



DEPARTMENT: PUBLIC WORKS

**Appointment of a service provider for Supply, Delivery and Installation
of 1 × 1500 KVA Generator for Saulspoort Water Treatment Work**

BID NO: PW 031/2023

BID SUBMITTED BY:

NAME OF BIDDING ENTITY :

ADDRESS :

CONTACT NUMBER :

CONTACT PERSON :

ISSUED BY:

Dihlabeng Local Municipality
No. 9 Muller Street
P.O. Box 551
BETHLEHEM
9700

Tel. No.: (058) 303 5732

Fax No.: (058) 303 4703

CLOSING DATE : 21 DECEMBER 2023 @ 12:00

BIDDER'S QUESTIONNAIRE

NO.	QUESTION	BIDDER'S RESPONSE
1	Have you initialed all the pages of the BID document?	* YES / NO
2	Have you completed and signed the Returnable Schedules?	* YES / NO
3	Have you completed/signed and submitted all relevant information as requested by the Evaluation Schedules (as and when required)?	* YES / NO
4	Have you submitted Tax Clearance reference number and tax compliance status pin?	* YES / NO
5	Have you completed and signed the MBD 4 form - Declaration of Interest?	* YES / NO
6	Have you completed the Questionnaire (MBD 5) regarding the declaration for procurement above R10 million and submitted your Company's latest three years audited financial statements (as and when required)?	* YES / NO
7	Have you taken note of the contents of part 5 of MBD 6.1 to substantiate your B-BBEE rating claims, and have you submitted an original and valid or certified copy of your Company's B-BBEE certificate to qualify for preference points?	* YES / NO
8	Have you completed and signed the following forms: - MBD 7.1 Form – Contract form for purchase of goods/works? - MBD 7.2 Form - Contract Form for rendering of Services? (as and when required)	* YES / NO
9	Have you completed and signed the MBD 8 – Declaration of bidder's past Supply Chain Management Practices and MBD 9 – Certificate of Independent Bid Determination?	* YES / NO
10	Have you completed the Form of Offer (C1.1) in WORDS as well as in FIGURES ?	* YES / NO
11	Have you completed and signed Part 2 of C 1.2 (Contract Data)?	* YES / NO
12	Have you completed the MBD 3.3 form and carried over your tendered price (Vat inclusive) to Form of offer (C 1.1)?	* YES / NO

* Delete whichever is not applicable

.....

Signature

.....

Date

.....

Position

.....

Name of Bidder

DIHLABENG LOCAL MUNICIPALITY

CONTRACT NUMBER: PW031/2023

BID DOCUMENT

**Appointment of a Service Provider for Supply, Delivery and Installation of 1 × 1500
KVA Generator for Saulspoort Water Treatment Work**

SUMMARY FOR BID OPENING PURPOSES

NAME OF BIDDING ENTITY:

PHYSICAL STREET ADDRESS	POSTAL ADDRESS

TELEPHONE NUMBER :

FAX NUMBER :

E-mail ADDRESS :

DATE :

DIHLABENG LOCAL MUNICIPALITY

CONTRACT NUMBER: 031/2023

BID DOCUMENT

Appointment of a Service Provider for Supply, Delivery and Installation of 1 × 1500 KVA Generator for Saulspoort Water Treatment Work

THE BID

PART T1 Bidding Procedures

T1.1 Bid Notice and Invitation to Bid

T1.2 Bid Data

Standard Conditions of Tender

PART T2 Returnable Documents (All documents / schedules are returnable)

T2.1 List of Returnable Documents

T2.2 Returnable Schedules (Included in T2.1)

The following documents must be completed and signed (where applicable) and submitted as a complete set.

Document		Colour of pages
Number	Heading	
T1.1	Bid Notice and Invitation to Bid	White
T1.2	Bid Data	White
	Standard Conditions of Tender	White
T2.1	List of Returnable Documents	White
T2.2	Returnable Schedules(Included in T 2.1)	White
C1.1	Form of Offer and Acceptance	White
C1.2	Contract Data	White
C2.1	Pricing Instructions	White
C2.2	Activity Schedule	White
C3	Scope of Work	White

INVITATION TO BID

DIHLABENG LOCAL MUNICIPALITY

Appointment of a Service Provider for Supply, Delivery and Installation of 1 × 1500 KVA Generator for Saulspoort Water Treatment Work

Contract number: PW031/2023

Acceptable bids will be evaluated in terms of 80/20 Points System as per 2011 Regulations of PPPFA.

