	no	1		
C.1.18.6		32 mm	no	1		
C.1.18.7		40 mm	no	1		
C.1.18.8		50 mm	no	1		
C.1.18.9		65 mm	no	1		
C.1.18.10		80 mm	no	1		
C.1.18.11		100 mm	no	1		
C.1.18.12		150 mm	no	1		
C.1.19		<u>Tee Galvanised</u>				
C.1.19.1		8 mm	no	1		
C.1.19.2		10 mm	no	1		
C.1.19.3		15 mm	no	1		
C.1.19.4		20 mm	no	1		
C.1.19.5		25 mm	no	1		
C.1.19.6		32 mm	no	1		
C.1.19.7		40 mm	no	1		
C.1.19.8		50 mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
C.1.19.9		65 mm	no	1		
C.1.19.10		80 mm	no	1		
C.1.19.11		100 mm	no	1		
C.1.19.12		150 mm	no	1		
C.1.20		<u>Socket Steel</u>				
C.1.20.1		8 mm	no	1		
C.1.20.2		10 mm	no	1		
C.1.20.3		15 mm	no	1		
C.1.20.4		20 mm	no	1		
C.1.20.5		25 mm	no	1		
C.1.20.6		32 mm	no	1		
C.1.20.7		40 mm	no	1		
C.1.20.8		50 mm	no	1		
C.1.20.9		65 mm	no	1		
C.1.20.10		80 mm	no	1		
C.1.20.11		100 mm	no	1		
C.1.20.12		150 mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
C.1.21		<u>Socket Galvanised Reducing</u>				
C.1.21.1		15x08mm	no	1		
C.1.21.2		15x10mm	no	1		
C.1.21.3		20x15mm	no	1		
C.1.21.4		25x15mm	no	1		
C.1.21.5		25x20mm	no	1		
C.1.21.6		32x15mm	no	1		
C.1.21.7		32x20mm	no	1		
C.1.21.8		32x25mm	no	1		
C.1.21.9		40x15mm	no	1		
C.1.21.10		40x20mm	no	1		
C.1.21.11		40x25mm	no	1		
C.1.21.12		40x32mm	no	1		
C.1.21.13		50x15mm	no	1		
C.1.21.14		50x20mm	no	1		
C.1.21.15		50x25mm	no	1		
C.1.21.16		50x32mm	no	1		
C.1.21.17		50x40mm	no	1		
C.1.21.18		65x25mm	no	1		
C.1.21.19		65x32mm	no	1		
C.1.21.20		65x40mm	no	1		
C.1.21.21		65x50mm	no	1		
C.1.21.22		80x40mm	no	1		
C.1.22		<u>Tee Galvanised Reducing</u>				
C.1.22.1		15x08mm	no	1		
C.1.22.2		15x10mm	no	1		
C.1.22.3		20x15mm	no	1		
C.1.22.4		25x15mm	no	1		
C.1.22.5		25x20mm	no	1		
C.1.22.6		32x15mm	no	1		
C.1.22.7		32x20mm	no	1		
C.1.22.8		32x25mm	no	1		
C.1.22.9		40x15mm	no	1		
C.1.22.10		40x20mm	no	1		
C.1.22.11		40x25mm	no	1		
C.1.22.12		40x32mm	no	1		
C.1.22.13		50x15mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
C.1.22.14		50x20mm	no	1		
C.1.22.15		50x25mm	no	1		
C.1.22.16		50x32mm	no	1		
C.1.22.17		50x40mm	no	1		
C.1.22.18		65x25mm	no	1		
C.1.22.19		65x32mm	no	1		
C.1.22.20		65x40mm	no	1		
C.1.22.21		65x50mm	no	1		
C.1.22.22		80x40mm	no	1		
C.1.23		<u>Standpipe Galvanised</u>				
C.1.23.1		15mm x 150mm	no	1		
C.1.23.2		15mm x 200mm	no	1		
C.1.23.3		15mm x 300mm	no	1		
C.1.23.4		15mm x 400mm	no	1		
C.1.23.5		15mm x 450mm	no	1		
C.1.23.6		15mm x 500mm	no	1		
C.1.23.7		15mm x 600mm	no	1		
C.1.23.8		15mm x 750mm	no	1		
C.1.23.9		15mm x 900mm	no	1		
C.1.23.10		15mm x 1000mm	no	1		
C.1.23.11		15mm x 1200mm	no	1		
C.1.23.12		20mm x 150mm	no	1		
C.1.23.13		20mm x 200mm	no	1		
C.1.23.14		20mm x 300mm	no	1		
C.1.23.15		20mm x 400mm	no	1		
C.1.23.16		20mm x 450mm	no	1		
C.1.23.17		20mm x 500mm	no	1		
C.1.23.18		20mm x 600mm	no	1		
C.1.23.19		20mm x 700mm	no	1		
C.1.23.20		20mm x 750mm	no	1		
C.1.23.21		20mm x 900mm	no	1		
C.1.23.22		20mm x 1000mm	no	1		
C.1.23.23		20mm x 1200mm	no	1		
C.1.23.24		25mm x 150mm	no	1		
C.1.23.25		25mm x 200mm	no	1		
C.1.23.26		25mm x 300mm	no	1		
C.1.23.27		25mm x 400mm	no	1		
C.1.23.28		25mm x 450mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
C.1.23.29		25mm x 500mm	no	1		
C.1.23.30		25mm x 600mm	no	1		
C.1.23.31		25mm x 750mm	no	1		
C.1.23.32		25mm x 900mm	no	1		
C.1.23.33		25mm x 1000mm	no	1		
C.1.23.34		32mm x 150mm	no	1		
C.1.23.35		32mm x 200mm	no	1		
C.1.23.36		32mm x 300mm	no	1		
C.1.23.37		32mm x 400mm	no	1		
C.1.23.38		32mm x 450mm	no	1		
C.1.23.39		32mm x 500mm	no	1		
C.1.23.40		32mm x 600mm	no	1		
C.1.23.41		32mm x 750mm	no	1		
C.1.23.42		32mm x 900mm	no	1		
C.1.23.43		32mm x 1000mm	no	1		
C.1.23.44		40mm x 150mm	no	1		
C.1.23.45		40mm x 200mm	no	1		
C.1.23.46		40mm x 300mm	no	1		
C.1.23.47		40mm x 400mm	no	1		
C.1.23.48		40mm x 450mm	no	1		
C.1.23.49		40mm x 500mm	no	1		
C.1.23.50		40mm x 600mm	no	1		
C.1.23.51		40mm x 750mm	no	1		
C.1.23.52		40mm x 900mm	no	1		
C.1.23.53		40mm x 1000mm	no	1		
C.1.23.54		50mm x 150mm	no	1		
C.1.23.55		50mm x 200mm	no	1		
C.1.23.56		50mm x 300mm	no	1		
C.1.23.57		50mm x 400mm	no	1		
C.1.23.58		50mm x 450mm	no	1		
C.1.23.59		50mm x 500mm	no	1		
C.1.23.60		50mm x 600mm	no	1		
C.1.23.61		50mm x 750mm	no	1		
C.1.23.62		50mm x 900mm	no	1		
C.1.23.63		50mm x 1000mm	no	1		
C.1.23.64		65mm x 150mm	no	1		
C.1.23.65		65mm x 200mm	no	1		
C.1.23.66		65mm x 300mm	no	1		
C.1.23.67		65mm x 400mm	no	1		
C.1.23.68		65mm x 450mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
C.1.23.69		65mm x 500mm	no	1		
C.1.23.70		65mm x 600mm	no	1		
C.1.23.71		65mm x 750mm	no	1		
C.1.23.72		65mm x 900mm	no	1		
C.1.23.73		65mm x 1000mm	no	1		
C.1.23.74		80mm x 150mm	no	1		
C.1.23.75		80mm x 200mm	no	1		
C.1.23.76		80mm x 300mm	no	1		
C.1.23.77		80mm x 400mm	no	1		
C.1.23.78		80mm x 450mm	no	1		
C.1.23.79		80mm x 500mm	no	1		
C.1.23.80		80mm x 600mm	no	1		
C.1.23.81		80mm x 750mm	no	1		
C.1.23.82		80mm x 900mm	no	1		
C.1.23.83		80mm x 1000mm	no	1		
C.1.23.84		100mm x 150mm	no	1		
C.1.23.85		100mm x 200mm	no	1		
C.1.23.86		100mm x 300mm	no	1		
C.1.23.87		100mm x 400mm	no	1		
C.1.23.88		100mm x 450mm	no	1		
C.1.23.89		100mm x 500mm	no	1		
C.1.23.90		100mm x 600mm	no	1		
C.1.23.91		100mm x 750mm	no	1		
C.1.23.92		100mm x 900mm	no	1		
C.1.23.93		100mm x 1000mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
C.1.24		<u>Flange Screwed</u>				
C.1.24.1		15mm	no	1		
C.1.24.2		20mm	no	1		
C.1.24.3		25mm	no	1		
C.1.24.4		32mm	no	1		
C.1.24.5		40mm	no	1		
C.1.24.6		50mm	no	1		
C.1.24.7		65mm	no	1		
C.1.24.8		80mm	no	1		
C.1.24.9		100mm	no	1		
C.1.24.10		150mm	no	1		
C.1.25		<u>Flange Screwed On</u>				
C.1.25.1		15mm	no	1		
C.1.25.2		20mm	no	1		
C.1.25.3		25mm	no	1		
C.1.25.4		32mm	no	1		
C.1.25.5		40mm	no	1		
C.1.25.6		50mm	no	1		
C.1.25.7		65mm	no	1		
C.1.25.8		80mm	no	1		
C.1.25.9		100mm	no	1		
C.1.25.10		150mm	no	1		
C.1.26		<u>Flange Weld On</u>				
C.1.26.1		40mm	no	1		
C.1.26.2		50mm	no	1		
C.1.26.3		65mm	no	1		
C.1.26.4		80mm	no	1		
C.1.26.5		100mm	no	1		
C.1.26.6		125mm	no	1		
C.1.26.7		150mm	no	1		
C.1.26.8		200mm	no	1		
C.1.26.9		250mm	no	1		
C.1.27		<u>Flange Weld On (Table 1600/3)</u>				

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
C.1.27.1		50mm	no	1		
C.1.27.2		65mm	no	1		
C.1.27.3		80mm	no	1		
C.1.27.4		100mm	no	1		
C.1.27.5		125mm	no	1		
C.1.27.6		150mm	no	1		
C.1.27.7		200mm	no	1		
C.1.27.8		250mm	no	1		
C.1.28		<u>Back Ring (Used With UPV Stubs)</u>				
C.1.28.1		50mm	no	1		
C.1.28.2		65mm	no	1		
C.1.28.3		80mm	no	1		
C.1.28.4		100mm	no	1		
C.1.28.5		125mm	no	1		
C.1.28.6		150mm	no	1		
C.1.28.7		200mm	no	1		
C.1.28.8		250mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
C.1.29		<u>Insertion Ring Gasket</u>				
C.1.29.1		50mm	no	1		
C.1.29.2		65mm	no	1		
C.1.29.3		80mm	no	1		
C.1.29.4		100mm	no	1		
C.1.29.5		125mm	no	1		
C.1.29.6		150mm	no	1		
C.1.29.7		200mm	no	1		
C.1.29.8		250mm	no	1		
C.1.30		<u>Insertion Ring Full Face Gasket</u>				
C.1.30.1		50mm	no	1		
C.1.30.2		65mm	no	1		
C.1.30.3		80mm	no	1		
C.1.30.4		100mm	no	1		
C.1.30.5		125mm	no	1		
C.1.30.6		150mm	no	1		
C.1.30.7		200mm	no	1		
C.1.30.8		250mm	no	1		
C.1.31		<u>Galvanised steel pipe</u>				
C.1.31.1		15 mm	m	1		
C.1.31.2		20 mm	m	1		
C.1.31.3		25 mm	m	1		
C.1.31.4		32 mm	m	1		
C.1.31.5		40 mm	m	1		
C.1.31.6		50 mm	m	1		
C.1.31.7		65 mm	m	1		
C.1.31.8		80 mm	m	1		
C.1.31.9		100 mm	m	1		
C.1.31.10		150 mm	m	1		
C.1.32		<u>Galvanised steel quick coupling perrot pipe</u>				
C.1.32.1		50 mm	m	6		
C.1.32.2		70 mm	m	6		
C.1.32.3		89 mm	m	6		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	C.1.32.4	108 mm	m	6		
	C.1.32.5	159 mm	m	6		
		<u>Galvanised steel Special fittings</u>				
		Allow a sum for fabrication of special galvanised steel pipes	Prov sum	1	100000	R 100,000.00
		Profit over above	%	100000		
		TOTAL SECTION "C" CARRIED FORWARD TO SUMMARY				

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
<u>SECTION D : HDPE PIPES AND FITTINGS</u>						
D.1		Supply, deliver,install and test the following SABS approved HDPE pipes, fittings.				
D.1.1		<u>Coupling Compression</u>				
D.1.1.1		16mm	no	1		
D.1.1.2		20mm	no	1		
D.1.1.3		25mm	no	1		
D.1.1.4		32mm	no	1		
D.1.1.5		40mm	no	1		
D.1.1.6		50mm	no	1		
D.1.1.7		63mm	no	1		
D.1.1.8		75mm	no	1		
D.1.1.9		90mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
D.1.2		<u>Endcap Compression</u>				
D.1.2.1		16mm	no	1		
D.1.2.2		20mm	no	1		
D.1.2.3		25mm	no	1		
D.1.2.4		32mm	no	1		
D.1.2.5		40mm	no	1		
D.1.2.6		50mm	no	1		
D.1.2.7		63mm	no	1		
D.1.2.8		75mm	no	1		
D.1.2.9		90mm	no	1		
D.1.3		<u>Tee Compression</u>				
D.1.3.1		16mm	no	1		
D.1.3.2		20mm	no	1		
D.1.3.3		25mm	no	1		
D.1.3.4		32mm	no	1		
D.1.3.5		40mm	no	1		
D.1.3.6		50mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
D.1.3.7		63mm	no	1		
D.1.3.8		75mm	no	1		
D.1.3.9		90mm	no	1		
D.1.4		<u>Elbow Compression</u>				
D.1.4.1		16mm	no	1		
D.1.4.2		20mm	no	1		
D.1.4.3		25mm	no	1		
D.1.4.4		32mm	no	1		
D.1.4.5		40mm	no	1		
D.1.4.6		50mm	no	1		
D.1.4.7		63mm	no	1		
D.1.4.8		75mm	no	1		
D.1.4.9		90mm	no	1		
D.1.5		<u>Male Adaptors</u>				
D.1.5.1		20mm x 15mm	no	1		
D.1.5.2		20mm x 20mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
D.1.5.3		20mm x 25mm	no	1		
D.1.5.4		25mm x 15mm	no	1		
D.1.5.5		25mm x 20mm	no	1		
D.1.5.6		25mm x 25mm	no	1		
D.1.5.7		32mm x 15mm	no	1		
D.1.5.8		32mm x 20mm	no	1		
D.1.5.9		32mm x 25mm	no	1		
D.1.5.10		32mm x 32mm	no	1		
D.1.5.11		40mm x 25mm	no	1		
D.1.5.12		40mm x 32mm	no	1		
D.1.5.13		40mm x 40mm	no	1		
D.1.5.14		40mm x 50mm	no	1		
D.1.5.15		50mm x 25mm	no	1		
D.1.5.16		50mm x 32mm	no	1		
D.1.5.17		50mm x 40mm	no	1		
D.1.5.18		50mm x 50mm	no	1		
D.1.5.19		63mm x 40mm	no	1		
D.1.5.20		63mm x 50mm	no	1		
D.1.5.21		63mm x 65mm	no	1		
D.1.5.22		75mm x 50mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
D.1.5.23		75mm x 65mm	no	1		
D.1.5.24		75mm x 80mm	no	1		
D.1.5.25		90mm x 50mm	no	1		
D.1.5.26		90mm x 65mm	no	1		
D.1.5.27		90mm x 80mm	no	1		
D.1.5.28		110mm x 80mm	no	1		
D.1.5.29		110mm x 100mm	no	1		
D.1.6		<u>Female Adaptors</u>				
D.1.6.1		20mm x 15mm	no	1		
D.1.6.2		20mm x 20mm	no	1		
D.1.6.3		20mm x 25mm	no	1		
D.1.6.4		25mm x 15mm	no	1		
D.1.6.5		25mm x 20mm	no	1		
D.1.6.6		25mm x 25mm	no	1		
D.1.6.7		32mm x 15mm	no	1		
D.1.6.8		32mm x 20mm	no	1		
D.1.6.9		32mm x 25mm	no	1		
D.1.6.10		32mm x 32mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
D.1.6.11		40mm x 25mm	no	1		
D.1.6.12		40mm x 32mm	no	1		
D.1.6.13		40mm x 40mm	no	1		
D.1.6.14		40mm x 50mm	no	1		
D.1.6.15		50mm x 25mm	no	1		
D.1.6.16		50mm x 32mm	no	1		
D.1.6.17		50mm x 40mm	no	1		
D.1.6.18		50mm x 50mm	no	1		
D.1.6.19		63mm x 40mm	no	1		
D.1.6.20		63mm x 50mm	no	1		
D.1.6.21		63mm x 65mm	no	1		
D.1.6.22		75mm x 50mm	no	1		
D.1.6.23		75mm x 65mm	no	1		
D.1.6.24		75mm x 80mm	no	1		
D.1.6.25		90mm x 50mm	no	1		
D.1.6.26		90mm x 65mm	no	1		
D.1.6.27		90mm x 80mm	no	1		
D.1.6.28		110mm x 80mm	no	1		
D.1.6.29		110mm x 100mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
D.1.7		<u>Reducing Coupling</u>				
D.1.7.1		25mm x 20mm	no	1		
D.1.7.2		32mm x 20mm	no	1		
D.1.7.3		32mm x 25mm	no	1		
D.1.7.4		40mm x 25mm	no	1		
D.1.7.5		40mm x 32mm	no	1		
D.1.7.6		50mm x 25mm	no	1		
D.1.7.7		50mm x 32mm	no	1		
D.1.7.8		50mm x 40mm	no	1		
D.1.7.9		63mm x 32mm	no	1		
D.1.7.10		63mm x 40mm	no	1		
D.1.7.11		63mm x 50mm	no	1		
D.1.7.12		75mm x 50mm	no	1		
D.1.7.13		75mm x 63mm	no	1		
D.1.7.14		90mm x 63mm	no	1		
D.1.7.15		90mm x 75mm	no	1		
D.1.7.16		110mm x 90mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
D.1.8		<u>Female/Male Elbow Adaptor</u>				
D.1.8.1		20mm x 15mm	no	1		
D.1.8.2		20mm x 20mm	no	1		
D.1.8.3		20mm x 25mm	no	1		
D.1.8.4		25mm x 15mm	no	1		
D.1.8.5		25mm x 20mm	no	1		
D.1.8.6		25mm x 25mm	no	1		
D.1.8.7		32mm x 15mm	no	1		
D.1.8.8		32mm x 20mm	no	1		
D.1.8.9		32mm x 25mm	no	1		
D.1.8.10		32mm x 32mm	no	1		
D.1.8.11		40mm x 25mm	no	1		
D.1.8.12		40mm x 32mm	no	1		
D.1.8.13		40mm x 40mm	no	1		
D.1.8.14		40mm x 50mm	no	1		
D.1.8.15		50mm x 25mm	no	1		
D.1.8.16		50mm x 32mm	no	1		
D.1.8.17		50mm x 40mm	no	1		
D.1.8.18		50mm x 50mm	no	1		
D.1.8.19		63mm x 40mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
D.1.8.20		63mm x 50mm	no	1		
D.1.8.21		63mm x 65mm	no	1		
D.1.8.22		75mm x 50mm	no	1		
D.1.8.23		75mm x 65mm	no	1		
D.1.8.24		75mm x 80mm	no	1		
D.1.8.25		90mm x 50mm	no	1		
D.1.8.26		90mm x 65mm	no	1		
D.1.8.27		90mm x 80mm	no	1		
D.1.8.28		110mm x 80mm	no	1		
D.1.8.29		110mm x 100mm	no	1		
D.1.9		<u>Female/ Male Tee Adaptor</u>				
D.1.9.1		20mm x 15mm	no	1		
D.1.9.2		20mm x 20mm	no	1		
D.1.9.3		20mm x 25mm	no	1		
D.1.9.4		25mm x 15mm	no	1		
D.1.9.5		25mm x 20mm	no	1		
D.1.9.6		25mm x 25mm	no	1		
D.1.9.7		32mm x 15mm	no	1		
D.1.9.8		32mm x 20mm	no	1		
D.1.9.9		32mm x 25mm	no	1		
D.1.9.10		32mm x 32mm	no	1		
D.1.9.11		40mm x 25mm	no	1		
D.1.9.12		40mm x 32mm	no	1		
D.1.9.13		40mm x 40mm	no	1		
D.1.9.14		40mm x 50mm	no	1		
D.1.9.15		50mm x 25mm	no	1		
D.1.9.16		50mm x 32mm	no	1		
D.1.9.17		50mm x 40mm	no	1		
D.1.9.18		50mm x 50mm	no	1		
D.1.9.19		63mm x 40mm	no	1		
D.1.9.20		63mm x 50mm	no	1		
D.1.9.21		63mm x 65mm	no	1		
D.1.9.22		75mm x 50mm	no	1		
D.1.9.23		75mm x 65mm	no	1		
D.1.9.24		75mm x 80mm	no	1		
D.1.9.25		90mm x 50mm	no	1		
D.1.9.26		90mm x 65mm	no	1		
D.1.9.27		90mm x 80mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
D.1.9.28		110mm x 80mm	no	1		
D.1.9.29		110mm x 100mm	no	1		
D.1.9.30		63mm x 50mm	no	1		
D.1.9.31		75mm x 63mm	no	1		
D.1.9.32		90mm x 63mm	no	1		
D.1.9.33		90mm x 75mm	no	1		
D.1.9.34		110mm x 90mm	no	1		
D.1.10		<u>Reducing Tee</u>				
D.1.10.1		25mm x 20mm	no	1		
D.1.10.2		32mm x 20mm	no	1		
D.1.10.3		32mm x 25mm	no	1		
D.1.10.4		40mm x 25mm	no	1		
D.1.10.5		40mm x 32mm	no	1		
D.1.10.6		50mm x 25mm	no	1		
D.1.10.7		50mm x 32mm	no	1		
D.1.10.8		50mm x 40mm	no	1		
D.1.10.9		63mm x 40mm	no	1		
D.1.10.10		63mm x 50mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
D.1.10.11		75mm x 63mm	no	1		
D.1.10.12		90mm x 63mm	no	1		
D.1.10.13		90mm x 75mm	no	1		
D.1.10.14		110mm x 90mm	no	1		
D.1.11		<u>Equal Tee</u>				
D.1.11.1		16mm	no	1		
D.1.11.2		20mm	no	1		
D.1.11.3		25mm	no	1		
D.1.11.4		32mm	no	1		
D.1.11.5		40mm	no	1		
D.1.11.6		50mm	no	1		
D.1.11.7		63mm	no	1		
D.1.11.8		75mm	no	1		
D.1.11.9		90mm	no	1		
D.1.11.10		110mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
D.1.12		<u>Male/Female Elbow adaptor</u>				
D.1.12.1		20mm x 15mm	no	1		
D.1.12.2		20mm x 20mm	no	1		
D.1.12.3		25mm x 15mm	no	1		
D.1.12.4		25mm x 20mm	no	1		
D.1.12.5		25mm x 25mm	no	1		
D.1.12.6		32mm x 15mm	no	1		
D.1.12.7		32mm x 20mm	no	1		
D.1.12.8		32mm x 25mm	no	1		
D.1.12.9		32mm x 32mm	no	1		
D.1.12.10		40mm x 20mm	no	1		
D.1.12.11		40mm x 25mm	no	1		
D.1.12.12		40mm x 32mm	no	1		
D.1.12.13		40mm x 40mm	no	1		
D.1.12.14		50mm x 32mm	no	1		
D.1.12.15		50mm x 40mm	no	1		
D.1.12.16		50mm x 50mm	no	1		
D.1.12.17		63mm x 40mm	no	1		
D.1.12.18		63mm x 50mm	no	1		
D.1.12.19		63mm x 65mm	no	1		
D.1.12.20		75mm x 50mm	no	1		
D.1.12.21		75mm x 65mm	no	1		
D.1.13		<u>Clamp Saddles (6 BAR)</u>				
D.1.13.1		25mm x 15mm	no	1		
D.1.13.2		25mm x 20mm	no	1		
D.1.13.3		32mm x 15mm	no	1		
D.1.13.4		32mm x 20mm	no	1		
D.1.13.5		32mm x 25mm	no	1		
D.1.13.6		40mm x 15mm	no	1		
D.1.13.7		40mm x 20mm	no	1		
D.1.13.8		40mm x 25mm	no	1		
D.1.13.9		50mm x 15mm	no	1		
D.1.13.10		50mm x 20mm	no	1		
D.1.13.11		50mm x 25mm	no	1		
D.1.13.12		50mm x 32mm	no	1		
D.1.13.13		63mm x 15mm	no	1		
D.1.13.14		63mm x 20mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
D.1.13.15		63mm x 25mm	no	1		
D.1.13.16		63mm x 32mm	no	1		
D.1.13.17		63mm x 40mm	no	1		
D.1.13.18		75mm x 15mm	no	1		
D.1.13.19		75mm x 20mm	no	1		
D.1.13.20		75mm x 25mm	no	1		
D.1.13.21		75mm x 32mm	no	1		
D.1.13.22		75mm x 40mm	no	1		
D.1.13.23		75mm x 50mm	no	1		
D.1.13.24		90mm x 15mm	no	1		
D.1.13.25		90mm x 20mm	no	1		
D.1.13.26		90mm x 25mm	no	1		
D.1.13.27		90mm x 32mm	no	1		
D.1.13.28		90mm x 40mm	no	1		
D.1.13.29		90mm x 50mm	no	1		
D.1.13.30		110mm x 15mm	no	1		
D.1.13.31		110mm x 20mm	no	1		
D.1.13.32		110mm x 25mm	no	1		
D.1.13.33		110mm x 32mm	no	1		
D.1.13.34		110mm x 40mm	no	1		
D.1.13.35		110mm x 50mm	no	1		
D.1.13.36		110mm x 80mm	no	1		
D.1.13.37		125mm x 15mm	no	1		
D.1.13.38		125mm x 20mm	no	1		
D.1.13.39		125mm x 25mm	no	1		
D.1.13.40		125mm x 32mm	no	1		
D.1.13.41		125mm x 40mm	no	1		
D.1.13.42		125mm x 50mm	no	1		
D.1.13.43		125mm x 80mm	no	1		
D.1.13.44		160mm x 15mm	no	1		
D.1.13.45		160mm x 20mm	no	1		
D.1.13.46		160mm x 25mm	no	1		
D.1.13.47		160mm x 32mm	no	1		
D.1.13.48		160mm x 40mm	no	1		
D.1.13.49		160mm x 50mm	no	1		
D.1.13.50		160mm x 80mm	no	1		
D.1.13.51		160mm x 100mm	no	1		
D.1.14		<u>Reinforced Clamp Saddles (10 Bar)</u>				

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
D.1.14.1		25mm x 15mm	no	1		
D.1.14.2		25mm x 20mm	no	1		
D.1.14.3		32mm x 15mm	no	1		
D.1.14.4		32mm x 20mm	no	1		
D.1.14.5		32mm x 25mm	no	1		
D.1.14.6		40mm x 15mm	no	1		
D.1.14.7		40mm x 20mm	no	1		
D.1.14.8		40mm x 25mm	no	1		
D.1.14.9		50mm x 15mm	no	1		
D.1.14.10		50mm x 20mm	no	1		
D.1.14.11		50mm x 25mm	no	1		
D.1.14.12		50mm x 32mm	no	1		
D.1.14.13		63mm x 15mm	no	1		
D.1.14.14		63mm x 20mm	no	1		
D.1.14.15		63mm x 25mm	no	1		
D.1.14.16		63mm x 32mm	no	1		
D.1.14.17		63mm x 40mm	no	1		
D.1.14.18		75mm x 15mm	no	1		
D.1.14.19		75mm x 20mm	no	1		
D.1.14.20		75mm x 25mm	no	1		
D.1.14.21		75mm x 32mm	no	1		
D.1.14.22		75mm x 40mm	no	1		
D.1.14.23		75mm x 50mm	no	1		
D.1.14.24		90mm x 15mm	no	1		
D.1.14.25		90mm x 20mm	no	1		
D.1.14.26		90mm x 25mm	no	1		
D.1.14.27		90mm x 32mm	no	1		
D.1.14.28		90mm x 40mm	no	1		
D.1.14.29		90mm x 50mm	no	1		
D.1.14.30		110mm x 15mm	no	1		
D.1.14.31		110mm x 20mm	no	1		
D.1.14.32		110mm x 25mm	no	1		
D.1.14.33		110mm x 32mm	no	1		
D.1.14.34		110mm x 40mm	no	1		
D.1.14.35		110mm x 50mm	no	1		
D.1.14.36		110mm x 80mm	no	1		
D.1.14.37		125mm x 15mm	no	1		
D.1.14.38		125mm x 20mm	no	1		
D.1.14.39		125mm x 25mm	no	1		
D.1.14.40		125mm x 32mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
D.1.14.41		125mm x 40mm	no	1		
D.1.14.42		125mm x 50mm	no	1		
D.1.14.43		125mm x 80mm	no	1		
D.1.14.44		160mm x 15mm	no	1		
D.1.14.45		160mm x 20mm	no	1		
D.1.14.46		160mm x 25mm	no	1		
D.1.14.47		160mm x 32mm	no	1		
D.1.14.48		160mm x 40mm	no	1		
D.1.14.49		160mm x 50mm	no	1		
D.1.14.50		160mm x 80mm	no	1		
D.1.14.51		160mm x 100mm	no	1		
D.1.14.52		200mm x 20mm	no	1		
D.1.14.53		200mm x 25mm	no	1		
D.1.14.54		200mm x 50mm	no	1		
D.1.14.55		200mm x 80mm	no	1		
D.1.14.56		250mm x 50mm	no	1		
D.1.14.57		250mm x 80mm	no	1		
D.1.14.58		315mm x 50mm	no	1		
D.1.14.59		315mm x 80mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
D.1.15		<u>HDPE pipe complete with fittings (Class 6)</u>				
D.1.15.1		20mm	m	100		
D.1.15.2		25mm	m	100		
D.1.15.3		32mm	m	100		
D.1.15.4		40mm	m	100		
D.1.15.5		50mm	m	100		
D.1.15.6		63mm	m	100		
D.1.15.7		75mm	m	100		
D.1.15.8		90mm	m	100		
D.1.15.9		110mm	m	100		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
D.1.16		<u>HDPE pipe complete with fittings (Class 10)</u>				
D.1.16.1		20mm	m	100		
D.1.16.2		25mm	m	100		
D.1.16.3		32mm	m	100		
D.1.16.4		40mm	m	100		
D.1.16.5		50mm	m	100		
D.1.16.6		63mm	m	100		
D.1.16.7		75mm	m	100		
D.1.16.8		90mm	m	100		
D.1.16.9		110mm	m	100		
D.1.17		<u>HDPE pipe complete with fittings (Class 12)</u>				
D.1.17.1		20mm	m	100		
D.1.17.2		25mm	m	100		
D.1.17.3		32mm	m	100		
D.1.17.4		40mm	m	100		
D.1.17.5		50mm	m	100		
D.1.17.6		63mm	m	100		
D.1.17.7		75mm	m	100		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
D.1.17.8		90mm	m	100		
D.1.17.9		110mm	m	100		
D.1.18		<u>HDPE pipe complete with fittings (Class 16)</u>				
D.1.18.1		20mm	m	100		
D.1.18.2		25mm	m	100		
D.1.18.3		32mm	m	100		
D.1.18.4		40mm	m	100		
D.1.18.5		50mm	m	100		
D.1.18.6		63mm	m	100		
D.1.18.7		75mm	m	100		
D.1.18.8		90mm	m	100		
D.1.18.9		110mm	m	100		
D.1.19		<u>HDPE quick coupling pipe (Class 10)</u>				
D.1.19.1		50 mm	m	6		
D.1.19.2		63 mm	m	6		
D.1.19.3		75 mm	m	6		
D.1.19.4		90 mm	m	6		
D.1.19.5		110 mm	m	6		

	CLAUSe	DESCRIPTION	UNIT	QTY	RATE	AMOUNT		
D.1.20		HDPE WELDED PIPES (Class 12 minimum)						
D.1.20.1		150mm					m	6
D.1.20.2		200mm					m	6
D.1.20.3		250 mm					m	6
D.1.20.4		300 mm					m	6
D.1.20.5		Welding of HDPE joints, pipe circumference	m	1	60000	R 60,000.00		
D.1.20.6		Allow a sum for fabrication of special HDPE pipes fabrication	Prov sum	1				
D.1.20.7		Profit over above	%	60000				
		TOTAL SECTION "D" CARRIED FORWARD TO SUMMARY						

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
SANS 1200C		<u>SECTION E : PVC PIPES AND FITTINGS</u>				
E.1		Supply, deliver,install and test the following SABS approved PVC pipes and fittings.				
E.1.1		<u>uPVC pipe complete with spigot, integral socket and rubber ring seal (Class 6)</u>				
E.1.1.1		50 mm	m	6		
E.1.1.2		63 mm	m	6		
E.1.1.3		75 mm	m	6		
E.1.1.4		90 mm	m	6		
E.1.1.5		110 mm	m	6		
E.1.1.6		125 mm	m	6		
E.1.1.7		140 mm	m	6		
E.1.1.8		160 mm	m	6		
E.1.1.9		200 mm	m	6		
E.1.1.10		250 mm	m	6		
E.1.1.11		315 mm	m	6		
E.1.2		<u>uPVC pipe complete with spigot, integral socket and rubber ring seal (Class 09)</u>				
E.1.2.1		50 mm	m	6		
E.1.2.2		63 mm	m	6		
E.1.2.3		75 mm	m	6		
E.1.2.4		90 mm	m	6		
E.1.2.5		110 mm	m	6		
E.1.2.6		125 mm	m	6		
E.1.2.7		140 mm	m	6		
E.1.2.8		160 mm	m	6		
E.1.2.9		200 mm	m	6		
E.1.2.10		250 mm	m	6		
E.1.2.11		315 mm	m	6		
E.1.3		<u>uPVC pipe complete with spigot, integral socket and rubber ring seal (Class 12)</u>				
E.1.3.1		50 mm	m	6		
E.1.3.2		63 mm	m	6		
E.1.3.3		75 mm	m	6		
E.1.3.4		90 mm	m	6		
E.1.3.5		110 mm	m	6		
E.1.3.6		125 mm	m	6		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
E.1.3.7		140 mm	m	6		
E.1.3.8		160 mm	m	6		
E.1.3.9		200 mm	m	6		
E.1.3.10		250 mm	m	6		
E.1.3.11		315 mm	m	6		
E.1.4		<u>uPVC pipe complete with spigot, integral socket and rubber ring seal (Class 16)</u>				
E.1.4.1		50 mm	m	6		
E.1.4.2		63 mm	m	6		
E.1.4.3		75 mm	m	6		
E.1.4.4		90 mm	m	6		
E.1.4.5		110 mm	m	6		
E.1.4.6		125 mm	m	6		
E.1.4.7		140 mm	m	6		
E.1.4.8		160 mm	m	6		
E.1.4.9		200 mm	m	6		
E.1.4.10		250 mm	m	6		
E.1.4.11		315 mm	m	6		
E.1.5		<u>uPVC pipe complete with spigot, integral socket and rubber ring seal (Class 20)</u>				
E.1.5.1		50 mm	m	6		
E.1.5.2		63 mm	m	6		
E.1.5.3		75 mm	m	6		
E.1.5.4		90 mm	m	6		
E.1.5.5		110 mm	m	6		
E.1.5.6		125 mm	m	6		
E.1.5.7		140 mm	m	6		
E.1.5.8		160 mm	m	6		
E.1.5.9		200 mm	m	6		
E.1.5.10		250 mm	m	6		
E.1.5.11		315 mm	m	6		
E2.1.1		<u>mPVC pipe complete with spigot, integral socket and rubber ring seal (Class 6)</u>				
E2.1.1.1		50 mm	m	6		
E2.1.1.2		63 mm	m	6		
E2.1.1.3		75 mm	m	6		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
E2.1.1.4		90 mm	m	6		
E2.1.1.5		110 mm	m	6		
E2.1.1.6		125 mm	m	6		
E2.1.1.7		140 mm	m	6		
E2.1.1.8		160 mm	m	6		
E2.1.1.9		200 mm	m	6		
E2.1.1.10		250 mm	m	6		
E2.1.1.11		315 mm	m	6		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
E2.1.2		<u>mPVC pipe complete with spigot, integral socket and rubber ring seal (Class 09)</u>				
E2.1.2.1		50 mm	m	6		
E2.1.2.2		63 mm	m	6		
E2.1.2.3		75 mm	m	6		
E2.1.2.4		90 mm	m	6		
E2.1.2.5		110 mm	m	6		
E2.1.2.6		125 mm	m	6		
E2.1.2.7		140 mm	m	6		
E2.1.2.8		160 mm	m	6		
E2.1.2.9		200 mm	m	6		
E2.1.2.10		250 mm	m	6		
E2.1.2.11		315 mm	m	6		
E2.1.3		<u>mPVC pipe complete with spigot, integral socket and rubber ring seal (Class 12)</u>				
E2.1.3.1		50 mm	m	6		
E2.1.3.2		63 mm	m	6		
E2.1.3.3		75 mm	m	6		
E2.1.3.4		90 mm	m	6		
E2.1.3.5		110 mm	m	6		
E2.1.3.6		125 mm	m	6		
E2.1.3.7		140 mm	m	6		
E2.1.3.8		160 mm	m	6		
E2.1.3.9		200 mm	m	6		
E2.1.3.10		250 mm	m	6		
E2.1.3.11		315 mm	m	6		
E2.1.4		<u>mPVC pipe complete with spigot, integral socket and rubber ring seal (Class 16)</u>				
E2.1.4.1		50 mm	m	6		
E2.1.4.2		63 mm	m	6		
E2.1.4.3		75 mm	m	6		
E2.1.4.4		90 mm	m	6		
E2.1.4.5		110 mm	m	6		
E2.1.4.6		125 mm	m	6		
E2.1.4.7		140 mm	m	6		
E2.1.4.8		160 mm	m	6		
E2.1.4.9		200 mm	m	6		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
E2.1.4.10		250 mm	m	6		
E2.1.4.11		315 mm	m	6		
E2.1.5		<u>mPVC pipe complete with spigot, integral socket and rubber ring seal (Class 20)</u>				
E2.1.5.1		50 mm	m	6		
E2.1.5.2		63 mm	m	6		
E2.1.5.3		75 mm	m	6		
E2.1.5.4		90 mm	m	6		
E2.1.5.5		110 mm	m	6		
E2.1.5.6		125 mm	m	6		
E2.1.5.7		140 mm	m	6		
E2.1.5.8		160 mm	m	6		
E2.1.5.9		200 mm	m	6		
E2.1.5.10		250 mm	m	6		
E2.1.5.11		315 mm	m	6		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
E.1.6		<u>COUPLINGS DOUBLE & REPAIR</u>				
E.1.6.1		50 mm	no	1		
E.1.6.2		63 mm	no	1		
E.1.6.3		75 mm	no	1		
E.1.6.4		90 mm	no	1		
E.1.6.5		110 mm	no	1		
E.1.6.6		125 mm	no	1		
E.1.6.7		140 mm	no	1		
E.1.6.8		160 mm	no	1		
E.1.6.9		200 mm	no	1		
E.1.6.10		250 mm	no	1		
E.1.6.11		315 mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
E.1.7		<u>Pipe seal to female thread elbow</u>				
E.1.7.1		50 mm x 2 inch	no	1		
E.1.7.2		63 mm x 2 inch	no	1		
E.1.7.3		75 mm x 2 inch	no	1		
E.1.7.4		75 mm x 3 inch	no	1		
E.1.7.5		90 mm x 3 inch	no	1		
E.1.7.6		110 mm x 3 inch	no	1		
E.1.7.7		110 mm x 4 inch	no	1		
E.1.7.8		125 mm x 3 inch	no	1		
E.1.7.9		125 mm x 4 inch	no	1		
E.1.7.10		140 mm x 3 inch	no	1		
E.1.7.11		140 mm x 4 inch	no	1		
E.1.7.12		160 mm x 3 inch	no	1		
E.1.7.13		160 mm x 4 inch	no	1		
E.1.7.14		200 mm x 3 inch	no	1		
E.1.7.15		200 mm x 4 inch	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
E.1.8		<u>FLANGE ADAPTORS EPOXY COATED ALUMINIUM (TABLE D)</u>				
E.1.8.1		50mm	no	1		
E.1.8.2		63mm	no	1		
E.1.8.3		75mm	no	1		
E.1.8.4		90mm	no	1		
E.1.8.5		110mm	no	1		
E.1.8.6		125mm	no	1		
E.1.8.7		140mm	no	1		
E.1.8.8		160mm	no	1		
E.1.8.9		200mm	no	1		
E.1.8.10		250mm	no	1		
E.1.8.11		315mm	no	1		
E.1.9		<u>FLANGE ADAPTORS CAST IRON BITUMEN COATED (TABLE D)</u>				
E.1.9.1		50mm	no	1		
E.1.9.2		63mm	no	1		
E.1.9.3		75mm	no	1		
E.1.9.4		90mm	no	1		
E.1.9.5		110mm	no	1		
E.1.9.6		125mm	no	1		
E.1.9.7		140mm	no	1		
E.1.9.8		160mm	no	1		
E.1.9.9		200mm	no	1		
E.1.9.10		250mm	no	1		
E.1.9.11		315mm	no	1		
E.1.10		<u>BENDS EPOXY COATED ALUMINIUM (64-45)</u>				
E.1.10.1		50mm	no	1		
E.1.10.2		63mm	no	1		
E.1.10.3		75mm	no	1		
E.1.10.4		90mm	no	1		
E.1.10.5		110mm	no	1		
E.1.10.6		125mm	no	1		
E.1.10.7		140mm	no	1		
E.1.10.8		160mm	no	1		
E.1.10.9		200mm	no	1		
E.1.10.10		250mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
E.1.11		<u>BENDS CAST IRON BITUMEN COATED (11,5-90)</u>				
E.1.11.1		50mm	no	1		
E.1.11.2		63mm	no	1		
E.1.11.3		75mm	no	1		
E.1.11.4		90mm	no	1		
E.1.11.5		110mm	no	1		
E.1.11.6		125mm	no	1		
E.1.11.7		140mm	no	1		
E.1.11.8		160mm	no	1		
E.1.11.9		200mm	no	1		
E.1.11.10		250mm	no	1		
E.1.12		<u>COUPLING EPOXY COATED ALUMINIUM (9 BAR)</u>				
E.1.12.1		50mm	no	1		
E.1.12.2		63mm	no	1		
E.1.12.3		75mm	no	1		
E.1.12.4		90mm	no	1		
E.1.12.5		110mm	no	1		
E.1.12.6		125mm	no	1		
E.1.12.7		140mm	no	1		
E.1.12.8		160mm	no	1		
E.1.12.9		200mm	no	1		
E.1.12.10		250mm	no	1		
E.1.13		<u>COUPLING CAST IRON BITUMEN COATED (16 BAR)</u>				
E.1.13.1		50mm	no	1		
E.1.13.2		63mm	no	1		
E.1.13.3		75mm	no	1		
E.1.13.4		90mm	no	1		
E.1.13.5		110mm	no	1		
E.1.13.6		125mm	no	1		
E.1.13.7		140mm	no	1		
E.1.13.8		160mm	no	1		
E.1.13.9		200mm	no	1		
E.1.13.10		250mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
E.1.14		<u>ADAPTOR B.S.P MALE &FEMALE</u>				
E.1.14.1		50mm x 2"				
E.1.14.2		63mm x 2"				
E.1.14.3		75mm x 2"				
E.1.14.4		75mm x 3"				
E.1.14.5		90mm x 3"				
E.1.14.6		90mm x 4"				
E.1.14.7		110mm x 3"				
E.1.14.8		110mm x 4"				
E.1.14.9		125mm x 4"				
E.1.14.10		125mm x 5"				
E.1.14.11		140mm x 4"				
E.1.14.12		140mm x 5"				
E.1.14.13		140mm x 6"				
E.1.14.14		160mm x 6"				
E.1.14.15		160mm x 6"				