Bid documents will be available as from **12H00 on 28 November 2023**, upon payment of a cash non-refundable document fee of R1000,00 per set, at the Dihlabeng Local Municipality, 9 Muller Street, Bethlehem, 9700 or it can be downloaded from municipal website. Compulsory Briefing session will be held on the 08th December 2023 at Municipal Electricity Offices, 20 Adolf de Jong Street at 10:00

Bids are to be completed in accordance with the conditions and bid rules contained in the bid documents and supporting documents must be sealed and externally endorsed **WITH THE CONTRACT NUMBER AND DESCRIPTION** and placed in bid box, on the Ground Floor, the Dihlabeng Local Municipality, 9 Muller Street, Bethlehem, 9700 not later than **12H00 on 21 December 2023**. All bids shall hold good for **90 days** as from the closing date of bids.

Enquiries must be directed to Mr. T Mokoena (Acting PMU Coordinator) on Tel: 058 303 5732/ 071 921 0478.

Bidders' attention is specifically drawn to the provisions of the bid rules and evaluation criteria which are included in the bid documents. The lowest or any bid will not necessarily be accepted and the Council reserves the right not to consider any bid not suitably endorsed or comprehensively completed, as well as the right to accept a bid in whole or part. Bids completed in pencil will be regarded as invalid bids. Bids may only be submitted on the documentation provided by the Dihlabeng Local Municipality.

The compulsory documents stated in the document must be submitted together with the Bid Document.

Bids will be opened in public as soon as possible after the closing time. The municipality reserves the right to reject any and all tenders at any time.

DIHLABENG LOCAL MUNICIPALITY TERMS OF REFERENCE

1. INTRODUCTION

Dihlabeng Local Municipality has a municipal Water Abstraction point and Water Treatment Works to fulfil its mandate of supplying water to its communities.

2. DEFINITION

The purpose of the tender is to source the services of a suitably qualified, experienced competent **Service Provider for Supply, Delivery and Installation of 1 × 1500 KVA Generator for Saulspoort Water Treatment Work**

3. DEMARCATION

Please see detailed information in tender specifications.

4. SCOPE OF WORK

Please see detailed information in tender specifications.

5. HEALTH AND SAFETY PLAN

Service providers must comply with health & safety act environmental control act for the duration of the tender as prescribed in the Occupational Health and Safety Act. The successful service provider must submit a signed off health & safety plan which include all the depots.

6. DELIVERY

Delivery of the Generators will be finalised once the appointment and the service level agreement is concluded by all relevant parties.

7. SPECIAL CONDITION

7.1 SITE ESTABLISHMENT

The successful Tenderer shall provide all the facilities required to enable him to undertake the Contract Works.

7.2 STANDARDS AND CODES OF PRACTICE

All installation work shall comply with the following Specifications, Legal Requirements and Codes of Practice:

LEGISLATION, STANDARDS AND CODES OF PRACTICE – ELECTRICAL RELATED	
NUMBER	TITLE
OHSA	Occupation Health & Safety Act (act 85 of 1993), with Regulations included
BS 1363-2	13 A plugs, socket-outlets, adaptors and connection units – Specification for 13 A switched and un-switched socket outlets
ISO 9001 – 9004	Quality Management Systems
ISO 3046-1	Part 1: Standard reference conditions, declarations of power, fuel and lubricating oil consumptions, and test methods