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
E.1.15		<u>END CAPS</u>				
E.1.15.1		50mm	no	1		
E.1.15.2		63mm	no	1		
E.1.15.3		75mm	no	1		
E.1.15.4		90mm	no	1		
E.1.15.5		110mm	no	1		
E.1.15.6		125mm	no	1		
E.1.15.7		140mm	no	1		
E.1.15.8		160mm	no	1		
E.1.15.9		200mm	no	1		
E.1.15.10		250mm	no	1		
E.1.15.11		315mm	no	1		
E.1.16		<u>EQUAL TEES</u>				
E.1.16.1		50mm	no	1		
E.1.16.2		63mm	no	1		
E.1.16.3		75mm	no	1		
E.1.16.4		90mm	no	1		
E.1.16.5		110mm	no	1		
E.1.16.6		125mm	no	1		
E.1.16.7		140mm	no	1		
E.1.16.8		160mm	no	1		
E.1.16.9		200mm	no	1		
E.1.16.10		250mm	no	1		
E.1.16.11		315mm	no	1		
E.1.17		<u>BENDS - 22 & 11.25 DEGREES</u>				
E.1.17.1		50mm	no	1		
E.1.17.2		63mm	no	1		
E.1.17.3		75mm	no	1		
E.1.17.4		90mm	no	1		
E.1.17.5		110mm	no	1		
E.1.17.6		125mm	no	1		
E.1.17.7		140mm	no	1		
E.1.17.8		160mm	no	1		
E.1.17.9		200mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
E.1.17.10		250mm	no	1		
E.1.17.11		315mm	no	1		
E.1.18		<u>BENDS - 90 & 45 DEGREES</u>				
E.1.18.1		50mm	no	1		
E.1.18.2		63mm	no	1		
E.1.18.3		75mm	no	1		
E.1.18.4		90mm	no	1		
E.1.18.5		110mm	no	1		
E.1.18.6		125mm	no	1		
E.1.18.7		140mm	no	1		
E.1.18.8		160mm	no	1		
E.1.18.9		200mm	no	1		
E.1.18.10		250mm	no	1		
E.1.18.11		315mm	no	1		
E.1.19		<u>Male/Female Reducer class 9</u>				
E.1.19.1		50mm x 40mm	no	1		
E.1.19.2		63mm x 40mm	no	1		
E.1.19.3		63mm x 50mm	no	1		
E.1.19.4		75mm x 50mm	no	1		
E.1.19.5		75mm x 63mm	no	1		
E.1.19.6		90mm x 63mm	no	1		
E.1.19.7		90mm x 75mm	no	1		
E.1.19.8		110mm x 75mm	no	1		
E.1.19.9		110mm x 90mm	no	1		
E.1.19.10		125mm x 90mm	no	1		
E.1.19.11		125mm x 110mm	no	1		
E.1.19.12		140mm x 110mm	no	1		
E.1.19.13		140mm x 125mm	no	1		
E.1.19.14		160mm x 110mm	no	1		
E.1.19.15		160mm x 125mm	no	1		
E.1.19.16		160mm x 140mm	no	1		
E.1.19.17		200mm x 160mm	no	1		
E.1.19.18		250mm x 200mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
E.1.20		<u>Reducing Cross</u>				
E.1.20.1		50mm x 40mm	no	1		
E.1.20.2		63mm x 40mm	no	1		
E.1.20.3		63mm x 50mm	no	1		
E.1.20.4		75mm x 50mm	no	1		
E.1.20.5		75mm x 63mm	no	1		
E.1.20.6		90mm x 63mm	no	1		
E.1.20.7		90mm x 75mm	no	1		
E.1.20.8		110mm x 75mm	no	1		
E.1.20.9		110mm x 90mm	no	1		
E.1.20.10		125mm x 90mm	no	1		
E.1.20.11		125mm x 110mm	no	1		
E.1.20.12		140mm x 110mm	no	1		
E.1.20.13		140mm x 125mm	no	1		
E.1.20.14		160mm x 110mm	no	1		
E.1.20.15		160mm x 125mm	no	1		
E.1.20.16		160mm x 140mm	no	1		
E.1.20.17		200mm x 160mm	no	1		
E.1.20.18		250mm x 200mm	no	1		
E.1.21		<u>Reducing Tee</u>				
E.1.21.1		50mm x 40mm	no	1		
E.1.21.2		63mm x 40mm	no	1		
E.1.21.3		63mm x 50mm	no	1		
E.1.21.4		75mm x 50mm	no	1		
E.1.21.5		75mm x 63mm	no	1		
E.1.21.6		90mm x 63mm	no	1		
E.1.21.7		90mm x 75mm	no	1		
E.1.21.8		110mm x 75mm	no	1		
E.1.21.9		110mm x 90mm	no	1		
E.1.21.10		125mm x 90mm	no	1		
E.1.21.11		125mm x 110mm	no	1		
E.1.21.12		140mm x 110mm	no	1		
E.1.21.13		140mm x 125mm	no	1		
E.1.21.14		160mm x 110mm	no	1		
E.1.21.15		160mm x 125mm	no	1		
E.1.21.16		160mm x 140mm	no	1		
E.1.21.17		200mm x 160mm	no	1		
E.1.21.18		250mm x 200mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
E.1.22		<u>FLANGED ON BRANCH TEE (Table D)</u>				
E.1.22.1		50mm	no	1		
E.1.22.2		63mm	no	1		
E.1.22.3		75mm	no	1		
E.1.22.4		90mm	no	1		
E.1.22.5		110mm	no	1		
E.1.22.6		125mm	no	1		
E.1.22.7		140mm	no	1		
E.1.22.8		160mm	no	1		
E.1.22.9		200mm	no	1		
E.1.22.10		250mm	no	1		
E.1.22.11		315mm	no	1		
E.1.23		<u>ADAPTOR PVC-AC</u>				
E.1.23.1		50mm	no	1		
E.1.23.2		63mm	no	1		
E.1.23.3		75mm	no	1		
E.1.23.4		90mm	no	1		
E.1.23.5		110mm	no	1		
E.1.23.6		125mm	no	1		
E.1.23.7		140mm	no	1		
E.1.23.8		160mm	no	1		
E.1.23.9		200mm	no	1		
E.1.23.10		250mm	no	1		
E.1.23.11		315mm	no	1		
E.1.24		<u>ADAPTOR FLANGED (Table D)</u>				
E.1.24.1		50mm	no	1		
E.1.24.2		63mm	no	1		
E.1.24.3		75mm	no	1		
E.1.24.4		90mm	no	1		
E.1.24.5		110mm	no	1		
E.1.24.6		125mm	no	1		
E.1.24.7		140mm	no	1		
E.1.24.8		160mm	no	1		
E.1.24.9		200mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
E.1.24.10		250mm	no	1		
E.1.24.11		315mm	no	1		
		TOTAL SECTION "E" CARRIED FORWARD TO SUMMARY				

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
<u>SECTION F : DRIP IRRIGATION</u>						
F.1		Supply, deliver,install and test the following inline drippers and dripperlines complete with fittings.				
F.1.1		<u>Pressure compensating Inline Drippers (PC) 1-3.5 bar</u>				
F.1.1.1		17mm x 1.0 l/h x 0.3 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.2		17mm x 1.2 l/h x 0.3 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.3		17mm x 1.6 l/h x 0.3 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.4		17mm x 2.1 l/h x 0.3 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.5		17mm x 3.5 l/h x 0.3 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.6		17mm x 1.0 l/h x 0.4 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.7		17mm x 1.2 l/h x 0.4 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.8		17mm x 1.6 l/h x 0.4 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.9		17mm x 2.1 l/h x 0.4 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.10		17mm x 3.5 l/h x 0.4 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.11		17mm x 1.0 l/h x 0.5 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.12		17mm x 1.2 l/h x 0.5 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.13		17mm x 1.6 l/h x 0.5 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.14		17mm x 2.1 l/h x 0.5 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.15		17mm x 3.5 l/h x 0.5 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.16		17mm x 1.0 l/h x 0.6 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.17		17mm x 1.2 l/h x 0.6 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.18		17mm x 1.6 l/h x 0.6 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.19		17mm x 2.1 l/h x 0.6 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.20		17mm x 3.5 l/h x 0.6 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.21		17mm x 1.0 l/h x 0.75 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.22		17mm x 1.2 l/h x 0.75 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.23		17mm x 1.6 l/h x 0.75 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.24		17mm x 2.1 l/h x 0.75 meter dripper spacing x 0,6 mm wall thickness	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
F.1.1.25		17mm x 3.5 l/h x 0.75 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.26		17mm x 1.0 l/h x 1.0 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.27		17mm x 1.2 l/h x 1.0 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.28		17mm x 1.6 l/h x 1.0 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.29		17mm x 2.1 l/h x 1.0 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.30		17mm x 3.5 l/h x 1.0 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.31		17mm x 1.0 l/h x 0.3 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.32		17mm x 1.2 l/h x 0.3 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.33		17mm x 1.6 l/h x 0.3 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.34		17mm x 2.1 l/h x 0.3 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.35		17mm x 3.5 l/h x 0.3 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.36		17mm x 1.0 l/h x 0.4 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.37		17mm x 1.2 l/h x 0.4 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.38		17mm x 1.6 l/h x 0.4 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.39		17mm x 2.1 l/h x 0.4 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.40		17mm x 3.5 l/h x 0.4 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.41		17mm x 1.0 l/h x 0.5 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.42		17mm x 1.2 l/h x 0.5 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.43		17mm x 1.6 l/h x 0.5 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.44		17mm x 2.1 l/h x 0.5 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.45		17mm x 3.5 l/h x 0.5 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.46		17mm x 1.0 l/h x 0.6 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.47		17mm x 1.2 l/h x 0.6 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.48		17mm x 1.6 l/h x 0.6 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.49		17mm x 2.1 l/h x 0.6 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.50		17mm x 3.5 l/h x 0.6 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.51		17mm x 1.0 l/h x 0.75 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.52		17mm x 1.2 l/h x 0.75 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.53		17mm x 1.6 l/h x 0.75 meter dripper spacing x 0,9 mm wall thickness	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
F.1.1.54		17mm x 2.1 l/h x 0.75 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.55		17mm x 3.5 l/h x 0.75 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.56		17mm x 1.0 l/h x 1.0 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.57		17mm x 1.2 l/h x 1.0 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.58		17mm x 1.6 l/h x 1.0 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.59		17mm x 2.1 l/h x 1.0 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.60		17mm x 3.5 l/h x 1.0 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.61		17mm x 1.0 l/h x 0.3 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.62		17mm x 1.2 l/h x 0.3 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.63		17mm x 1.6 l/h x 0.3 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.64		17mm x 2.1 l/h x 0.3 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.65		17mm x 3.5 l/h x 0.3 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.66		17mm x 1.0 l/h x 0.4 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.67		17mm x 1.2 l/h x 0.4 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.68		17mm x 1.6 l/h x 0.4 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.69		17mm x 2.1 l/h x 0.4 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.70		17mm x 3.5 l/h x 0.4 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.71		17mm x 1.0 l/h x 0.5 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.72		17mm x 1.2 l/h x 0.5 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.73		17mm x 1.6 l/h x 0.5 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.74		17mm x 2.1 l/h x 0.5 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.75		17mm x 3.5 l/h x 0.5 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.76		17mm x 1.0 l/h x 0.6 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.77		17mm x 1.2 l/h x 0.6 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.78		17mm x 1.6 l/h x 0.6 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.79		17mm x 2.1 l/h x 0.6 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.80		17mm x 3.5 l/h x 0.6 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.81		17mm x 1.0 l/h x 0.75 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.82		17mm x 1.2 l/h x 0.75 meter dripper spacing x 1,2 mm wall thickness	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
F.1.1.83		17mm x 1.6 l/h x 0.75 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.84		17mm x 2.1 l/h x 0.75 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.85		17mm x 3.5 l/h x 0.75 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.86		17mm x 1.0 l/h x 1.0 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.87		17mm x 1.2 l/h x 1.0 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.88		17mm x 1.6 l/h x 1.0 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.89		17mm x 2.1 l/h x 1.0 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.90		17mm x 3.5 l/h x 1.0 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.91		16mm x 0.7 l/h x 0.3 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.92		16mm x 0.9 l/h x 0.3 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.93		16mm x 1.2 l/h x 0.3 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.94		16mm x 1.6 l/h x 0.3 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.95		16mm x 2.1 l/h x 0.3 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.96		16mm x 3.4 l/h x 0.3 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.97		16mm x 0.7 l/h x 0.4 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.98		16mm x 0.9 l/h x 0.4 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.99		16mm x 1.2 l/h x 0.4 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.100		16mm x 1.6 l/h x 0.4 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.101		16mm x 2.1 l/h x 0.4 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.102		16mm x 3.4 l/h x 0.4 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.103		16mm x 0.7 l/h x 0.5 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.104		16mm x 0.9 l/h x 0.5 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.105		16mm x 1.2 l/h x 0.5 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.106		16mm x 1.6 l/h x 0.5 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.107		16mm x 2.1 l/h x 0.5 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.108		16mm x 3.4 l/h x 0.5 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.109		16mm x 0.7 l/h x 0.6 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.110		16mm x 0.9 l/h x 0.6 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.111		16mm x 1.2 l/h x 0.6 meter dripper spacing x 0,6 mm wall thickness	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
F.1.1.112		16mm x 1.6 l/h x 0.6 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.113		16mm x 2.1 l/h x 0.6 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.114		16mm x 3.4 l/h x 0.6 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.1.115		16mm x 0.7 l/h x 0.3 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.1.116		16mm x 0.9 l/h x 0.3 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.1.117		16mm x 1.2 l/h x 0.3 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.1.118		16mm x 1.6 l/h x 0.3 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.1.119		16mm x 2.1 l/h x 0.3 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.1.120		16mm x 3.4 l/h x 0.3 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.1.121		16mm x 0.7 l/h x 0.4 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.1.122		16mm x 0.9 l/h x 0.4 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.1.123		16mm x 1.2 l/h x 0.4 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.1.124		16mm x 1.6 l/h x 0.4 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.1.125		16mm x 2.1 l/h x 0.4 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.1.126		16mm x 3.4 l/h x 0.4 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.1.127		16mm x 0.7 l/h x 0.5 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.1.128		16mm x 0.9 l/h x 0.5 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.1.129		16mm x 1.2 l/h x 0.5 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.1.130		16mm x 1.6 l/h x 0.5 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.1.131		16mm x 2.1 l/h x 0.5 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.1.132		16mm x 3.4 l/h x 0.5 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.1.133		16mm x 0.7 l/h x 0.6 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.1.134		16mm x 0.9 l/h x 0.6 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.1.135		16mm x 1.2 l/h x 0.6 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.1.136		16mm x 1.6 l/h x 0.6 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.1.137		16mm x 2.1 l/h x 0.6 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.1.138		16mm x 3.4 l/h x 0.6 meter dripper spacing x 0,4 mm wall thickness	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
F.1.1.139		16mm x 0.7 l/h x 0.3 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.140		16mm x 0.9 l/h x 0.3 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.141		16mm x 1.2 l/h x 0.3 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.142		16mm x 1.6 l/h x 0.3 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.143		16mm x 2.1 l/h x 0.3 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.144		16mm x 3.4 l/h x 0.3 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.145		16mm x 0.7 l/h x 0.4 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.146		16mm x 0.9 l/h x 0.4 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.147		16mm x 1.2 l/h x 0.4 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.148		16mm x 1.6 l/h x 0.4 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.149		16mm x 2.1 l/h x 0.4 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.150		16mm x 3.4 l/h x 0.4 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.151		16mm x 0.7 l/h x 0.5 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.152		16mm x 0.9 l/h x 0.5 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.153		16mm x 1.2 l/h x 0.5 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.154		16mm x 1.6 l/h x 0.5 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.155		16mm x 2.1 l/h x 0.5 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.156		16mm x 3.4 l/h x 0.5 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.157		16mm x 0.7 l/h x 0.6 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.158		16mm x 0.9 l/h x 0.6 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.159		16mm x 1.2 l/h x 0.6 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.160		16mm x 1.6 l/h x 0.6 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.161		16mm x 2.1 l/h x 0.6 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.162		16mm x 3.4 l/h x 0.6 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.1.163		16mm x 0.7 l/h x 0.3 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.164		16mm x 0.9 l/h x 0.3 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.165		16mm x 1.2 l/h x 0.3 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.166		16mm x 1.6 l/h x 0.3 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.167		16mm x 2.1 l/h x 0.3 meter dripper spacing x 1,2 mm wall thickness	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
F.1.1.168		16mm x 3.4 l/h x 0.3 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.169		16mm x 0.7 l/h x 0.4 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.170		16mm x 0.9 l/h x 0.4 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.171		16mm x 1.2 l/h x 0.4 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.172		16mm x 1.6 l/h x 0.4 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.173		16mm x 2.1 l/h x 0.4 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.174		16mm x 3.4 l/h x 0.4 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.175		16mm x 0.7 l/h x 0.5 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.176		16mm x 0.9 l/h x 0.5 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.177		16mm x 1.2 l/h x 0.5 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.178		16mm x 1.6 l/h x 0.5 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.179		16mm x 2.1 l/h x 0.5 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.180		16mm x 3.4 l/h x 0.5 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.181		16mm x 0.7 l/h x 0.6 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.182		16mm x 0.9 l/h x 0.6 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.183		16mm x 1.2 l/h x 0.6 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.184		16mm x 1.6 l/h x 0.6 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.185		16mm x 2.1 l/h x 0.6 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.186		16mm x 3.4 l/h x 0.6 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.1.187		20mm x 1.0 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.1.188		20mm x 1.2 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.1.189		20mm x 1.6 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.1.190		20mm x 2.1 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.1.191		20mm x 3.5 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.1.192		20mm x 1.0 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.1.193		20mm x 1.2 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.1.194		20mm x 1.6 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.1.195		20mm x 2.1 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.1.196		20mm x 3.5 l/h x dripper spacing x 1.2 mm wall thickness	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
F.1.1.197		20mm x 1.0 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.1.198		20mm x 1.2 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.1.199		20mm x 1.6 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.1.200		20mm x 2.1 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.1.201		20mm x 3.5 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.1.202		20mm x 1.0 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.1.203		20mm x 1.2 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.1.204		20mm x 1.6 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.1.205		20mm x 2.1 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.1.206		20mm x 3.5 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.1.207		20mm x 1.0 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.1.208		20mm x 1.2 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.1.209		20mm x 1.6 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.1.210		20mm x 2.1 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.1.211		20mm x 3.5 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.1.212		20mm x 1.0 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.1.213		20mm x 1.2 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.1.214		20mm x 1.6 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.1.215		20mm x 2.1 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.1.216		20mm x 3.5 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.1.217		20mm x 1.0 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.1.218		20mm x 1.2 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.1.219		20mm x 1.6 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.1.220		20mm x 2.1 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.1.221		20mm x 3.5 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.1.222		20mm x 1.0 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.1.223		20mm x 1.2 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.1.224		20mm x 1.6 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.1.225		20mm x 2.1 l/h x dripper spacing x 0.9 mm wall thickness	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
F.1.1.226		20mm x 3.5 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.1.227		20mm x 1.0 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.1.228		20mm x 1.2 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.1.229		20mm x 1.6 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.1.230		20mm x 2.1 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.1.231		20mm x 3.5 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.1.232		20mm x 1.0 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.1.233		20mm x 1.2 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.1.234		20mm x 1.6 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.1.235		20mm x 2.1 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.1.236		20mm x 3.5 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.1.237		20mm x 1.0 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.1.238		20mm x 1.2 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.1.239		20mm x 1.6 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.1.240		20mm x 2.1 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.1.241		20mm x 3.5 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.1.242		20mm x 1.0 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.1.243		20mm x 1.2 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.1.244		20mm x 1.6 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.1.245		20mm x 2.1 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.1.246		20mm x 3.5 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2		<u>Non - Pressure compensating inline drippers (NPC) 1-3.5 bar</u>				
F.1.2.1		12mm x 0.8 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.2		12mm x 1.2 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.3		12mm x 1.6 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.4		12mm x 2.0 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.5		12mm x 4.0 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.6		12mm x 0.8 l/h x dripper spacing x 0.9 mm wall thickness	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
F.1.2.7		12mm x 1.2 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.8		12mm x 1.6 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.9		12mm x 2.0 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.10		12mm x 4.0 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.11		12mm x 0.8 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.12		12mm x 1.2 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.13		12mm x 1.6 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.14		12mm x 2.0 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.15		12mm x 4.0 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.16		12mm x 0.8 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.17		12mm x 1.2 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.18		12mm x 1.6 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.19		12mm x 2.0 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.20		12mm x 4.0 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.21		12mm x 0.8 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.22		12mm x 1.2 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.23		12mm x 1.6 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.24		12mm x 2.0 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.25		12mm x 4.0 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.26		12mm x 0.8 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.27		12mm x 1.2 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.28		12mm x 1.6 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.29		12mm x 2.0 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.30		12mm x 4.0 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.31		12mm x 0.8 l/h x dripper spacing x 0.6 mm wall thickness	m	1		
F.1.2.32		12mm x 1.2 l/h x dripper spacing x 0.6 mm wall thickness	m	1		
F.1.2.33		12mm x 1.6 l/h x dripper spacing x 0.6 mm wall thickness	m	1		
F.1.2.34		12mm x 2.0 l/h x dripper spacing x 0.6 mm wall thickness	m	1		
F.1.2.35		12mm x 4.0 l/h x dripper spacing x 0.6 mm wall thickness	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
F.1.2.36		12mm x 0.8 l/h x dripper spacing x 0.6 mm wall thickness	m	1		
F.1.2.37		12mm x 1.2 l/h x dripper spacing x 0.6 mm wall thickness	m	1		
F.1.2.38		12mm x 1.6 l/h x dripper spacing x 0.6 mm wall thickness	m	1		
F.1.2.39		12mm x 2.0 l/h x dripper spacing x 0.6 mm wall thickness	m	1		
F.1.2.40		12mm x 4.0 l/h x dripper spacing x 0.6 mm wall thickness	m	1		
F.1.2.41		12mm x 0.8 l/h x dripper spacing x 0.6 mm wall thickness	m	1		
F.1.2.42		12mm x 1.2 l/h x dripper spacing x 0.6 mm wall thickness	m	1		
F.1.2.43		12mm x 1.6 l/h x dripper spacing x 0.6 mm wall thickness	m	1		
F.1.2.44		12mm x 2.0 l/h x dripper spacing x 0.6 mm wall thickness	m	1		
F.1.2.45		12mm x 4.0 l/h x dripper spacing x 0.6 mm wall thickness	m	1		
F.1.2.46		12mm x 0.8 l/h x dripper spacing x 0.6 mm wall thickness	m	1		
F.1.2.47		12mm x 1.2 l/h x dripper spacing x 0.6 mm wall thickness	m	1		
F.1.2.48		12mm x 1.6 l/h x dripper spacing x 0.6 mm wall thickness	m	1		
F.1.2.49		12mm x 2.0 l/h x dripper spacing x 0.6 mm wall thickness	m	1		
F.1.2.50		12mm x 4.0 l/h x dripper spacing x 0.6 mm wall thickness	m	1		
F.1.2.51		12mm x 0.8 l/h x dripper spacing x 0.6 mm wall thickness	m	1		
F.1.2.52		12mm x 1.2 l/h x dripper spacing x 0.6 mm wall thickness	m	1		
F.1.2.53		12mm x 1.6 l/h x dripper spacing x 0.6 mm wall thickness	m	1		
F.1.2.54		12mm x 2.0 l/h x dripper spacing x 0.6 mm wall thickness	m	1		
F.1.2.55		12mm x 4.0 l/h x dripper spacing x 0.6 mm wall thickness	m	1		
F.1.2.56		12mm x 0.8 l/h x dripper spacing x 0.6 mm wall thickness	m	1		
F.1.2.57		12mm x 1.2 l/h x dripper spacing x 0.6 mm wall thickness	m	1		
F.1.2.58		12mm x 1.6 l/h x dripper spacing x 0.6 mm wall thickness	m	1		
F.1.2.59		12mm x 2.0 l/h x dripper spacing x 0.6 mm wall thickness	m	1		
F.1.2.60		12mm x 4.0 l/h x dripper spacing x 0.6 mm wall thickness	m	1		
F.1.2.61		17mm x 1.0 l/h x 0.3 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.62		17mm x 1.2 l/h x 0.3 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.63		17mm x 1.6 l/h x 0.3 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.64		17mm x 2.1 l/h x 0.3 meter dripper spacing x 0,6 mm wall thickness	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
F.1.2.65		17mm x 3.5 l/h x 0.3 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.66		17mm x 1.0 l/h x 0.4 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.67		17mm x 1.2 l/h x 0.4 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.68		17mm x 1.6 l/h x 0.4 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.69		17mm x 2.1 l/h x 0.4 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.70		17mm x 3.5 l/h x 0.4 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.71		17mm x 1.0 l/h x 0.5 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.72		17mm x 1.2 l/h x 0.5 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.73		17mm x 1.6 l/h x 0.5 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.74		17mm x 2.1 l/h x 0.5 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.75		17mm x 3.5 l/h x 0.5 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.76		17mm x 1.0 l/h x 0.6 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.77		17mm x 1.2 l/h x 0.6 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.78		17mm x 1.6 l/h x 0.6 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.79		17mm x 2.1 l/h x 0.6 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.80		17mm x 3.5 l/h x 0.6 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.81		17mm x 1.0 l/h x 0.75 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.82		17mm x 1.2 l/h x 0.75 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.83		17mm x 1.6 l/h x 0.75 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.84		17mm x 2.1 l/h x 0.75 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.85		17mm x 3.5 l/h x 0.75 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.86		17mm x 1.0 l/h x 1.0 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.87		17mm x 1.2 l/h x 1.0 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.88		17mm x 1.6 l/h x 1.0 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.89		17mm x 2.1 l/h x 1.0 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.90		17mm x 3.5 l/h x 1.0 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.91		17mm x 1.0 l/h x 0.3 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.92		17mm x 1.2 l/h x 0.3 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.93		17mm x 1.6 l/h x 0.3 meter dripper spacing x 0,9 mm wall thickness	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
F.1.2.94		17mm x 2.1 l/h x 0.3 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.95		17mm x 3.5 l/h x 0.3 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.96		17mm x 1.0 l/h x 0.4 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.97		17mm x 1.2 l/h x 0.4 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.98		17mm x 1.6 l/h x 0.4 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.99		17mm x 2.1 l/h x 0.4 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.100		17mm x 3.5 l/h x 0.4 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.101		17mm x 1.0 l/h x 0.5 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.102		17mm x 1.2 l/h x 0.5 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.103		17mm x 1.6 l/h x 0.5 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.104		17mm x 2.1 l/h x 0.5 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.105		17mm x 3.5 l/h x 0.5 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.106		17mm x 1.0 l/h x 0.6 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.107		17mm x 1.2 l/h x 0.6 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.108		17mm x 1.6 l/h x 0.6 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.109		17mm x 2.1 l/h x 0.6 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.110		17mm x 3.5 l/h x 0.6 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.111		17mm x 1.0 l/h x 0.75 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.112		17mm x 1.2 l/h x 0.75 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.113		17mm x 1.6 l/h x 0.75 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.114		17mm x 2.1 l/h x 0.75 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.115		17mm x 3.5 l/h x 0.75 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.116		17mm x 1.0 l/h x 1.0 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.117		17mm x 1.2 l/h x 1.0 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.118		17mm x 1.6 l/h x 1.0 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.119		17mm x 2.1 l/h x 1.0 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.120		17mm x 3.5 l/h x 1.0 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.121		17mm x 1.0 l/h x 0.3 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.122		17mm x 1.2 l/h x 0.3 meter dripper spacing x 1,2 mm wall thickness	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
F.1.2.123		17mm x 1.6 l/h x 0.3 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.124		17mm x 2.1 l/h x 0.3 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.125		17mm x 3.5 l/h x 0.3 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.126		17mm x 1.0 l/h x 0.4 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.127		17mm x 1.2 l/h x 0.4 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.128		17mm x 1.6 l/h x 0.4 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.129		17mm x 2.1 l/h x 0.4 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.130		17mm x 3.5 l/h x 0.4 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.131		17mm x 1.0 l/h x 0.5 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.132		17mm x 1.2 l/h x 0.5 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.133		17mm x 1.6 l/h x 0.5 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.134		17mm x 2.1 l/h x 0.5 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.135		17mm x 3.5 l/h x 0.5 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.136		17mm x 1.0 l/h x 0.6 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.137		17mm x 1.2 l/h x 0.6 meter dripper spacing x 1,2 mm wall thickness	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
F.1.2.138		17mm x 1.6 l/h x 0.6 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.139		17mm x 2.1 l/h x 0.6 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.140		17mm x 3.5 l/h x 0.6 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.141		17mm x 1.0 l/h x 0.75 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.142		17mm x 1.2 l/h x 0.75 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.143		17mm x 1.6 l/h x 0.75 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.144		17mm x 2.1 l/h x 0.75 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.145		17mm x 3.5 l/h x 0.75 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.146		17mm x 1.0 l/h x 1.0 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.147		17mm x 1.2 l/h x 1.0 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.148		17mm x 1.6 l/h x 1.0 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.149		17mm x 2.1 l/h x 1.0 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.150		17mm x 3.5 l/h x 1.0 meter dripper spacing x 1,2 mm wall thickness	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
F.1.2.151		16mm x 0.7 l/h x 0.3 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.152		16mm x 0.9 l/h x 0.3 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.153		16mm x 1.2 l/h x 0.3 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.154		16mm x 1.6 l/h x 0.3 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.155		16mm x 2.1 l/h x 0.3 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.156		16mm x 3.4 l/h x 0.3 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.157		16mm x 0.7 l/h x 0.4 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.158		16mm x 0.9 l/h x 0.4 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.159		16mm x 1.2 l/h x 0.4 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.160		16mm x 1.6 l/h x 0.4 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.161		16mm x 2.1 l/h x 0.4 meter dripper spacing x 0,6 mm wall thickness	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
F.1.2.162		16mm x 3.4 l/h x 0.4 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.163		16mm x 0.7 l/h x 0.5 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.164		16mm x 0.9 l/h x 0.5 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.165		16mm x 1.2 l/h x 0.5 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.166		16mm x 1.6 l/h x 0.5 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.167		16mm x 2.1 l/h x 0.5 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.168		16mm x 3.4 l/h x 0.5 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.169		16mm x 0.7 l/h x 0.6 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.170		16mm x 0.9 l/h x 0.6 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.171		16mm x 1.2 l/h x 0.6 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.172		16mm x 1.6 l/h x 0.6 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.173		16mm x 2.1 l/h x 0.6 meter dripper spacing x 0,6 mm wall thickness	m	1		
F.1.2.174		16mm x 3.4 l/h x 0.6 meter dripper spacing x 0,6 mm wall thickness	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
F.1.2.175		16mm x 0.7 l/h x 0.3 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.2.176		16mm x 0.9 l/h x 0.3 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.2.177		16mm x 1.2 l/h x 0.3 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.2.178		16mm x 1.6 l/h x 0.3 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.2.179		16mm x 2.1 l/h x 0.3 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.2.180		16mm x 3.4 l/h x 0.3 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.2.181		16mm x 0.7 l/h x 0.4 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.2.182		16mm x 0.9 l/h x 0.4 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.2.183		16mm x 1.2 l/h x 0.4 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.2.184		16mm x 1.6 l/h x 0.4 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.2.185		16mm x 2.1 l/h x 0.4 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.2.186		16mm x 3.4 l/h x 0.4 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.2.187		16mm x 0.7 l/h x 0.5 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.2.188		16mm x 0.9 l/h x 0.5 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.2.189		16mm x 1.2 l/h x 0.5 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.2.190		16mm x 1.6 l/h x 0.5 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.2.191		16mm x 2.1 l/h x 0.5 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.2.192		16mm x 3.4 l/h x 0.5 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.2.193		16mm x 0.7 l/h x 0.6 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.2.194		16mm x 0.9 l/h x 0.6 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.2.195		16mm x 1.2 l/h x 0.6 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.2.196		16mm x 1.6 l/h x 0.6 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.2.197		16mm x 2.1 l/h x 0.6 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.2.198		16mm x 3.4 l/h x 0.6 meter dripper spacing x 0,4 mm wall thickness	m	1		
F.1.2.199		16mm x 0.7 l/h x 0.3 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.200		16mm x 0.9 l/h x 0.3 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.201		16mm x 1.2 l/h x 0.3 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.202		16mm x 1.6 l/h x 0.3 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.203		16mm x 2.1 l/h x 0.3 meter dripper spacing x 0,9 mm wall thickness	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
F.1.2.204		16mm x 3.4 l/h x 0.3 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.205		16mm x 0.7 l/h x 0.4 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.206		16mm x 0.9 l/h x 0.4 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.207		16mm x 1.2 l/h x 0.4 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.208		16mm x 1.6 l/h x 0.4 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.209		16mm x 2.1 l/h x 0.4 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.210		16mm x 3.4 l/h x 0.4 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.211		16mm x 0.7 l/h x 0.5 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.212		16mm x 0.9 l/h x 0.5 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.213		16mm x 1.2 l/h x 0.5 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.214		16mm x 1.6 l/h x 0.5 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.215		16mm x 2.1 l/h x 0.5 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.216		16mm x 3.4 l/h x 0.5 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.217		16mm x 0.7 l/h x 0.6 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.218		16mm x 0.9 l/h x 0.6 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.219		16mm x 1.2 l/h x 0.6 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.220		16mm x 1.6 l/h x 0.6 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.221		16mm x 2.1 l/h x 0.6 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.222		16mm x 3.4 l/h x 0.6 meter dripper spacing x 0,9 mm wall thickness	m	1		
F.1.2.223		16mm x 0.7 l/h x 0.3 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.224		16mm x 0.9 l/h x 0.3 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.225		16mm x 1.2 l/h x 0.3 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.226		16mm x 1.6 l/h x 0.3 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.227		16mm x 2.1 l/h x 0.3 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.228		16mm x 3.4 l/h x 0.3 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.229		16mm x 0.7 l/h x 0.4 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.230		16mm x 0.9 l/h x 0.4 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.231		16mm x 1.2 l/h x 0.4 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.232		16mm x 1.6 l/h x 0.4 meter dripper spacing x 1,2 mm wall thickness	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
F.1.2.233		16mm x 2.1 l/h x 0.4 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.234		16mm x 3.4 l/h x 0.4 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.235		16mm x 0.7 l/h x 0.5 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.236		16mm x 0.9 l/h x 0.5 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.237		16mm x 1.2 l/h x 0.5 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.238		16mm x 1.6 l/h x 0.5 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.239		16mm x 2.1 l/h x 0.5 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.240		16mm x 3.4 l/h x 0.5 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.241		16mm x 0.7 l/h x 0.6 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.242		16mm x 0.9 l/h x 0.6 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.243		16mm x 1.2 l/h x 0.6 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.244		16mm x 1.6 l/h x 0.6 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.245		16mm x 2.1 l/h x 0.6 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.246		16mm x 3.4 l/h x 0.6 meter dripper spacing x 1,2 mm wall thickness	m	1		
F.1.2.247		20mm x 1.0 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.2.248		20mm x 1.2 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.2.249		20mm x 1.6 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.2.250		20mm x 2.1 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.2.251		20mm x 3.5 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.2.252		20mm x 1.0 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.2.253		20mm x 1.2 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.2.254		20mm x 1.6 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.2.255		20mm x 2.1 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.2.256		20mm x 3.5 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.2.257		20mm x 1.0 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.2.258		20mm x 1.2 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.2.259		20mm x 1.6 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.2.260		20mm x 2.1 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.2.261		20mm x 3.5 l/h x dripper spacing x 1.2 mm wall thickness	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
F.1.2.262		20mm x 1.0 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.2.263		20mm x 1.2 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.2.264		20mm x 1.6 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.2.265		20mm x 2.1 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.2.266		20mm x 3.5 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.2.267		20mm x 1.0 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.2.268		20mm x 1.2 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.2.269		20mm x 1.6 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.2.270		20mm x 2.1 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.2.271		20mm x 3.5 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.2.272		20mm x 1.0 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.2.273		20mm x 1.2 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.2.274		20mm x 1.6 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.2.275		20mm x 2.1 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.2.276		20mm x 3.5 l/h x dripper spacing x 1.2 mm wall thickness	m	1		
F.1.2.277		20mm x 1.0 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.278		20mm x 1.2 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.279		20mm x 1.6 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.280		20mm x 2.1 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.281		20mm x 3.5 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.282		20mm x 1.0 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.283		20mm x 1.2 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.284		20mm x 1.6 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.285		20mm x 2.1 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.286		20mm x 3.5 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.287		20mm x 1.0 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.288		20mm x 1.2 l/h x dripper spacing x 0.9 mm wall thickness	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
F.1.2.289		20mm x 1.6 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.290		20mm x 2.1 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.291		20mm x 3.5 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.292		20mm x 1.0 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.293		20mm x 1.2 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.294		20mm x 1.6 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.295		20mm x 2.1 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.296		20mm x 3.5 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.297		20mm x 1.0 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.298		20mm x 1.2 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.299		20mm x 1.6 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.300		20mm x 2.1 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.301		20mm x 3.5 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.302		20mm x 1.0 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.303		20mm x 1.2 l/h x dripper spacing x 0.9 mm wall thickness	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
F.1.2.304		20mm x 1.6 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.305		20mm x 2.1 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.2.306		20mm x 3.5 l/h x dripper spacing x 0.9 mm wall thickness	m	1		
F.1.3		<u>INSERT FITTINGS</u>				
F.1.3.1		12mm short coupling	no	1		
F.1.3.2		16mm short coupling	no	1		
F.1.3.3		Reducing short coupling	no	1		
F.1.3.4		12mm long coupling	no	1		
F.1.3.5		16mm long coupling	no	1		
F.1.3.6		17mm long coupling	no	1		
F.1.3.7		17mm long coupling	no	1		
F.1.3.8		20mm long coupling	no	1		
F.1.3.9		16/12mm long reducing	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
F.1.3.10		17/16mm long reducing	no	1		
F.1.3.11		20/16mm long reducing	no	1		
F.1.3.12		20/17mm long reducing	no	1		
F.1.3.13		12mm elbow long insert	no	1		
F.1.3.14		16mm elbow long insert	no	1		
F.1.3.15		20mm elbow long insert	no	1		
F.1.3.16		17mm elbow long insert	no	1		
F.1.3.17		12x12x12 long insert T	no	1		
F.1.3.18		16x16x16 long insert T	no	1		
F.1.3.19		17x17x17 long insert T	no	1		
F.1.3.20		20x20x20 long insert T	no	1		
F.1.3.21		16x12x16 reducing T	no	1		
F.1.3.22		Dripline LPD Barb 17mm	no	1		
F.1.3.23		Dripline LPD Barb 16mm	no	1		
F.1.3.24		Barb Connector 17mm x ½" Male	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
F.1.3.25		Barb Connector 16mm x ½" Male	no	1		
F.1.3.26		Dripline Flush VLV Barb20 W/Snap Clip	no	1		
F.1.3.27		Dripline Flush VLV Barb17 W/Snap Clip	no	1		
F.1.3.28		Dripline Flush VLV Barb16 W/Snap Clip	no	1		
F.1.3.29		Multi Outlet ¾" x 6 x 12mm 6 way	no	1		
F.1.3.30		Multi Outlet 1" x 6 x 16mm 6 way	no	1		
F.1.3.31		Combination saddle + nut 32mm poly pipe or bigger	no	1		
F.1.3.32		Stopper - 12/16/17mm	no	1		
F.1.3.33		Stopper figure 8 20mm	no	1		
F.1.3.34		2 way angle barb connector - 16 X ¾ MALE	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
F.1.4		<u>BLIND PIPE (LDPE)</u>				
F.1.4.1		12 mm	m	1		
F.1.4.2		16 mm	m	1		
F.1.4.3		17 mm	m	1		
F.1.4.4		20 mm	m	1		
F.2		Supply, deliver,install and test the following online drippers complete with fittings.				
F.2.1		<u>Pressure compensating and Non Drain online drippers</u>				
F.2.1		1.0 l/h (seal 0.2 bar, fully open 0.6 - 3.5 bar)	no	1		
F.2.2		2.2 l/h (seal 0.2 bar, fully open 0.6 - 3.5 bar)	no	1		
F.2.3		3.8 l/h (seal 0.2 bar, fully open 0.6 - 3.5 bar)	no	1		
F.2.4		8.0 l/h (seal 0.2 bar, fully open 0.6 - 3.5 bar)	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
F.2.5		3.1 l/h (seal 0.4 bar, fully open 1.1 - 3.5 bar)	no	1		
F.2.6		5.3 l/h (seal 0.2 bar, fully open 1.0 - 3.5 bar) - Pressure range 10 - 35m	no	1		
F.2.7		11 l/h (seal 0.4 bar, fully open 1.1 - 3.5 bar)	no	1		
F.2.2		<u>Non Pressure compensating Button Dripper</u>				
F.2.2.1		2 l/h				
F.2.2.2		4 l/h				
F.2.2.3		8 l/h				
F.2.3		<u>BUTTON DRIPPER ACCESSORIES (3x5 mm tube)</u>				
F.2.3.1		Single Threaded outlet adaptor	no	1		
F.2.3.2		2-way threaded branch adaptor	no	1		
F.2.3.3		2-way barbed branch adaptor	no	1		
F.2.3.4		4-way threaded branch adaptor	no	1		
F.2.3.5		4-way barbed branch adaptor	no	1		
F.2.3.6		Barb adaptor for multi outlet	no	1		
F.2.3.7		Connector JDW 3x5mm (used with 5mm Odx 3mm ID flex tube)	no	1		
F.2.3.8		Dripeg - flow equalizer or dripper (30 degree diagonal labyrinth)	no	1		
F.2.3.9		Snapeg (30 degree diagonal external grip)	no	1		
F.2.3.10		Flex tubing 5mm OD x 3mm ID	m	100		
F.2.3.11		Flex tubing 5mm OD x 3mm ID	m	500		
F.2.3.12		Manifold 4-way complete with 400mm tube and peg	no	1		
F.2.3.13		Manifold 4-way complete with 600mm tube and peg	no	1		
F.2.3.14		Manifold 2-way complete with 400mm tube and peg	no	1		
F.2.3.15		Manifold 2-way complete with 600mm tube and peg	no	1		
		TOTAL SECTION "F" CARRIED FORWARD TO SUMMARY				