ISO 3046-3	Part 3: Test measurements
ISO 3046-4	Part 4: Speed governing
ISO 3046-5	Part 5: Torsional vibrations
ISO 3046-6	Part 6: Over speed protection
ISO 3046-7	Part 7: Codes for engine power
NRS 048-4	Quality of supply
NRS 0424-1	Diesel alternator set Part1: Diesel alternator sets for fixed installations-Preferred requirements for application their organization's by the DC and standby equipment representative user group.
SANS 10086-1	The installation, inspection and maintenance of equipment used in explosives atmospheres Part 1: Installations including surface installations on mines.
SANS 204	Energy efficiency in buildings
SANS 10108	The classification of hazardous locations and the selection of apparatus for use in such locations.
SANS 1012	Electric light dimmers
SANS 10142-1	The wiring of premises. Part 1: Low-voltage installations
SANS 1019	Standard voltages, currents and insulation levels for electricity supply
SANS 10198-1-14	The selection, handling and installation of electric power cables of rating not exceeding 11 kV. Parts 1 to 13
SANS 10199	The design and installation of earth electrodes
SANS 1029	Miniature substations
SANS 10292 (SABS 0292)	Earthing of low-voltage (LV) distribution systems.
SANS 10313	The protection of structures against lightning
SANS 1063	Earth rods, couplers and connections
SANS 1065-1 & 2	Metal conduits and fittings (screwed-end
SANS 1085	Wall outlet boxes for the enclosure of electrical accessories
SANS 1195	Bus bars.
SANS 10114-1	Interior lighting Part 1: Artificial lighting of interiors
SANS 10114-2	Interior lighting Part 2: Emergency lighting
SANS 1213	Mechanical cable glands
SANS 1239	Plugs, socket-outlets and couplers for industrial purposes
SANS 1339	Electric cables – Cross-linked polyethylene (XLPE) insulated cables for voltages 3,8/6,6 kV to 19/33 kV
SANS 1411-1	Materials of insulated electric cables and flexible cords – Part 1: Conductors
SANS 1418-1	Aerial bundled conductor systems – Part 1: Cores.
SANS 1433-1	Electrical terminals and connectors – Part 1: Terminal blocks having screw and screw less terminals.
SANS 1433-2	Electrical terminals and connectors – Part 2: Flat push-on connectors.
SANS 1473-1	Low-voltage switchgear and control gear assemblies – Part 1: Type-tested, partially type-tested and specially tested assemblies with a rated short-circuit withstand strength above 10 kea
SANS 1507-1 Parts 1-6	Electric cables with extruded solid dielectric insulation for fixed installations (300/500 V to 1 900/3 300 V)
SANS 156	Molded-case circuit-breakers
SANS 1574-3	Electric flexible cores, cords and cables with solid extruded dielectric insulation – Part 3: PVC-insulated cores and cables.

SANS 1574-5	Electric flexible cores, cords and cables with solid extruded dielectric insulation – Part 5: Rubber-insulated cores and cables.
SANS 1632-1	Batteries Part 1: General information-Definitions, abbreviations and symbols
SANS 164-0 parts 1 - 6	Plug and socket-outlet systems for household and similar purposes for use in South Africa
SANS 1665	Metal-clad switchgear for rated a.c. voltages above 1 kV and up to and including 36 kV – General requirements and methods of test
SANS 1765	Low-voltage switchgear and control gear assemblies (distribution boards) with a rated short-circuit withstand strength up to and including 10 kA
SANS 1777	Photoelectric control units for lighting (PECUs)
SANS 1799	Watt-hour meters – AC electronic meters for active energy
SANS 1874	Metal-enclosed ring main units for rated a.c. voltages above 1 kV and up to and including 24 kV.
SANS 1973-1	Part 1 Type tested Assemblies with Stated deviations and a rated short circuit withstand strength over 10kA
SANS 1973-3	Low-voltage switchgear and control gear ASSEMBLIES – Part 3: Safety of ASSEMBLIES with a rated prospective short circuit current of up to and including 10 kA
SANS 1973-8	Low-voltage switchgear and control gear ASSEMBLIES – Part 8: Safety of minimally tested ASSEMBLIES (MTA) with a rated short-circuit current above 10 kA and a rated bus bar current of up to and including 1 600 A a.c. and d.c
SANS 337	Stove couplers
SANS 529	Heat-resisting wiring cables
SANS 556-1	Low-voltage switchgear – Part 1: Circuit-breakers
SANS 60044-1 to 5	Instrument transformers – Part 1 to 5
SANS 60079 (all parts)	Electrical apparatus for explosive gas atmospheres
SANS 60137	Insulated bushings for alternating voltages above 1 000 V
SANS 60265-1	High-voltage switches – Part 1: Switches for rated voltages above 1 kV and less than 52 kV
SANS 60269-1	Low-voltage fuses
SANS 60282-1	High-voltage fuses – Part 1: Current-limiting fuses
SANS 60282-2	High-voltage fuses – Part 2: Expulsion fuses
SANS 60309-1	Plugs, socket-outlets and couplers for industrial purposes – Part 1: General requirements
SANS 60439-1 to 5	Low-voltage switchgear and control gear Assemblies Parts 1 to 5
SANS 60502-4	Power cables with extruded insulation and their accessories for rated voltages from 1 kV ($U_m = 1,2$ kV) up to 30 kV ($U_m = 36$ kV) – Part 4: Test requirements on accessories for cables with rated voltages from 6 kV ($U_m = 7,2$ kV) up to 30 kV ($U_m = 36$ kV).
SANS 60529	Degrees of protection provided by enclosures (IP Code).
SANS 60669-1	Switches for household and similar fixed electrical installations – Part 1: General requirements.
SANS 60669-2-1/	Switches for household and similar fixed electrical installations – Part 2-1: Particular requirements – Electronic switches.
SANS 60896-21	Stationary Lead Acid Batteries Part 21: Valve regulated types- Methods of Test
SANS 60896-22	Stationary Lead Acid Batteries Part 21: Valve regulated types-Requirements
SANS 60947-2	Low-voltage switchgear and control gear – Part 2: Circuit-breakers
SANS 60947-3	Low-voltage switchgear and control gear – Part 3: Switches, disconnectors, switch-disconnectors and fuse combination units.
SANS 60947-4-1	Low-voltage switchgear and control gear – Part 4-1: Contactors and motor-starters – Electromechanical contactors and motor-starters
SANS 60947-4-2	Low-voltage switchgear and control gear – Part 4-2: Contactors and motor-starters – AC semiconductor motor controllers and starters.