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
<u>SECTION G : SPRINKLER IRRIGATION</u>						
G.1		Supply, deliver,install and test the following sprinklers and complete with fittings.				
G.1.1		<u>Pressure compensating Swivel Sprinklers (1-4 bar)</u>				
G.1.1.1		20 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.2		25 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.3		30 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.4		35 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.5		40 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.6		45 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.7		50 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.8		55 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.9		60 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.10		65 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.11		70 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.12		75 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.13		80 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.14		85 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.15		90 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.16		95 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.17		100 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.18		105 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.19		110 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
G.1.1.20		20 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.21		25 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.22		30 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.23		35 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.24		40 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.25		45 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.26		50 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.27		55 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.28		60 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.29		65 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.30		70 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,90 cm micro tube length with stake	no			
G.1.1.31		75 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.32		80 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.33		85 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.34		90 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.35		95 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.36		100 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.37		105 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.38		110 l/h long range swivel Sprinkler head,4-8 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.39		20 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.40		25 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.41		30 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.42		35 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.43		40 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,90 cm micro tube length with stake	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
G.1.1.44		45 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.45		50 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.46		55 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.47		60 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.48		65 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.49		70 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.50		75 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.51		80 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.52		85 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.53		90 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.54		95 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.55		100 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.56		105 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.57		110 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,90 cm micro tube length with stake	no	1		
G.1.1.58		20 l/h swivel Sprinkler upside down head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.59		25 l/h swivel Sprinkler upside down head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.60		30 l/h swivel Sprinkler upside down head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.61		35 l/h swivel Sprinkler upside down head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.62		40 l/h swivel Sprinkler upside down head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.63		45 l/h swivel Sprinkler upside down head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.64		50 l/h swivel Sprinkler upside down head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.65		55 l/h swivel Sprinkler upside down head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.66		60 l/h swivel Sprinkler upside down head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.67		65 l/h swivel Sprinkler upside down head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.68		70 l/h swivel Sprinkler upside down head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
G.1.1.69		75 l/h swivel Sprinkler upside down head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.70		80 l/h swivel Sprinkler upside down head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.71		85 l/h swivel Sprinkler upside down head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.72		90 l/h swivel Sprinkler upside down head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.73		95 l/h swivel Sprinkler upside down head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.74		100 l/h swivel Sprinkler upside down head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.75		105 l/h swivel Sprinkler upside down head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.76		110 l/h swivel Sprinkler upside down head,4-8 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.77		20 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.78		25 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.79		30 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.80		35 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.81		40 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.82		45 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.83		50 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.84		55 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.85		60 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.86		65 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.87		70 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.88		75 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.89		80 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.90		85 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.91		90 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.92		95 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
G.1.1.93		100 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.94		105 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.95		110 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.96		115 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.97		120 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.98		125 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.99		130 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.100		135 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.101		140 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.102		145 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.103		150 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.104		155 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.105		160 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.106		165 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.107		170 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.108		175 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.109		180 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.110		185 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.111		190 l/h long range swivel Sprinkler head with deflector,1-2 meter wetting diameter,60 cm micro tube length with stake	no	1		
G.1.1.112		170 l/h swivel Sprinkler ,8-14 meter wetting diameter,120 cm micro tube length with stake	no	1		
G.1.1.113		190 l/h swivel Sprinkler ,8-14 meter wetting diameter,120 cm micro tube length with stake	no	1		
G.1.1.114		210 l/h swivel Sprinkler ,8-14 meter wetting diameter,120 cm micro tube length with stake	no	1		
G.1.1.115		230 l/h swivel Sprinkler ,8-14 meter wetting diameter,120 cm micro tube length with stake	no	1		
G.1.1.116		250 l/h swivel Sprinkler ,8-14 meter wetting diameter,120 cm micro tube length with stake	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
G.1.1.117		270 l/h swivel Sprinkler ,8-14 meter wetting diameter,120 cm micro tube length with stake	no	1		
G.1.1.118		290 l/h swivel Sprinkler ,8-14 meter wetting diameter,120 cm micro tube length with stake	no	1		
G.1.1.119		310 l/h swivel Sprinkler ,8-14 meter wetting diameter,120 cm micro tube length with stake	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
G.1.1.120		330 l/h swivel Sprinkler ,8-14 meter wetting diameter,120 cm micro tube length with stake	no	1		
G.1.1.121		350 l/h swivel Sprinkler ,8-14 meter wetting diameter,120 cm micro tube length with stake	no	1		
G.1.1.122		370 l/h swivel Sprinkler ,8-14 meter wetting diameter,120 cm micro tube length with stake	no	1		
G.1.1.123		390 l/h swivel Sprinkler ,8-14 meter wetting diameter,120 cm micro tube length with stake	no	1		
G.1.1.124		410 l/h swivel Sprinkler ,8-14 meter wetting diameter,120 cm micro tube length with stake	no	1		
G.1.1.125		430 l/h swivel Sprinkler ,8-14 meter wetting diameter,120 cm micro tube length with stake	no	1		
G.1.1.126		450 l/h swivel Sprinkler ,8-14 meter wetting diameter,120 cm micro tube length with stake	no	1		
G.1.1.127		470 l/h swivel Sprinkler ,8-14 meter wetting diameter,120 cm micro tube length with stake	no	1		
G.1.1.128		490 l/h swivel Sprinkler ,8-14 meter wetting diameter,120 cm micro tube length with stake	no	1		
G.1.1.129		510 l/h swivel Sprinkler ,8-14 meter wetting diameter,120 cm micro tube length with stake	no	1		
G.1.1.130		530 l/h swivel Sprinkler ,8-14 meter wetting diameter,120 cm micro tube length with stake	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
G.1.1.131		210 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.132		230 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.133		250 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.134		270 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.135		290 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.136		310 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.137		330 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.138		350 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.139		370 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.140		390 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
G.1.1.141		410 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.142		430 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.143		450 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.144		470 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.145		490 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.146		510 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.147		530 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.148		550 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.149		570 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.150		590 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
G.1.1.151		610 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.152		630 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.153		650 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.154		670 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.155		690 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.156		710 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.157		730 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.158		750 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.159		770 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.160		790 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
G.1.1.161		810 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.162		830 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.163		850 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.164		870 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.165		890 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.166		210 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (\geq 24 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.167		230 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (\geq 24 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.168		250 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (\geq 24 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.169		270 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (\geq 24 degrees) complete with anti clogging and insect protection	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
G.1.1.170		290 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.171		310 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.172		330 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.173		350 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.174		370 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.175		390 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.176		410 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.177		430 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.178		450 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.179		470 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging and insect protection	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
G.1.1.180		490 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.181		510 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.182		530 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.183		550 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.184		570 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.185		590 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.186		610 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging and insect protection	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
G.1.1.187		630 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.188		650 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.189		670 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.190		690 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.191		710 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.192		730 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.193		750 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.194		770 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.195		790 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.196		810 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging and insect protection	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
G.1.1.197		830 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.198		850 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.199		870 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.200		890 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging and insect protection	no	1		
G.1.1.201		210 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.202		230 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.203		250 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.204		270 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.205		290 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
G.1.1.206		310 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.207		330 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.208		350 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.209		370 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.210		390 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.211		410 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.212		430 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.213		450 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.214		470 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.215		490 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.216		510 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.217		530 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.218		550 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.219		570 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.220		590 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.221		610 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.222		630 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.223		650 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.224		670 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.225		690 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
G.1.1.226		710 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.227		730 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.228		750 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.229		770 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.230		790 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.231		810 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.232		830 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.233		850 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.234		870 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.235		890 l/h Pop-up impact Sprinkler ,12-20 meter wetting diameter, high trajectory (≥ 24 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.236		210 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.237		230 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.238		250 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.239		270 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.240		290 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.241		310 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.242		330 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.243		350 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.244		370 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
G.1.1.245		390 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.246		410 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.247		430 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.248		450 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.249		470 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.250		490 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.251		510 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.252		530 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.253		550 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.254		570 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.255		590 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.256		610 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.257		630 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.258		650 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.259		670 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.260		690 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.261		710 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.262		730 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.263		750 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.264		770 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
G.1.1.265		790 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.266		810 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.267		830 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.268		850 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.269		870 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.1.270		890 l/h Pop-up impact Sprinkler ,12-18 meter wetting diameter, low trajectory (< 15 degrees) complete with anti clogging ,anti drain and insect protection	no	1		
G.1.2		<u>Pressure compensating Impact Sprinklers (1-4 bar)</u>				
G.1.2.1		320 l/h single nozzle plastic impact Sprinkler ,15-20 meter wetting diameter, low trajectory (≤ 15 degrees) complete with UV-protected materials	no	1		
G.1.2.2		350 l/h single nozzle plastic impact Sprinkler ,15-20 meter wetting diameter, low trajectory (≤ 15 degrees) complete with UV-protected materials	no	1		
G.1.2.3		380 l/h single nozzle plastic impact Sprinkler ,15-20 meter wetting diameter, low trajectory (≤ 15 degrees) complete with UV-protected materials	no	1		
G.1.2.4		410 l/h single nozzle plastic impact Sprinkler ,15-20 meter wetting diameter, low trajectory (≤ 15 degrees) complete with UV-protected materials	no	1		
G.1.2.5		440 l/h single nozzle plastic impact Sprinkler ,15-20 meter wetting diameter, low trajectory (≤ 15 degrees) complete with UV-protected materials	no	1		
G.1.2.6		470 l/h single nozzle plastic impact Sprinkler ,15-20 meter wetting diameter, low trajectory (≤ 15 degrees) complete with UV-protected materials	no	1		
G.1.2.7		500 l/h single nozzle plastic impact Sprinkler ,15-20 meter wetting diameter, low trajectory (≤ 15 degrees) complete with UV-protected materials	no	1		
G.1.2.8		530 l/h single nozzle plastic impact Sprinkler ,15-20 meter wetting diameter, low trajectory (≤ 15 degrees) complete with UV-protected materials	no	1		
G.1.2.9		560 l/h single nozzle plastic impact Sprinkler ,15-20 meter wetting diameter, low trajectory (≤ 15 degrees) complete with UV-protected materials	no	1		
G.1.2.10		590 l/h single nozzle plastic impact Sprinkler ,15-20 meter wetting diameter, low trajectory (≤ 15 degrees) complete with UV-protected materials	no	1		
G.1.2.11		620 l/h single nozzle plastic impact Sprinkler ,15-20 meter wetting diameter, low trajectory (≤ 15 degrees) complete with UV-protected materials	no	1		
G.1.2.12		650 l/h single nozzle plastic impact Sprinkler ,15-20 meter wetting diameter, low trajectory (≤ 15 degrees) complete with UV-protected materials	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
G.1.2.13		920 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.14		950 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.15		980 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.16		1010 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.17		1040 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.18		1070 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.19		1100 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.20		1130 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.21		1160 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.22		1190 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.23		1220 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.24		1250 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.25		1280 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.26		1310 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.27		1340 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.28		1370 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.29		1400 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.30		1430 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.31		1460 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.32		1490 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
G.1.2.33		1520 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
		1550 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.34		1580 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.35		1610 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.36		1640 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.37		1670 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.38		1700 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.39		1730 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.40		1760 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.41		1790 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.42		1820 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.43		1850 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.44		1880 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.45		1910 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.46		1940 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.47		1970 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.48		2000 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.49		2030 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.50		2060 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.51		2090 l/h front and rear nozzle plastic impact Sprinkler ,20-30 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
G.1.2.76		3040 l/h front and rear nozzle plastic impact Sprinkler ,30-40 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.77		3090 l/h front and rear nozzle plastic impact Sprinkler ,30-40 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.78		3140 l/h front and rear nozzle plastic impact Sprinkler ,30-40 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.79		3190 l/h front and rear nozzle plastic impact Sprinkler ,30-40 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.80		3240 l/h front and rear nozzle plastic impact Sprinkler ,30-40 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		
G.1.2.81		3290 l/h front and rear nozzle plastic impact Sprinkler ,30-40 meter wetting diameter, high trajectory (≈ 24 degrees) complete with UV-protected materials	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
G.1.3		<u>PVC riser pipe threaded both sides</u>				
G.1.3.1		300 mm x 15 mm	no	1		
G.1.3.2		600 mm x 15 mm	no	1		
G.1.3.3		900 mm x 15 mm	no	1		
G.1.3.4		1200 mm x 15 mm	no	1		
G.1.3.5		300 mm x 20 mm	no	1		
G.1.3.6		600 mm x 20 mm	no	1		
G.1.3.7		900 mm x 20 mm	no	1		
G.1.3.8		1200 mm x 20 mm	no	1		
		TOTAL SECTION "G" CARRIED FORWARD TO SUMMARY				

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
<u>SECTION H : FILTERS & AIRVALVES</u>						
H.1		Supply, deliver,install and test the following screen filters and fittings.				
H.1.1		<u>Plastic manual screen filters complete with polyester screen</u>				
H.1.1.1		20mm 500 micron screen 1.5m³/h complete with drain valve	no	1		
H.1.1.2		20mm 300 micron screen 1.5m³/h complete with drain valve	no	1		
H.1.1.3		20mm 200 micron screen 1.5m³/h complete with drain valve	no	1		
H.1.1.4		20mm 150 micron screen 1.5m³/h complete with drain valve	no	1		
H.1.1.5		20mm 100 micron screen 1.5m³/h complete with drain valve	no	1		
H.1.1.6		25mm 500 micron screen 1.5m³/h complete with drain valve	no	1		
H.1.1.7		25mm 300 micron screen 1.5m³/h complete with drain valve	no	1		
H.1.1.8		25mm 200 micron screen 1.5m³/h complete with drain valve	no	1		
H.1.1.9		25mm 150 micron screen 1.5m³/h complete with drain valve	no	1		
H.1.1.10		25mm 100 micron screen 1.5m³/h complete with drain valve	no	1		
H.1.2		<u>Plastic manual screen filters complete with stainless screen</u>				
H.1.2.1		20 mm, 1.5 m³/h 500 micron screen filter complete with drain valve	no	1		
H.1.2.2		25 mm, 3 m³/h 300 micron screen filter complete with drain valve	no	1		
H.1.2.3		40 mm, 10 m³/h 200 micron screen filter complete with drain valve	no	1		
H.1.2.4		50 mm, 20 m³/h 130 micron screen filter complete with drain valve	no	1		
H.1.2.5		80 mm, 30 m³/h 100 micron screen filter complete with drain valve	no	1		
H.1.2.6		80 mm Universal Flange, 30 m³/h 500 micron moulded screen filter complete with drain valve	no	1		
H.1.2.7		80 mm Universal Flange, 30 m³/h 300 micron moulded screen filter complete with drain valve	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
H.1.2.8		80 mm Universal Flange, 30 m³/h 200 micron moulded screen filter complete with drain valve	no	1		
H.1.2.9		80 mm Universal Flange, 30 m³/h 130 micron moulded screen filter complete with drain valve	no	1		
H.1.2.10		80 mm Universal Flange, 30 m³/h 100 micron moulded screen filter complete with drain valve	no	1		
H.1.3		<u>Steel manual screen filters complete with stainless screen</u>				
H.1.3.1		50 mm threaded, 20 m³/h 130 micron screen filter complete with drain valve	no	1		
H.1.3.2		80 mm Universal Flange, 50 m³/h 500 micron screen filter complete with drain valve	no	1		
H.1.3.3		80 mm Universal Flange, 50 m³/h 300 micron screen filter complete with drain valve	no	1		
H.1.3.4		80 mm Universal Flange, 50 m³/h 200 micron screen filter complete with drain valve	no	1		
H.1.3.5		80 mm Universal Flange, 50 m³/h 130 micron screen filter complete with drain valve	no	1		
H.1.3.6		80 mm Universal Flange, 50 m³/h 100 micron screen filter complete with drain valve	no	1		
H.1.3.7		100 mm Universal Flange, 80 m³/h 500 micron screen filter complete with drain valve	no	1		
H.1.3.8		100 mm Universal Flange, 80 m³/h 300 micron screen filter complete with drain valve	no	1		
H.1.3.9		100 mm Universal Flange, 80 m³/h 200 micron screen filter complete with drain valve	no	1		
H.1.3.10		100 mm Universal Flange, 80 m³/h 130 micron screen filter complete with drain valve	no	1		
H.1.3.11		100 mm Universal Flange, 80 m³/h 100 micron screen filter complete with drain valve	no	1		
H.1.3.12		160 mm Universal Flange, 160 m³/h 500 micron screen filter complete with drain valve	no	1		
H.1.3.13		160 mm Universal Flange, 160 m³/h 300 micron screen filter complete with drain valve	no	1		
H.1.3.14		160 mm Universal Flange, 160 m³/h 200 micron screen filter complete with drain valve	no	1		
H.1.3.15		160 mm Universal Flange, 160 m³/h 130 micron screen filter complete with drain valve	no	1		
H.1.3.16		160 mm Universal Flange, 160 m³/h 100 micron screen filter complete with drain valve	no	1		
H.1.3.17		200 mm Universal Flange, 300 m³/h 500 micron screen filter complete with drain valve	no	1		
H.1.3.18		200 mm Universal Flange, 300 m³/h 300 micron screen filter complete with drain valve	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
H.1.3.19		200 mm Universal Flange, 300 m³/h 200 micron screen filter complete with drain valve	no	1		
H.1.3.20		200 mm Universal Flange, 300 m³/h 130 micron screen filter complete with drain valve	no	1		
H.1.3.21		200 mm Universal Flange, 300 m³/h 100 micron screen filter complete with drain valve	no	1		
H.1.4		<u>Steel automatic screen filters complete with stainless screen</u>				
H.1.4.1		50 mm threaded, 20 m³/h 130 micron screen filter complete with backwash valve and controller	no	1		
H.1.4.2		80 mm Universal Flange, 50 m³/h 500 micron screen filter complete with backwash valve and controller	no	1		
H.1.4.3		80 mm Universal Flange, 50 m³/h 300 micron screen filter complete with backwash valve and controller	no	1		
H.1.4.4		80 mm Universal Flange, 50 m³/h 200 micron screen filter complete with backwash valve and controller	no	1		
H.1.4.5		80 mm Universal Flange, 50 m³/h 130 micron screen filter complete with backwash valve and controller	no	1		
H.1.4.6		80 mm Universal Flange, 50 m³/h 100 micron screen filter complete with backwash valve and controller	no	1		
H.1.4.7		100 mm Universal Flange, 80 m³/h 500 micron screen filter complete with backwash valve and controller	no	1		
H.1.4.8		100 mm Universal Flange, 80 m³/h 300 micron screen filter complete with backwash valve and controller	no	1		
H.1.4.9		100 mm Universal Flange, 80 m³/h 200 micron screen filter complete with backwash valve and controller	no	1		
H.1.4.10		100 mm Universal Flange, 80 m³/h 130 micron screen filter complete with backwash valve and controller	no	1		
H.1.4.11		100 mm Universal Flange, 80 m³/h 100 micron screen filter complete with backwash valve and controller	no	1		
H.1.4.12		160 mm Universal Flange, 160 m³/h 500 micron screen filter complete with backwash valve and controller	no	1		
H.1.4.13		160 mm Universal Flange, 160 m³/h 300 micron screen filter complete with backwash valve and controller	no	1		
H.1.4.14		160 mm Universal Flange, 160 m³/h 200 micron screen filter complete with backwash valve and controller	no	1		
H.1.4.15		160 mm Universal Flange, 160 m³/h 130 micron screen filter complete with backwash valve and controller	no	1		
H.1.4.16		160 mm Universal Flange, 160 m³/h 100 micron screen filter complete with backwash valve and controller	no	1		
H.1.4.17		200 mm Universal Flange, 300 m³/h 500 micron screen filter complete with backwash valve and controller	no	1		
H.1.4.18		200 mm Universal Flange, 300 m³/h 300 micron screen filter complete with backwash valve and controller	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
H.1.4.19		200 mm Universal Flange, 300 m³/h 200 micron screen filter complete with drain valve	no	1		
H.1.4.20		200 mm Universal Flange, 300 m³/h 130 micron screen filter complete with backwash valve and controller	no	1		
H.1.4.21		200 mm Universal Flange, 300 m³/h 100 micron screen filter complete with backwash valve and controller	no	1		
			no	1		
H.1.5		<u>Plastic automatic screen filters complete with stainless screen</u>	no	1		
			no	1		
H.1.5.1		50 mm threaded, 20 m³/h 130 micron screen filter complete with backwash valve and controller	no	1		
H.1.5.2		80 mm Universal Flange, 50 m³/h 500 micron screen filter complete with backwash valve and controller	no	1		
H.1.5.3		80 mm Universal Flange, 50 m³/h 300 micron screen filter complete with backwash valve and controller	no	1		
H.1.5.4		80 mm Universal Flange, 50 m³/h 200 micron screen filter complete with backwash valve and controller	no	1		
H.1.5.5		80 mm Universal Flange, 50 m³/h 130 micron screen filter complete with backwash valve and controller	no	1		
H.1.5.6		80 mm Universal Flange, 50 m³/h 100 micron screen filter complete with backwash valve and controller	no	1		
H.1.5.7		100 mm Universal Flange, 80 m³/h 500 micron screen filter complete with backwash valve and controller	no	1		
H.1.5.8		100 mm Universal Flange, 80 m³/h 300 micron screen filter complete with backwash valve and controller	no	1		
H.2		Supply, deliver,install and test the following disc filters and fittings.				
H.2.1		<u>Plastic manual disc filters complete with discs</u>				
H.2.1.1		20mm 500 micron disc 1.5m³/h complete with drain valve	no	1		
H.2.1.2		20mm 300 micron disc 1.5m³/h complete with drain valve	no	1		
H.2.1.3		20mm 200 micron disc 1.5m³/h complete with drain valve	no	1		
H.2.1.4		20mm 150 micron disc 1.5m³/h complete with drain valve	no	1		
H.2.1.5		20mm 100 micron disc 1.5m³/h complete with drain valve	no	1		
H.2.1.6		25mm 500 micron disc 1.5m³/h complete with drain valve	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
H.2.1.7		25mm 300 micron disc 1.5m³/h complete with drain valve	no	1		
H.2.1.8		25mm 200 micron disc 1.5m³/h complete with drain valve	no	1		
H.2.1.9		25mm 150 micron disc 1.5m³/h complete with drain valve	no	1		
H.2.1.10		25mm 100 micron disc 1.5m³/h complete with drain valve	no	1		
H.2.2		<u>Plastic manual disc filters complete with disc</u>				
H.2.2.1		20 mm, 1.5 m³/h 500 micron disc filter complete with drain valve	no	1		
H.2.2.2		25 mm, 3 m³/h 300 micron disc filter complete with drain valve	no	1		
H.2.2.3		40 mm, 10 m³/h 200 micron disc filter complete with drain valve	no	1		
H.2.2.4		50 mm, 20 m³/h 130 micron disc filter complete with drain valve	no	1		
H.2.2.5		80 mm, 30 m³/h 100 micron disc filter complete with drain valve	no	1		
H.2.2.6		80 mm Universal Flange, 30 m³/h 500 micron moulded disc filter complete with drain valve	no	1		
H.2.2.7		80 mm Universal Flange, 30 m³/h 300 micron moulded disc filter complete with drain valve	no	1		
H.2.2.8		80 mm Universal Flange, 30 m³/h 200 micron moulded disc filter complete with drain valve	no	1		
H.2.2.9		80 mm Universal Flange, 30 m³/h 130 micron moulded disc filter complete with drain valve	no	1		
H.2.2.10		80 mm Universal Flange, 30 m³/h 100 micron moulded disc filter complete with drain valve	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
H.2.3		<u>Steel manual disc filters complete with discs</u>				
H.2.3.1		50 mm threaded, 20 m³/h 130 micron disc filter complete with drain valve	no	1		
H.2.3.2		80 mm Universal Flange, 50 m³/h 500 micron disc filter complete with drain valve	no	1		
H.2.3.3		80 mm Universal Flange, 50 m³/h 300 micron disc filter complete with drain valve	no	1		
H.2.3.4		80 mm Universal Flange, 50 m³/h 200 micron disc filter complete with drain valve	no	1		
H.2.3.5		80 mm Universal Flange, 50 m³/h 130 micron disc filter complete with drain valve	no	1		
H.2.3.6		80 mm Universal Flange, 50 m³/h 100 micron disc filter complete with drain valve	no	1		
H.2.3.7		100 mm Universal Flange, 80 m³/h 500 micron disc filter complete with drain valve	no	1		
H.2.3.8		100 mm Universal Flange, 80 m³/h 300 micron disc filter complete with drain valve	no	1		
H.2.3.9		100 mm Universal Flange, 80 m³/h 200 micron disc filter complete with drain valve	no	1		
H.2.3.10		100 mm Universal Flange, 80 m³/h 130 micron disc filter complete with drain valve	no	1		
H.2.3.11		100 mm Universal Flange, 80 m³/h 100 micron disc filter complete with drain valve	no	1		
H.2.3.12		160 mm Universal Flange, 160 m³/h 500 micron disc filter complete with drain valve	no	1		
H.2.3.13		160 mm Universal Flange, 160 m³/h 300 micron disc filter complete with drain valve	no	1		
H.2.3.14		160 mm Universal Flange, 160 m³/h 200 micron disc filter complete with drain valve	no	1		
H.2.3.15		160 mm Universal Flange, 160 m³/h 130 micron disc filter complete with drain valve	no	1		
H.2.3.16		160 mm Universal Flange, 160 m³/h 100 micron disc filter complete with drain valve	no	1		
H.2.3.17		200 mm Universal Flange, 300 m³/h 500 micron disc filter complete with drain valve	no	1		
H.2.3.18		200 mm Universal Flange, 300 m³/h 300 micron disc filter complete with drain valve	no	1		
H.2.3.19		200 mm Universal Flange, 300 m³/h 200 micron disc filter complete with drain valve	no	1		
H.2.3.20		200 mm Universal Flange, 300 m³/h 130 micron disc filter complete with drain valve	no	1		
H.2.3.21		200 mm Universal Flange, 300 m³/h 100 micron disc filter complete with drain valve	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
H.2.4		<u>Steel automatic disc filters complete with discs</u>				
H.2.4.1		50 mm threaded, 20 m³/h 130 micron disc filter complete with backwash valve and controller	no	1		
H.2.4.2		80 mm Universal Flange, 50 m³/h 500 micron disc filter complete with backwash valve and controller	no	1		
H.2.4.3		80 mm Universal Flange, 50 m³/h 300 micron disc filter complete with backwash valve and controller	no	1		
H.2.4.4		80 mm Universal Flange, 50 m³/h 200 micron disc filter complete with backwash valve and controller	no	1		
H.2.4.5		80 mm Universal Flange, 50 m³/h 130 micron disc filter complete with backwash valve and controller	no	1		
H.2.4.6		80 mm Universal Flange, 50 m³/h 100 micron disc filter complete with backwash valve and controller	no	1		
H.2.4.7		100 mm Universal Flange, 80 m³/h 500 micron disc filter complete with backwash valve and controller	no	1		
H.2.4.8		100 mm Universal Flange, 80 m³/h 300 micron disc filter complete with backwash valve and controller	no	1		
H.2.4.9		100 mm Universal Flange, 80 m³/h 200 micron disc filter complete with backwash valve and controller	no	1		
H.2.4.10		100 mm Universal Flange, 80 m³/h 130 micron disc filter complete with backwash valve and controller	no	1		
H.2.4.11		100 mm Universal Flange, 80 m³/h 100 micron disc filter complete with backwash valve and controller	no	1		
H.2.4.12		160 mm Universal Flange, 160 m³/h 500 micron disc filter complete with backwash valve and controller	no	1		
H.2.4.13		160 mm Universal Flange, 160 m³/h 300 micron disc filter complete with backwash valve and controller	no	1		
H.2.4.14		160 mm Universal Flange, 160 m³/h 200 micron disc filter complete with backwash valve and controller	no	1		
H.2.4.15		160 mm Universal Flange, 160 m³/h 130 micron disc filter complete with backwash valve and controller	no	1		
H.2.4.16		160 mm Universal Flange, 160 m³/h 100 micron disc filter complete with backwash valve and controller	no	1		
H.2.4.17		200 mm Universal Flange, 300 m³/h 500 micron disc filter complete with backwash valve and controller	no	1		
H.2.4.18		200 mm Universal Flange, 300 m³/h 300 micron disc filter complete with backwash valve and controller	no	1		
H.2.4.19		200 mm Universal Flange, 300 m³/h 200 micron disc filter complete with backwash valve and controller	no	1		
H.2.4.20		200 mm Universal Flange, 300 m³/h 130 micron disc filter complete with backwash valve and controller	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
H.2.4.21		200 mm Universal Flange, 300 m³/h 100 micron disc filter complete with backwash valve and controller	no	1		
H.2.5		<u>Plastic automatic disc filters complete with discs</u>				
H.2.5.1		50 mm threaded, 20 m³/h 130 micron disc filter complete with backwash valve and controller	no	1		
H.2.5.2		80 mm Universal Flange, 50 m³/h 500 micron disc filter complete with backwash valve and controller	no	1		
H.2.5.3		80 mm Universal Flange, 50 m³/h 300 micron disc filter complete with backwash valve and controller	no	1		
H.2.5.4		80 mm Universal Flange, 50 m³/h 200 micron disc filter complete with backwash valve and controller	no	1		
H.2.5.5		80 mm Universal Flange, 50 m³/h 130 micron disc filter complete with backwash valve and controller	no	1		
H.2.5.6		80 mm Universal Flange, 50 m³/h 100 micron disc filter complete with backwash valve and controller	no	1		
H.2.5.7		100 mm Universal Flange, 80 m³/h 500 micron disc filter complete with backwash valve and controller	no	1		
H.2.5.8		100 mm Universal Flange, 80 m³/h 300 micron disc filter complete with backwash valve and controller	no	1		
H.2.6		<u>Automatic Modular disc filters complete with discs</u>				
H.2.6.1		3 x 50 mm Module, 20 m³/h 130 micron disc filter complete with cast iron inlet and outlet manifold , three way solenoid valves , cast iron drain manifold and backwash controller	no	1		
H.2.6.2		3 x 50 mm Module, 20 m³/h 80 micron disc filter complete with cast iron inlet and outlet manifold , three way solenoid valves , cast iron drain manifold and backwash controller	no	1		
H.2.6.3		4 x 50 mm Module, 30 m³/h 25 micron disc filter complete with cast iron inlet and outlet manifold , three way solenoid valves , cast iron drain manifold and backwash controller	no	1		
H.2.6.4		3 x 80 mm Module, 50 m³/h 130 micron disc filter complete with cast iron inlet and outlet manifold , three way solenoid valves , cast iron drain manifold and backwash controller	no	1		
H.2.6.5		3 x 80 mm Module, 50 m³/h 80 micron disc filter complete with cast iron inlet and outlet manifold , three way solenoid valves , cast iron drain manifold and backwash controller	no	1		
H.2.6.6		4 x 80 mm Module, 60 m³/h 130 micron disc filter complete with cast iron inlet and outlet manifold , three way solenoid valves , cast iron drain manifold and backwash controller	no	1		
H.2.6.7		3 x 100 mm Module, 80 m³/h 130 micron disc filter complete with cast iron inlet and outlet manifold , three way solenoid valves , cast iron drain manifold and backwash controller	no	1		
H.2.6.8		3 x 100 mm Module, 80 m³/h 80 micron disc filter complete with cast iron inlet and outlet manifold , three way solenoid valves , cast iron drain manifold and backwash controller	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
H.2.6.9		4 x 100 mm Module, 100 m³/h 55 micron disc filter complete with cast iron inlet and outlet manifold , three way solenoid valves , cast iron drain manifold and backwash controller	no	1		
H.3		Supply, deliver,install and test the following air valves and fittings.				
H.3.1		<u>Double purpose air valves</u>				
H.3.1.1		25mm	no	1		
H.3.1.2		32mm	no	1		
H.3.1.3		40mm	no	1		
H.3.1.4		50mm	no	1		
H.3.2		<u>Vacuum breakers</u>				
H.3.2.1		25mm	no	1		
H.3.2.2		32mm	no	1		
H.3.2.3		40mm	no	1		
H.3.2.4		50mm	no	1		
H.3.3		<u>Automatic air valves,</u>				
H.3.3.1		25mm	no	1		
H.3.3.2		32mm	no	1		
H.3.3.3		40mm	no	1		
H.3.3.4		50mm	no	1		
		TOTAL SECTION "H" CARRIED FORWARD TO SUMMARY				

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
<u>SECTION I : PUMPS & MOTORS,CONTROLS & CABLES</u>						
i.1		Supply, deliver,install and test the following single phase submersible borehole pump and motor complete with lead out cable and flow inducer (cooling) sleeve. All parts to be stainless steel				
i.1.1		<u>Single stage submersible pump & Motor (304 stainless steel)</u>				
i.1.1.1		0.25 kW	no	1		
i.1.1.2		0.37 kW	no	1		
i.1.1.3		0.55 kW	no	1		
i.1.1.4		0.75 kW	no	1		
i.1.1.5		1.1 kW	no	1		
i.1.1.6		1.5 kW	no	1		
i.1.1.7		2.2 kW	no	1		
i.1.2		<u>Multistage submersible pump & Motor (304 Stainless steel)</u>				
i.1.2.1		0.25 kW	no	1		
i.1.2.2		0.37 kW	no	1		
i.1.2.3		0.55 kW	no	1		
i.1.2.4		0.75 kW	no	1		
i.1.2.5		1.1 kW	no	1		
i.1.2.6		1.5 kW	no	1		
i.1.2.7		2.2 kW	no	1		
i.1.3		<u>Single stage submersible pump & Motor (316 stainless steel)</u>				
			no	1		
i.1.3.1		0.25 kW	no	1		
i.1.3.2		0.37 kW	no	1		
i.1.3.3		0.55 kW	no	1		
i.1.3.4		0.75 kW	no	1		
i.1.3.5		1.1 kW	no	1		
i.1.3.6		1.5 kW				
i.1.3.7		2.2 kW				
i.1.4		<u>Multistage submersible pump & Motor (316 Stainless steel)</u>				
i.1.4.1		0.25 kW	no	1		
i.1.4.2		0.37 kW	no	1		
i.1.4.3		0.55 kW	no	1		
i.1.4.4		0.75 kW	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
i.1.4.5		1.1 kW	no	1		
i.1.4.6		1.5 kW	no	1		
i.1.4.7		2.2 kW	no	1		
i.2		Supply, deliver,install and test the following three phase submersible borehole pump and motor complete with lead out cable and flow inducer (cooling) sleeve. All parts to be stainless steel				
i.2.1		<u>Single stage submersible pump & Motor (316 stainless steel)</u>				
i.2.1.1		0.25 kW	no	1		
i.2.1.2		0.37 kW	no	1		
i.2.1.3		0.55 kW	no	1		
i.2.1.4		0.75 kW	no	1		
i.2.1.5		1.1 kW	no	1		
i.2.1.6		1.5 kW	no	1		
i.2.1.7		2.2 kW	no	1		
i.2.2		<u>Multistage submersible pump & Motor (316 Stainless steel)</u>				
i.2.2.1		1.5 kW	no	1		
i.2.2.2		2.2 kW	no	1		
i.2.2.3		3 kW	no	1		
i.2.2.4		3.7 kW	no	1		
i.2.2.5		4 kW	no	1		
i.2.2.6		5.5 kW	no	1		
i.2.2.7		7.5 kW	no	1		
i.2.2.8		11 kW	no	1		
i.2.2.9		15 kW	no	1		
i.2.2.10		18.5 kW	no	1		
i.2.2.11		22 kW	no	1		
i.2.2.12		30 kW	no	1		
i.2.2.13		37 kW	no	1		
i.2.2.14		45 kW	no	1		
i.2.2.15		55 kW	no	1		
i.2.3		<u>Single stage submersible pump & Motor (304 stainless steel)</u>				
D.1.6.5						
i.2.3.1		0.25 kW				
i.2.3.2		0.37 kW				
i.2.3.3		0.55 kW				
i.2.3.4		0.75 kW				

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
i.2.3.5		1.1 kW				
i.2.3.6		1.5 kW				
i.2.3.7		2.2 kW				
i.2.4		<u>Multistage submersible pump & Motor (304 Stainless steel)</u>				
i.2.4.1		1.5 kW	no	1		
i.2.4.2		2.2 kW	no	1		
i.2.4.3		3 kW	no	1		
i.2.4.4		3.7 kW	no	1		
i.2.4.5		4 kW	no	1		
i.2.4.6		5.5 kW	no	1		
i.2.4.7		7.5 kW	no	1		
i.2.4.8		11 kW	no	1		
i.2.4.9		15 kW	no	1		
i.2.4.10		18.5 kW	no	1		
i.2.4.11		22 kW	no	1		
i.2.4.12		30 kW	no	1		
i.2.4.13		37 kW	no	1		
i.2.4.14		45 kW	no	1		
i.2.4.15		55 kW				
i.3		Supply, deliver,install and test the following three phase close coupled end suction pump and motor complete with cast iron impeller & cast iron and coated casing.				
i.3.1		<u>Single stage end suction pump & Motor</u>				
i.3.1.1		3 kW	no	1		
i.3.1.2		3.7 kW	no	1		
i.3.1.3		4 kW	no	1		
i.3.1.4		5.5 kW	no	1		
i.3.1.5		7.5 kW	no	1		
i.3.1.6		11 kW	no	1		
i.3.1.7		15 kW	no	1		
i.3.1.8		18.5 kW	no	1		
i.3.1.9		22 kW	no	1		
i.3.1.10		30 kW	no	1		
i.3.1.11		37 kW	no	1		
i.3.1.12		45 kW	no	1		
i.3.1.13		55 kW	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
i.3.2		<u>Two stage end suction pump & Motor</u>				
i.3.2.1		3 kW	no	1		
i.3.2.2		3.7 kW	no	1		
i.3.2.3		4 kW	no	1		
i.3.2.4		5.5 kW	no	1		
i.3.2.5		7.5 kW	no	1		
i.3.2.6		11 kW	no	1		
i.3.2.7		15 kW	no	1		
i.3.2.8		18.5 kW	no	1		
i.3.2.9		22 kW	no	1		
i.3.2.10		30 kW	no	1		
i.3.2.11		37 kW	no	1		
i.3.2.12		45 kW	no	1		
i.3.2.13		55 kW	no	1		
			no	1		
i.4		Supply, deliver,install and test the following single phase centrifugal pump complete with cast iron impeller & cast iron and coated casing.				
			no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
i.4.1		<u>Single Impeller</u>				
i.4.1.1		0.75 kW	no	1		
i.4.1.2		1.1 kW	no	1		
i.4.1.3		1.5 kW	no	1		
i.4.1.4		2.2 kW	no	1		
i.4.2		<u>Twin Impeller</u>				
i.4.2.1		0.75 kW	no	1		
i.4.2.2		1.1 kW	no	1		
i.4.2.3		1.5 kW	no	1		
i.4.2.4		2.2 kW	no	1		
i.5		Supply, deliver,install and test the following single phase centrifugal pump complete with cast iron impeller & cast iron and coated casing.				
i.5.1		<u>Single Impeller</u>				
i.5.1.1		0.75 kW	no	1		
i.5.1.2		1.1 kW	no	1		
i.5.1.3		1.5 kW	no	1		
i.5.1.4		2.2 kW	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
i.5.2		<u>Twin Impeller</u>				
i.5.2.1		0.75 kW	no	1		
i.5.2.2		1.1 kW	no	1		
i.5.2.3		1.5 kW	no	1		
i.5.2.4		2.2 kW	no	1		
i.6		Supply, deliver,install and test the following long coupled end suction pump complete with cast iron impeller & cast iron and coated casing.				
i.6.1		3 kW				
i.6.2		3.7 kW				
i.6.3		4 kW	no	1		
i.6.4		5.5 kW	no	1		
i.6.5		7.5 kW	no	1		
i.6.6		11 kW	no	1		
i.6.7		15 kW	no	1		
i.6.8		18.5 kW	no	1		
i.6.9		22 kW	no	1		
i.6.10		30 kW	no	1		
i.6.11		37 kW	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
i.6.12		45 kW	no	1		
i.6.13		55 kW	no	1		
i.7		Supply, deliver,install and test the following three phase motors complete with cast iron and coated frame .				
i.7.1		<u>2 pole motor</u>				
i.7.1.1		3 kW	m	1		
i.7.1.2		3.7 kW	m	1		
i.7.1.3		4 kW	m	1		
i.7.1.4		5.5 kW	m	1		
i.7.1.5		7.5 kW	m	1		
i.7.1.6		11 kW	m	1		
i.7.1.7		15 kW	m	1		
i.7.1.8		18.5 kW	m	1		
i.7.1.9		22 kW	m	1		
i.7.1.10		30 kW	m	1		
i.7.1.11		37 kW	m	1		
i.7.1.12		45 kW	m	1		
i.7.1.13		55 kW	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
i.7.2		<u>4 pole motor</u>				
i.7.2.1		3 kW	m	1		
i.7.2.2		3.7 kW	m	1		
i.7.2.3		4 kW	m	1		
i.7.2.4		5.5 kW	m	1		
i.7.2.5		7.5 kW	m	1		
i.7.2.6		11 kW	m	1		
i.7.2.7		15 kW	m	1		
i.7.2.8		18.5 kW	m	1		
i.7.2.9		22 kW	m	1		
i.7.2.10		30 kW	m	1		
i.7.2.11		37 kW	m	1		
i.7.2.12		45 kW	m	1		
i.7.2.13		55 kW	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
i.8		Supply, deliver,install and test the following two core plus Earth SABS approved copper cables (SANS 1507)				
i.8.1		<u>Steel Wired Armoured cable</u>				
i.8.1.1		1.5 mm ²	m	1		
i.8.1.2		2 mm ²	m	1		
i.8.1.3		6 mm ²	m	1		
i.8.1.4		10 mm ²	m	1		
i.8.1.5		16 mm ²	m	1		
i.8.1.6		25 mm ²	m	1		
i.8.1.7		35 mm ²	m	1		
i.8.1.8		50 mm ²	m	1		
i.8.1.9		70 mm ²	m	1		
i.8.1.10		95 mm ²	m	1		
i.8.1.11		120 mm ²	m	1		
i.8.1.12		150 mm ²	m	1		
i.8.1.13		185 mm ²	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
i.8.2		<u>Submersible cable</u>				
i.8.2.1		1.5 mm ²	m	1		
i.8.2.2		2 mm ²	m	1		
i.8.2.3		6 mm ²	m	1		
i.8.2.4		10 mm ²	m	1		
i.8.2.5		16 mm ²	m	1		
i.8.2.6		25 mm ²	m	1		
i.8.2.7		35 mm ²	m	1		
i.8.2.8		50 mm ²	m	1		
i.8.2.9		70 mm ²	m	1		
i.8.2.10		95 mm ²	m	1		
i.8.2.11		120 mm ²	m	1		
i.8.2.12		150 mm ²	m	1		
i.8.2.13		185 mm ²	m	1		
i.8.3		<u>Surfix</u>				
i.8.3.1		1.5 mm ²	m	1		
i.8.3.2		2 mm ²	m	1		
i.8.3.3		6 mm ²	m	1		
i.8.3.4		10 mm ²	m	1		
i.8.3.5		16 mm ²	m	1		
i.8.3.6		25 mm ²	m	1		
i.8.3.7		35 mm ²	m	1		
i.8.3.8		50 mm ²	m	1		
i.8.3.9		70 mm ²	m	1		
i.8.3.10		95 mm ²	m	1		
i.8.3.11		120 mm ²	m	1		
i.8.3.12		150 mm ²	m	1		
i.8.3.13		185 mm ²	m	1		
i.8.4		<u>Crabtyre</u>				
i.8.4.1		1.5 mm ²	m	1		
i.8.4.2		2 mm ²	m	1		
i.8.4.3		6 mm ²	m	1		
i.8.4.4		10 mm ²	m	1		
i.8.4.5		16 mm ²	m	1		
i.8.4.6		25 mm ²	m	1		
i.8.4.7		35 mm ²	m	1		
i.8.4.8		50 mm ²	m	1		
i.8.4.9		70 mm ²	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
i.8.4.10		95 mm ²	m	1		
i.8.4.11		120 mm ²	m	1		
i.8.4.12		150 mm ²	m	1		
i.8.4.13		185 mm ²	m	1		
i.9		Supply, deliver,install and test the following three core plus Earth SABS approved copper cables				
i.9.1		<u>Steel Wired Armoured cable</u>				
i.9.1.1		1.5 mm ²	m	1		
i.9.1.2		2 mm ²	m	1		
i.9.1.3		6 mm ²	m	1		
i.9.1.4		10 mm ²	m	1		
i.9.1.5		16 mm ²	m	1		
i.9.1.6		25 mm ²	m	1		
i.9.1.7		35 mm ²	m	1		
i.9.1.8		50 mm ²	m	1		
i.9.1.9		70 mm ²	m	1		
i.9.1.10		95 mm ²	m	1		
i.9.1.11		120 mm ²	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
i.9.1.12		150 mm ²	m	1		
i.9.1.13		185 mm ²	m	1		
i.9.2		<u>Submersible cable</u>				
i.9.2.1		1.5 mm ²	m	1		
i.9.2.2		2 mm ²	m	1		
i.9.2.3		6 mm ²	m	1		
i.9.2.4		10 mm ²	m	1		
i.9.2.5		16 mm ²	m	1		
i.9.2.6		25 mm ²	m	1		
i.9.2.7		35 mm ²	m	1		
i.9.2.8		50 mm ²	m	1		
i.9.2.9		70 mm ²	m	1		
i.9.2.10		95 mm ²	m	1		
i.9.2.11		120 mm ²	m	1		
i.9.2.12		150 mm ²	m	1		
i.9.2.13		185 mm ²	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
i.9.3		<u>Surfix</u>				
i.9.3.1		1.5 mm ²	m	1		
i.9.3.2		2 mm ²	m	1		
i.9.3.3		6 mm ²	m	1		
i.9.3.4		10 mm ²	m	1		
i.9.3.5		16 mm ²	m	1		
i.9.3.6		25 mm ²	m	1		
i.9.3.7		35 mm ²	m	1		
i.9.3.8		50 mm ²	m	1		
i.9.3.9		70 mm ²	m	1		
i.9.3.10		95 mm ²	m	1		
i.9.3.11		120 mm ²	m	1		
i.9.3.12		150 mm ²	m	1		
i.9.3.13		185 mm ²	m	1		
i.9.4		<u>Crabtyre</u>				
i.9.4.1		1.5 mm ²	m	1		
i.9.4.2		2 mm ²	m	1		
i.9.4.3		6 mm ²	m	1		
i.9.4.4		10 mm ²	m	1		
i.9.4.5		16 mm ²	m	1		
i.9.4.6		25 mm ²	m	1		
i.9.4.7		35 mm ²	m	1		
i.9.4.8		50 mm ²	m	1		
i.9.4.9		70 mm ²	m	1		
i.9.4.10		95 mm ²	m	1		
i.9.4.11		120 mm ²	m	1		
i.9.4.12		150 mm ²	m	1		
i.9.4.13		185 mm ²	m	1		
I.10		Supply, deliver,install and test the following four core plus Earth SABS approved copper cables (SANS 1507)				
i.10.1		<u>Steel Wired Armoured cable</u>				
i.10.1.1		1.5 mm ²	m	1		
i.10.1.2		2 mm ²	m	1		
i.10.1.3		6 mm ²	m	1		
i.10.1.4		10 mm ²	m	1		
i.10.1.5		16 mm ²	m	1		
i.10.1.6		25 mm ²	m	1		
i.10.1.7		35 mm ²	m	1		
i.10.1.8		50 mm ²	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
i.10.1.9		70 mm ²	m	1		
i.10.1.10		95 mm ²	m	1		
i.10.1.11		120 mm ²	m	1		
i.10.1.12		150 mm ²	m	1		
i.10.1.13		185 mm ²	m	1		
i.10.2		<u>Submersible cable</u>				
i.10.2.1		1.5 mm ²	m	1		
i.10.2.2		2 mm ²	m	1		
i.10.2.3		6 mm ²	m	1		
i.10.2.4		10 mm ²	m	1		
i.10.2.5		16 mm ²	m	1		
i.10.2.6		25 mm ²	m	1		
i.10.2.7		35 mm ²	m	1		
i.10.2.8		50 mm ²	m	1		
i.10.2.9		70 mm ²	m	1		
i.10.2.10		95 mm ²	m	1		
i.10.2.11		120 mm ²	m	1		
i.10.2.12		150 mm ²	m	1		
i.10.2.13		185 mm ²	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
i.10.3		<u>Surfix</u>				
i.10.3.1		1.5 mm ²	m	1		
i.10.3.2		2 mm ²	m	1		
i.10.3.3		6 mm ²	m	1		
i.10.3.4		10 mm ²	m	1		
i.10.3.5		16 mm ²	m	1		
i.10.3.6		25 mm ²	m	1		
i.10.3.7		35 mm ²	m	1		
i.10.3.8		50 mm ²	m	1		
i.10.3.9		70 mm ²	m	1		
i.10.3.10		95 mm ²	m	1		
i.10.3.11		120 mm ²	m	1		
i.10.3.12		150 mm ²	m	1		
i.10.3.13		185 mm ²	m	1		
i.10.4		<u>Crabtyre</u>				
i.10.4.1		1.5 mm ²	m	1		
i.10.4.2		2 mm ²	m	1		
i.10.4.3		6 mm ²	m	1		
i.10.4.4		10 mm ²	m	1		
i.10.4.5		16 mm ²	m	1		
i.10.4.6		25 mm ²	m	1		
i.10.4.7		35 mm ²	m	1		
i.10.4.8		50 mm ²	m	1		
i.10.4.9		70 mm ²	m	1		
i.10.4.10		95 mm ²	m	1		
i.10.4.11		120 mm ²	m	1		
i.10.4.12		150 mm ²	m	1		
i.10.4.13		185 mm ²	m	1		
I.11		Supply, deliver,install and test the following single core plus Earth SABS approved Aluminium cables (SANS 1507)				
i.11.1		<u>1000 Volts PVC unArmoured cable</u>				
i.11.1.1		50 mm ²	m	1		
i.11.1.2		70 mm ²	m	1		
i.11.1.3		95 mm ²	m	1		
i.11.1.4		120 mm ²	m	1		
i.11.1.5		150 mm ²	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
i.11.1.6		185 mm ²	m	1		
i.11.1.7		240 mm ²	m	1		
i.11.1.8		300 mm ²	m	1		
i.11.1.9		400 mm ²	m	1		
i.11.2		<u>1000 Volts PVC Armoured cable</u>				
i.11.2.1		50 mm ²	m	1		
i.11.2.2		70 mm ²	m	1		
i.11.2.3		95 mm ²	m	1		
i.11.2.4		120 mm ²	m	1		
i.11.2.5		150 mm ²	m	1		
i.11.2.6		185 mm ²	m	1		
i.11.2.7		240 mm ²	m	1		
i.11.2.8		300 mm ²	m	1		
i.11.2.9		400 mm ²	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
i.12		Supply, deliver,install and test the following three core plus Earth SABS approved Aluminium cables (SANS 1507)				
i.12.1		<u>1000 Volts PVC unArmoured cable</u>				
i.12.1.1		50 mm ²	m	1		
i.12.1.2		70 mm ²	m	1		
i.12.1.3		95 mm ²	m	1		
i.12.1.4		120 mm ²	m	1		
i.12.1.5		150 mm ²	m	1		
i.12.1.6		185 mm ²	m	1		
i.12.1.7		240 mm ²	m	1		
i.12.1.8		300 mm ²	m	1		
i.12.1.9		400 mm ²	m	1		
i.12.2		<u>1000 Volts PVC Armoured cable</u>				
i.12.2.1		50 mm ²	m	1		
i.12.2.2		70 mm ²	m	1		
i.12.2.3		95 mm ²	m	1		
i.12.2.4		120 mm ²	m	1		
i.12.2.5		150 mm ²	m	1		
i.12.2.6		185 mm ²	m	1		
i.12.2.7		240 mm ²	m	1		
i.12.2.8		300 mm ²	m	1		
i.12.2.9		400 mm ²	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
I.12		Supply, deliver,install and test the following four core plus Earth SABS approved Aluminium cables (SANS 1507)				
i.13.1		<u>1000 Volts PVC unArmoured cable</u>				
i.13.1.1		50 mm ²	m	1		
i.13.1.2		70 mm ²	m	1		
i.13.1.3		95 mm ²	m	1		
i.13.1.4		120 mm ²	m	1		
i.13.1.5		150 mm ²	m	1		
i.13.1.6		185 mm ²	m	1		
i.13.1.7		240 mm ²	m	1		
i.13.1.8		300 mm ²	m	1		
i.13.1.9		400 mm ²	m	1		
i.13.2		<u>1000 Volts PVC Armoured cable</u>				
i.13.2.1		50 mm ²	m	1		
i.13.2.2		70 mm ²	m	1		
i.13.2.3		95 mm ²	m	1		
i.13.2.4		120 mm ²	m	1		
i.13.2.5		150 mm ²	m	1		
i.13.2.6		185 mm ²	m	1		
i.13.2.7		240 mm ²	m	1		
i.13.2.8		300 mm ²	m	1		
i.13.2.9		400 mm ²	m	1		
I.14		Supply, deliver,install and test the following motor starters complete with Dry run protection ,Pump stall protection,Overload protection,Under voltage protection,Over voltage protection,phase protection,short circuit protection				
i.14.1		<u>Single phase Direct on Line</u>				
i.14.1.1		0.25 kW	no	1		
i.14.1.2		0.37 kW	no	1		
i.14.1.3		0.55 kW	no	1		
i.14.1.4		0.75 kW	no	1		
i.14.1.5		1.1 kW	no	1		
i.14.1.6		1.5 kW	no	1		
i.14.1.7		2.2 kW	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
i.14.2		<u>Three phase Direct on Line</u>				
i.14.2.1		0.25 kW	no	1		
i.14.2.2		0.37 kW	no	1		
i.14.2.3		0.55 kW	no	1		
i.14.2.4		0.75 kW	no	1		
i.14.2.5		1.1 kW	no	1		
i.14.2.6		1.5 kW	no	1		
i.14.2.7		2.2 kW	no	1		
i.14.2.8		3 kW	no	1		
i.14.2.9		3.7 kW	no	1		
i.14.2.10		4 kW	no	1		
i.14.2.11		5.5 kW	no	1		
i.14.2.12		7.5 kW	no	1		
i.14.3		<u>Star Delta Starter - open type</u>				
i.14.3.1		3 kW star delta complete with thermal overload relay and star-delta timer	no	1		
i.14.3.2		3.7 kW star delta complete with thermal overload relay and star-delta timer	no	1		
i.14.3.3		4 kW delta complete with thermal overload relay and star-delta timer	no	1		
i.14.3.4		5.5 kW star delta complete with thermal overload relay and star-delta timer	no	1		
i.14.3.5		7.5 kW star delta complete with thermal overload relay and star-delta timer	no	1		
i.14.3.6		11 kW star delta complete with thermal overload relay and star-delta timer	no	1		
i.14.3.7		15 kW star delta complete with thermal overload relay and star-delta timer	no	1		
i.14.3.8		18.5 kW star delta complete with thermal overload relay and star-delta timer	no	1		
i.14.3.9		22 kW star delta complete with thermal overload relay and star-delta timer	no	1		
i.14.3.10		30 kW star delta complete with thermal overload relay and star-delta timer	no	1		
i.14.3.11		37 kW star delta complete with thermal overload relay and star-delta timer	no	1		
i.14.3.12		45 kW star delta complete with thermal overload relay and star-delta timer	no	1		
i.14.3.13		55 kW star delta complete with thermal overload relay and star-delta timer	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
i.14.4		<u>Star Delta Starter - enclosed type</u>				
i.14.4.1		3 kW star delta starter enclosed in powder coated mild steel enclosure (IP55) complete with ammeter ,isolator ,contactors thermal overload relay .mechanical interlock and star-delta timer	no	1		
i.14.4.2		3.7 kW star delta starter enclosed in powder coated mild steel enclosure (IP55) complete with ammeter ,isolator ,contactors thermal overload relay .mechanical interlock and star-delta timer	no	1		
i.14.4.3		4 kW star delta starter enclosed in powder coated mild steel enclosure (IP55) complete with ammeter ,isolator ,contactors thermal overload relay .mechanical interlock and star-delta timer	no	1		
i.14.4.4		5.5 kW star delta starter enclosed in powder coated mild steel enclosure (IP55) complete with ammeter ,isolator ,contactors thermal overload relay .mechanical interlock and star-delta timer	no	1		
i.14.4.5		7.5 kW star delta starter enclosed in powder coated mild steel enclosure (IP55) complete with ammeter ,isolator ,contactors thermal overload relay .mechanical interlock and star-delta timer	no	1		
i.14.4.6		11 kW star delta starter enclosed in powder coated mild steel enclosure (IP55) complete with ammeter ,isolator ,contactors thermal overload relay .mechanical interlock and star-delta timer	no	1		
i.14.4.7		15 kW star delta starter enclosed in powder coated mild steel enclosure (IP55) complete with ammeter ,isolator ,contactors thermal overload relay .mechanical interlock and star-delta timer	no	1		
i.14.4.8		18.5 kW star delta starter enclosed in powder coated mild steel enclosure (IP55) complete with ammeter ,isolator ,contactors thermal overload relay .mechanical interlock and star-delta timer	no	1		
i.14.4.9		22 kW star delta starter enclosed in powder coated mild steel enclosure (IP55) complete with ammeter ,isolator ,contactors thermal overload relay .mechanical interlock and star-delta timer	no	1		
i.14.4.10		30 kW star delta starter enclosed in powder coated mild steel enclosure (IP55) complete with ammeter ,isolator ,contactors thermal overload relay .mechanical interlock and star-delta timer	no	1		
i.14.4.11		37 kW star delta starter enclosed in powder coated mild steel enclosure (IP55) complete with ammeter ,isolator ,contactors thermal overload relay .mechanical interlock and star-delta timer	no	1		
i.14.4.12		45 kW star delta starter enclosed in powder coated mild steel enclosure (IP55) complete with ammeter ,isolator ,contactors thermal overload relay .mechanical interlock and star-delta timer	no	1		
i.14.4.13		55 kW star delta starter enclosed in powder coated mild steel enclosure (IP55) complete with ammeter ,isolator ,contactors thermal overload relay .mechanical interlock and star-delta timer	no	1		
i.15.4		<u>Soft Starter</u>				
		Motor size				
i.15.4.1		1.5 kW	no	1		
i.15.4.2		2.2 kW	no	1		
i.15.4.3		3 kW	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
i.15.4.4		3.7 kW	no	1		
i.15.4.5		4 kW	no	1		
i.15.4.6		5.5 kW	no	1		
i.15.4.7		7.5 kW	no	1		
i.15.4.8		11 kW	no	1		
i.15.4.9		15 kW	no	1		
i.15.4.10		18.5 kW	no	1		
i.15.4.11		22 kW	no	1		
i.15.4.12		30 kW	no	1		
i.15.4.13		37 kW	no	1		
i.15.4.14		45 kW	no	1		
i.15.4.15		55 kW	no	1		
i.15.5		<u>Solar-Powered Variable Speed Drives (VSDs) for</u>				
		motor size				
i.15.5.1		1.5 kW	no	1		
i.15.5.2		2.2 kW	no	1		
i.15.5.3		3 kW	no	1		
i.15.5.4		3.7 kW	no	1		
i.15.5.5		4 kW	no	1		
i.15.5.6		5.5 kW	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
i.15.5.7		7.5 kW	no	1		
i.15.5.8		11 kW	no	1		
i.15.5.9		15 kW	no	1		
i.15.5.10		18.5 kW	no	1		
i.15.5.11		22 kW	no	1		
i.15.5.12		30 kW	no	1		
i.15.5.13		37 kW	no	1		
i.15.5.14		45 kW	no	1		
i.15.5.15		55 kW	no	1		
i.15.6		<u>Variable Speed Drives (VSDs) suitable for:</u>				
		motor size				
i.15.6.1		1.5 kW	no	1		
i.15.6.2		2.2 kW	no	1		
i.15.6.3		3 kW	no	1		
i.15.6.4		3.7 kW	no	1		
i.15.6.5		4 kW	no	1		
i.15.6.6		5.5 kW	no	1		
i.15.6.7		7.5 kW	no	1		
i.15.6.8		11 kW	no	1		
i.15.6.9		15 kW	no	1		
i.15.6.10		18.5 kW	no	1		
i.15.6.11		22 kW	no	1		
i.15.6.12		30 kW	no	1		
i.15.6.13		37 kW	no	1		
i.15.6.14		45 kW	no	1		
i.15.6.15		55 kW	no	1		
		TOTAL SECTION "i" CARRIED FORWARD TO SUMMARY				

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
<u>SECTION J : LDPE PIPES AND FITTINGS</u>						
J.1		Supply, deliver,install and test the following non SABS approved LDPE pipes, fittings subject to engineers approval . A two year warranty for pipe and a year warranty for fittings . All material to be manufactured from virgin plastic				
J.1.1		<u>Coupling Insert</u>				
J.1.1.1		15mm	no	1		
J.1.1.2		20mm	no	1		
J.1.1.3		25mm	no	1		
J.1.1.4		32mm	no	1		
J.1.1.5		40mm	no	1		
J.1.1.6		50mm	no	1		
J.1.2		<u>Endplug Insert</u>				
J.1.2.1		15mm	no	1		
J.1.2.2		20mm	no	1		
J.1.2.3		25mm	no	1		
J.1.2.4		32mm	no	1		
J.1.2.5		40mm	no	1		
J.1.2.6		50mm	no	1		
J.1.3		<u>Tee insert</u>				
J.1.3.1		15mm	no	1		
J.1.3.2		20mm	no	1		
J.1.3.3		25mm	no	1		
J.1.3.4		32mm	no	1		
J.1.3.5		40mm	no	1		
J.1.3.6		50mm	no	1		
J.1.4		<u>Elbow insert</u>				
J.1.4.1		15mm	no	1		
J.1.4.2		20mm	no	1		
J.1.4.3		25mm	no	1		
J.1.4.4		32mm	no	1		
J.1.4.5		40mm	no	1		
J.1.4.6		50mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
J.1.5		<u>Male Adaptors</u>				
J.1.5.1		20mm x 15mm	no	1		
J.1.5.2		20mm x 20mm	no	1		
J.1.5.3		20mm x 25mm	no	1		
J.1.5.4		25mm x 15mm	no	1		
J.1.5.5		25mm x 20mm	no	1		
J.1.5.6		25mm x 25mm	no	1		
J.1.5.7		32mm x 15mm	no	1		
J.1.5.8		32mm x 20mm	no	1		
J.1.5.9		32mm x 25mm	no	1		
J.1.5.10		32mm x 32mm	no	1		
J.1.5.11		40mm x 25mm	no	1		
J.1.5.12		40mm x 32mm	no	1		
J.1.5.13		40mm x 40mm	no	1		
J.1.5.14		40mm x 50mm	no	1		
J.1.5.15		50mm x 25mm	no	1		
J.1.5.16		50mm x 32mm	no	1		
J.1.5.17		50mm x 40mm	no	1		
J.1.5.18		50mm x 50mm	no	1		
J.1.6		<u>Female Adaptors</u>				
J.1.6.1		20mm x 15mm	no	1		
J.1.6.2		20mm x 20mm	no	1		
J.1.6.3		20mm x 25mm	no	1		
J.1.6.4		25mm x 15mm	no	1		
J.1.6.5		25mm x 20mm	no	1		
J.1.6.6		25mm x 25mm	no	1		
J.1.6.7		32mm x 15mm	no	1		
J.1.6.8		32mm x 20mm	no	1		
J.1.6.9		32mm x 25mm	no	1		
J.1.6.10		32mm x 32mm	no	1		
J.1.6.11		40mm x 25mm	no	1		
J.1.6.12		40mm x 32mm	no	1		
J.1.6.13		40mm x 40mm	no	1		
J.1.6.14		40mm x 50mm	no	1		
J.1.6.15		50mm x 25mm	no	1		
J.1.6.16		50mm x 32mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
J.1.6.17		50mm x 40mm	no	1		
J.1.6.18		50mm x 50mm	no	1		
J.1.7		<u>Reducing Inserts</u>				
J.1.7.1		25mm x 20mm	no	1		
J.1.7.2		32mm x 20mm	no	1		
J.1.7.3		32mm x 25mm	no	1		
J.1.7.4		40mm x 25mm	no	1		
J.1.7.5		40mm x 32mm	no	1		
J.1.7.6		50mm x 25mm	no	1		
J.1.7.7		50mm x 32mm	no	1		
J.1.7.8		50mm x 40mm	no	1		
J.1.8		<u>Female/Male Elbow Adaptor</u>				
J.1.8.1		20mm x 15mm	no	1		
J.1.8.2		20mm x 20mm	no	1		
J.1.8.3		20mm x 25mm	no	1		
J.1.8.4		25mm x 15mm	no	1		
J.1.8.5		25mm x 20mm	no	1		
J.1.8.6		25mm x 25mm	no	1		
J.1.8.7		32mm x 15mm	no	1		
J.1.8.8		32mm x 20mm	no	1		
J.1.8.9		32mm x 25mm	no	1		
J.1.8.10		32mm x 32mm	no	1		
J.1.8.11		40mm x 25mm	no	1		
J.1.8.12		40mm x 32mm	no	1		
J.1.8.13		40mm x 40mm	no	1		
J.1.8.14		40mm x 50mm	no	1		
J.1.8.15		50mm x 25mm	no	1		
J.1.8.16		50mm x 32mm	no	1		
J.1.8.17		50mm x 40mm	no	1		
J.1.8.18		50mm x 50mm	no	1		
J.1.9		<u>Female/ Male Tee Adaptor</u>				
J.1.9.1		20mm x 15mm	no	1		
J.1.9.2		20mm x 20mm	no	1		
J.1.9.3		20mm x 25mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
J.1.9.4		25mm x 15mm	no	1		
J.1.9.5		25mm x 20mm	no	1		
J.1.9.6		25mm x 25mm	no	1		
J.1.9.7		32mm x 15mm	no	1		
J.1.9.8		32mm x 20mm	no	1		
J.1.9.9		32mm x 25mm	no	1		
J.1.9.10		32mm x 32mm	no	1		
J.1.9.11		40mm x 25mm	no	1		
J.1.9.12		40mm x 32mm	no	1		
J.1.9.13		40mm x 40mm	no	1		
J.1.9.14		40mm x 50mm	no	1		
J.1.9.15		50mm x 25mm	no	1		
J.1.9.16		50mm x 32mm	no	1		
J.1.9.17		50mm x 40mm	no	1		
J.1.9.18		50mm x 50mm	no	1		
J.1.10		<u>Reducing Tee</u>				
J.1.10.1		25mm x 20mm	no	1		
J.1.10.2		32mm x 20mm	no	1		
J.1.10.3		32mm x 25mm	no	1		
J.1.10.4		40mm x 25mm	no	1		
J.1.10.5		40mm x 32mm	no	1		
J.1.10.6		50mm x 25mm	no	1		
J.1.10.7		50mm x 32mm	no	1		
J.1.10.8		50mm x 40mm	no	1		
J.1.11		<u>Equal Tee</u>				
J.1.11.1		15mm	no	1		
J.1.11.2		20mm	no	1		
J.1.11.3		25mm	no	1		
J.1.11.4		32mm	no	1		
J.1.11.5		40mm	no	1		
J.1.11.6		50mm	no	1		
J.1.12		<u>Male/Female Elbow adaptor</u>				
J.1.12.1		20mm x 15mm	no	1		
J.1.12.2		20mm x 20mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
J.1.12.3		25mm x 15mm	no	1		
J.1.12.4		25mm x 20mm	no	1		
J.1.12.5		25mm x 25mm	no	1		
J.1.12.6		32mm x 15mm	no	1		
J.1.12.7		32mm x 20mm	no	1		
J.1.12.8		32mm x 25mm	no	1		
J.1.12.9		32mm x 32mm	no	1		
J.1.12.10		40mm x 20mm	no	1		
J.1.12.11		40mm x 25mm	no	1		
J.1.12.12		40mm x 32mm	no	1		
J.1.12.13		40mm x 40mm	no	1		
J.1.12.14		50mm x 32mm	no	1		
J.1.12.15		50mm x 40mm	no	1		
J.1.12.16		50mm x 50mm	no	1		
J.1.13		<u>LDPE pipe complete with fittings (Class 6)</u>				
J.1.13.1		20mm	m	100		
J.1.13.2		25mm	m	100		
J.1.13.3		32mm	m	100		
J.1.13.4		40mm	m	100		
J.1.13.5		50mm	m	100		
J.1.14		<u>LDPE pipe complete with fittings (Class 3)</u>				
J.1.14.1		20mm	m	100		
J.1.14.2		25mm	m	100		
J.1.14.3		32mm	m	100		
J.1.14.4		40mm	m	100		
J.1.14.5		50mm	m	100		
		TOTAL SECTION "J" CARRIED FORWARD TO SUMMARY				