SANS 60947-4-3	Low-voltage switchgear and control gear – Part 4-3: Contactors and motor-starters – AC semiconductor controllers and contactors for non-motor loads
SANS 60947-5-5	Low-voltage switchgear and control gear – Part 5-5: Control circuit devices and switching elements Electrical emergency stop device with mechanical latching function
SANS 60947-6-1	Low-voltage switchgear and control gear – Part 6-1: Multiple function equipment –Transfer switching equipment.
SANS 61000-3-4	Electromagnetic compatibility - Limitation of emission of harmonic currents in low-voltage power supply systems for equipment with rated current greater than 16 A
SANS 61000-4-7	General guide on harmonics and inter-harmonics measurements and instrumentation, for power supply systems and equipment connected thereto
SANS 61008-1	Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCBs) – Part 1: General rules.
SANS 61084-1	Cable trucking and ducting systems for electrical installations – Part 1: General requirements.
SANS 61238-1	Compression and mechanical connectors for power cables for rated voltages up to 30 kV (Um = 36 kV) – Part 1: Test methods and requirements
SANS 61312-3	Protection against lightning electromagnetic impulse – Part 3: Requirements of surge protective devices (SPDs).
SANS 61347-2-2	Lamp control gear – Part 2-2: Particular requirements for d.c. or a.c. supplied electronic step-down convertors for filament lamps
SANS 61386-1	Conduit systems for cable management – Part 1: General requirements.
SANS 61386-21	Conduit systems for cable management – Part 21: Particular requirements – Rigid conduit systems
SANS 61386-22	Conduit systems for cable management – Part 22: Particular requirements – Pliable conduit systems.
SANS 61386-23	Conduit systems for cable management – Part 23: Particular requirements – Flexible conduit systems
SANS 61558-1	Safety of power transformers, power supplies, reactors and similar products – Part 1: General requirements and tests.
SANS 61641	Arc Testing
SANS 61643-1	Low-voltage surge protective devices – Part 1: Surge protective devices connected to low-voltage power distribution systems – Requirements and tests.
SANS 61643-12	Low-voltage surge protective devices – Part 12: Surge protective devices connected to low-voltage power distribution systems – Selection and application principles
SANS 62053-11	Electricity metering equipment (a.c.) – Particular requirements – Part 11: Electromechanical meters for active energy (classes 0,5, 1 and 2).
SANS 62053-21	Electricity metering equipment (a.c.) – Particular requirements – Part 21: Static meters for active energy (classes 1 and 2).
SANS 62271 All Parts	High-voltage switchgear and control gear
SANS 62305-1	Protection of structures against lightning Part 1: General principles
SANS 62305-1	Protection against lightning – Part 1: General principles.
SANS 62305-2	Protection against lightning – Part 2: Risk management.
SANS 62305-3	Protection against lightning – Part 3: Physical damage to structures and life hazard
SANS 62305-4	Protection against lightning – Part 4: Electrical and electronic systems within structures
SANS 767-1	Earth leakage protection units – Part 1: Fixed earth leakage protection circuit-breakers.
SANS 780	Distribution transformers
SANS 950	Un-plasticized polyvinyl chloride rigid conduit and fittings for use in electrical installations
SANS 60044-1	Instrument transformers Part 1: Current transformers
SANS 60044-2	Instrument transformers Part 2: Inductive voltage transformers
SANS 60265-1	High-voltage switches Part 1: Switches for rated voltages above 1 kV and less than 52 kV