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
<u>SECTION K : VALVES & METERS</u>						
K.1		Supply, deliver,install and test the following ball valves				
K.1.1		<u>PVC ball valve (PN 16)</u>				
K.1.1.1		15mm	no	1		
K.1.1.2		20mm	no	1		
K.1.1.3		25mm	no	1		
K.1.1.4		32mm	no	1		
K.1.1.5		40mm	no	1		
K.1.1.6		50mm	no	1		
K.1.2		<u>Solvent Weld PVC ball valve (PN16)</u>				
K.1.2.1		15mm	no	1		
K.1.2.2		20mm	no	1		
K.1.2.3		25mm	no	1		
K.1.2.4		32mm	no	1		
K.1.2.5		40mm	no	1		
K.1.2.6		50mm	no	1		
K.1.2.7		63mm	no	1		
K.1.2.8		80mm	no	1		
K.1.2.9		90mm	no	1		
K.1.2.10		100mm	no	1		
K.1.3		<u>Brass ball valve (PN16)</u>				
K.1.3.1		15mm	no	1		
K.1.3.2		20mm	no	1		
K.1.3.3		25mm	no	1		
K.1.3.4		32mm	no	1		
K.1.3.5		40mm	no	1		
K.1.3.6		50mm	no	1		
K.1.3.7		65mm	no	1		
K.1.3.8		80mm	no	1		
K.1.3.9		90mm	no	1		
K.1.3.10		100mm	no	1		
K.1.4		<u>Stainless ball valve (PN16)</u>				
K.1.4.1		15mm	no	1		
K.1.4.2		20mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
K.1.4.3		25mm	no	1		
K.2		Supply, deliver,install and test the following gate valves				
K.2.1		<u>Flange to Flange cast iron gate valve (PN25)</u>				
K.2.1.1		100mm	no	1		
K.2.1.2		150mm	no	1		
K.2.1.3		200mm	no	1		
K.2.1.4		250mm	no	1		
K.2.2		<u>Female to Female brass gate valve (PN25)</u>				
K.2.2.1		25mm	no	1		
K.2.2.2		32mm	no	1		
K.2.2.3		40mm	no	1		
K.2.2.4		50mm	no	1		
K.2.2.5		65mm	no	1		
K.2.2.6		80mm	no	1		
K.2.2.7		90mm	no	1		
K.2.2.8		100mm	no	1		
K.3		Supply, deliver,install and test the following coated cast iron butterfly valves				
K.3.1		<u>Butterfly lever operated valve, Stainless steel disc</u>				
K.3.1.1		40mm	no	1		
K.3.1.2		50mm	no	1		
K.3.1.3		65mm	no	1		
K.3.1.4		80mm	no	1		
K.3.1.5		90mm	no	1		
K.3.1.6		100mm	no	1		
K.3.1.7		125mm	no	1		
K.3.1.8		150mm	no	1		
K.3.1.9		200mm	no	1		
K.3.1.10		250mm	no	1		
K.3.2		<u>Butterfly lever operated valve, Stainless Chrome disc</u>				
K.3.2.1		40mm	no	1		
K.3.2.2		50mm	no	1		
K.3.2.3		65mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
K.3.2.4		80mm	no	1		
K.3.2.5		90mm	no	1		
K.3.2.6		100mm	no	1		
K.3.2.7		125mm	no	1		
K.3.2.8		150mm	no	1		
K.3.2.9		200mm	no	1		
K.3.2.10		250mm	no	1		
K.3.3		<u>Butterfly gear operated valve, Stainless steel disc</u>				
K.3.3.1		40mm	no	1		
K.3.3.2		50mm	no	1		
K.3.3.3		65mm	no	1		
K.3.3.4		80mm	no	1		
K.3.3.5		90mm	no	1		
K.3.3.6		100mm	no	1		
K.3.3.7		125mm	no	1		
K.3.3.8		150mm	no	1		
K.3.3.9		200mm	no	1		
K.3.3.10		250mm	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
K.3.4		<u>Butterfly gear operated valve, Stainless Chrome disc</u>				
K.3.4.1		40mm	no	1		
K.3.4.2		50mm	no	1		
K.3.4.3		65mm	no	1		
K.3.4.4		80mm	no	1		
K.3.4.5		90mm	no	1		
K.3.4.6		100mm	no	1		
K.3.4.7		125mm	no	1		
K.3.4.8		150mm	no	1		
K.3.4.9		200mm	no	1		
K.3.4.10		250mm	no	1		
K.4		Supply, deliver,install and test the following reinforced nylon irrigation control (diaphragm) valves				
K.4.1		<u>Manually Controlled Valve</u>				
K.4.1.1		40mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter	no	1		
K.4.1.2		50mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter	no	1		
K.4.1.3		65mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter	no	1		
K.4.1.4		80mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter	no	1		
K.4.1.5		100mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter	no	1		
K.4.2		<u>Solenoid Controlled Valve</u>				
K.4.2.1		40mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter & three or two way solenoid valve	no	1		
K.4.2.2		50mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter & three or two way solenoid valve	no	1		
K.4.2.3		65mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter & three or two way solenoid valve	no	1		
K.4.2.4		80mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter & three or two way solenoid valve	no	1		
K.4.2.5		100mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter & three or two way solenoid valve	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
K.4.3		<u>Hydraulic Remote Controlled Valve</u>				
K.4.3.1		40mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter & manual override selector	no	1		
K.4.3.2		50mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter & manual override selector	no	1		
K.4.3.3		65mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter & manual override selector	no	1		
K.4.3.4		80mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter & three or two way solenoid valve	no	1		
K.4.3.5		100mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter & manual override selector	no	1		
K.4.3.6		150mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter & manual override selector	no	1		
K.4.3.7		200mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter & manual override selector	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
K.4.4		<u>Pressure Reducing Valve</u>				
K.4.4.1		40mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.4.4.2		50mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.4.4.3		65mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.4.4.4		80mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.4.4.5		100mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.4.4.6		150mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.4.4.7		200mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
K.4.5		<u>Pressure Sustaining & Relief Valve</u>				
K.4.5.1		40mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.4.5.2		50mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.4.5.3		65mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.4.5.4		80mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.4.5.5		100mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.4.5.6		150mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.4.5.7		200mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
K.4.6		<u>Pressure Differential Sustaining Valve</u>				
K.4.6.1		40mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.4.6.2		50mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.4.6.3		65mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.4.6.4		80mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.4.6.5		100mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.4.6.6		150mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.4.6.7		200mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
K.4.7		<u>Flow Control Valve</u>				
K.4.7.1		40mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter, manual override selector & Orifice plate	no	1		
K.4.7.2		50mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter, manual override selector & Orifice plate	no	1		
K.4.7.3		65mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter, manual override selector & Orifice plate	no	1		
K.4.7.4		80mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter, manual override selector & Orifice plate	no	1		
K.4.7.5		100mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter, manual override selector & Orifice plate	no	1		
K.4.7.6		150mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter, manual override selector & Orifice plate	no	1		
K.4.7.7		200mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter, manual override selector & Orifice plate	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
K.4.8		<u>Excessive Flow Shut-off Valve</u>				
K.4.8.1		40mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter, manual override selector & Orifice plate	no	1		
K.4.8.2		50mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter, manual override selector & Orifice plate	no	1		
K.4.8.3		65mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter, manual override selector & Orifice plate	no	1		
K.4.8.4		80mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter, manual override selector & Orifice plate	no	1		
K.4.8.5		100mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter, manual override selector & Orifice plate	no	1		
K.4.8.6		150mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter, manual override selector & Orifice plate	no	1		
K.4.8.7		200mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter, manual override selector & Orifice plate	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
K.4.9		<u>Modulating Float Controlled Valve</u>				
K.4.9.1		40mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, modulating float pilot valve	no	1		
K.4.9.2		50mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, modulating float pilot valve	no	1		
K.4.9.3		65mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, modulating float pilot valve	no	1		
K.4.9.4		80mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, modulating float pilot valve	no	1		
K.4.9.5		100mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, modulating float pilot valve	no	1		
K.4.9.6		150mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, modulating float pilot valve	no	1		
K.4.9.7		200mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, modulating float pilot valve	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
K.4.10		<u>Electric Float Controlled Valve</u>				
K.4.10.1		40mm direct sealing diaphragm type three way valve complete with three/two solenoid valve , cock valve ,Self-flushing filter, Electric float switch	no	1		
K.4.10.2		50mm direct sealing diaphragm type three way valve complete with three/two solenoid valve , cock valve ,Self-flushing filter, Electric float switch	no	1		
K.4.10.3		65 mm direct sealing diaphragm type three way valve complete with three/two solenoid valve , cock valve ,Self-flushing filter, Electric float switch	no	1		
K.4.10.4		80mm direct sealing diaphragm type three way valve complete with three/two solenoid valve , cock valve ,Self-flushing filter, Electric float switch	no	1		
K.4.10.5		100mm direct sealing diaphragm type three way valve complete with three/two solenoid valve , cock valve ,Self-flushing filter, Electric float switch	no	1		
K.4.10.6		150mm direct sealing diaphragm type three way valve complete with three/two solenoid valve , cock valve ,Self-flushing filter, Electric float switch	no	1		
K.4.10.7		200mm direct sealing diaphragm type three way valve complete with three/two solenoid valve , cock valve ,Self-flushing filter, Electric float switch	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
K.4.11		<u>Differential Float Controlled Valve</u>				
K.4.11.1		40 mm direct sealing diaphragm type three way valve complete with Manual over-ride selector valve , cock valve ,Self-flushing filter, Electric float switch	no	1		
K.4.11.2		50 mm direct sealing diaphragm type three way valve complete with Manual over-ride selector valve , cock valve ,Self-flushing filter, Electric float switch	no	1		
K.4.11.3		65 mm direct sealing diaphragm type three way valve complete with Manual over-ride selector valve , cock valve ,Self-flushing filter, Electric float switch	no	1		
K.4.11.4		80 mm direct sealing diaphragm type three way valve complete with Manual over-ride selector valve , cock valve ,Self-flushing filter, Electric float switch	no	1		
K.4.11.5		100 mm direct sealing diaphragm type three way valve complete with Manual over-ride selector valve , cock valve ,Self-flushing filter, Electric float switch	no	1		
K.4.11.6		150 mm direct sealing diaphragm type three way valve complete with Manual over-ride selector valve , cock valve ,Self-flushing filter, Electric float switch	no	1		
K.4.11.7		200 mm direct sealing diaphragm type three way valve complete with Manual over-ride selector valve , cock valve ,Self-flushing filter, Electric float switch	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
K.4.12		<u>Altitude Pilot Controlled Valve</u>				
K.4.12.1		40 mm direct sealing diaphragm type three way valve complete with Manual over-ride selector valve , cock valve ,Self-flushing filter, High sensitivity altitude control pilot valve	no	1		
K.4.12.2		50 mm direct sealing diaphragm type three way valve complete with Manual over-ride selector valve , cock valve ,Self-flushing filter, High sensitivity altitude control pilot valve	no	1		
K.4.12.3		65 mm direct sealing diaphragm type three way valve complete with Manual over-ride selector valve , cock valve ,Self-flushing filter, High sensitivity altitude control pilot valve	no	1		
K.4.12.4		80 mm direct sealing diaphragm type three way valve complete with Manual over-ride selector valve , cock valve ,Self-flushing filter, High sensitivity altitude control pilot valve	no	1		
K.4.12.5		100 mm direct sealing diaphragm type three way valve complete with Manual over-ride selector valve , cock valve ,Self-flushing filter, High sensitivity altitude control pilot valve	no	1		
K.4.12.6		150 mm direct sealing diaphragm type three way valve complete with Manual over-ride selector valve , cock valve ,Self-flushing filter, High sensitivity altitude control pilot valve	no	1		
K.4.12.7		200 mm direct sealing diaphragm type three way valve complete with Manual over-ride selector valve , cock valve ,Self-flushing filter, High sensitivity altitude control pilot valve	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
K.4.13		<u>Pump Control Valve</u>				
K.4.13.1		40mm direct sealing diaphragm type three way valve complete with three/two Solenoid valve , ,Open/close speed adjustment needle valve ,cock valve ,Self-flushing filter, Check valve &Limit switch assembly	no	1		
K.4.13.2		50mm direct sealing diaphragm type three way valve complete with three/two Solenoid valve , ,Open/close speed adjustment needle valve ,cock valve ,Self-flushing filter, Check valve &Limit switch assembly	no	1		
K.4.13.3		65mm direct sealing diaphragm type three way valve complete with three/two Solenoid valve , ,Open/close speed adjustment needle valve ,cock valve ,Self-flushing filter, Check valve &Limit switch assembly	no	1		
K.4.13.4		80mm direct sealing diaphragm type three way valve complete with three/two Solenoid valve , ,Open/close speed adjustment needle valve ,cock valve ,Self-flushing filter, Check valve &Limit switch assembly	no	1		
K.4.13.5		100mm direct sealing diaphragm type three way valve complete with three/two Solenoid valve , ,Open/close speed adjustment needle valve ,cock valve ,Self-flushing filter, Check valve &Limit switch assembly	no	1		
K.4.13.6		150mm direct sealing diaphragm type three way valve complete with three/two Solenoid valve , ,Open/close speed adjustment needle valve ,cock valve ,Self-flushing filter, Check valve &Limit switch assembly	no	1		
K.4.13.7		200mm direct sealing diaphragm type three way valve complete with three/two Solenoid valve , ,Open/close speed adjustment needle valve ,cock valve ,Self-flushing filter, Check valve &Limit switch assembly	no	1		
K.4.14		<u>Surge Anticipating Valve</u>				
K.4.14.1		40 mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, Low and high pressure relief pilot valves, pressure gauge	no	1		
K.4.14.2		50 mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, Low and high pressure relief pilot valves, pressure gauge	no	1		
K.4.14.3		65 mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, Low and high pressure relief pilot valves, pressure gauge	no	1		
K.4.14.4		80 mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, Low and high pressure relief pilot valves, pressure gauge	no	1		
K.4.14.5		100 mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, Low and high pressure relief pilot valves, pressure gauge	no	1		
K.4.14.6		150 mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, Low and high pressure relief pilot valves, pressure gauge	no	1		
K.4.14.7		200 mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, Low and high pressure relief pilot valves, pressure gauge	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
K.4.15		<u>Quick Pressure-relief Valve</u>				
K.4.15.1		40 mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, pressure relief pilot valve	no	1		
K.4.15.2		50 mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, pressure relief pilot valve	no	1		
K.4.15.3		65 mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, pressure relief pilot valve	no	1		
K.4.15.4		80 mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, pressure relief pilot valve	no	1		
K.4.15.5		100 mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, pressure relief pilot valve	no	1		
K.4.15.6		150 mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, pressure relief pilot valve	no	1		
K.4.15.7		200 mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, pressure relief pilot valve	no	1		
K.5		Supply, deliver,install and test the following epoxy-coated cast iron irrigation control (diaphragm) valves				
K.5.1		<u>Manually Controlled Valve</u>				
K.5.1.1		40mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter	no	1		
K.5.1.2		50mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter	no	1		
K.5.1.3		65mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter	no	1		
K.5.1.4		80mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter	no	1		
K.5.1.5		100mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter	no	1		
K.5.2		<u>Solenoid Controlled Valve</u>				
K.5.2.1		40mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter & three or two way solenoid valve	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
K.5.2.2		50mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter & three or two way solenoid valve	no	1		
K.5.2.3		65mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter & three or two way solenoid valve	no	1		
K.5.2.4		80mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter & three or two way solenoid valve	no	1		
K.5.2.5		100mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter & three or two way solenoid valve	no	1		
K.5.3		<u>Hydraulic Remote Controlled Valve</u>				
K.5.3.1		40mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter & manual override selector	no	1		
K.5.3.2		50mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter & manual override selector	no	1		
K.5.3.3		65mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter & manual override selector	no	1		
K.5.3.4		80mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter & three or two way solenoid valve	no	1		
K.5.3.5		100mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter & manual override selector	no	1		
K.5.3.6		150mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter & manual override selector	no	1		
K.5.3.7		200mm direct sealing diaphragm type three way valve complete with three way selector , cock valve ,Self-flushing filter & manual override selector	no	1		
K.5.4		<u>Pressure Reducing Valve</u>				
K.5.4.1		40mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.5.4.2		50mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.5.4.3		65mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.5.4.4		80mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
K.5.4.5		100mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.5.4.6		150mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.5.4.7		200mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.5.5		<u>Pressure Sustaining & Relief Valve</u>				
K.5.5.1		40mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.5.5.2		50mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.5.5.3		65mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.5.5.4		80mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.5.5.5		100mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.5.5.6		150mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.5.5.7		200mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.5.6		<u>Pressure Differential Sustaining Valve</u>				
K.5.6.1		40mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.5.6.2		50mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.5.6.3		65mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.5.6.4		80mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.5.6.5		100mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
K.5.6.6		150mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.5.6.7		200mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter & manual override selector	no	1		
K.5.7		<u>Flow Control Valve</u>				
K.5.7.1		40mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter, manual override selector & Orifice plate	no	1		
K.5.7.2		50mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter, manual override selector & Orifice plate	no	1		
K.5.7.3		65mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter, manual override selector & Orifice plate	no	1		
K.5.7.4		80mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter, manual override selector & Orifice plate	no	1		
K.5.7.5		100mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter, manual override selector & Orifice plate	no	1		
K.5.7.6		150mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter, manual override selector & Orifice plate	no	1		
K.5.7.7		200mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter, manual override selector & Orifice plate	no	1		
K.5.8		<u>Excessive Flow Shut-off Valve</u>				
K.5.8.1		40mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter, manual override selector & Orifice plate	no	1		
K.5.8.2		50mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter, manual override selector & Orifice plate	no	1		
K.5.8.3		65mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter, manual override selector & Orifice plate	no	1		
K.5.8.4		80mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter, manual override selector & Orifice plate	no	1		
K.5.8.5		100mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter, manual override selector & Orifice plate	no	1		
K.5.8.6		150mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter, manual override selector & Orifice plate	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
K.5.8.7		200mm direct sealing diaphragm type three way valve complete with three/two pilot valve , cock valve ,Self-flushing filter, manual override selector & Orifice plate	no	1		
K.5.9		<u>Modulating Float Controlled Valve</u>				
K.5.9.1		40mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, modulating float pilot valve	no	1		
K.5.9.2		50mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, modulating float pilot valve	no	1		
K.5.9.3		65mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, modulating float pilot valve	no	1		
K.5.9.4		80mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, modulating float pilot valve	no	1		
K.5.9.5		100mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, modulating float pilot valve	no	1		
K.5.9.6		150mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, modulating float pilot valve	no	1		
K.5.9.7		200mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, modulating float pilot valve	no	1		
K.5.10		<u>Electric Float Controlled Valve</u>				
K.5.10.1		40mm direct sealing diaphragm type three way valve complete with three/two solenoid valve , cock valve ,Self-flushing filter, Electric float switch	no	1		
K.5.10.2		50mm direct sealing diaphragm type three way valve complete with three/two solenoid valve , cock valve ,Self-flushing filter, Electric float switch	no	1		
K.5.10.3		65 mm direct sealing diaphragm type three way valve complete with three/two solenoid valve , cock valve ,Self-flushing filter, Electric float switch	no	1		
K.5.10.4		80mm direct sealing diaphragm type three way valve complete with three/two solenoid valve , cock valve ,Self-flushing filter, Electric float switch	no	1		
K.5.10.5		100mm direct sealing diaphragm type three way valve complete with three/two solenoid valve , cock valve ,Self-flushing filter, Electric float switch	no	1		
K.5.10.6		150mm direct sealing diaphragm type three way valve complete with three/two solenoid valve , cock valve ,Self-flushing filter, Electric float switch	no	1		
K.5.10.7		200mm direct sealing diaphragm type three way valve complete with three/two solenoid valve , cock valve ,Self-flushing filter, Electric float switch	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
K.5.11		<u>Differential Float Controlled Valve</u>				
K.5.11.1		40 mm direct sealing diaphragm type three way valve complete with Manual over-ride selector valve , cock valve ,Self-flushing filter, Electric float switch	no	1		
K.5.11.2		50 mm direct sealing diaphragm type three way valve complete with Manual over-ride selector valve , cock valve ,Self-flushing filter, Electric float switch	no	1		
K.5.11.3		65 mm direct sealing diaphragm type three way valve complete with Manual over-ride selector valve , cock valve ,Self-flushing filter, Electric float switch	no	1		
K.5.11.4		80 mm direct sealing diaphragm type three way valve complete with Manual over-ride selector valve , cock valve ,Self-flushing filter, Electric float switch	no	1		
K.5.11.5		100 mm direct sealing diaphragm type three way valve complete with Manual over-ride selector valve , cock valve ,Self-flushing filter, Electric float switch	no	1		
K.5.11.6		150 mm direct sealing diaphragm type three way valve complete with Manual over-ride selector valve , cock valve ,Self-flushing filter, Electric float switch	no	1		
K.5.11.7		200 mm direct sealing diaphragm type three way valve complete with Manual over-ride selector valve , cock valve ,Self-flushing filter, Electric float switch	no	1		
K.5.12		<u>Altitude Pilot Controlled Valve</u>				
K.5.12.1		40 mm direct sealing diaphragm type three way valve complete with Manual over-ride selector valve , cock valve ,Self-flushing filter, High sensitivity altitude control pilot valve	no	1		
K.5.12.2		50 mm direct sealing diaphragm type three way valve complete with Manual over-ride selector valve , cock valve ,Self-flushing filter, High sensitivity altitude control pilot valve	no	1		
K.5.12.3		65 mm direct sealing diaphragm type three way valve complete with Manual over-ride selector valve , cock valve ,Self-flushing filter, High sensitivity altitude control pilot valve	no	1		
K.5.12.4		80 mm direct sealing diaphragm type three way valve complete with Manual over-ride selector valve , cock valve ,Self-flushing filter, High sensitivity altitude control pilot valve	no	1		
K.5.12.5		100 mm direct sealing diaphragm type three way valve complete with Manual over-ride selector valve , cock valve ,Self-flushing filter, High sensitivity altitude control pilot valve	no	1		
K.5.12.6		150 mm direct sealing diaphragm type three way valve complete with Manual over-ride selector valve , cock valve ,Self-flushing filter, High sensitivity altitude control pilot valve	no	1		
K.5.12.7		200 mm direct sealing diaphragm type three way valve complete with Manual over-ride selector valve , cock valve ,Self-flushing filter, High sensitivity altitude control pilot valve	no	1		
K.5.13		<u>Pump Control Valve</u>				

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
K.5.13.1		40mm direct sealing diaphragm type three way valve complete with three/two Solenoid valve , ,Open/close speed adjustment needle valve ,cock valve ,Self-flushing filter, Check valve &Limit switch assembly	no	1		
K.5.13.2		50mm direct sealing diaphragm type three way valve complete with three/two Solenoid valve , ,Open/close speed adjustment needle valve ,cock valve ,Self-flushing filter, Check valve &Limit switch assembly	no	1		
K.5.13.3		65mm direct sealing diaphragm type three way valve complete with three/two Solenoid valve , ,Open/close speed adjustment needle valve ,cock valve ,Self-flushing filter, Check valve &Limit switch assembly	no	1		
K.5.13.4		80mm direct sealing diaphragm type three way valve complete with three/two Solenoid valve , ,Open/close speed adjustment needle valve ,cock valve ,Self-flushing filter, Check valve &Limit switch assembly	no	1		
K.5.13.5		100mm direct sealing diaphragm type three way valve complete with three/two Solenoid valve , ,Open/close speed adjustment needle valve ,cock valve ,Self-flushing filter, Check valve &Limit switch assembly	no	1		
K.5.13.6		150mm direct sealing diaphragm type three way valve complete with three/two Solenoid valve , ,Open/close speed adjustment needle valve ,cock valve ,Self-flushing filter, Check valve &Limit switch assembly	no	1		
K.5.13.7		200mm direct sealing diaphragm type three way valve complete with three/two Solenoid valve , ,Open/close speed adjustment needle valve ,cock valve ,Self-flushing filter, Check valve &Limit switch assembly	no	1		
K.5.14		<u>Surge Anticipating Valve</u>				
K.5.14.1		40 mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, Low and high pressure relief pilot valves, pressure gauge	no	1		
K.5.14.2		50 mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, Low and high pressure relief pilot valves, pressure gauge	no	1		
K.5.14.3		65 mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, Low and high pressure relief pilot valves, pressure gauge	no	1		
K.5.14.4		80 mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, Low and high pressure relief pilot valves, pressure gauge	no	1		
K.5.14.5		100 mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, Low and high pressure relief pilot valves, pressure gauge	no	1		
K.5.14.6		150 mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, Low and high pressure relief pilot valves, pressure gauge	no	1		
K.5.14.7		200 mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, Low and high pressure relief pilot valves, pressure gauge	no	1		
K.5.15		<u>Quick Pressure-relief Valve</u>				

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
K.5.15.1		40 mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, pressure relief pilot valve	no	1		
K.5.15.2		50 mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, pressure relief pilot valve	no	1		
K.5.15.3		65 mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, pressure relief pilot valve	no	1		
K.5.15.4		80 mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, pressure relief pilot valve	no	1		
K.5.15.5		100 mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, pressure relief pilot valve	no	1		
K.5.15.6		150 mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, pressure relief pilot valve	no	1		
K.5.15.7		200 mm direct sealing diaphragm type three way valve complete with needle valve , cock valve ,Self-flushing filter, pressure relief pilot valve	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	K.6	Supply deliver and install the following water meters				
	K.6.1	<u>Cast Iron , Epoxy coated (Flange Table D)</u>				
	K.6.1.1	40mm	no	1		
	K.6.1.2	50mm	no	1		
	K.6.1.3	65mm	no	1		
	K.6.1.4	80mm	no	1		
	K.6.1.5	90mm	no	1		
	K.6.1.6	100mm	no	1		
	K.6.1.7	125mm	no	1		
	K.6.1.8	150mm	no	1		
	K.6.1.9	200mm	no	1		
		TOTAL SECTION "K" CARRIED FORWARD TO SUMMARY				

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
<u>SECTION L : SHADENET</u>						
L.1		Supply deliver and install the following SABS approved shadenet materials and accessories.Shade Cloth to be manufactured from HDPE (High-Density Polyethylene) with UV stabiliser				
L.1.1		<u>Shade Cloth</u>				
L.1.1.1		20% Shade White	m ²	1		
L.1.1.2		40% Shade White	m ²	1		
L.1.1.3		20% Green	m ²	1		
L.1.1.4		40% Green	m ²	1		
L.1.1.5		50% Green	m ²	1		
L.1.1.6		80% Green	m ²	1		
L.1.1.7		20% Black	m ²	1		
L.1.1.8		40% Black	m ²	1		
L.1.1.9		50% Black	m ²	1		
L.1.1.10		80% Black	m ²	1		
L.1.2		<u>CCA H4 poles (75-100)</u>				
L.1.2.1		2.1 m	no	1		
L.1.2.2		2.4 m	no	1		
L.1.2.3		2.7 m	no	1		
L.1.2.4		3 m	no	1		
L.1.2.5		3.6 m	no	1		
L.1.2.6		4,2 m	no	1		
L.1.2.7		4.8 m	no	1		
L.1.3.1		<u>CCA H4 poles (100-125)</u>				
L.1.3.1		2.1 m	no	1		
L.1.3.2		2.4 m	no	1		
L.1.3.3		2.7 m	no	1		
L.1.3.4		3 m	no	1		
L.1.3.5		3.3 m	no	1		
L.1.3.6		3.6 m	no	1		
L.1.3.7		3.9 m	no	1		
L.1.3.8		4.2 m	no	1		
L.1.4		<u>CCA H4 poles (125-150)</u>				
L.1.4.1		2.1 m	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
L.1.4.2		2.4 m	no	1		
L.1.4.3		2.7 m	no	1		
L.1.4.4		3 m	no	1		
L.1.4.5		3.6 m	no	1		
L.1.4.6		4,2 m	no	1		
L.1.4.7		4.8 m	no	1		
L.1.5		<u>CCA H4 poles (150-175)</u>				
L.1.5.1		2.1 m	no	1		
L.1.5.2		2.4 m	no	1		
L.1.5.3		2.7 m	no	1		
L.1.5.4		3 m	no	1		
L.1.5.5		3.6 m	no	1		
L.1.5.6		4,2 m	no	1		
L.1.5.7		4.8 m	no	1		
L.1.6		<u>ANCHORS</u>				
L.1.6.1		Duckbill type - minimum Model 88 - installed as per manufactures specifications	no	1		
L.1.6.2		Manta Ray type - minimum MR2 type - installed as per manufactures specifications.	no	1		
L.1.6.3		Tyre type - minimum vehicle tyre size 14" installed and secured at minimum depth of 800mm	no	1		
L.1.6.4		Casted concrete blocks - min 15Mpa/19, min of 0.5m x 0.5m x 0.5m,installed at miimum depth of 800mm	no	1		
L.1.7		<u>ACCESSORIES</u>				
L.1.7.1		M10 Wire tensioners with shackles on both ends	no	1		
L.1.7.2		M12 Wire tensioners with shackles on both ends				
L.1.7.3		2.5 x 25mm Nail staples	no	1		
L.1.7.4		2.5 x 30mm Nail staples	no	1		
L.1.7.5		2.5 x 40mm Nail staples	no	1		
L.1.7.6		3 x 30mm Nail staples	no	1		
L.1.7.7		3.5 x 30mm Nail staples	no	1		
L.1.7.8		4 x 30mm Nail staples	no	1		
L.1.7.9		2.5 x 40mm Nail staples	no	1		
L.1.7.10		3 x 40mm Nail staples	no	1		
L.1.7.11		3.5 x 40mm Nail staples	no	1		
L.1.7.12		4 x 40mm Nail staples	no	1		

	CLAUSe	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
L.1.7.13		25mm Flat head ceiling nails	no	1		
L.1.7.14		4,0mm Roof Wire for anchor poles	no	1		
L.1.7.15		2,24mm high tensile Steel wire for netting	no	1		
L.1.7.16		2,0mm Galvanized wire clamps for net wire (fabricate from wire)	no	1		
L.1.7.17		40mm Wire Staples	no	1		
L.1.7.18		32mm Wire staples	no	1		
L.1.7.19		M12 x 1 000mm long galvanized round bar	no	1		
L.1.7.20		M10 x 1 000mm Long galvanized round bar	no	1		
L.1.7.21		M12 galvanized washers	no	1		
L.1.7.22		M10 Galvanized washers	no	1		
L.1.7.23		M12 Galvanized nuts	no	1		
L.1.7.24		M10 Galvanized nuts	no	1		
L.1.7.25		M10 x 2 000mm Galvanized anchors made from round bar	no	1		
L.1.7.26		1500mm Long Y-standard Iron fencing poles	no	1		
L.1.7.27		150,000 Galv hogrings(15 boxes)	no	1		
L.1.7.28		3000 x 5 mm Aluminium Ferrules	no	1		
L.1.7.29		2000 x 6 mm Aluminium Ferrules	no	1		
L.1.7.30		7 x 1.6 mm Galvanised staywire	m	1		
L.1.7.31		7 x 2 mm Galvanised staywire	m	1		
L.1.7.32		7 x 2.65 mm Galvanised staywire	m	1		
L.1.7.33		7 x 3.25 mm Galvanised staywire	m	1		
L.1.7.34		7 x 4 mm Galvanised staywire	m	1		
L.1.7.35		M10 Galv. Straining bolts	no	1		
L.1.7.36		M12 Turnbuckle & Eye Hook	no	1		
L.1.7.37		M16 Turnbuckle & Eye Hook	no	1		
L.1.7.38		1500m x 12mm rust treated anchor steel	no	1		
L.1.7.39		vine grips	no	1		
L.1.7.40		Double wrap grip	no	1		
L.1.7.41		2,24mm high tension steel wire.Full galvanised	m	1		
L.1.7.42		10mm Crosby Clamps	no	1		
L.1.7.43		Ref 888 mesh for ground anchor blocks	m2	1		
L.1.7.44		25MPa concrete for anchoring	m3	1		
L.1.7.45		500x500x150mm depth concrete shutter for shuttering anchor blocks	no	1		
		TOTAL SECTION "L" CARRIED FORWARD TO SUMMARY				

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
<u>SECTION M : TUNNELS & RESEVOIRS</u>						
M.1		Supply deliver and install galvanised steel structure tunnel complete with all the uprights, arches, tie beams, connecting poles on top and corner; and other connecting poles with following minimum specifications. a) Side pole - 48 mm x 2 mm b) Arches - 42 mm x 2 mm c) Tie beams - 34 mm x 2 mm d) Connecting poles top and corners - 42 mm x 2 mm e) Other connecting poles = 34 mm x 2 mm				
M.1.1		30 m x 10 m x 3,5 m	Sum	1		
		30 m x 12 m x 3,5 m	Sum	1		
M.1.1.1		32 m x 10 m x 3,5 m	Sum	1		
M.1.1.2		33 m x 10 m x 3,5 m	Sum	1		
M.1.1.3		34 m x 10 m x 3,5 m	Sum	1		
M.1.1.4		35 m x 10 m x 3,5 m	Sum	1		
M.1.2.3						
M.1.2.4		10 L, 150 micron black planting bag	no	1		
M.1.2.5		Trellising hooks	no	1		
M.1.2.6		Heavy duty polypropolyne trellising twines	no	1		
M.1.2.7		pH and EC meter	no	1		
M.1.2.8		4 mm Galvanised Wire for Crop Support in the Tunnels	no	1		
M.1.2.9		200 Micron UV protected, 3 layer Greenhouse plastic to cover of the tunnel structure	no	1		
M.1.2.10		A UV stabilized black 150 Micron floor plastic Roll to cover the complete floor of a tunnel.	no	1		
		<u>Provisional Sum</u>				
M.1.3.1		Allow Provisional sum for the installation of tunnel equipment such as fertigation, pumping unit. Computer aided monitoring, ventilation controls by specialist manufacturing company	Prov sum	1	200000	R 200,000.00
M.1.3.2		Profit Over above	%	200000		
M.1.3.3		Allow Provisional sum for the erection of Semi-automated Ventilated Tunnel House by specialist manufacturing company	Prov sum	1	6000000	R 6,000,000.00
M.1.3.4		Profit Over above	%	6000000		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
M.1.4		Prefabricated Reservoirs				
M.1.4.1		5000 Litres LDPE Tank	No	1		
M.1.4.2		10 000 Litres LDPE Tank	No	1		
		Galvanized steel panels water reservoir complete with dome roof, internal ladder, external cat ladder with safety cage, 50mm butterfly valve normal, 1x50mm inlets including 50mm galvanized steel inlet pipes and fittings, 50mm outlet, 50mm overflow and 50mm scour drain assembly, manhole, whirlybird or similar approved ventilator, felt seal, water level indicator, float switch, concrete ring beam and PVC lining. Issue COC				
M.1.4.3		249 000 Litres capacity	Sum	1		
M.1.4.4		250 000 Litres capacity	Sum	1		
M.1.4.5		500 000 Litres capacity	Sum	1		
M.1.4.6		750 000 Litres capacity	Sum	1		
M.1.4.7		1 000 000 Litres capacity	Sum	1		
M.1.4.8		1 250 000 Litres capacity	Sum	1		
M.1.5		HDPE Dam Linning				
		Supply, deliver, install and commission HDPE Dam Linnings. Including on-site plastic welding.				
M.1.5.1		HDPE Dam Linning 1,5mm	m ²	1000		
M.1.5.2		HDPE Dam Linning 2,0mm	m ²	1000		

ITEM	PAYMENT	DESCRIPTION	UNIT	QUANTIT	RATE	AMOUNT
	SABS 1200 L	CENTRE PIVOTS Supply, Deliver and Install and Commission				
N	PSL 8.2.31	Centre Pivot Irrigation				
N.1	PSL 8.2.31.1	Centre pivot centre Complete centre tower with control box and wiring Diameter: 6 ⁵ / ₈ "	Sum	1		
N.2	PSL 8.2.31.2	Centre pivot towers Complete with tyres, tyre motors, tyres wiring and sprinklers Diameter: 5" 38 m	Sum	1		
N.3		44 m	Sum	1		
N.4		49 m	Sum	1		
N.5		55 m	Sum	1		
N.6	PSL 8.2.31.3	Centre pivot overhangs Complete with sprinklers Diameter: 4 " 6 m	Sum	1		
N.7		9 m	Sum	1		
N.8		17 m	Sum	1		
N.9		23 m	Sum	1		
N.10		Pipeline marker, 150x100mm top and 250x250mm base, 2m long	No	1		
N.11		25MPa concrete for anchors and platforms	m3	1		
N		Carried forward to summary				

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
<u>SECTION P : BUILDING</u>						
P.1		DEMOLITIONS				
P.1.1		<u>DEMOLISHING AND REMOVING</u>				
P.1.1.1		Demolish existing building structures comprising of brickwork, roofing, closures and foundations. and dispose safely	m ²	1		
P.1.1.2		Demolition of non-reinforced concrete	m ²	1		
P.1.1.3		Demolition of reinforced concrete	m ²	1		
P.1.1.4		Cart away rubble from demolitions and dispose off site.	m ³	1		
P.1.1.5		Restore site with soil material filling and compacton	m ³	1		
P.1.1.6		Empty Sewage Septic tank and dispose in line with regulations	m ³	1		
P.1.1.7		Decomishion a pit toilet, including treatment,removal and disposal of sluge waste	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
P.1.2		<u>EARTHWORKS</u>				
P.1.2.1		Excavation in earth not exceeding 1,5m deep:				
P.1.2.2		Foundation Trenches	m ³	1		
P.1.2.3		Footing Holes.	m ³	1		
P.1.2.4		Cut levels and depositing excavated material in prescribed stock piles on site.	m ³	1		
		Extra over trench and hole excavations in earth for excavation in:				
P.1.2.5		Intermediate excavation	m ³	1		
P.1.2.6		Soft/loose rock	m ³	1		
P.1.2.7		Hard rock	m ³	1		
		Extra over all excavations for carting away:				
P.1.2.8		Surplus material from excavations and/or stock piles on site to a dumping site to be located by the contractor.	m ³	1		
		Risk of collapse of excavations:				
P.1.2.9		Sides of trench and hole excavations not exceeding 1,5m deep.	m ²	1		
P.1.2.10		Ditto, but from ground level to exceeding 1,5m.	m ²	1		
		Keeping excavations free of water:				
P.1.2.11		Keeping excavations free from mud and storm water	Sum	1		
P.1.2.12		Handling and Keeping excavations free from subterranean sources.	Sum	1		
P.1.3		<u>SOIL POISONING</u>				
		Vegetation herbicide and anti-termite soil poisoning applied by a Registered Pest Control company utilizing complaint chemical compounds				
P.1.3.1		Surrounding area, foundation trenches/ furrows, under floors, forming against foundation walls,	m ²	1		
P.1.3.2		To bottoms and sides of trenches, holes, etc.	m ²	1		
P.1.4		<u>EARTH FILLING</u>				
		Earth filling obtained from the excavations and / or prescribed stock piles on site (minimum G7 material) compacted to 93% Mod. AASHTO density:				
P.1.4.1		Backfilling to trenches, holes, etc.	m ³	1		
P.1.4.2		Under floors, steps, pavings, trenches, etc.	m ³	1		
		Imported G5 filling, selected and supplied by the Contractor, including depositing in layers not exceeding 150mm thick and compacting to 98% modified AASHTO dry density to trenches, holes, etc.				
P.1.4.3		Under floors, etc.	m ³	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Imported G7 filling, selected and supplied by the Contractor, including depositing in layers not exceeding 150mm thick and compacting to 98% modified AASHTO dry density to holes, trenches etc.				
P.1.4.4		Under floors, etc.	m ³	1		
P.1.4.5		Backfilling to holes, trenches, etc.	m ³	1		
		Coarse river sand filling supplied by the contractor:				
P.1.4.6		Under floors etc.	m ³	1		
		Compaction of surfaces:				
P.1.4.7		Compaction of ground surface under floors etc including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to 93% Mod AASHTO density.	m ²	1		
		Prescribed density tests on filling:				
P.1.4.8		Allow for compaction tests by an approved laboratory to determine density of filling material.	no	1		
		Prescribed soil material testing:				
P.1.4.9		Allow for sample collection and submitting for test by an approved laboratory to determine material class, for site stock piled and borrowing materials	no	1		
P.1.5		<u>CONCRETE, FORMWORK AND REINFORCEMENT</u>				
		15Mpa/19mm Concrete				
P.1.5.1		Surface blinding under footings and bases.	m ³	1		
		20Mpa/19mm Screed				
P.1.5.2		Surface screeds, limited to 30mm thick	m ³	1		
		25MPa/19mm Un-Reinforced concrete casting and vibrated:				
P.1.5.3		Foundations, footings to columns, footings to walls, cavity walls, slabs, apron, Floors / surface beds, etc	m ³	1		
		25MPa/19mm Reinforced concrete casting and vibrated:				
P.1.5.4		Foundations, footings to columns, footings to walls, cavity walls, slabs, apron, Floors / surface beds, etc	m ³	1		
		30MPa/19mm Unreinforced concrete casting and vibrated:				
P.1.5.5		Foundations, footings to columns, footings to walls, cavity walls, slabs, apron, Floors / surface beds, etc	m ³	1		
		30MPa/19mm Reinforced concrete casting and vibrated:				
P.1.5.6		Foundations, footings to columns, footings to walls, cavity walls, slabs, apron, Floors / surface beds, etc	m ³	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Concrete Test Blocks				
P.1.5.7		Making and testing of 150x150x150mm concrete strength test cubes	no	1		
		Concrete Surface Finishing				
		Finishing top surfaces of concrete to or with				
P.1.5.8		Smooth wood finish	m ²	1		
		Steel Float Finish				
		Charmfers at corners				
P.1.5.9		19 x 19mm triangular fillet at corners forming	m	1		
P.1.6		<u>ROUGH FORMWORK</u>				
P.1.6.1		Permanent Formwork:				
P.1.6.1.1		To sides, edging, risers, ends and reveals, not exceeding 300mm height	m ²	1		
P.1.6.1.2		To sides, edging, risers, ends and reveals, not exceeding 600mm height	m ²	1		
P.1.6.1.3		To sides, edging, risers, ends and reveals, not exceeding 1500mm height	m ²	1		
P.1.6.1.4		Circular columns shuttering	m ²	1		
P.1.6.1.5		Suspended slabs shuttering	m ²	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
P.1.6.2		Temporal Formwork:				
P.1.6.2.1		To sides, edging, risers, ends and reveals, not exceeding 300mm height	m ²	1		
P.1.6.2.2		To sides, edging, risers, ends and reveals, not exceeding 600mm height	m ²	1		
P.1.6.2.3		To sides, edging, risers, ends and reveals, not exceeding 1500mm height	m ²	1		
P.1.6.2.4		Circular columns shuttering	m ²	1		
P.1.6.2.5		Suspended slabs shuttering	m ²	1		
P.1.7		<u>SMOOTH FORMWORK</u>				
P.1.7.1		Permanent Formwork:				
P.1.7.1.1		To sides, edging, risers, ends and reveals, not exceeding 300mm height	m ²	1		
P.1.7.1.2		To sides, edging, risers, ends and reveals, not exceeding 600mm height	m ²	1		
P.1.7.1.3		To sides, edging, risers, ends and reveals, not exceeding 1500mm height	m ²	1		
P.1.7.1.4		Circular columns shuttering	m ²	1		
P.1.7.1.5		Suspended slabs shuttering	m ²	1		
P.1.7.2		Temporal Formwork:				
P.1.7.2.1		To sides, edging, risers, ends and reveals, not exceeding 300mm height	m ²	1		
P.1.7.2.2		To sides, edging, risers, ends and reveals, not exceeding 600mm height	m ²	1		
P.1.7.2.3		To sides, edging, risers, ends and reveals, not exceeding 1500mm height	m ²	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
P.1.7.2.4		Circular columns shuttering	m ²	1		
P.1.7.2.5		Suspended slabs shuttering	m ²	1		
P.1.7.2.6		Reinforced precasted rib and block Slabs as permanent shutters - top ref mesh and concrete topping measured elsewhere	m ²	1		
P.1.8		<u>CONCRETE JOINTS</u>				
P.1.8.1		Saw cut joints:				
P.1.8.1.1		6mm wide x 50mm deep Saw cut joints on top of concrete	m	1		
P.1.8.2		Construction Joints				
P.1.8.2.1		6mm Soft board, not exceeding	m	1		
P.1.9		CONCRETE REINFORCEMENT				
P.1.9.1		High tensile steel reinforcement bars to structural concrete work.	t	1		
P.1.10		Fabric reinforcement:				
P.1.10.1		REF. 193 fabric reinforcement in concrete surface beds, raft slabs etc.	m ²	1		
P.1.10.2		REF. 245 fabric reinforcement in concrete surface beds, raft slabs etc.	m ²	1		
P.1.10.3		REF. 395 fabric reinforcement in concrete surface beds, raft slabs etc.	m ²	1		
P.1.10.4		REF. 617 fabric reinforcement in concrete surface beds, raft slabs etc.	m ²	1		
P.1.10.5		REF. 888 fabric reinforcement in concrete surface beds, raft slabs etc.	m ²	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
P.2		<u>MASONRY</u>				
P.2.1		BRICKWORK				
		Brickwork consisting of solid bricks with 10.5 MPa minimum nominal compressive strength in Class I mortar with Coprox masonry waterproofing or equal approved waterproof cement additive. (Cement to be 42.5N all-purpose cement):				
P.2.1.1		220mm wide (One brick) walls.	m ²	1		
P.2.1.2		110mm wide (half brick) walls.	m ²	1		
P.2.1.3		150mm wide (one brick) using maxi bricks walls.	m ²	1		
P.2.1.4		345mm thick cavity brick walls made of two leafs of 110mm wall with 135mm concrete fill (concrete elsewhere measured).	m ²	1		
P.2.1.5		345mm thick cavity brick walls made of two leafs of 110mm wall with 135mm concrete fill (concrete elsewhere measured).	m ²	1		
P.2.1.6		Cavity brick walls made of two leafs of 110mm wall with over 135mm concrete fill (concrete elsewhere measured).	m ²	1		
P.2.2		BRICKWORK AND BLOCKWORK SUNDRIES				
P.2.2.1		Galvanized brickwork reinforcement				
P.2.2.2		115mm Wide reinforcement built in horizontally	m	1		
P.2.2.3		230mm Wide reinforcement built in horizontally.	m	1		
P.2.2.4		Ditto, but in foundations	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
P.3		<u>ROOF TIES</u>				
P.3.1		30 x 2mm Galvanized roof tie 1500mm long with one end fixed to timber and other built into brickwork or concrete.	no	1		
P.3.2		<u>WATERPROOFING</u>				
P.3.2.1		Bagging and sealing the outer face of the inner skin of walls with 1:3 cement and sand mixture to walls	m ²	1		
P.3.2.2		Sealing walls face with two coats of bitumen emulsion waterproofing coating:	m ²	1		
P.3.2		Samples bricks				
P.3.2.1		Supply and deliver sample bricks for approval	no	1		
P.4		<u>FACE BRICK</u>				
P.4.1		FBS clay face brick , size 222 x 106 x 73mm, bedded and jointed in Class II mortar and pointed with recessed vertical and recessed horizontal joints, suitable for exposure zones 1-2 (Cement to be 42.5N all-purpose cement):				
P.4.1.1		Extra over brickwork for face brickwork externally.	m ²	1		
P.4.1.2		Extra over for face brick in foundations	m ²	1		
P.4.1.3		Half brick wall in beam filling pointed one side including cutting and fitting around roof timbers and bedding roofing solid on top in cement mortar.	m ²	1		
P.4.1.4		One brickwall pointed on both sides.	m ²	1		
P.4.1.5		Half brickwall pointed on both sides.	m ²	1		
P.4.1.6		Cutting at beam filling level or other locations	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Face brick copings, roller coarse, corbeling, lintels over windows, sills, etc, pointed with recessed joints on all exposed faces:	m	1		
P.5		<u>LINTOLS</u>				
P.5.1		Pre-Cast Concrete lintols 75 x 110				
P.5.1.1		On internal skin above doors and windows and openings				
P.5.1.1.1		Lintels 0.9 m	no	1		
P.5.1.1.2		Lintels 1.2 m	no	1		
P.5.1.1.3		Lintels 1.8 m	no	1		
P.5.1.1.4		Lintels 2.4 m	no	1		
P.5.1.1.5		Lintels 3 m	no	1		
P.5.1.1.6		Lintels 4 m	no	1		
P.5.2		Pre-Cast Concrete lintols 75 x 150mm				
P.5.2.1		On internal skin above doors and windows and openings				
P.5.2.1.1		Lintels 0.9 m	no	1		
P.5.2.1.2		Lintels 1.2 m	no	1		
P.5.2.1.3		Lintels 1.8 m	no	1		
P.5.2.1.4		Lintels 2.4 m	no	1		
P.5.2.1.5		Lintels 3 m	no	1		
P.5.2.1.6		Lintels 4 m	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
P.6		<u>WATERPROOFING</u>				
P.6.1		DAMPPROOFING OF WALLS AND FLOORS				
P.6.1.1		One layer of 250 micron waterproof plastic sheeting sealed at laps with 'Gunplas Pressure Sensitive Tape':				
P.6.1.2		Under surface beds, bases, etc.	m ²	1		
P.6.1.3		One layer of 350 micron embossed dampcourse waterproof sheeting below walls, sills, etc:				
P.6.1.4		Below walls, sills, etc.	m ²	1		
P.6.2		JOINT SEALANTS				
P.6.2.1		Clear Neutral silicone sealant:				
P.6.2.2		In joint sealing and pointing all round external window and door frames.	m	1		
P.6.2.3		Two-part grey polysulphide sealing compound including backing cord, bond breaker, primer, etc				
P.6.2.4		10 x 12mm In movement joints in floors or walls including raking out expansion joint filler as necessary (Provisional).	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
P.7		<u>ROOF COVERINGS</u>				
P.7.1		PROFILED METAL SHEETING AND ACCESSORIES, Color Coated				
P.7.1.1		0,58mm Thick Z200 "IBR Profile" galvanised metal roof sheeting, in single sheet lengths, with "Chromadek" finish to external face and standard backing coat to internal face including installation accessories :				
P.7.1.2		Roof sheeting laid to a mono-pitch.	m ²	1		
P.7.1.3		0,58mm Thick Z200 "IBR Profile" galvanised metal roof sheeting, in single sheet lengths, with "Chromadek" finish to external face and standard backing coat to internal face including installation accessories :for side Cladding	m ²	1		
P.7.1.4		0.58mm Flashings pre-painted to match roof sheeting and fixed in strict accordance with manufacturer's instructions including installation accessories :				
P.7.1.5		Mono pitched ridge capping with 225mm lapping secured onto the roof.	m	1		
P.7.1.6		Ridge cover, 0,58mm ridge pre-painted to match roof sheeting and fixed	m	1		
P.7.1.7		Ridge Closures, 0,58mm ridge closures fixed under the ridge line	m	1		
P.7.2		PROFILED METAL SHEETING AND ACCESSORIES, Galvanised treated				
P.7.2.1		0,58mm Thick Z200 "IBR Profile" galvanised metal roof sheeting, in single sheet lengths, including installation accessories :				
P.7.2.2		Roof sheeting laid to a mono-pitch.	m ²	1		
P.7.2.3		0,58mm Thick Z200 "IBR Profile" galvanised metal roof sheeting, in single sheet lengths, including installation accessories :for side Cladding	m ²	1		
P.7.2.4		0.58mm Flashings pre-painted to match roof sheeting and fixed in strict accordance with manufacturer's instructions including installation accessories :				
P.7.2.5		Mono pitched ridge capping with 225mm lapping secured onto the roof.	m	1		
P.7.2.6		Ridge cover, 0,58mm ridge pre-painted to match roof sheeting and fixed	m	1		
P.7.2.7		Ridge Closures, 0,58mm ridge closures fixed under the ridge line	m	1		
P.7.2.8		Clear /transparent Poly carbonated, IBR profile on roofing	m ²	1		
P.8		<u>ROOF INSULATION</u>				
P.8.1		"Alububble" or equal approved insulation				
P.8.1.1		Insulation laid and strained by 2mm galvanized wires on timber roof trusses/ steel purlins	m ²	1		
P.8.1.2		Polyesterene foam of 50mm thickness	m ²	1		
P.8.1.3		Polyesterene foam of 75mm thickness	m ²	1		
P.8.1.4		Polyesterene foam of 100mm thickness	m ²	1		
P.8.1.5		Polyesterene foam of 150mm thickness	m ²	1		
P.8.2		Sandwich panels (IBR sheets and insulation foam) for Roofing				
P.8.2.1		Roof panel sandwich made of 0,58mm color coated chromadek IBR profile in top, 50mm insulation foam and 1mm thick white enamel coated sheet	m ²	1		
P.8.2.2		Roof panel sandwich made of 0,58mm color coated chromadek IBR profile in top, 75mm insulation foam and 1mm thick white enamel coated sheet	m ²	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
P.8.2.3		Roof panel sandwich made of 0,58mm color coated chromadek IBR profile in top, 100mm insulation foam and 1mm thick white enamel coated sheet	m ²	1		
P.8.3		Sandwich panels (IBR sheets and insualtion foam) for Panel Walls				
P.8.3.1		Wall panel sandwich made of 1mm thick sheet, coated with white enamel, 50mm insulation foam, and 1mm thick sheet coated with enamel	m ²	1		
P.8.3.2		Wall panel sandwich made of 1mm thick sheet, coated with white enamel, 75mm insulation foam, and 1mm thick sheet coated with enamel	m ²	1		
P.8.3.3		Wall panel sandwich made of 1mm thick sheet, coated with white enamel, 100mm insulation foam, and 1mm thick sheet coated with enamel	m ²	1		
P.8.3.4		Wall panel sandwich made of 1mm thick sheet, coated with white enamel, 150mm insulation foam, and 1mm thick sheet coated with enamel	m ²	1		
P.9		<u>STEEL WORKS FABRICATION</u>				
P.9.1		Steelworks for the spply, fabricate, surface preparation, shop priming, delivery to site & installation of a complete roof structure. Including all necessary columns, frame members, cleats, brackets, gussets, packs, nuts, bolts, washers, roof screws, roof washers, ridging, side flashing, insulation, etc. Cut off losses not included for pricing. Actual work constructed quantities considered				

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
P.9.1.1		H Sections	ton	1		
P.9.1.2		IPE sections	ton	1		
P.9.1.3		Flat bars	ton	1		
P.9.1.4		Angle Irons	ton	1		
P.9.1.5		Round Bars	ton	1		
P.9.1.6		Square Bars	ton	1		
P.9.1.7		Channel	ton	1		
P.9.1.8		Lipped Channel for roof purlins	ton	1		
P.9.1.9		Round Tubes	ton	1		
P.9.1.10		Square Tubes	ton	1		
P.9.1.11		Rectangular Tube	ton	1		
P.9.1.12		Expanded Metal sheet for security	ton	1		
P.9.1.13		Welded Mesh	ton	1		
P.9.1.14		Plates	ton	1		
P.9.1.15		Threated Bars	ton	1		
P.9.1.16		Bolt and nut and washers	kg	1		
P.9.2		Treatment of Steel				
P.9.2.1		Cold foam galvanising	ton	1		
P.9.2.2		Full dip galvanising	ton	1		
P.9.2.3		Primer paint application	m ²	1		
P.9.2.4		Enamel paint application	m ²	1		
P.10		<u>CARPENTRY & JOINERY</u>				
P.10.1		CARPENTRY				
P.10.1.1		Sawn softwood:				
P.10.1.2		38 x 114mm Wall plate.	m	1		
P.10.1.3		50 x 76mm Purlins/ Bracing	m	1		
P.10.1.4		38 x 152mm Rafters.	m	1		
P.10.2		Sundries:				
P.10.2.1		TRI FIX or equal approved hurricane clip fixed using 10 x 32mm galvanised clout nails (Provisional).	no	1		
P.10.2		EAVES, VERGES, ETC				
P.10.2.1		"Everite Nutec" or equal approved fibre cement				
P.10.2.2		12 x 225mm Fascia board drilled and brass screwed to rafter feet including galvanised steel H-profile jointing strips, etc.	m	1		
P.10.2.3		85 x 275 x 6mm Barge board drilled and brass screwed to purlin ends including galvanised steel H-profile jointing strips, screws, holes, etc.	m	1		
P.10.3		DOORS				
P.10.3.1		SANS Approved meranti:				
P.10.3.2		44mm Framed, ledged, and battened single door with flush ply panel internally size 813 x 2032mm high comprising 44 x 110mm top rail and stiles, 44 x 220mm bottom rail, 44 x 150mm lock rail and 22 x 70mm vertical "v" jointed boards .	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
P.10.3.3		44mm Framed, ledged, and battened single door with flush ply panel internally size 950 x 2032mm high comprising 44 x 110mm top rail and stiles, 44 x 220mm bottom rail, 44 x 150mm lock rail and 22 x 70mm vertical "v" jointed boards (D2).	no	1		
P.10.3.4		44mm Framed, ledged, and battened purpose made single door with flush ply panel internally size 813 x 1832mm high comprising 44 x 110mm stiles, 44 x 220mm bottom rail, 44 x 150mm lock rail and 22 x 70mm vertical "v" jointed boards	no	1		
P.10.3.5		44mm Framed, ledged, and battened single door with flush ply panel internally size 950 x 2032mm high comprising 44 x 110mm top rail and stiles, 44 x 220mm bottom rail, 44 x 150mm lock rail and 22 x 70mm vertical "v" jointed boards	no	1		
P.10.3.6		Hard board door panels:Semi-solid core door with 3mm thick tampered Hardboard sides and concealed hardware edges				
P.10.3.7		44mm frames, Hrd board hollow core door, size 813 x 2032mm high	no	1		
P.10.3.8		44mm frames, Hrd board hollow core door, size 950 x 2032mm high	no	1		
P.10.3.9		44mm frames, Hrd board hollow core door, size 813 x 1832mm high	no	1		
P.10.3.10		44mm frames, Hrd board hollow core door, size 950 x 2032mm high	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
P.10.4		IRONMONGERY				
P.10.4.1		HINGES:				
P.10.4.1.1		75 x 100mm Brass Medium duty ball bearing HMP butt hinges.	Pairs	1		
P.10.4.2		LOCKS				
P.10.4.2.1		"UNION 2277-78SS" or equal approved three lever sash mortice lockset.	no	1		
P.10.4.2.2		Door indicator bolt satin chrome complete	no	1		
P.10.5		HANDLES				
P.10.5.1		"Dorma DPH301B" or equal approved Stainless Steel Straight Tubular Pull door handle flange fixing.	no	1		
P.10.5.2		Sundries:				
P.10.5.3		Stainless Steel Hat and coat hook, code DHC - SS-030-A or equal approved.	no	1		
P.10.5.4		38mm Diameter black rubber door stop plugged and screwed to wall.	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
P.11		<u>METALWORK</u>				
P.11.1		STEEL BURGLAR GATES TO DOORS				
P.11.1.1		Security Gate consisting of 25 x 25 x 2mm galvanised mild steel frame with 12mm galvanised mild steel square bars infill placed at 109mm centres, hung with one pair of galvanised mild steel hinges including locks, handles, ironmongery complete and fixed to brickwork:				
P.11.1.2		Security gate size 900 x 2050mm high	no	1		
P.11.1.3		Security double gate size 1800 x 2050mm high.	no	1		
P.12		<u>PLASTERING</u>				
P.12.1		SCREEDS				
P.12.1.1		Untinted granolithic, on concrete:				
P.12.1.2		30mm Thick on floors and landings.	m ²	1		
P.12.2		Skirtings				
P.12.2.1		75mm High coved granolithic skirting.	m	1		
P.12.3		INTERNAL PLASTER				
P.12.3.1		10mm thick of 1:4 sand cement plaster				
P.12.3.2		On walls.	m ²	1		
P.12.3.3		Inside Pits	m ²	1		
P.13		<u>PAINTWORK</u>				
P.13.1		ON WOOD				
P.13.1.1		Stop, sand down and prepare wood surfaces and apply one coat wood primer, one undercoat and two coats eggshell enamel paint as per Plascon or equal approved:				
P.13.1.2		On doors	m ²	1		
P.13.1.3		On door frames	m ²	1		
P.13.1.4		Prepare and apply two coats carbolenium on:				
P.13.1.5		On exposed timbers.	m ²	1		
P.13.2		ON FIBRE-CEMENT				
P.13.2.1		Prepare and apply two coats pure acrylic roof paint on:				
P.13.2.2		On fascias and barge boards.	m ²	1		
P.13.2.3		ON Windows and Frames				
P.13.2.4		Prepare and apply two coats enamel paint				
P.13.2.5		Windows frame putty	m ²	1		
P.13.2.6		On door frames	m ²	1		
P.13.2		Doors, Window Frames and Glazing				
P.13.2.1		Roller Doors				
P.13.2.2		Industrial Roller door, Chain operated, 2400 x 3000mm high galvanized with locking mechanism	no	1		
P.13.2.3		Industrial Sliding Door on track and guide, 2400 x 3000mm high galvanized with locking mechanism	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
P.13.2.4		Standard Garage roll up door 2400 x 2000mm, with a pedestrian lock mechanism	no	1		
P.13.3		Steel Window frames				
P.13.3.1		Window frames measured by total length of steel sections used	m	1		
P.13.3.2		Window frame opening frames, measured by total length of steel section	m	1		
P.13.3.3		Window frames closing catchers and adjustment mechanism	no	1		
P.13.3.4		Glazing including putty, 6mm plain glass	m ²	1		
P.13.3.5		Glazing including putty, 6mm frosted glass	m ²	1		
P.13.3.6		Glazing including putty, 8mm plain glass	m ²	1		
P.13.4		Aluminium Windows and Doors				
P.13.4.1		Aluminium Windows frame measured by total frame section length	m	1		
P.13.4.2		Aluminium frame opening frames, measured by total length of section	m	1		
P.13.4.3		Window frames closing catchers and adjustment mechanism	no	1		
P.13.4.4		Shutter proof/ laminated glazing including holding and sealing rubber, 6,38mm	no	1		
P.13.4.5		Form 12mm diameter hole through fence post.	no	1		
P.13.5		Supply & install Strong room door, 120mm thick, 6mm outer plate, 2032.5H x 1000W, Outward opening, one key lock with emergency inner release, Mass 150 to 300kg and 7 Lever security keylock 8 bolt, 180 degree opening	no	1		
P.13.5.1		PRESSED STEEL DOOR FRAMES				
P.13.5.2		Including all accessories for complete frame ready for fixing door panel	no	1		
P.13.5.3		1,2mm thick Double rebated mild steel door frames suitable for half brick walls. Frame complete with one pair standard butt hinges and factory applied primer				
P.13.5.4		Frame for door 813 x 2032mm high	no	1		
P.13.5.5		Frame for door 813 x 2032mm high and fixed fanlight 305mm high	no	1		
P.13.5.6		1,2mm thick Double rebated mild steel door frames suitable for one brick walls. Frame complete with one pair standard butt hinges and factory applied primer				
P.13.5.7		Frame for door 813 x 2 032mm high	no	1		
P.13.5.8		Frame for door 813 x 2032mm high and fixed fanlight 305mm high	no	1		
P.13.5.9		Frame for door 914 x 2 032mm high	no	1		
P.13.5.10		Frame for door 1 511 x 2 032mm high	no	1		
P.13.6		Combi Steel Door Frames and Door, 1,2mm thickness				
P.13.6.1		Double Doors Steel Combination Door and Frame, 1 511 x 2 032mm high	no	1		
P.13.6.2		Single Door Steel Frameand Door 813 x 2 032mm high	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
P.13.7		LOCKS				
P.13.7.1		Supply 50 mm "Viro" Padlocks and Keys (or equal approved)	no	1		
P.13.7.2		Three lever double cylinder lockset code 2222 or similar with Gower Handel code CZ682-05 SC complete with striking plate fixed to metal	no	1		
P.13.7.3		Four-lever lockset with striking plate fixed to metal	no	1		
P.13.7.4		DMWS-SS-008 or similar Bathroom /WC small case deadlock	no	1		
P.13.8		LETTERS, NAMEPLATES				
P.13.8.1		DSS4 'Wheelchair' or similiar pictogram on 76mm diameter stainless steel plate	no	2		
P.13.8.2		DSS2 'Female' or similiar pictogram on 76mm diameter stainless steel plate	no	2		
P.13.8.3		DSS1 'Male' or similiar pictogram on 76mm diameter stainless steel plate	no	3		
P.13.8.4		Approved Aluminuim door stop with rubber insert	no	1		
P.13.8.5		Overhead surface mounted type door closer with aluminium casing	no	1		
P.14		<u>CEILINGS</u>				
		Items described as "nailed" shall be deemed to be fixed with hardened steel nails or pins or shot pinned to brickwork or concrete				
		Items described as "plugged" shall be deemed to include screwing to fibre, plastic or metal plugs at not exceeding 600mm centres, and where described as "bolted" the bolts have been given elsewhere				
P.14.1		NAILED UP CEILINGS				
P.14.1.1		12,5mm "Rhino" gypsum plasterboard with taped and skimmed joints finished with one coat rhinolite plaster				
P.14.1.2		Ceilings including 38 x 38mm sawn softwood brandering at 350mm centres	m ²	1		
P.14.1.3		Extra over ceiling for opening of 650 x 650mm trap door complete with trimmers, frame,etc	no	1		
P.14.1.4		Cornices				
P.14.1.5		50 mm Fibre cement coved cornice planted on including mitres, etc.	m	1		
P.14.2		SUSPENDED CEILINGS				
P.14.2.1		Pre-painted 600 x 1200 x 17mm "Armstrong Fine Fissured 95% RH" or equally approved acoustic panels on aluminium pre-painted exposed tee suspension system including main and cross tees, necessary hangers, grids, etc				
P.14.2.2		Ceilings suspended not exceeding 1m below steel trusses	m ²	1		
P.14.2.3		Cornices to suspended ceilings				
P.14.2.4		25 x 25mm Angle profile cornice	m	1		
P.14.2.5		Aerolite insulation				
P.14.2.6		50mm Thick insulation laid on ceiling boards	m ²	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
P.15		<u>FLOOR TILES</u>				
P.15.1		400x400mm A Grade ceramic floor tiles including adhesive cement and grouting, including constraint cuttings and partitions	m ²	1		
P.15.2		A Grade ceramic floor tiles 75mm skating including adhesive cement and grouting	m ²	1		
P.15.3		500x500mm Porcelain floor tiles including adhesive cement and grouting, including constraint cuttings and partitions	m ²	1		
P.15.4		600x600mm Porcelain floor tiles including adhesive cement and grouting, including constraint cuttings and partitions	m ²	1		
P.15.5		Porcelain floor tiles 75mm skating including adhesive cement and grouting	m ²	1		
P.15.6		A grade ceramic 198 x 198 x 6mm White glazed ceramic wall tiles	m ²	1		
P.15.7		A grade ceramic walls tiles in showers, behind basins and ablution general walls	m ²	1		
P.16		<u>HAND RAILS IN TOILETS</u>				
P.16.1		Hot-dipped double spelter galvanised mild steel grab rails formed of 32mm outside diameter x 1,6mm round section rails and 75mm diameter x 3mm flat section fixing flanges each three times holed and bolted to walls with M8 x 50mm expansion bolts				
P.16.2		32mm Grab rail 700mm long with two 80mm return ends bolted	no	4		
P.16.3		HAND RAILS ELSEWHERE				
P.16.4		Provide a sum for Prefabricated hand rails installation	Prov Sum	1	20000	R 20,000.00
P.16.5		Profit Over	%	20000		
P.17		<u>FIRE SERVICES</u>				
P.17.1		Fire appliances including piping, etc				
P.17.2		4,5kg DCP dry powder portable fire extinguisher on and including wrought Meranti backboard size 520 x 100 x 22mm thick plugged and screwed to wall and finished with two coats of polyurethane varnish, including 120 x 20 x 2mm mild steel strip bent to form hook	no	1		
P.17.3		Fire hose reel complete with 30m rubber hose, chromium plated stopcock, shut-off nozzle and wall bracket bolted to wall with and including expansion bolts	no	1		
P.18		<u>FIELD SANITATION UNITS</u>				
		Building mortar, earthworks, concrete and others measures elsewhere. Rates below are for the supply and installation of complete on site.				
P.18.1		Supply, deliver ,Install and commission Similar to 'Rocla', Ama Loo Loo or similar approved Precast Concrete Panel Toilet, 900mm W x 1100mm L x 2000mm H, Complete with prefabricated walls, roof, door, seat, pit slab cover, handwash basin	Sum	1		
P.18.2		Supply, deliver ,Install and commission Similar to 'ENVIRO LOO VIP', or similar approved. Prefabricated unit with toilet seat, extraction pipe and fan, collector pit plate setup, back inspection chamber/cover. Concrete Panel Toilet, 900mm W x 1100mm L x 2000mm H, Complete with prefabricated walls, roof, door, seat, pit slab cover, handwash basin	Sum	1		
		TOTAL SECTION "P" CARRIED FORWARD TO SUMMARY				

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
<u>SECTION R : ELECTRICALS AND PLUMBING</u>						
R.1		All items include Supply, delivery and installation ELECTIRCAL, WATER AND SEWAGE WORKS, EARTHWORKS (PIPE TRENCHES) Site Clearance and Removal of Topsoil				
R.1.1		<u>EXCAVATION ANCILLARIES</u>				
		Make up deficiency in backfill material (provisional)				
R.1.1.1		a) From other necessary excavations on site Services that intersect a trench:	m ³	1		
R.1.1.2		1) Stock fences	no	1		
R.1.1.3		2) Water Pipes	no	1		
R.1.1.4		3) Gravel Roads	no	1		
R.1.1.5		4) Power cables	no	1		
R.1.2		Finishing				
R.1.2.1		Reinstate road surfaces complete with all courses:				
R.1.2.2		d) Gravel road surfaces	m ²	1		
R.1.2.3		e) Paved road surfaces	m ²	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
R.1.2		<u>Electrical Cables and Fittings</u>				
R.1.2.1		Supply and install 50mm ² , 3core PVC/SWA/PVC copper cable +ECC, Including all Terminate, complete with lugs and/or clamps, stainlesssteel nuts, bolts and lock washer, Danger tape: Orange/Yellow PVC material-300mm above cable.	m	1		
R.1.2.2		Supply and install 50mm ² , 4core PVC/SWA/PVC copper cable +ECC, Including all Terminate, complete with lugs and/or clamps, stainlesssteel nuts, bolts and lock washer, Danger tape: Orange/Yellow PVC material-300mm above cable.	m	1		
R.1.2.3		Supply and install 35mm ² , 3core PVC/SWA/PVC copper cable +ECC, Including all Terminate, complete with lugs and/or clamps, stainlesssteel nuts, bolts and lock washer, Danger tape: Orange/Yellow PVC material-300mm above cable.	m	1		
R.1.2.4		Supply and install 35mm ² , 4core PVC/SWA/PVC copper cable +ECC, Including all Terminate, complete with lugs and/or clamps, stainlesssteel nuts, bolts and lock washer, Danger tape: Orange/Yellow PVC material-300mm above cable.	m	1		
R.1.2.5		Supply and install 25mm ² , 3core PVC/SWA/PVC copper cable +ECC, Including all Terminate, complete with lugs and/or clamps, stainlesssteel nuts, bolts and lock washer, Danger tape: Orange/Yellow PVC material-300mm above cable.	m	1		
R.1.2.6		Supply and install 25mm ² , 4core PVC/SWA/PVC copper cable +ECC, Including all Terminate, complete with lugs and/or clamps, stainlesssteel nuts, bolts and lock washer, Danger tape: Orange/Yellow PVC material-300mm above cable.	m	1		
R.1.2.7		Supply and install 16mm ² , 4core PVC/SWA/PVC copper cable +ECC, Including all Terminate, complete with lugs and/or clamps, stainlesssteel nuts, bolts and lock washer, Danger tape: Orange/Yellow PVC material-300mm above cable.	m	1		
R.1.2.8		Supply and install 16mm ² , 3core PVC/SWA/PVC copper cable +ECC, Including all Terminate, complete with lugs and/or clamps, stainlesssteel nuts, bolts and lock washer, Danger tape: Orange/Yellow PVC material-300mm above cable.	m	1		
R.1.2.9		Supply and install 10mm ² , 4core PVC/SWA/PVC copper cable +ECC, Including all Terminate, complete with lugs and/or clamps, stainlesssteel nuts, bolts and lock washer, Danger tape: Orange/Yellow PVC material-300mm above cable.	m	1		
R.1.2.10		Supply and install 10mm ² , 3core PVC/SWA/PVC copper cable +ECC, Including all Terminate, complete with lugs and/or clamps, stainlesssteel nuts, bolts and lock washer, Danger tape: Orange/Yellow PVC material-300mm above cable.	m	1		
R.1.2.11		Supply and install 6mm ² , 4core PVC/SWA/PVC copper cable +ECC, Including all Terminate, complete with lugs and/or clamps, stainlesssteel nuts, bolts and lock washer, Danger tape: Orange/Yellow PVC material-300mm above cable.	m	1		
R.1.2.12		Supply and install 6mm ² , 3core PVC/SWA/PVC copper cable +ECC, Including all Terminate, complete with lugs and/or clamps, stainlesssteel nuts, bolts and lock washer, Danger tape: Orange/Yellow PVC material-300mm above cable.	m	1		
R.1.2.13		Supply and install 4mm ² , 4core PVC/SWA/PVC copper cable +ECC, Including all Terminate, complete with lugs and/or clamps, stainlesssteel nuts, bolts and lock washer, Danger tape: Orange/Yellow PVC material-300mm above cable.	m	1		
R.1.2.14		Supply and install 4mm ² , 3core PVC/SWA/PVC copper cable +ECC, Including all Terminate, complete with lugs and/or clamps, stainlesssteel nuts, bolts and lock washer, Danger tape: Orange/Yellow PVC material-300mm above cable.	m	1		
R.1.2.15		Surfix cable - 2.5mm ²	m	1		
R.1.2.16		Insulated 1,5mm ² wiring 1core cable; red, black, yellow, brown	m	1		
R.1.2.17		Insulated 2,5mm ² wiring 1core cable; red, black, yellow, brown	m	1		
R.1.2.18		Insulated 4mm ² wiring 1core cable; red, black, yellow, brown	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
R.1.3		<u>Round balast light, including bulb holder and cover</u>	m	1		
R.1.3.1		60W Fluorescent 1.5m complete unit	no	1		
R.1.3.2		30W Fluorescent 1.5m complete unit	no	1		
R.1.4		<u>30W Fluorescent replacement tube 1.2m</u>	no	1		
R.1.5		<u>15W replacement globe/lamp, energy saver</u>	no	1		
R.1.5.1		1,2m long. LED fluorescent light, single complete unit	no	1		
R.1.5.2		1,2m long. LED fluorescent light, double complete unit	no	1		
R.1.5.3		Surface Fluorescent ceiling light complete unit with 3 tubes and holding frame, appx 615x615mm	no	1		
R.1.5.4		Splash/Vapour proof to faurescenet lights	no	1		
R.1.6		<u>Splash/Vapour proof to round balast lights</u>	no	1		
R.1.6.1		60W LED flood lights outdoor waterproofing	no	1		
R.1.6.2		Type C Outdoor bulkhead luminaire c/w LED Lamp	no	1		
R.1.6.3		Type B Ceiling luminaire complete with LED Lamp	no	1		
R.2		<u>DISTRIBUTION BOXES</u>				
R.2.1		Outdoor/Wall SURFACE or Ground Plinth mounted Steel cabinet enclosures: mild steel and enamel weather proof coated				
R.2.1.1		450x450x220mm box	no	1		
R.2.1.2		400x300x200mm box	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
R.2.1.3		600x400x250mm box	no	1		
R.2.1.4		800x600x250mm box	no	1		
R.2.1.5		1200x600x250mm box	no	1		
R.2.1.6		1200x800x250mm box	no	1		
R.2.2		Steel and coated : Indoor Wall Built/installed DB enclosures				
R.2.2.1		24 Way DB Box	no	1		
R.2.2.2		12 Way DB Box	no	1		
R.2.2.3		6 Way DB Box	no	1		
R.2.3		DB FITTINGS AND PLUGS	no			
R.2.3.1		S11 Weatherproof plug	no	1		
R.2.3.2		Main switch (60Amp) - in sub-DB box	no	1		
R.2.3.3		Earth switch circuit breaker (60Amp) – earth breaker in sub-DB box	no	1		
R.2.3.4		Earth wire & copper rod, allow for 10m	no	1		
R.2.3.5		Circuit breaker - lights (10Amp)	no	1		
R.2.3.6		Circuit breaker - lights (15Amp)	no	1		
R.2.3.7		Circuit breaker - plugs (20Amp)	no	1		
R.2.3.8		Circuit breaker - plugs (25Amp)	no	1		
R.2.3.9		Circuit breaker - plugs (30Amp)	no	1		
R.2.4		<u>Circuit breaker - plugs (40Amp)</u>	no	1		
R.2.4.1		Circuit breaker - plugs (50Amp)	no	1		
R.2.4.2		Circuit breaker - plugs (60Amp)	no	1		
R.2.4.3		Circuit breaker - plugs (70Amp)	no	1		
R.2.4.4		Circuit breaker - plugs (80Amp)	no	1		
R.2.4.5		Circuit breaker - plugs (90Amp)	no	1		
R.2.4.6		Circuit breaker - plugs (100Amp)	no	1		
R.2.4.7		Six Pin 3 Phase wall plug, 60-80Amp	no	1		
R.2.4.8		Six Pin 3 Phase wall plug, 90-100Amp	no	1		
R.2.4.9		Single socket 3 pin single Phase wall plug, 15Amp	no	1		
R.2.4.10		Single socket 3 pin single Phase wall plug, 20Amp	no	1		
R.2.4.11		Single socket 3 pin single Phase wall plug, 30Amp	no	1		
R.2.4.12		Double socket 3 pin single Phase wall plug, 20Amp	no	1		
R.2.4.13		Double socket 3 pin single Phase wall plug, 30Amp	no	1		
R.2.5		Conduit pipes including all joints and fittings to electrical fittings				
R.2.5.1		Conduit pipes (20mm Ø PVC for surfix where visible) chiseled into wall	m	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
R.2.5.2		Conduit pipes (25mm Ø PVC) chiseled into wall	m	1		
R.2.5.3		Conduit pipes (20mm Ø Galvanised Steel Tubes)	m	1		
R.2.5.4		Conduit pipes (30mm Ø Galvanised Steel Tubes)	m	1		
R.2.5.5		Conduit pipes (50mm Ø Galvanised Steel Tubes)	m	1		
R.2.5.6		3 Lever 2 way light switch including 2 x 4 electrical box	no	1		
R.3		<u>PLUMBING AND SEWAGE</u>				
R.3.1						
R.3.1.1		"Pearl Paraplegic" or similar approved white vitreous china low level washdown suite (code 750200), matching 9litre front single flush cistern complete with waste/drain connections, flushpipe, purpose made cp side flush lever and BEMIS 7500 economy double flap thermoset seat.	no	1		
R.3.1.2		"Emerald" or similar approved vitreous china basin (code 703003) or similar approved, to vanities (elsewhere) complete, white, including one mixer tap, integrated overflow, chain stay hole bolted to wall with two 10mm bolts, and waste/drain connections.	no	1		
R.3.1.3		"Vaal Lavatera" or similar approved White Vitreous china wall mounted bowl urinal with top inlet, supplied with 38mm chromium plated domical grating, chromium plated spreader, and two hanger brackets	no	1		
R.3.1.4		Supply & install shower clothes hooks and soap holders in showers	no	1		
R.3.1.5		Supply & install 2 tier toilet roll holder, lockable mild white steel, color coated with enamel paint.	no	1		
R.3.1.6		Supply & install SHE bin, 10L.	no	1		

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
R.3.1.7		Supply & install shower head complete with chrome shower arm and all accessories to control valves for hot and cold water in each shower	no	1		
R.3.1.8		Supply & install 450x600x6mm "GG"QUALITY POLISHED GLASS MIRROR: Fix above each basin with round nose chromium plated mirror screws	no	1		
R.3.1.9		Supply & install 600 x 19mm STAINLESS STEEL CHROMIUM PLATED TOWEL RAIL in each shower and next to each basin,	no	1		
R.3.1.10		Supply & install shower curtain rail, alluminium/chrome, 1110mm - 2000mm	no	1		
R.3.1.11		Supply & install heavy duty plastic shower curtains	no	1		
R.3.2		Sewage Pipeline				
R.3.2.1		Supply and install sewage 50mm PVC pipe including straight coupling	m	1		
R.3.2.2		Supply and install sewage 50mm PVC pipe fittings				
R.3.2.3		Bends	no	1		
R.3.2.4		T - Junctions	no	1		
R.3.2.5		<u>Y- Junctions</u>	no	1		
R.3.2.6		Inspection Eyes	no	1		
R.3.2.7		End Cap	no	1		
R.3.2.8		Air Release/Breather on behind toilet and on septic tank	no	1		
R.3.2.9		P-Trap	no	1		
R.3.2.10		Supply and install sewage 110mm PVC pipe including straight coupling	m	1		
R.3.2.11		Supply and install sewage 110mm PVC pipe fittings				

	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
R.3.2.12		Bends	no	1		
R.3.2.13		T - Junctions	no	1		
R.3.2.14		Y- Junctions	no	1		
R.3.2.15		Inspection Eyes	no	1		
R.3.2.16		End Cap	no	1		
R.3.2.17		Air Release/Breather	no	1		
R.3.2.18		Concrete Gulley with Grid and Trap, complete	no	1		
R.3.2.19		<u>Shower Trap and grid Complete</u>	no	1		
R.3.2.20		P-Trap for basins and sinks	no	1		
R.3.2.21		Supply and install sewage 160mm PVC pipe including straight coupling	m	1		
R.3.2.22		Supply and install sewage 160mm PVC pipe fittings				
R.3.2.23		T - Junctions	no	1		
R.3.2.24		Y- Junctions	no	1		
R.3.2.25		Inspection Eyes	no	1		
R.3.2.26		End Cap	no	1		
R.4		<u>WATER SUPPLY</u>				
R.4.1		Supply and install fully galvanized steel pipes, both ends threaded				
R.4.1.1		300mm length				
R.4.1.2		20mm Diameter	no	1		
R.4.1.3		25mm Diameter	no	1		
R.4.1.4		40mm Diameter	no	1		

PART C3: SCOPE OF WORK

C3.1: PROJECT SPECIFICATIONS

LIMPOPO DEPARTMENT OF AGRICULTURE AND RURAL DEVELOPMENT**A 3-YEAR FRAMEWORK AGREEMENT FOR THE DEVELOPMENT AND MAINTENANCE OF IRRIGATION PROJECTS AND SCHEMES FOR THE LIMPOPO DEPARTMENT OF AGRICULTURE AND RURAL DEVELOPMENT****C3: SCOPE OF WORK****C3.1 PROJECT SPECIFICATIONS****PART A: GENERAL**

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A3	Area of Appointment
A4	Length of Appointment
A5	Professional Responsibility
A6	Costing Methods
A7	Procurement of materials
A8	Pricing and adjudication
A9	Contract price adjustment provision
A10	Modus operandi

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	B3.1.3 Minimum soil properties to be recorded
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PSD	EARTHWORKS (SANS 1200 D)
PSDB	EARTHWORKS (PIPE TRENCHES) (SANS 1200 DB - 1989)
PSL	MEDIUM PRESSURE PIPELINES (SANS 1200 L)
PSPS:	PUMP AND FILTER STATION

LIMPOPO DEPARTMENT OF AGRICULTURE AND RURAL DEVELOPMENT**A 3-YEAR FRAMEWORK AGREEMENT FOR THE DEVELOPMENT AND MAINTENANCE OF IRRIGATION PROJECTS AND SCHEMES FOR THE LIMPOPO DEPARTMENT OF AGRICULTURE AND RURAL DEVELOPMENT****C3.1: PROJECT SPECIFICATIONS****STATUS**

The Project Specification, consisting of three parts, forms an integral part of the contract and supplements the Standard Specifications.