SANS 62271-200	A.C. metal-enclosed switchgear and control gear for rated voltages above 1 kV and up to and including 52 kV
SANS 60439-1	Low-voltage switchgear and control gear assemblies Part 1: Type tested and partially type-tested assemblies
SANS 60529	Degrees of protection provided by enclosures (IP code)
SANS 60947-1	Low-voltage switchgear and control gear Part 1: General rules
SANS 60947-2	Low-voltage switchgear and control gear Part 2: Circuit-breakers
SANS 60947-4	Low-voltage switchgear and control gear Part 4: Contactors and motor-starters
SANS 60947-5	Low-voltage switchgear and control gear Part 5: Control circuit devices and switching elements
SANS 60947-6	Low-voltage switchgear and control gear Part 6: Multiple function equipment
SANS 61439-1	LV Control-Gear and assemblies
SANS 60076 1-21	Power Transformers
SANS 10400	Code of Practice for the Application of the National Building Regulations (as amended)
	Dihlabeng Local Municipality requirements
	Electricity Regulation Act, No 4 of 2006 (as amended)
	The National Building Regulations and Building Standards Act 1996 (Act 29 of 1996) (as amended)
	Local Municipal By-Laws and any special requirements of the local supply authority
	Energy Code of Conduct for all Government Buildings
	National and Local Authority Fire Regulations and SANS 10400-T: 2011 (Ed 3)
	ICASA Regulations
	Construction Regulations 2003
	The Local Government Act 1998 (Act 10 of 1998 , municipal by-laws and any special requirements of the local supply authority
	The Fire Brigade Services Act 2000 (Act 14 of 2000)
	The Post Office Act 1998 (Act 124 of 1998)
	The Electricity Act 1996 (Act 88 of 1996)
	The Regulations of the local Gas Board where applicable
	The National Water Act 1998 (Act no. 36 of 1998)
	The Water Services Act 1997 (Act no. 108 of 1997)
	The General Authorizations (Water act)
	The Environmental Conservation Act 1998 (Act no. 73 of 1989)
	The National Environmental Management Act 1998 (Act no. 107 of 1998)

DIHLABENG LOCAL MUNICIPALITY

CONTRACT NUMBER: PW031/2023

BID DOCUMENT

Appointment of a Service Provider for Supply, Delivery and Installation of 1 × 1500 KVA Generator for Saulspoort Water Treatment Work

Bid Data (T1.2)

CLAUSE NUMBER	
	The Standard Conditions of Bid for procurement makes several references to the Bid Data for details that apply specifically to this Bid. The Bid Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the Standard Conditions of Bid for procurement other than disposals. Each item of data given below is cross-referenced to the relevant clause in the above mentioned Standard Conditions of Bid
1.1	The Employer is Dihlabeng Local Municipality
1.2	The single volume approach is adopted for this contract. The list of Returnable Documents identifies which of the documents a bidder must complete when submitting a bid offer. The bidder must submit the bid offer by completing the Returnable Documents including the fully priced Pricing Schedule, signing the "Offer" section in the "Form of Offer and Acceptance" and delivering the single volume procurement document back to Dihlabeng Local Municipality bound up as it was when it was received. The bid documents issued by the Employer comprise of the following: Bid Part T1: Bidding procedures T1.1 – Bid notice and invitation to bid T1.2 – Bid data T1.3 – Standard Conditions of Bid Part T2: Returnable documents T2.1- List of returnable documents T2.2 – Returnable schedules CONTRACT Part C1: Agreements and contract data C1.1 Form of offer and acceptance C1.2 Contract data Part C2: Pricing Schedule C2.1 Pricing Instructions C2.2 Priced fees and disbursements