Part A contains a general description of the contract

Part B covers professional requirements to be met.

Part C contains reference to the standard specifications, variations to the standard specifications and particular specifications.

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PART A: GENERAL

A1. Purpose of Contract

Suitably qualified service providers are invited to tender for an Irrigation Framework Contract. The Limpopo Department of Agriculture and Rural Development (LDARD) has the need for this contract to increase the rate of service delivery and decrease the cost of establishing small irrigation projects.

The technical ability of each Company to render the service will be evaluated. All the companies that meet the minimum requirements will be evaluated on their tendered rates. Framework agreements will be entered into with all the qualifying companies.

The following definitions are applicable to this document:

- **Develop & Implement:** "Where a single Service Provider acts as the sole point of responsibility to a Client for the development and implementation of a project, on time, within budget and usually in conformance with a performance specification." (As and when required)
- **Framework Agreement:** "A contract in which a Service Provider is appointed for a period of time (36 months) to render a service, based on the tender criteria. However, work is not guaranteed and will be requested as and when needed by the Client." (Reference – Treasury SCM Instructions 4 of 2015/16 and 3 of 2019/20)
- **Rates contract:** "A contract with agreed fixed rates."
- **Task order:** "An instruction to provide the service / works within a stated period of time."
- **Rotating Electronic Databases:** The approved Service Providers will be admitted to the Database. The Operating Principles will be administered as described in the SANS 10845.

A2. Scope of Contract

This contract covers the Construction, refurbishment (resuscitating), upgrade or maintenance and commissioning of:

- irrigation projects, including of all ancillary works like;
- pump stations,
- water source development,
- energy source development,
- water abstraction works,
- reservoirs,
- protective covering (shade net & tunnels),
- minor support buildings (storage facility, sanitation facilities)
- roads,
- security measures,
- fencing
- drainage & conservation works.

This contract will also be used for the Repair and Maintenance of existing Irrigation Schemes irrespective of the extent of the irrigation scheme. Also, and amongst others are included is soil survey, topographical survey, water resource development and other specialist services such as geotechnical and geo-hydrological investigations.

The preferred service provider is a Company or Joint Venture experienced in irrigation construction with CIDB registration 5SH or 5CE and higher, where the other services may be let as sub-contracts to appropriate specialists. In the case of Joint Ventures, the calculated CIDB registration grading of 5SH or 5CE and higher must be achieved.

A3. Area of Appointment

Service providers will be appointed to render a service anywhere in the Limpopo Province. A maximum of 30 responsive Service Providers with the highest points will be appointed and admitted to the Electronic Database.

A4. Length of Appointment

The appointment is for a three-year period. Should the installation of an irrigation scheme be underway when the contract period ends, the LDARD reserves the right to extend the contract to enable the scheme to be completed.

A5. Professional Responsibility

The professional responsibility for the development, implementation and commissioning will be that of the appointed Service Provider. The traditional separation of responsibilities between service providers is not applicable to this contract. The Service Provider will assume the professional liability for both of the development and implementation of the irrigation project. LDARD reserves the right to appoint an external service provider for the purpose of monitoring and evaluating the services captured within this contract. LDARD reserves the right to agree on a specific time frame per project.

A6. Costing Methods

This will be done as follows:

- The procurement, delivery, installation, and commissioning of Term contract listed materials/equipment.
 - This will be based on tendered rates and price adjustment clauses.
 - Other specialist services will be done on proven cost plus a tendered mark up.
 - LDARD reserves the right to request competitive quotations for specialists.
- Procurement and installation of special materials / equipment not included in tendered rates.
 - This will be done on actual cost plus a tendered mark up. (The Service provider should provide 3 quotations from reputable suppliers for approval).
 - The mark-up tendered for the procurement must cover all costs related to the purchase of materials / equipment and delivery to site, including handling, storage and security on site, profit, return of faulty items and any other associated costs not covered elsewhere in the bill. The installation thereof is covered under “Day Works”.
- The quantities in the Bill of Quantities (BoQ) in this Bid document is only indicative to enable the Department to compare tendered prices. The actual quantities will be determined during the development and implementation stages.

A7. Procurement of materials

The mark up tendered for the procurement must cover all costs related to the purchase of materials and delivery to site, including handling, storage on site, profit, return of faulty items and any other associated costs not covered elsewhere in the bill. The installation thereof is covered elsewhere.

When submitting a price estimate for the installation of an irrigation project, the Service Provider shall supply a bill of quantities based on current cost of materials and equipment and the tendered rates. The cost of materials and equipment shall be based on three written quotations from reputable local suppliers that are acceptable and verifiable by LDARD, indicating nett prices, which shall be attached to the price estimate. LDARD reserves the right to request competitive material / equipment quotations.

A8. Pricing and adjudication

The bill of materials to be completed as part of this tender requires mainly rates and mark-ups. The rates and mark up tendered by the various bidders will be applied to the detailed bills for a number of different hypothetical irrigation designs, to enable financial adjudication.

A9. Contract price adjustment provision

The tendered rates will be adjusted annually as follows:

- All rates which are based on current market prices with a tendered mark-up will remain unchanged for the duration of the contract.
- All other rates will be adjusted annually as follows:
 - The rates will be adjusted annually by a calculated factor, every 12 calendar months, starting 12 months from the end of the month in which the tender was awarded.
 - The formula is as follows

$$F = (1 - x)(1 + CPI)$$

Where: F = factor

$$x = 0$$

CPI = Consumer price index: Year on year percentage change, geographic indices for Limpopo province (Statistical release P0141 published by Statistics South Africa - http://www.statssa.gov.za/?page_id=1854&PPN=P0141).

A10. Modus operandi

The LDARD reserves the right to use any part of the contract in any combination depending on the requirements for the development a specific irrigation project. However, it is envisaged that a development of a typical irrigation system would proceed in the following steps.

- LDARD provides terms of reference to the next Contractor on the Rotating Electronic Database in line for a project for the development of an irrigation project.
- The Contractor provides a quotation including initial site visit, surveys, meetings and resource development based on the tendered rates.
- LDARD evaluates the quotation for completeness and alignment with tendered rates.
- On receipt of the order, the Contractor executes the work (Planning) and provides LDARD with a progress (Planning) report and recommendation (including reports and survey data as specified).

- LDARD evaluates the reports for completeness.
- After acceptance of the progress report and recommendations, the LDARD requests a quotation from the same Contractor for the development (Design) of an irrigation project proposal.
- The Contractor provides a quotation based on the tendered rates and the recommendations.
- LDARD evaluates the quotation for completeness and alignment with tendered rates and issue an order.
- The Contractor provides an irrigation development (Design) proposal including a quotation for the implementation of the project, based on the tendered rates.
- LDARD evaluates the proposal and quotation for completeness and alignment with tendered rates.
- LDARD provides the contractor with an order to execute the implementation of the irrigation project.
- Implementation, Commissioning, handover and retention.

PART B: SPECIFICATIONS FOR PROFESSIONAL SERVICES

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B 1 Irrigation Design**B 1.1 General**

It is intended that the core competency of the Contractor will be in irrigation, both design and installation. Thus this function will not be outsourced but be an in-house competency.

B 1.2 Designer Qualifications

The responsible person for the irrigation design must have proven experience and expertise in the field of irrigation. In addition, the following will be a recommendation.

- SABI (SA Besproeiing Instituut) approved designer
- Registration with ECSA as a professional engineer, engineering technologist or engineering technician

B 1.3 Design norms

The following design norms and guidelines must be utilised and will form part of this specification.

B 1.3.1. Norms published by SABI (see section B.3.3 below)

(<http://www.sabi.co.za/designNorms.html>)

B 1.3.2. Irrigation Design Manual (ARC – ILI June 2003 or later)

B 1.3.3. Irrigation User's Manual (ARC – ILI February 2004 or later)

B 1.3.4. Water requirements to be calculated using SAPWAT.

The report and associated SAPWAT 3 (or later version) software can be obtained free of charge from:

The Water Research Commission

P/Bag X03

Gezina 0031

Tel: 012 33 00340

The details are as follows:

Report number: TT 319/08

Report name: Integrating and upgrading SAPWAT and PLANWAT to create a powerful and user-friendly irrigation and water planning tool.

B 1.3.5. Floppy Irrigation Design.

The design norms published on the website of the company Floppy Sprinkler (Pty) Ltd are to be used as a guideline (<http://www.floppysprinkler.com/>).

B 1.4 SABI design norms.

These norms are reproduced in full below, with minor noted amendments and the addition of a numbering system. Minor grammatical corrections have also been made.

B 1.4.1. General

In South Africa there is a great need for farmers, crop, soil and fertiliser specialists to have information on crop water requirements, nutritional requirements and the scheduling thereof in terms of recommendations for the designer to optimally design an irrigation system for specific circumstances.

A multi-disciplinary approach is required when evaluating water quality for irrigation purposes, so as to identify any anticipated problems with drip systems, the determination of and management of available water sources e.g. boreholes, peak and annual crop water requirements, analysis of soil water holding capacity and infiltration rate.

The designer must highlight any problems e.g. the blockage of drip systems with irrigation water, and make recommendations to solve the envisaged problems.

B 1.4.1.1 Pipe friction in main and sub-main pipelines

The filling up of pipelines and examples of mainline design must be according to industry standards, which must be covered in manuals specific for designers. The designer must take into account the possible effect of water quality on pipes as well as the deterioration of pipes with age during the design process.

The following value for allowable pipe friction in mainlines are proposed as norms:

The following applies for pipelines with a diameter of 200mm or smaller:

- Rising pipeline: Maximum 1.5% (m/100m) friction loss
- Gravity pipeline: Maximum allowable flow velocity of 3.0 m/s

If the above figures are exceeded, then the designer must show that the chosen pipe diameter's total cost (capital and annual running cost) have been optimised and is the best of the available options. For pipelines of larger diameter, the effect of water hammer is critical and must be investigated and optimised.

B 1.4.1.2. Application Efficiencies

These values mentioned are important when used to change nett irrigation requirement to system capacity (gross irrigation requirement).

The efficiency of a system is made up of two components, namely the losses that take place between the emitter outlet and before the water reaches the root zone as well as the distribution uniformity (DU) of the total system after operating for a number years. Although there are numerous figures in the literature, there is a lack of reliable figures for South African conditions.

In the interim the following figures are recommended as norms:

- Drip systems 90%
- Micro sprinkler systems 80%
- Permanent sprinkler systems 75%

- Moving systems 80%
- Movable quick coupling sprinkler systems 70%
- Travelling sprinklers and other moveable sprinkler systems 65%
- Flood irrigation (with piped supply system) 80%
- Flood irrigation (with earth channel supply system) 60%

B 1.4.1.3. Irrigation hours per week

These values are used to determine the required pump -/ stream flow size.

The norms recommended by DWAF (1985) are accepted:

- Micro and permanent sprinkler systems - 144 hours
- Centre pivots systems - 144 hours
- Moveable sprinkler and other movable systems - 110 hours
- Flood irrigation systems - 60 hours

Add the following clause to the above:

“The irrigation hours per week in a particular scheme are to be determined in consultation with the client and end user and must take into consideration particular Eskom tariff schemes, which allow for reduced rates when pumping outside of certain peak hours”.

B 1.4.1.4. Minimum pump capacity (safety factor for wear and tear)

These values are added to the calculated system capacity and are used to indicate the duty point (pressure and flow) when selecting a pump.

The present norms are accepted:

- Discharge rate 10%
- Pressure head 5%

Where an irrigation pump is also used for the mixing and application of fertilisers, then an additional 20% pump capacity must be provided for.

B 1.4.1.5. Permissible suction velocities

A foot valve's "open" area must be four times larger than that of the open area of the suction hose, thus ensuring that the velocities through the foot valve do not exceed those of the suction hose by more than 25%.

The following is proposed:

- Suction hose velocity (absolute maximum)-1,5 m/s
- Add the following clause to the above:

The velocity in the suction line should be in the order of 1 m/s.

- Suction strainer velocity- 0,4 m/s

Maximum permissible velocity in a filter bank manifold:

- 0,5 m/s

Add the following clause to the above:

“The above norm can be exceeded with motivation from the designer.”

B 1.4.2. Micro Irrigation

The manufactures' standards for equipment in the industry, for example the minimum back pressure / flow required for the backwash of filters must be adhered to. The choice of equipment, for example a pressure control valve at the inlet of a block, is not part of the norms.

The following norms are recommended:

B 1.4.2.1 Minimum gross application rate

- The present norm for gross application rate of 3mm/h on the wetted area remains unchanged.
- The minimum recommended wetted area norm is scrapped due to management problems in the past, when irrigation controllers were not freely available.

B 1.4.2.2. Filters

- Ring / mesh filter openings must be 1/5 that of the emitter orifice diameter. The appropriate micro emitter manufacturer's recommendations must be used for flow path openings of 1mm.

The following norms are recommended unchanged.

- Maximum allowable pressure drop over ring / mesh filters:
 - Recommended pressure drop over a clean ring filter - 10 kPa
 - Recommended pressure drop over clean filter bank - 30 kPa
 - Maximum allowable pressure drop over a filter bank before backwashing - 70kPa

B 1.4.2.3. Minimum emission uniformity (EU)

- Design EU 90%

The minimum emission uniformity (EU) is used for calculating the available pressure band for the lateral and manifold diameters. The emission uniformity is used to calculate the pressure band, as the maximum design flow variation norm amongst others, does not make provision for the manufactures coefficient of variation (CV) of micro systems.

Each manufacturer of micro sprinklers is responsible to supply the required information (e.g. CV) to designers to determine the pressure band variation.

B 1.4.3. Drip Irrigation

The dripper spacing should be determined through multi-disciplinary collaboration between experts in the agricultural field.

As mentioned earlier pressure regulated valves and anti- vacuum valves installed at block inlets do not form part of the norms. The use of specific filter equipment for specific drippers depends on the specific manufacturer's recommendations because research results for sand filters on drip irrigation are not always conclusive. This norm is thus scrapped until such time that relevant research results are available.

The following industry specifications for sand filters are recommended:

- A minimum of 50% of the maximum filtration rate (50m³/h per m² sand surface area) is required to backwash the filters. The maximum backwash rate must not exceed 1.2 times the filtration rate. A minimum of 6 m inlet pressure is required during backwashing. The backwash time of sand filters can be between 90 -180 seconds.

Remembering that as the flush process starts, the raw water is above the sand bed, and at first appears to be clean. Thereafter the dirty water, which was trapped in the sand bed, is then expelled. During the flushing process the water will gradually appear cleaner.

Thus, it is so important to allow sufficient time during the backwash operation to ensure all impurities are removed from the filter.

Pressure compensated drippers are recommended to operate at a maximum of 75% of the allowable pressure of the dripper so as to protect the dripper diaphragm.

The following norms are recommended:

B 1.4.3.1. Filters

When using a sand filter, a 200 mm control mesh- or ring filter must be placed on the downstream side of the sand filter to catch the impurities in case of damage to the sand filter. The drip manufacturer's recommendations must be followed when using a ring / mesh filter.

The present norms should be adjusted as follows (Van Niekerk, 1983):

- The maximum allowable flow rate through a clean sand filter:
 - Flow rate 50 m³/h per m² of with a maximum pressure drop over the sand filter of 10 kPa
- The maximum allowable pressure drop over a sand filter with ring-/ mesh filters:
 - Total pressure drop over a clean filter bank (including sand and ring filter) 40 kPa
 - The maximum allowable pressure difference over the filter bank before backwashing should be 60 kPa
 - When using a ring-/ mesh filter, then the maximum allowable pressure drop norm as described in section 2.2 must be complied with

B 1.4.3.2. Minimum emission uniformity (EU)

- Design EU 90%

The method for calculating pressure band is discussed in detail in the Irrigation Design Manual (2003) edition.

The minimum emission uniformity (EU) is used for calculating the available pressure band for the lateral and manifold diameters.

The emission uniformity is used to calculate the pressure band as the maximum design flow variation norm amongst others does not make provision for the manufactures coefficient of variation (CV) of dripper systems.

Each manufacturer of drippers is responsible to supply the required information (e.g. CV) to designers to calculate the pressure band.

- 10% Flow variation:

If the dripper you design has a CV of 5% and better, the use of a 10% design flow variation is still acceptable.

As long as you remember that 10% flow variation as norm does not necessarily have the most economic system as a result.

If the CV of the dripper you design for exceeds 5% it will be necessary to use the method referred to in the Irrigation Design Manual (2003). If you don't the flow variation will exceed the 10% norm.

B 1.4.3.3. Flow velocity of laterals

- A minimum flow velocity of 0.4 m/s at the furthest lateral end point is required. (T-Tape, 1998)

B 1.4.4. Sprinkler Irrigation

During the design stage, especially with moveable sprinkler systems, it is important that the designer can interpret the available water holding capacity and infiltration rate of the soil.

The following norms are proposed:

B 1.4.4.1. Minimum gross application rate

- Moveable systems - 5mm/h
- Permanent systems - 4mm/h

B 1.4.4.2. Maximum pressure variation

- 20%

B 1.4.4.3. Christiansen uniformity co-efficient (CU)

The CU- value of a specific sprinkler is influenced by the proposed operating pressure and spacing, and will give an indication of the uniformity of water distribution in an irrigation block.

The sprinkler spacing and operating pressure are chosen from a manufacturer's catalogue, bearing in mind the norms applicable to the CU -value.

The following norms are applicable for wind still conditions:

- CU 85% for vegetable crops
- 75% CU 85% for deep rooted crops e.g. Lucerne
- CU 70% for tree crops
- When applying chemicals through the system, the CU should be 80%.

For windy conditions the following adjustments should be made:

- Wind speed 0 - 5 km/h, reduces the chosen spacing by 10%.
- Wind speed greater than 5 km/h; reduce the chosen spacing by an additional 2.5% for every additional 1.6km/h wind speed.

B 1.4.5. Centre Pivot

The selection of a sprinkler package is a multi - disciplinary process involving the interpretation of the infiltration capabilities of the soil and determination of irrigation requirements.

The choice of specific bandwidths, pressure regulators and electrical motor for specific situations depends on the manufacturer's specifications.

A new index for the evaluation of emitter delivery rate on centre pivots is proposed:

$$Emmitter - CU = 100 \left[1 - \frac{\sum_{i=1}^n f_i - q_i}{Q} \right]$$

Where f_i – the actual delivery at outlet i on the centre pivot (l/h)

q_i – the design delivery at outlet i (l/h)

Q – the design flow rate for the total centre pivot

$$= \sum_{i=1}^n q_i$$

n - number of outlets on the centre pivot.

The following norms are proposed:

- Christiansen uniformity co- efficient (CU)
 - Emitter-CU 95%
- Friction through centre pivot
 - 2.5 % (m/100m) over centre pivot length.
- Effective radius of end gun
 - 75% of the wetted radius of the end gun.

B 1.4.6. Flood Irrigation

Although flood irrigation appears to be a relatively simple system, it requires various sets of information to ensure a well-designed scheme. The infiltration rate of the soil must be thoroughly investigated and the results thereof taken into account during the planning phase of the system.

A runoff control plan must be implemented to ensure that rainwater is kept away from the irrigation area. During the planning phase remember that during construction not more than 20cm of topsoil must be removed during the construction of beds.

The following norms are proposed:

- Slope of beds
 - Slope along the length of the field must be < 0.7% to prevent erosion unless an in situ test is done.
 - The slope across the width must be = 0% for basin and border irrigation.
- Allowable flow depth in beds
 - 50mm flow depth 150mm

B 1.5 Required documentation and outputs

B 1.5.1: The design phase must culminate in a report, including, but not limited to:

- Description of the proposed scheme
- Scope of the design
- Incorporate the results from all other professional studies (soils survey etc).
- Design norms
- Scheduling and planning
- Detailed design including (but not limited to)

- Pump and motor sizing
- Mainline design
- Block design
- Drawing of scheme layout
- Include irrigation potential map from the soil report.
- Drawings of irrigation cluster details, if differing substantially from the standard drawings.
- The entire report, once approved, to be submitted in Adobe Acrobat (pdf) format.
- A quotation, based on the tendered rates, for the complete installation of the scheme, with time frames.
- All the above to be provided in 4 paper copies, each with a memory stick containing all the data in native electronic format.

B 1.5.2: At construction phase, the following documentation should be provided.

- Minutes of site meeting
 - As built drawings
 - Operation manual
- The following must be included in the manual
- Scheduling information
 - Operational rules
 - Layout drawings
 - Electrical starter panel layout drawing
 - Pump details
- All the above to be provided in 4 paper copies, each with a CD/memory stick containing all the data in native electronic format.

B 1.6 Explanation of payment items for planning and design

The payment items are based on an area with a fixed cost and variable cost component. The fixed cost is the fixed costs of the work, which are independent of the size the area to be designed i.e. transport to site, report and drawings etc. The variable cost will cover items such as the time to complete the work.

See par P 1.5.1 for the required outputs.

An item making provision for an initial site visit has been inserted in the bill. This will include the cost of travelling and site time.

Items for travelling and time have been allowed for in the bill to cover ad-hoc actions that are authorised by the LDA and which do not fall into the defined payment items. This would mainly include head office meetings, or additional site meetings.

For ad-hoc design work which is not conveniently covered by the payment items in the bill (e.g. design of bulk pipeline), provision is made in the bill for the time based rate for an irrigation designer

The term “authorised company representative” in the bill refers to a person who can make legally binding decision on behalf of the company.

B 1.7 Payment item for professional services during scheme installation

Contract administration, inspection and close out.....Unit: month

This item is to compensate the Contractor for undertaking services that would usually form part of the duties of the Engineer and will only be applicable once the construction phase of the project begins. The sum shall cover all time and disbursement costs incurred by the Contractor to fulfil Stage 5 (Contract Administration and Inspection) and Stage 6 (Close-Out) of the Normal services as defined in the Guideline for Services and Processes for Estimating Fees for Persons Registered in terms of the Engineering Profession Act, 2000 (Act No.46 of 2000), Board Notice 138 of 2015. The typical deliverable are defined in the document, “Government Gazette, Vol.606, 4 December 2015, No. 39480” which can be down loaded from: www.gpwonline.co.za

In addition, the requirements from par B 1.5.2 must be fulfilled.

B 2 Land (Topographical) Survey

B 2.1 Specifications

The responsible person for the land survey must be registered with the South African Council for Professional and Technical Surveyors as a Professional Land Surveyor or Engineering Surveyor.

- B 2.1.1 Before any survey work takes place, it is the responsibility of the Contractor to check with the LDARD for any surveys that may have been undertaken in the past.
- B 2.1.2 All data must be geo-referenced to the Hartebeeshoek 1994 system (WGS 1984) , referenced to a line of longitude (LO) that corresponds to the mapping published by National Geo-Spatial Information (NGI) of the Department Rural Development and Land Reform (previously Chief Directorate: Surveys and Mapping).
- B 2.1.3. The survey should indicate all existing infrastructure and features, including, but not limited to:
- Scheme boundary
 - Fences
 - Roads
 - Existing irrigation infrastructure
 - Rivers / water courses / erosion gulleys
 - Dams
 - Buildings / structures.
- B 2.1.4 The digital terrain model (DTM) produced from the survey, must have a vertical (Z) tolerance within the following limits:

Irrigation System	Z tolerance	Typical contour interval
Micro and Drip	150 mm	0.5 m
Sprinkler	300 mm	1.0 m
Pivot / floppy	600 mm	2.0 m

Note: The Z tolerance is the maximum deviation allowed between a spot height taken as a check anywhere in the surveyed area and the height of the same point derived from the DTM.

- B 2.1.5. It may be required to do a strip survey of a proposed pipeline route or existing canal. The specification is as follows:
- Proposed pipeline route: Strip survey 10m wide – DTM Z tolerance as per micro and drip irrigation.
 - Existing canal: Survey points spaced every 15 m to 20 m where the canal is straight with a higher density in the bends. Points to be taken on the top of concrete on each side of the canal and one in the middle. All features such as off takes, sluices and long weirs to be captured. In addition, a 10m strip upslope of the canal and 5m strip down slope is to be measured.

Tolerances:

Canal: The following tolerances shall apply to any part of the feature and not on the actual spot it was measured:

- Horizontal accuracy: 100mm
- Vertical accuracy: 25 mm

Strip along canal:

- As per sprinkler irrigation.

B 2.1.6 The surveyor must produce a layout indicating all surveyed infrastructure and features, with contours at an interval appropriate to the irrigation system to be designed and the topography. This must be provided in paper copy and electronic copy in dwg/dxf format. The size of the layout must be A1. The survey must be underlain with the most recent geo-referenced photography from NGI.

B 2.1.7 An ASCII file must be provided with all survey points, including the point description and the X, Y, Z co-ordinates, suitable for a DTM package such as Model Maker, Civil Designer or Civil 3D.

B 2.1.8 A file with the triangle data produced from the survey points must be provided.

B 2.1.9 A short report must be submitted in triplicate, including, but not limited to:

- Description of methodology
- Equipment used
- Area covered and number of points taken
- Accuracy and limitations
- Include the layout plan as per par B2.1.6 and provide all electronic data (including the report) on a CD inserted in a pouch attached to the report.

B 2.2 Explanation of payment item

Although this contract is limited to 30 ha irrigation schemes, allowance has been made to survey up to 40 ha as it may be necessary to capture features outside the actual boundaries of the irrigation area. The payment items specify a fixed cost and variable cost component. The fixed cost is the fixed costs of the work, which are independent of the size of the survey i.e. transport to site, production of the report and drawings etc. The variable cost will cover items such as time on site and additional time to complete the work.

Allowance has been made for the fact that adverse field conditions can hamper survey work. Two field conditions are recognised, namely "Farmland / grassland" and "Bushveld / orchards". Farmland / grassland refers to currently or recently cultivated land or open grassland, where the height of vegetative growth is generally less than 1.5 m high i.e. no interference is expected with a tripod mounted instrument or backpack GPS. Bushveld / orchards refer to conditions where the heights of the vegetation will interfere with survey instruments.

The survey also differentiates between the levels of accuracy required for the particular irrigation schemes. The data pertaining to this is found in section B 2.1.2.

B 3 Soil survey

B 3.1 Specifications

The responsible person for the soil survey must be registered with the South African Council for Natural Scientific Professions as a Certificated or Professional Natural Scientist, practising in Soil Science.

B 3.1.1. Minimum observation density:

- Detailed profile observation on a grid of 100 m x 100 m or 150 m x 150 m depending on terrain, done by auguring or by profile pits if the area is very sandy or stony.
- At least one profile pit sampled for analyses per 50 ha surveyed, or per site.

B 3.1.2. Minimum site properties to be recorded at each observation site:

- Topography and slope
- Micro relief, rockiness, erosion degree and type, flooding hazard etc

B 3.1.3. Minimum soil properties to be recorded

- Soil taxonomic unit
- Presence and depth of any water table and permeability class of underlying material
- Evidence of surface crusting
- Evidence of root and water impeding layers

B 3.1.4. For each horizon, the following should be recorded

- Texture: Field estimate of clay percentage and dominant sand grade
- Soil structure
- Soil colour
- Extent and colour of mottling
- Presence of lime and gypsum
- Mechanical limitations

B 3.1.5. Minimum soil chemical analysis per sample and calculations for assessment of salinity and sodicity.

- Electrical conductivity of the saturation extract (salinity hazard and determination of threshold values for salt sensitive crops)
- Soluble cations (minimum: Na, Ca, and Mg) of the saturation extract to calculate sodium adsorption ration (SAR)
- Soluble anions (minimum: Cl, SO₄) of the saturation extract
- pH Water
- Exchangeable cations (minimum: Na, Ca, Mg, and K)
- Cation exchange capacity to calculate exchangeable sodium percentage (ESP)

B 3.1.6. Soil chemical analysis for fertility assessment

- Phosphate status

- Potassium status
- Acidity / alkalinity
- Lime / gypsum requirement
- Additional special crop specific requirements

B 3.1.7. Minimum soil physical property assessment

- Particle size distribution, minimum clay, silt and sand (3-fraction), but preferable 7-fraction analysis.
- Available water capacity
- Soil infiltration rate

B 3.1.8. Water quality assessment

- Electrical conductivity
- Cations: Sodium, Calcium, Magnesium (to calculate SAR), Potassium, and Boron
- Anions: Chloride, Sulphate, Nitrate, Nitrite, and Phosphate
- pH and pHS to calculate the Langelier Index to determine if the water has corrosive or scaling-dissolving tendency on irrigation equipment
- Water class rating and the effect thereof on soils, crops, and irrigation equipment

B 3.1.9. Soil reports and maps (To be provided in 4 paper copies, each with a CD/memory stick containing all the data in native electronic format.)

- **The following should be included in the report (but not limited to)**
 - Summary including major findings and recommendation and a table showing the area (in ha) for each soil and land class.
 - A statement of objectives for the survey
 - A location map
 - Description of the survey procedure
 - Brief description of the geology, climate and vegetation
 - A description of each soil or land class map unit
 - Tabulated properties of soil analysis
 - Summary of irrigation water quality
 - Soil and land class irrigation assessment and recommendations
 - Referencing of source material and a reference list
 - Appendix: Detailed soil description and accompanying detailed soil analyses tables.
- **The following maps are to be produced. Maps are to be produced on a GIS / CAD system.**
 - Soil map
 - Irrigation potential map
 - Effective soil depth map

- Clay content (A and B horizon)

B 3.2 Explanation of payment items

Although this contract is limited to 30 ha irrigation schemes, allowance has been made to go to 40 ha as in most cases it is necessary to do the soil survey on a larger area than the final irrigated area. The payment items specify a fixed cost and variable cost component. The fixed cost is the fixed costs of the work, which are independent of the size of the soil survey i.e. getting to site, production of the report and drawings etc. The variable cost will cover items such as time on site and additional time to complete the work.

B 4 Other professional services

Other professional services include, but are not limited to, electrical engineering and geo-hydrological services. It is the responsibility of the Contractor to ensure that the proposed professional service providers have proven experience and expertise for the required work. In addition, the Contractor must ensure that they are correctly qualified and registered with the relevant professional bodies.

The Contractor will assume responsibility for all work undertaken by the subcontractors.

Irrespective of the work done, it is essential that part of the service include a report detailing, but not limited to, the brief, the work done, any design work and drawings and a conclusion. Four paper copies must be provided, each with a CD/memory stick containing all the data in native electronic format.

Allowance in the rates must be made for the Contractor to familiarise himself with the report from the specialised sub-contractor and to write a short covering report summarising the findings and recommending a way forward.

Appointment of professional subcontractors will be guided by the following publications from the Construction Industry Development Board (CIDB):

- Best Practise Guideline #D1: Subcontracting Arrangements
- Practise Note #7: Subcontracting Arrangements

Payment will be on proven cost plus a tendered mark up. The LDARD may require more than one quotation before giving permission for the awarding of the work.

PART C: AMENDMENTS TO THE STANDARD SPECIFICATIONS

STANDARD SPECIFICATIONS

1. APPLICABLE SPECIFICATIONS

Specifications generally consist of:

- Standard specifications
- Variations to the standard specifications
- Particular specifications

In this section, the variations to the standard specifications and the particular specifications have been combined into one section.

1.1 Applicable Standard Specification: SANS 1200

The Standard Specification for the IRRIGATION DEVELOPMENT AND MAINTENANCE CONTRACT (the Project), and for all associated civil work, shall be the *SANS 1200 – Standardized Specification for Civil Engineering Construction*, also referred to as “SANS 1200” or “Standard Specifications”.

Irrigation Contractors are warned to fully apprise themselves of the implications of this code.

The Standard Specifications are contained in a separate publication not issued with this volume, and are available at the Contractor’s expense from: Standards South Africa.

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The following portions of the *SANS 1200 Standardized Specification for Civil Engineering Construction* shall apply to this Contract. A copy of SANS 1200 and the related SANS 0120 code of practice, which applies equally, shall be kept on Site.

SANS 1200 AA	1986	General (small works)
SANS 1200 AB	1986	Engineer’s Office
SANS 1200 C	1980(amended 1990)	Site clearance
SANS 1200 D		Earthworks
SANS 1200 DA	1988(amended 1990)	Earthworks (small works)

SANS 1200 DB	1989	Earthworks (pipe trenches)
SANS 1200 DK	1996	Gabions and pitching
SANS 1200 G	1982	Concrete (Structural)
SANS 1200 H	1990	Structural steelwork
SANS 1200 HC	1988	Corrosion protection of structural steelwork
SANS 1200 L	1983	Medium-pressure pipelines
SANS 1200 LB	1983	Bedding (pipes)
SANS 1200 LC	1981	Cable Ducts
SANS 1200 LD		Sewers
SANS 1200 LE		Storm-water drainage
SANS 1200 M		Earthworks (roads, subgrade)
SANS 1200 ME		Subbase

1.2 Additional SANS Codes

The following codes published by SANS shall form part of the specifications

SANS 10242-1		The wiring of premises Part 1: Low-voltage installations.
SANS 1011		The installation of polyethylene and poly (vinyl chloride) (PVC-U) and PVC-M) pipes 10112:2003
SANS 10400		The application of the National Building Regulations
SANS 2001-BE1	2008	Earthworks (general)
SANS 2001-CG1	2007	Installation of Glazing in Window and Door Frames
SANS 2001-CM1	2007	Masonry Walling
SANS 2001-EM1	2007	Cement Plaster
SANS 2001-CT2	2009	Structural timberwork (roofing)

The following SANS specifications are also referred to in this document and the Contractor is advised to obtain them from Standards South Africa (a division of SANS) in Pretoria.

SANS 10396	2003	Implementing Preferential Construction Procurement Policies using Targeted Procurement Procedures
SANS 1914-1 to 6	2002	Targeted Construction Procurement
SANS 1921 – 1 to 6	2004	Construction and Management Requirements for Works Contracts Part 1: General Engineering and Construction Works Part 2: Accommodation of traffic on public roads occupied by the contractor Part 5: Earthworks activities which are to be performed by hand Part 6: HIV/AIDS Awareness
SANS 10299-0, 5&6	2003	Development, maintenance and management of groundwater resources. Part 0: Glossary of Terms

Part 5: The design, selection and performance of pumping equipment for production boreholes.

Part 6: The installation and commissioning of pumping equipment for production boreholes.

1.3 Variations and Additions to the Standard Specifications

The variations and additions to the Standard Specification that apply to the Project are covered in Section 2: Variations and additions.

Should any requirement of the Variations and Additions conflict with any requirement of the Standard Specification, the requirements of the Variations and Addition shall prevail.

1.4 Particular Project Specifications

Particular project specifications are supplementary specifications that are not covered by the standard specifications. The following Particular Project Specifications, also covered in section 2, shall apply.

PSPS: PUMP AND FILTER STATION

1.5 Equivalency of Codes and Standards

Wherever reference is made in the Contract to specific codes and standards to be met by the materials, plant, and other supplies to be furnished, and work performed or tested, the provisions of the latest current edition or revision of the relevant codes and standards in effect shall apply, unless otherwise expressly stated in the Contract.

The Contractor's attention is drawn to the fact that a publication from Standards South Africa, due to an ongoing internal conversion process at Standards South Africa, may be published under two different reference title numbers. Such two different reference title numbers refer to the same publication, e.g. SABS 1200 and SANS 1200. Such reference title numbers shall be deemed equivalent in accordance with the published equivalence stipulations from Standards South Africa.

2. Variations and Additions

Variations and additions to the SANS 1200 codes as well as particular specification of work not covered by SANS 1200 are detailed in the following sections.

Contents		
Convention for variations and additions to the standard specifications.		C 74
Variation and additions to the standard specifications		C 75
PSAA	GENERAL (SANS 1200 AA)	C 75
PSD	EARTHWORKS (SANS 1200 D)	C 77
PSDB	EARTHWORKS (PIPE TRENCHES) (SANS 1200 DB - 1989)	C 78
PSL	MEDIUM PRESSURE PIPELINES (SANS 1200 L)	C 81
PSPS:	PUMP AND FILTER STATION	C 88

Convention for variations and additions to the standard specifications.

In this section, the number of each clause and each payment item that is an amendment to the Standard Specifications, consists of the prefix 'PS' followed by a number corresponding to the number of the relevant clause or payment item in the Standard Specifications.

The number of a new or additional clause or payment item that does not form part of a clause or a payment item in the Standard Specifications, and which is included here, is also prefixed by 'PS' followed by a new number. The new numbers follow on the last clause or item number used in the relevant section of the Standard Specifications.

Particular specifications (i.e. items not falling under SANS 1200) are prefixed by 'PS' followed by a unique number.

Variation and additions to the standard specifications

PSAA GENERAL (SANS 1200 AA)

PSAA 3 MATERIALS

PSAA 3.1 Quality and samples

Add the following to this sub clause:

“All material delivered to the Site shall bear the official standardisation mark, where applicable.”

PSAA 5 CONSTRUCTION

PSAA 5.2 Protection of underground services

Add the following to this sub clause:

“The Employer takes no responsibility for the underground services that may be encountered.

All cables and pipes shall be considered ‘live’ unless confirmed otherwise by the relevant service authority.

Should the Contractor damage an existing service, the Contractor shall notify the Engineer immediately, who will investigate the matter and determine liability for the damage. The Contractor will be liable for prosecution for wilful or negligent damage to services.

Payment for accommodation of services will not be made where no physical accommodation is provided or required, such as in temporary exposure of services during exploratory excavation.”

PSAA 5.3 Dealing with water on works

Add the following to this sub clause:

“The Contractor shall provide pumping equipment, pipes and other equipment as necessary.”

Add the following new sub clause:

“PSAA 5.6 Sanitary facilities

The Contractor shall provide, maintain and finally remove from site adequate sanitary facilities. The sanitary facilities shall be properly ventilated and clean at all times. The use of the sanitary facilities shall be strictly enforced.”

PSAA 7 TESTING

PSAA 7.1 Principles

Add the following new sub clause:

“PSAA 7.1.3 Cost of testing

The cost of all testing to be carried out by the Contractor in terms of the requirements of the relevant SANS 1200 standards, shall be included in the rates for the various work items listed in the Bill of Quantities. No separate payments shall be made in this regard.

The Engineer may order the Contractor to arrange special check tests to be carried out by an approved independent laboratory. The cost of special check tests ordered by the Engineer shall be borne by the Employer if the test results indicate compliance with the specification and by the Contractor if the results indicate non-compliance with the specification.”

PSAA 8 MEASUREMENT AND PAYMENT

PSAA 8.2 PAYMENT

PSAA 8.2.1 Time Related Items

Replace this sub clause with the following:

“The unit for all time related items will be months. Payment for time-related items will be affected only after payment for the relevant fixed-charge item has been made, unless no fixed-charge item exists. Payments will be made monthly as per the tendered rates. However no payment will be made after the contractual period has elapsed unless an extension of time has been approved.”