	Part C3: Scope of work C3 Scope of work
1.3	The employer's agent is: Name: Mr. T Mokoena Capacity: Acting PMU Coordinator Address: Dihlabeng Local Municipality, P.O. Box 551, Bethlehem, 9700 Tel.: 058 303 5732 Fax: 058 303 4703 E-mail: tshepomo@dihlabeng.co.za / tshepomokoena3556@gmail.com
1.4	A competitive negotiation procedure will not be followed
2.1	Only those bidders who satisfy the following eligibility criteria are eligible to submit bids: 1. Bidder has the managerial capacity, reliability and experience regarding the nature of the project
2.2	Briefing Session Details: Town Hall (Side Hall), Bethlehem Time : 14H00 Date: 08 December 2023
2.3	The closing date for submission of Bid offer is 21 December 2023
2.4	No alternative offers will be accepted
2.5	Additional copies of the bid offer will not be required
2.6.1 2.6.2	The employer's address for delivery of bid offer and identification details to be shown on such bid offer package are: Location of Bid box: Dihlabeng Local Municipality Physical address: No. 9 Muller Street East, Bethlehem, 9700 <u>Identification details:</u> As indicated in the bid notice
2.7	A two-envelope procedure will not be followed.
2.8	The bidder is required to submit with the bid Tax Clearance reference number and tax compliance status pin issued by the South African Revenue Services and Valid CSD pin
2.9	The location for opening of the bid offers, immediately after the closing time thereof shall be at: Time: 12H00 on the 21 December 2023 Location: Supply Chain Office, No. 9 Muller Street East, Bethlehem, 9700
3.0	The procedure for the evaluation of responsive bids is as per Preferential Procurement Policy Framework Act, Act 50 of 2000 and Regulations of 2011.

Bids will be evaluated in Four (4) Stages:

Stage 1 – Responsiveness

Stage 2 – Functionality

Stage 3 – Financial Offer and Preference

Stage 4 – Risk Analysis

Stage 1 – Tender Responsiveness

The following submissions are the requirements for evaluating each bid for responsiveness. The Bidder who failed to submit the following results in immediate disqualification:

- (a) Proof of attendance of bid briefing and visit to site (Briefing Session Attendance Form).
- (b) Certificate of Authority for Signatory;
- (c) Joint Venture Agreement and Power of Attorney, in case of Joint Venture;
- (d) Proof of payment (municipal account/statement) of Municipal Services, which is not more than three (3) months old and not more than ninety (90) days in arrears. If Municipal Services are paid by the Lessee, a copy of municipal account/statement and a valid Lease Agreement (**indicating the municipal account payer and the validity period of the contract**) must be attached, should the municipal services be paid by the Landlord/owner, a valid Lease Agreement (**indicating the municipal account payer and the validity period of the contract**) must be attached
- (e) Proof of CSD Registration Report which is Valid/Compliant from the date of availability of tender document.
- (f) The bidder must provide a Valid Letter of Good Standing (COIDA).
- (g) The document must be completely filled in **Black Ink** & corrections are countersigned.
- (h) Bill of Quantities must be completely filled with **black ink** not pencil
- (i) A rate/amount is to be entered against all items in the schedule of fees/Bill of Quantities, an item against which no rate/amount is entered will lead to immediate disqualification due to unfair price advantage.
- (j) The bidder completed and signed all the prescribed and **compulsory** bid forms including Compulsory Briefing Session attendance register.
- (k) The bidder submitted valid CIDB grading of **5EP or Higher**.
- (l) The bidder must provide a valid copy of the company's Quality Management System that is currently in implementation.
- (m) Tender documents must be submitted as one (1) original, and one (1) scanned copy (PDF) of the original completed in a flash drive with all exhibits and forms required included in the returnable schedule.

Stage 2: Functionality**Minimum score 60 points**

CRITERIA FOR FUNCTIONALITY	PROOF SUBMITTED	<u>SCORE</u>
Company experience in supply a of bulk fuel and maintenance of storage tanks - No projects = Zero (0) points 1 project under R 1 million = 10 points 1 project above R 2 million, less 4 million = 30 points 2 or more projects over R 4 million combined = 40 points	Any Project under -Construction of Substation, Upgrades of Substations, Installation of Streetlights/ Highmast lights, Installation of Generators, Traffic Signals, Retrofitting of Switchgears, Construction of Electrical Lines, Supply & Delivery of Electricity Materials for network etc. Attach proof of completion certificates with traceable references.	40
Key Personnel - Diploma in Electrical/Mechanical Engineering or higher - Submitted = 20 points - Not Submitted = 0	Attached CV as well as certified copies of certificates	20
Minimum Electrical/Mechanical Trade Test equivalent & Wireman License - Submitted = 10 points - Not Submitted = 0	Attached CV as well as certified copies of certificates	10
1. Occupational Health and Safety Certificate Diploma or equivalent (SAMTRAC) - Submitted = 10 points - Not Submitted = 0	Attached CV as well as certified copies of certificates	10