PSAA 8.2 SCHEDULED FIXED-CHARGE AND VALUE RELATED ITEMS

PSAA 8.3.3 General responsibilities and other fixed charge obligations

Add the following sub clause

“PSAA 8.3.3 (a) Complying with Health and Safety RegulationsUnit: Sum

The sum shall cover the fixed charged cost incurred by the Contractor to comply with the Health and Safety specifications set by the client. This will include the compilation of all documents, doing assessments, risk analysis etc. as specified.”

PSAA 8.4.3 General responsibilities and other time-related obligations

Add the following sub clauses:

“PSAA 8.3.3(a) Complying with Health and Safety RegulationsUnit: month

The sum shall cover all time related cost incurred by the Contractor to comply with the Health and Safety specifications set by the client. This will include monitoring of the Health and Safety plan, regular safety meetings etc.”

PSD EARTHWORKS (SANS 1200 D)

PSD 5 CONSTRUCTION

PSD 5.1.1.1 Barricading and lighting

Add the following to this sub clause:

“Should the Contractor fail to provide adequate lighting, signing and barricading, or leave the Site in a dangerous condition, the Engineer shall be entitled to suspend all work in progress by the Contractor, until in the Engineer’s opinion, the Contractor’s obligation in these respects has been fulfilled; and/or arrange for any emergency work to be carried out by some other agency and to deduct the cost of this work from any monies due to the Contractor.”

PSD 5.1.1.2 Safeguarding of excavations

Add the following to this sub clause:

(g) Loose ground, materials, tools and appliances shall be kept clear of the edge of the excavations and a pathway at least 0.3 m shall be left clear along the edge of the excavation.

The cost of safeguarding of excavations shall be included in the rates for trench excavation.”

PSD 5.1.4.3 Excavated material not to endanger or interfere

Add the following to this sub clause:

“A safe, clear path shall be kept open at all times for pedestrians. Equipment, materials and waste shall be stored, stockpiled or removed in such a manner that pedestrians are not endangered and that the nuisance level is kept to a minimum. If construction activities occupy the whole footway and verge area so that pedestrians are forced to walk in the traffic lane, adequate protection from traffic shall be provided.

Where instructed by the Engineer or where the works impose a danger to traffic or pedestrians, the Contractor shall remove from Site, excavated material to temporary stockpiles and then return to Site, the excavated material for use as backfill or bedding.”

PSDB EARTHWORKS (PIPE TRENCHES) (SANS 1200 DB - 1989)

PSDB 3 MATERIALS

PSDB 3.8 Classification of material for hand excavation

Add the following new sub clause:

“PSDB 3.8 Classification of material for hand excavation

Classification of material for various types of hand excavation shall be based on the results of a dynamic cone penetrometer (DCP). The category of material shall be determined by testing the material at regular intervals and at various depths along the centre-line of the trench. A minimum of five tests shall be done at each location and the average number of blows of the tests shall be used to determine the category of material.

The interval between test locations shall be determined by the variation of material type but shall not exceed 50 m. The depth of testing shall be determined by the variation of material type and can increase or decrease in hardness with increasing depth of excavation.

Table PSDB 3.8 indicates the categories:

TABLE PSDB 3.8: CATEGORIES OF MATERIAL FOR HAND EXCAVATION

Category of material for hand excavation	Consistency		DCP blows to penetrate 100 mm	
Description	Granular	Cohesive	Granular	Cohesive
<u>Soft</u> Soft excavation shall be excavation in material that can be efficiently removed from the trench using a pick and shovel but not requiring prior breaking using mechanical equipment such as pavement breakers	Up to medium dense	Firm to stiff	0-6	1-5
<u>Intermediate</u> Intermediate excavation shall be excavation in material that requires loosening with a hand spike (gwala) before being removed from the trench	Dense	Stiff to very stiff	7-15	6-8
<u>Hard</u> Hard excavation shall be excavation in material that requires prior breaking using mechanical equipment, such as pavement breakers with clay spades, before being removed from the trench.	Very dense		16-50	-15
<u>Rock</u> Rock excavation shall be excavation in material other than described above which by nature of the material requires prior breaking using mechanical equipment, such as pavement breakers with moil points, before being removed from the trench	-		>50	>15

PSDB 5 CONSTRUCTION

PSDB 5.1.3 Accommodation of Traffic and Access to Properties

Add the following to sub clause 5.1.3 (b):

"The Contractor shall make available on Site at all times a sufficient number of steel plates at least 2,0 m x 2,0 m x 8 mm thick to be laid across open trenches to provide access to private properties. The cost of providing, placing and removing the steel plates shall be included in the rates for trench excavation."

PSDB 5.4 Excavation

Add the following to this sub clause:

"The total length of open excavation shall not exceed 150 m at any one work site without the Engineer's written approval. The Contractor will be allowed to work at two work sites at anytime."

PSDB 5.6.1 General

Add the following after the first paragraph:

"Trenches shall be backfilled level with adjacent surfaces immediately after completion of pipe laying and successful pressure testing. Should pipe laying not be completed before work is due to cease for the day, the Engineer shall be entitled to instruct the Contractor to backfill the trench and re-excavate it the following day in order to complete pipe laying. The cost of the above activity shall be included in the Contractor's rates for excavation."

PSDB 7 TESTING

Add the following new sub clause:

"PSDB 7.2 Inspection at intermediate stages of construction

The Contractor shall call for the Engineer, giving him reasonable notice, to inspect the Works at the following intermediate stages of construction:

- a. After completion of the trench excavation and preparation of the trench bottom and before any pipe is laid.
- b. After the selected backfill material has been placed around the pipe and before the remainder of the trench is backfilled.
- c. Before placing any final surfacing on roads or constructed footways.

Work shall not progress through the specified stages without the approval of the Engineer or his representative on site.

Failure to comply with the provision of this clause may result in the suspension of work for a period as determined by the Engineer. "

PSDB 8 MEASUREMENT AND PAYMENT

PSDB 8.3.1 Site clearance and removal of topsoil

Add the following sub clause:

"d) Place topsoil (150 mm thick) and compact to 90% Mod AASHTO.....Unit: m²

The rate covers the cost of excavating from stockpiles formed in terms of 8.3.1 c), hauling, and spreading 150 mm thick layer and compaction to 90% Mod AASHTO. Measurement shall be per area covered with compacted topsoil. Also included shall be water diversion humps, 150mm high, spaced at 10m, to prevent erosion of the completed trenches. "

PSDB 8.3.2 Excavation

Add the following to sub clause (a):

“The rate also covers the cost of barricading and lighting, safeguarding of excavations, accommodation of traffic and access to properties. “

PSDB 8.3.4 Particular items

Replace the heading of sub clause (a) with:

- a) Shore trench due to deep excavation.....Unit: m

PSDB 8.3.5 Existing services that intersect or adjoin a pipe trench

PSDB 8.3.5 a) Services that intersect a trench.....Unit: number

Replace ‘200 mm’ with ‘500 mm’.

PSL MEDIUM PRESSURE PIPELINES (SANS 1200 L)

PSL 3 STEEL PIPES, SPECIALS AND FITTINGS

PSL 3.4.2 Pipes of nominal bore up to 150mm

Replace this sub clause with the following:

"Steel pipes and fittings of nominal bore up to 150 mm shall be of heavy class complying with the requirements of SANS 62, flanged, shouldered or plain ended as specified. Welded steel shouldered ends shall be to SANS 815."

PSL 3.7.1 uPVC pipes

Delete existing sub clause and replace with:

"All uPVC pipes will be spigot-and-socket-ended conforming to SANS 966 Part 1, sealed with rubber rings to SANS 974. The pressure class of each pipe shall be as specified."

PSL 3.7.2 Polyethylene pipes

Delete existing sub clause and replace with:

"All HDPE pipes shall conform to SANS ISO 4427, material type PE 100. The pressure class of each pipe shall be as specified. The pipe fittings for pipes sized less than 110mm shall be the compression type specially designed for HDPE pipe (Plasson or equivalent).

All LDPE pipes shall conform dimensionally to the withdrawn standard SANS 533-1, type 1 (CID) pipe. The pipe shall have a minimum life of 5 years. The fittings shall be nylon insert fittings secured with clamps. The clamps for on-ground installations shall be the wire screw clamp, nickel coated. Below ground installations shall make use of stainless steel clamps."

PSL 3.9 Corrosion protection

PSL 3.9.2.1 Steel pipes of nominal bore up to 150 mm

Replace this sub clause with the following:

"All steel pipes and steel fittings shall be hot dipped galvanised to SANS 121:2011."

PSL 3.9.2.2 Steel pipes of nominal bore over 150 mm

Replace this sub clause with the following:

"All steel pipes and steel fittings shall be hot dipped galvanised to SANS 121:2011."

PSL 3.9.3 Protection against electrolytic corrosion

Replace this sub clause with the following:

"All steel piping and steel fittings installed below ground, in addition to being hot dipped galvanised as in clause PSL 3.9.2.1, shall be fully wrapped with approved protective tape. Protective tape shall comply with the following specification.

Protective Tape

This tape shall be made up of a non-woven synthetic fibre carrier impregnated and coated both sides with a compound incorporating high melting point bitumen (Densotherm or equivalent). During application the tape shall be correctly heated and laps adequately sealed all in accordance with the instructions and recommendations of the supplier.

Before the application of any protective material, the surface of the pipe shall be thoroughly cleaned and all loose or damaged pipe coating removed. All ridges, depressions and steps in the surface shall be filled with an approved filler so as to present a smooth uniform surface.

After the filler has hardened, the entire surface to be wrapped shall be primed with a primer or otherwise treated as recommended by the supplier of the tape.

The protective tape shall be applied as a spiral wrap with not less than 55% overlap. The width of the tape shall be appropriate for the section to be wrapped.

The protective wrapping shall be carried over the pipe coating to the extent that the double protective layer formed by the 55% overlap covers not less than 100 mm of the pipe coating.”

PSL 3.10 Valves

Delete the existing sub clause and replace with:

“All valves for installation shall be clockwise closing.

This specification does not necessarily cover every detail of the valves and hydrants to be supplied under the Infrastructure Works and the type or design of any detail not specifically mentioned is left to the discretion of the Contractor, provided that the complete equipment supplied complies with the specification.

Where possible, all valves and hydrants shall comply with the latest SANS specifications.

PSL 3.10.1 Gate Valves

The valves equal to or smaller than 350 mm nominal diameter shall be resilient seal gate valves. The valve bodies, covers, glands and cap tops shall be Spheroidal Graphite cast iron (SG iron).

Valves shall be in accordance with SANS 664: 1989 and bear the SANS mark. Valves shall be drop-tight at all pressures up to working pressure. The seal shall remain drop-tight in the possible event of particles up to a maximum diameter of 2 mm being trapped between the gate and body.

The body shall be flanged at both ends to the specified table and sufficient clearance shall be allowed between the body and the flange to allow the flange bolts to be tightened (refer SAE wrench clearance). A flow direction arrow shall be cast on the body of the valve.

The valves shall be provided with a straight, unobstructed body passage without any pocket and the gate shall be completely clear of the waterway in the fully open position. The sealing and gate guide areas shall be designed to eliminate deposits in the valve body. The gate guides shall be of substantial design to support the gate until the point of closure.

The valve spindle shall be forged from high tensile stainless steel in accordance with BS 970 Gr 431 S29 and shall be of the non-rising type, with facilities to replace the spindle seal (gland packing) under pressure. The spindle seals shall be housed in a corrosion resistant plastic bush.

The operating effort required to operate the valves against 16 bar shall be such that they can be easily operated by one man under all operating conditions.

PSL 3.10.2 Ball Valves

Ball valves shall be the “full bore” type and be in accordance with SANS 1056 part two or part three.

PSL 3.10.3 Butterfly Valves

Butterfly valves shall be of the wafer pattern to be installed between two flanges .The valves shall be fitted with a gearbox with a stainless steel shaft.

PSL 3.10.4 Pressure control valves

Pressure reducing function: The valve shall maintain a pre-set pressure on the downstream side of the valve, providing that the upstream pressure is greater than the pre-set pressure. The valve shall maintain the pre-set pressure in varying flow and pressure conditions.

Pressure sustaining function: The valve shall maintain a minimum pre-set pressure on the upstream side of the valve. Should the upstream pressure exceed the pre-set pressure, the valve shall open completely. The valve shall maintain the minimum pre-set pressure in varying flow and pressure conditions.

Main valve: The main valve shall be a single or double chamber type, manufactured from epoxy coated cast iron or brass. All valve components shall be accessible and serviceable without removing the valve from the pipeline.

Control system: The control system shall consist of a three-way adjustable pilot valve, a three-way cock and all the necessary tubing.

Orifice plate: To be installed in the pressure reducing function, where the pressure ratio required (ratio of upstream pressure to required downstream pressure) exceeds the maximum allowable (usually 3:1). The orifice plates shall be manufactured from steel plate and made to be sandwiched between two flanges. The orifice hole shall be sized to enable the required pressure loss at the given flow rate.

PSL 3.10.5 Air valves

Air valves must operate both ways as specified and when applicable, shall be manufactured to the same standards of quality and finish laid down in SANS 664 for gate valves. Sizes less than 80 mm must, in accordance with SANS 62-1971, have screwed inlets, and larger sizes shall be flanged in accordance with SANS 1123. Built-in isolating valves are not required.

All material must resist corrosion or be coated with a protective layer which is highly resistant to corrosion, such as an epoxy coating of excellent quality. Floats must not lose their shape or leak and shall be able to resist wear as to ensure long life.

Air valves must withstand twice the maximum rated working pressure and ensure a positive drop-tight seal from a minimum pressure of 16 kPa to the maximum working pressure.

The large orifice diameter shall be the same as the nominal diameter of the valve. The small opening must function through the whole range of pressures up to the rated pressure.

PSL 3.10.6 Water meter

PSL 3.10.6.12 Electromagnetic type:

The meter type uses electromagnetic properties rather than mechanical means to measure. The meter will consist of a sensor tube and a remotely wall mounted convertor (display unit).

The sensor tube shall be flanged and lined with a non-corrosive liner. The unit can be battery or mains electricity powered, with a battery life of not less than 12 years. The meter shall be able to measure water flow bi-directionally. The display on the convertor shall show the total flow, the current flow rate and status indication for the battery. The convertor must be earthed as per manufacturers' specification. The protection class shall be IP 68. The signal cable shall be obtained from the supplier of the water meter. The accuracy of the meter must be $\pm 0.3\%$ MV ± 0.5 mm/s, or better.

The size of meter, power supply and length of cable from the sensor tube to the convertor shall be quoted in the Bill.

PSL 3.10.6.2 Turbine flow meter:

The flow meter shall be the Woltmann type. The body shall be made of cast iron, flanged and drilled to the specified pressure class. The rotor shall be plastic with removable measurement element. The body shall be powder coated. The flow meter shall be constructed such that a pulser can be fitted without breaking the seal.

PSL 5 CONSTRUCTION

PSL 5.1 Laying

PSL 5.1.4 Depth and cover

Add the following to this sub clause:

“5.1.4.6: The minimum cover to finished surface over any buried pipeline shall be 0.8 m. Where a two pipes share a common trench, the minimum cover shall be 0.8m for the uppermost pipe.”

PSL 5.8 Brickwork in chambers and manholes

Add the following to this sub clause:

“The joints of exposed faces shall be flush-trowelled, hard and smooth and shall be rubbed for the full width of the joint as the work proceeds to give a hard polished finish.”

Add the following sub clauses:

SL 8 MEASUREMENT AND PAYMENT

PSL 8.2 Scheduled items

Replace the payment item 8.2.1 and associated sub clause with the following:

“PSL 8.2.1 Lay and Bed Pipes Complete with Couplings.....Unit: m

Pipelines will be measured by length over all lengths laid. No deductions will be made for specials and valves. Separate items will be scheduled for each diameter and each type and class of pipe laid. The rates shall cover the costs of the handling, inspecting, transporting, bedding, laying, jointing, cutting, testing and, when relevant, disinfecting of the pipes and the joints.”

Replace the payment item 8.2.21 with the following:

“PSL 8.2.2 Extra over PSL 8.2.1 for the Laying and Bedding of Specials....Unit: number”

PSL 8.2.11 Anchor/Thrust blocks and pedestals (including materials)Unit: m³

Delete the existing sub clause and replace with the following:

“Rate includes the excavation, material, shuttering and placing of class 20/19 concrete as indicated on the drawing. Measurement shall be the volume of concrete indicated on the drawings.”

Add the following sub clauses:

PSL 8.2.16 Trench, lay, bed and backfill pipes complete with couplingsUnit: metre

The measurement and payment for excavation and backfilling is dealt with in SANS 1200 DB, for laying and bedding in SANS 1200 L and bedding in SANS 1200 LB. This payment item combines all theses operation required to install a buried pipe and is presented as an alternative method of measurement. The supply of the pipe is excluded.

Pipelines will be measured by length over all lengths laid. No deductions will be made for specials and valves. Separate items will be scheduled for each diameter and each type and

class of pipe laid The rates shall cover the costs of the handling, inspecting, transporting, bedding, laying, jointing, cutting, testing and, when relevant, disinfecting of the pipes and the joints."

This item is intended to mainly to deal with in-field piping, where unfavourable trenching conditions are not likely to occur and where soil preparation activities may take place over the buried piping.

PSL 8.2.17 Pipeline markers (including material)Unit: number

The unit of measurement will be the number of markers manufactured and erected. The rate shall include materials, manufacturing, delivery, painting and erection of each unit. The pipeline marker shall be as indicated on the drawings. The markers shall be erected 300 mm off the edge of the pipe trench to the left of the trench and at right angles to the trench centre. Markers shall be installed at all horizontal changes of direction, at both sides of all road and river crossings, at valve chambers and at intervals as agreed with the Engineer (general rule that the previous and next pipe marker shall be visible from any position on the pipe).

PSL 8.2.18 Block valve cluster:Unit: number

The rate shall include the assembly and installation of manifold take-offs, similar to those indicated on the drawing, including the connection to the main line and manifold. The size and type of valve shall be specified.

PSL 8.2.19 Lateral Take-offUnit: number

The rate shall include the assembly and installation of lateral take-offs, similar to those indicated on the drawings, including the connection to the manifold line. It shall be indicated whether there is pressure regulation or not.

PSL 8.2.20 Micro jet lateral pipesUnit: metre

The rate shall include the laying and installation of above ground LDPE pipes, including the installation of couplings, reducers, end caps and clamps and connection to the lateral take-off.

PSL 8.2.21 Micro jet unitUnit: number

The rate shall include the assembly and installation of the micro jet units. Each unit shall consist of the following items, all assembled: Micro jet body with spreader or spinner, nozzle, length of suitable tubing, barbed adaptor and plastic peg. The barbed connector shall be inserted into the crown of the pipe through a hole made by a suitable punch. The plastic peg shall be inserted vertically in the ground and deep enough to support the peg firmly.

PSL 8.2.22 Drip lateral pipesUnit: metre

The rate shall include the laying and installation of above ground LDPE dripper pipes with integral drippers, including the installation of all couplings, reducers, end caps and clamps and including connection to the manifold take-off. The diameter of the dripper line shall be specified.

PSL 8.2.23 Quick coupling hydrant.....Unit: number

The rate shall include the assembly and installation of hydrants, similar to those indicated on the drawings, including the connection to the main line. The size of the hydrant shall be specified.

PSL 8.2.24 Hydrant bend.....Unit: number

The rate shall include the assembly and installation of a hydrant bend and quick coupling adaptor, similar to those indicated on the drawings. The size of the hydrant bend shall be specified.

PSL 8.2.25 Above ground manifold / steel quick coupling pipe.....Unit: m

Pipelines will be measured by length over all lengths as laid. No deductions will be made for specials or valves. Separate rates will be scheduled for each diameter and each type. The rate shall cover the cost of the provision of the pipe, and the costs of handling, inspecting, transporting, laying, jointing, cutting and testing of the pipes and joints. The pipe is laid on the soil surface and bedding is thus not applicable. The type, size and diameter of the pipe shall be specified.

In the case of HDPE pipe, the pipe will be cut into suitable lengths (approximately 12m) and jointed, The installation cost of this operation shall be included.

PSL 8.2.26 Dragline unit.....Unit: number

The rate shall include the assembly and installation of a dragline unit, similar to that indicated on the drawings.

PSL 8.2.27 Self closing valve assembly.....Unit: number

The rate shall include the assembly and installation of a self closing valve unit, similar to that indicated on the drawings. The drilling of the hole on the pipe shall be included.

PSL 8.2.28 Fixed sprinkler on quick coupling pipe.....Unit: number

The rate shall include the assembly and installation of a fixed sprinkler on quick coupling pipe, similar to that indicated on drawings. The drilling of the hole on the pipe shall be included.

PSL 8.2.29 Removable riser assembly

The rate shall include the assembly and installation of a removable riser assembly, similar to that indicated on drawings.

PSL 8.2.30 Block air relief valve.....Unit: number

The rate shall include the assembly and installation of an air valve on selected block valve clusters. The air valve shall be 25mm plastic body automatic air release anti vacuum. The valve shall be mounted in conjunction with a 25mm full bore ball valve and 25mm galvanised nipple.

PSL 8.2.31 Centre pivot installation

All actions necessary to do a complete installation of a centre pivot machine shall be included in this section.

PSL 8.2.31.1 Centre pivot centre (non tow).....Unit: number

The rate shall include the installation of the centre pivot centre and connection to the supply line. All labour and equipment shall be included. The installation of the main control panel shall be included. The centre point shall be installed according to the supplier's specifications. The supply of materials for the concrete work shall be included in the price, but all other equipment excluded. The size of the centre shall be specified.

PSL 8.2.32.2 Centre pivot tower.....Unit: number

The rate shall include the assembly and installation of a complete centre pivot tower and connection to the previous tower or the centre. The installation of electrical cable and control system shall be included, as well as the sprinkler package. The total length and diameter of the tower pipe shall be specified.

PSL 8.2.33.3 Centre pivot overhang.....Unit: number

The rate shall include the assembly and installation of a complete centre pivot overhang and connection to the previous tower. All labour and equipment shall be included. The installation of

electrical cable and control system shall be included, as well as the sprinkler package. The total length and diameter of the overhang shall be specified.

PSL 8.2.34.4 Laying of electrical cable to the centre pivot –in pipe trench.....Unit: metre

The rate shall include the laying of the main armoured electrical supply cable from the power source to the pivot centre. The cost for trenching and backfilling shall be included as part of the pipe laying action. The cable will be laid in the trench at a level between the invert and the crown of the pipe, to the one side of the trench. The cable size shall be indicated.

PSL 8.2.35.5 Step up and step down transformer (pair).....Unit: number

Due to the high cost of electric cable, savings can be realised by installing a step up transformer at the power source and a step down transformer at the pivot centre. The rate shall include the cost of installing both transformers as well as the cost of installation of the connection to the power source and the pivot. The measurement shall be the number of transformer pairs.

PSL 8.2.31 Floppy sprinkler overhead installation

8.2.31.1 Poles.....Unit: number

The rate shall include the installation of the wooden poles on which the cable system is suspended. The diameter and length of the poles shall be specified. The depth of pole in the ground shall be approximately 900 mm.

8.2.31.2 Cable.....Unit: metre

The rate shall include the installation of the overhead cables (excluding the anchors) on the poles. The diameter of the cable shall be specified.

8.2.31.3 Anchors (including materials).....Unit: number

The rate shall include the supply and installation of the anchors. The anchor shall consist of a concrete block, with an eye made of 12mm mild steel rod cast into it. The dimensions shall be approximately 500mm x 500mm x 500mm. The anchor shall be placed 1 meter deep. Also included in this rate is the tensioning of the cable.

8.2.31.4 LDPE piping.....Unit: metre

The rate shall include the installation of the LDPE piping along the cable and connection to the manifold. The installation of all fittings is included. The LDPE piping shall have a pressure rating of 4 bar and an effective life of not less than eight years.

8.2.31.5 Floppy sprinkler.....unit: number

The rate shall include the installation of the Floppy sprinkler unit along the LDPE piping. The installation of all associated fittings is included.

PSPS: PUMP AND FILTER STATION**PSPS 1 SPECIFICATION****PSPS 1.1 CIVIL WORKS****PSPS 1.1.1 GENERAL**

The following standard specifications shall apply:

- SANS 1200 G: Concrete (structural)
- SANS 2001-CM1: Masonry walling
- SANS 10400: The application of the National Building Regulations

PSPS 1.1.2 MASONRY**PSPS 1.1.2.1: Brick Walls**

The brick walls shall be a 220 mm thick superstructure wall. The bricks shall be clay face / semi-face bricks to SANS 227, code E, with a minimum strength of 15 MPa. The bond shall be English or Stretcher bond. The bricks shall be placed in class 1 mortar. All jointing shall be concave or vee pointed by recessing the mortar a minimum of 5 mm. All brickwork shall be cleaned of any excess mortar by wire brush and acid wash cleaning as required.

Portion of air bricks shall have a similar specification to, and be laid according to the above. All air brick masonry shall be covered on the inside with expanded sheeting "Mentex", having maximum 8 x 10 mm openings and 2 mm wide x 1 mm thick strands. The sheeting must be secured with 6 mm x 55mm rawl bolts at corners and maximum spacing of 500 mm.

PSPS 1.1.2.2: Brick Reinforcement

Brick reinforcement (brick-force), 150mm wide, shall be installed every third brick layer.

PSPS 1.1.2.3: Lintels

Concrete lintels shall be installed above all doors and windows. The exception to this is where the opening is directly below the concrete roof.

PSPS 1.1.3 Waterproofing**PSPS 1.1.3.1: Damp-proof course for walls**

No wall shall be constructed without the appropriate damp-proof course. This shall consist of 375 µm (micron) thick damp-proof course with a width of 220 mm in walls.

PSPS 1.1.3.2: Water-proof sheeting under surface beds

Green waterproof sheeting, 250 µm (micron) thick USB (under surface bed), shall be installed under all surface beds.

PSPS 1.1.4: Metal work**PSPS 1.1.4.1: Door**

The door shall consist of a purpose made double steel door frame and double door complete with locking device, built into the wall as indicated on the drawings. All handles, bolts and locks must be included. The door shall make allowance for the crawl beam. The door and frame shall be manufactures from 1.6 mm mild steel. The hinges shall be 100mm heavy duty. The door without the pull handle shall be fitted with lockable bolts, both top and bottom. The rate shall include the supply of two padlocks with a common key. The door and frame shall be painted after installation as follows: 2 x coats of universal undercoat and 2 x coats of white enamel.

PSPS 1.1.4.2: Crawl Beam

A crawl beam shall be installed, as indicated on the drawings. The crawl beam shall be hot dipped galvanised.

An external support for the crawl beam shall be installed if required. Details are as indicated on the drawings. The support for the crawl beam shall be hot dipped galvanised.

A chain block and tackle, suitable for the installed crawl beam shall be supplied and installed. The apparatus shall have a working rating of 1000 kg.

PSPS 1.1.5: Joints

The slip joint between the wall and roof slab shall consist of two layers of three ply malthoid, laid horizontally on a mortar bed on top of the brickwork to form a slip joint between the tops of the walls and underside of the roof slab.

The floor and plinth joint shall consist of two parts grey polysulphide sealant together with 13mm wide x 200 mm deep bituminous impregnated soft board. The polysulphide sealant shall have dimensions of 10 mm wide x 10 mm deep.

PSPS 1.2 MECHANICAL WORKS

PSPS 1.2.1 PUMP SPECIFICATION

The pump shall be an end suction centrifugal type. Where possible, the pump and motor shall be close coupled to form an integral unit. Where this is not possible or desirable, the pump and motor shall be mounted on a steel galvanised base plate, coupled with a flexible coupling and equipped with a coupling guard. The pump set shall be capable of operating for 24 hours per day on a continuous basis.

The pump body shall be manufactured from cast iron, epoxy coated. The shaft shall be manufactured from stainless steel. The impeller shall be manufactured from cast iron or bronze.

Full technical details of the pumps and motors selected are to be supplied with tender including pump performance curves.

PSPS 1.2.2 ELECTRIC MOTOR

The electric motor shall be totally enclosed fan cooled to IP 55, with cast iron frame.

The installed power of the motor should exceed the calculated absorbed power by the following margins:

40 %	for pumps requiring up to	5	kW
30%	for pumps requiring from	5 to 10	kW
20%	for pumps requiring from	10 to 30	kW
15%	for pumps requiring from	30 to 100	kW
10%	for pumps requiring over	100	kW

A motor which is non-overloading is also deemed acceptable. I.e. the power absorbed by the pump at the extreme end of the performance curve does not exceed the motor rating.

PSPS 1.2.3 DISCHARGE AND SUCTION FITTINGS

Discharge assembly delivery including all pipe work in galvanized steel, flow meters and non-return and isolating valves, shall be provided as shown on drawing 16933RW-104.

- All discharge fittings, valves and meters to have a minimum pressure rating of 1000 kPa.
- Steel piping up to 150mm ND to conform to SANS 62-1, heavy duty and be hot dipped galvanised.
- Steel piping above 150mm ND to conform to SANS 719 with minimum wall thickness 4.5mm and be hot dipped galvanised.
- All screwed pieces and pipe fittings to conform to SANS 62-2.
- Flanges: All flanges shall conform to Table D, except at the pump flanges.
- All manufactured fittings shall be hot dipped galvanised according to SANS ISO 1461.
- Bolts and Nuts: Bolts and nuts shall be hexagon head type complying with SANS 1700, metric threads. They shall be hot dipped galvanized according to SANS ISO 1461.
- All below ground galvanised steel pipes and fittings shall be wrapped as specified in PSL 3.9.3.

PSPS 1.2.4 PUMP INLET PIPING

The fittings leading into the pump suction shall be an eccentric reducer followed by a straight piece of pipe of the same nominal diameter (ND) as the pump suction. The configuration is indicated on the drawings. The lengths shall be as follows:

- Eccentric reducer: Length = $4 \times (D1 - D2)$
- Straight pipe: Length = $2 \times D2$

where $D1$ =ND of pump suction and $D2$ =ND of pump inlet.

PSPS1.2.5: PRESSURE GAUGE

The pressure gauge shall be glycerine filled and designed for heavy duty applications. The gauge shall comply with SANS 1062. Dial size shall be 63 mm and the connection shall be 1/4" NPT. The scale shall be 12 bar, with an accuracy of $\pm 1, 6\%$ of full scale dial. The case shall be made of stainless steel 304 and the window shall be of extruded acrylic sheet.

A vacuum gauge shall be placed on the suction line where a non-flooded suction scenario exists. This shall be capable of reading pressure below atmospheric. The scale shall be 0 to -1 bar.

PSPS 1.2.6: IDENTIFICATION PLATE

A metal identification plate shall be attached to the outside of the control panel giving information on each pump: pump make and model, serial no, speed (rpm), delivery (m³/hr) and head (kPa).

PSPS 1.2.7 FILTRATION

PSPS 1.2.7.1 DISC FILTER

The filter shall be equipped with plastic filtering discs made from polypropylene or another suitable material, grooved both sides. The filter body shall be constructed of mild steel, epoxy coated of hot dipped galvanised. Where appropriate, filters with plastic bodies may be utilised. As per SABI norms, the maximum clean water loss over a disc filter shall be 10 kPa.

PSPS 1.2.7.2 SAND FILTER

Sand filters are primarily used for drip irrigation. The filter medium shall be suitably graded silica sand to provide a filtering fineness equivalent to 80µm micron. The filter body shall be constructed of mild steel, epoxy coated or hot dipped galvanised. When utilised for drip irrigation, each sand filter must be followed by a mesh or disc filter with 200 micron filtering capacity. As per SABI norms, the maximum clean water loss over a sand filter is 10 kPa, with a maximum flow rate of 50 m³/hr/m² of filter area.

PSPS 1.2.7.3 FILTER BANK

Filter banks shall be consisting of individual filters on a common inlet and outlet manifold. The number of individual filters on a bank should not be less than three, unless otherwise motivated. The material of construction of the manifolds shall be mild steel, hot dipped galvanised or epoxy coated. Manifolds constructed of HDPE will be acceptable. The sizing of the various components of filter banks shall be according to the prescribed norms.

As per SABI norms, the maximum clean water loss over a filter bank is 30 kPa and the maximum allowable pressure drop before backwashing is 70 kPa.

The filter bank shall be equipped with a timer panel and all the necessary hydraulic valves, solenoids and relays to enable automatic back wash of the filters. The timer panel shall have the following adjustable time settings:

- Time between back wash events
- Time for each filter to back wash.

Filters control units which flush on differential pressure are also acceptable.

Full technical details of the filter banks selected are to be supplied with tender, including friction data.

PSPS 1.3 ELECTRICAL WORKS

PSPS 1.3.1 GENERAL

As a general rule, the electrical work covers the design and installation of the following:

- Application for, or upgrading of an ESKOM transformer
- 400 V cable supply from the transformer to the pump station
- Pump control panel
- General electrical installation for pump station including lights and power outlets
- Connection of the pump motors to the control panels
- Level controls (if necessary)
- Arrangement for switching on of the power with Eskom
- Testing and commissioning of the installation.

PSPS 1.3.2 QUALIFICATION OF PERSONNEL

Due to the relatively small size of the installations covered in this contract, it is not expected that the services of an electrical engineer will be required. However, provision has been made for this service in the bill of materials and may be utilised subject to suitable motivation being provided and permission being granted by the client. It is important that electrical work at the pump station be supervised by a suitably qualified person. The person issuing the Electrical

Certificate of Compliance must be registered with the Department of Labour as an Installation Electrician or Master Installation Electrician and be registered with the Electrical Contracting Board of South Africa.

PSPS 1.3.3 ELECTRICAL CABLES

All electric cable external to the starter panel shall be 4 core PVC/SWA to SANS 1507. Where buried, the cable must have a cover of 0.8 m, with 100 mm bedding above and below the cable. The cable shall be sized in accordance with SANS 10142.

PSPS 1.3.4 ELECTRICAL CONTROL PANEL

The control panel shall be enclosed in a suitably sized, wall mounted steel cabinet, painted or galvanised, with protection rating IP 54. This shall be mounted within the pump house. The following components and features shall be included:

- Motor Starting: Usually by means of a Star/Delta starter.
- Earthing : Earth leakage protection for the board and motor.
- Contactor : Electromagnetic switch selected for a particular size of motor,
- Protection : Protect the motor against: overload, under load, phase failure, phase reversal, low / high voltage and locked rotor.
- Isolator : Isolating the circuit for maintenance or replacement of the motor, or disconnection of the pump from the system,
- Surge arrestor: Protecting the motor and control panel against surges in the supply line
- Indicator lights: Displaying status of the motor: "Run", "Stop", "Trip" and "No Flow"
- Power indicator Voltmeter on incoming power and ammeter for the pump.
- Timer: Run time display

Indicator lights

The following indicator lights shall be fitted externally on the panel door

- Pump run : Green
- Pump stop : Red
- Pump tripped: White

PSPS 1.3.5 ELECTRICAL COMPLIANCE

The Contractor shall provide an Electrical Compliance Certificate for all the electrical installations at the pump stations in terms of the Occupational Health and Safety Act (No 85 of 1993).

PSPS 1.4 COMMISSIONING AND TESTING

After the equipment has been installed on site, tests shall be carried out to prove the correct functioning of the pumps and ancillary equipment.

PSPS 1.5 MANUAL

The Contractor shall supply 4 sets of operation and maintenance manuals for the pump station. This shall include the following:

- The complete plant technical data of each item of equipment (e.g. manufacturers name

and address, type and size of unit, serial number, motor details, unit performance and duty details).

- Detailed description of the operating procedures necessary for starting up, running and shutting down the pumps. This shall include the control panel starter and any alarm and safety interlocks as identified on the control panels.
- Maintenance operations on a daily, weekly, monthly etc basis for each item of plant. The preparation of this section shall be carried out by obtaining from the manufacturer his advice and recommendations for lubrication, adjustment and routine maintenance.
- Test certificates, compliance certificate and commissioning report. Copies of the pump curves with the duty points clearly indicated.

PSPS 2 PAYMENT ITEMS

PSPS 2.1: Pump House (including all materials)Unit: number

The rate shall include the construction of the entire enclosure as shown on the drawings, including the concrete floor slab and pump plinths. The supply of materials is included in this item.

PSPS 2.2: Pump and Filter House (including all materials)Unit: number

The rate shall include the construction of the entire enclosure as shown on drawings, including the concrete floor slab and pump plinths. The supply of materials is included in this item.

PSPS 2.3: Borehole Pump Housing (including all materials)Unit: number

The rate shall include the construction of the entire enclosure as shown on drawings. This includes the steel cage and the concrete surrounds. The supply of materials is included in this item.

PSPS 2.4: Pump and motor setsUnit: number

The rate shall include the sizing, selection, assembly and installation of the pump and motor set. Measurement shall be per number of pumps with motors installed. Payment shall be made on the successful testing and commissioning of the installations and on approval by the Engineer. The coupling system shall be specified.

PSPS 2.5: Suction piping.....Unit: number

The rate shall include the assembly and installation of all piping, fittings, valves, water meters, pressure gauges, plinths and thrust blocks from the foot valve to the suction inlet of the pump as indicated on the drawings. The concrete required for the plinths and thrust blocks is included. The nominal size of the piping shall be indicated.

PSPS 2.6: Deliver piping -no filterUnit: number

The rate shall include the assembly and installation of all piping, fittings, valves, water meters, pressure gauges, plinths and thrust blocks from the connection to the fixed pump outlet up to and including the flange adaptor to connect to the rising main, as indicated on the drawings. The concrete required for the plinths and thrust blocks is included. The nominal size of the piping shall be indicated.

PSPS 2.7: Deliver piping - with filterUnit: number

The rate shall include the assembly and installation of all piping, fittings, valves, water meters, pressure gauges, plinths and thrust blocks from the connection to the fixed pump outlet up to and including the flange adaptor to connect to the rising main, as indicated on the drawings.

The concrete required for the plinths and thrust blocks is included. The nominal size of the piping shall be indicated

PSPS 2.8: Filter bank Unit: Number

The rate shall cover the assembly and installation of the filter bank, complete with inlet and outlet manifolds. Also included is the flushing manifold, with piping to convey the waste water outside of the pump station. The type, number and size of filters shall be specified. The connecting piping to the pump and rising main is covered elsewhere.

PSPS 2.9: Electrical cable

The rate shall include the installation of suitably sized 4 core armoured cable. The cable shall include the connection to the transformer, the pump starters and the pump motors. Cable mounted against the walls and roof must be installed on medium duty galvanised cable ladder. Where crossing the floor, the cable must be protected by steel wiring channels or steel conduits.

Underground cable shall be buried with a minimum cover of 0.8m. The underground installation of cable includes trenching, bedding and backfilling, with separate copper earth wire strapped to the cable at 1.5 m intervals. Cable mounted against walls must be installed on medium duty galvanised cable ladder.

PSPS 2.9.1 Underground electrical cable.....Unit: metre

PSPS 2.9.2 Above ground electrical cable.....Unit: metre

PSPS 2.10: Starter Panel and Ancillaries..... Unit: Number

The rate shall include the design, build, supply, installation and testing (in situ with the entire system) of the starter panel as specified. The identification plate as specified shall be included.

PSPS 2.11: Connection to Eskom transformer..... Unit: Sum

The rate shall include the time related costs of arranging and undertaking the Eskom connection.

PSPS 2.12: Compliance Certificate.....Unit: Number

The rate shall include the completion of an electrical compliance certificate by a suitable qualified person.

PSPS 2.13: Operation and Maintenance Manual.....Unit: Number

The rate shall cover the compilation and submission of manuals as specified.

PSPS 2.14: Commissioning and TestingUnit: Number

The cost of commissioning and testing of the pump station shall be included in rates of the relevant Payment Items.