BANK RATING INFORMATION (Maximum Points obtainable 20)

It must be noted that total points of 20 are obtainable by the Electrical Contractor in relation to the requirements as mentioned on the table below, failure to submit evidential supporting documents (Stamped letter from the bank) not attached a zero point will be scored.

Attach Stamped Bank Rating Letter –Indicate with “X”

Bank Rating Letter “D”	10	
Bank Rating Letter “C”	12	
Bank Rating Letter “B”	15	
Bank Rating Letter “A”	20	
Total Points Obtained	100	

STAGE 3- FINANCIAL OFFER AND PREFERENTIAL EVALUATION

Each Bid will be evaluated in terms of price and preference in accordance with the Preferential Procurement Regulations 2022 (Government Gazette Vol 689, No. 47452 dated 4 November 2022).

80/20 preference point system for acquisition of goods or services with Rand value above R30 000.00 up to Rand value equal R50 million

1. The following formula must be used to calculate the points out of 80 for price in respect of a quotation/tender with a Rand value above R10 000.00 up to R50 million, inclusive of all applicable taxes:

$$P_s = 80 \left(1 - \frac{P_t - P_{min}}{P_{min}} \right)$$

Where

- P_s = Points scored for comparative price of tender under consideration;
 P_t = Comparative Price of tender under consideration, and;
 P_{min} = Comparative Price of lowest acceptable tender.

- 1.1 A maximum of 20 points may be awarded to a tenderer for the specified goals for the tender.
- 1.2 The points scored for the specific goal must be added to the points scored for the price and the total must be rounded off to the nearest two decimal places.
- 1.3 A bidder must submit proof of its compliant B-BBEE status level of contributor in order to claim points for B-BBEE
- 1.4 Failure to submit proof of B-BBEE or compliant B-BBEE status level of contributor with quotation/tender, will lead to a score of zero (0) and not a disqualification
- 1.5 Proof of locality must be submitted in order to claim point(s) for locality
- 1.6 Failure to submit proof of locality with quotation/tender, will lead to a score of zero (0) and not a disqualification
- 1.7 A bidder that score 0 points for B-BBEE and/ or 0 points for locality must be score for price in addition to points for B-BBEE or locality
- 1.8 Subject to section 2(1)(f) of the Act, the contract must be awarded to the tendering scoring the highest points.

2. Specific Contract Participation Goals

- 2.1 the tendering conditions will stipulate the specific goals, as contemplated in section 2(1)d(ii) of the preferential Procurement Act, to be attained
- 2.2 for any tenders a maximum of 20 points (80/20 preference points system) or 10 (90/10 preference points system), will be allocated for specific goals. These goals are:
 - 2.2.1 Contracting with persons, or categories of persons, historically disadvantaged by unfair discrimination on the basis of race, gender or disability
 - 2.2.2 Local labour, and/ or promotion of enterprise located in the municipal area
- 2.3 Regarding paragraph 6.3.1, 50% of the 20/10 points will be allocated to promoting this goal and points will be allocated in terms of the BBEEE scorecard as follows:

B-BBEE Status Level of Contributor	Number of points for preference (80/20 system)	Number of points for preference (90/10 system)
1	10	5
2	9	4.5
3	8	4
4	5	2.5
5	4	2
6	3	1.5
7	2	1
8	1	0.5
Non-compliant contributor	0	0

2.4 A bidder must submit proof of its BBEEE status level contributor [scorecard]

2.5 A bidder failing to submit proof of BBEEE status level contributor -

2.5.1 may only score in terms of the 80/90-point formula for price; and

2.5.2 scores 0 points for BBEEE status level contributor, which is in line with section 2 (1) (d) (i) of the Act, where the supplier or service provider did not provide thereof.

2.6 Regarding paragraph 6.3.2, 50% of the 20/10 points will be allocated to promote this goal. Points will be allocated as follows:

Locality of supplier	Number of points for locality (80/20)	Number of points for locality (90/10)
Within the boundaries of Dihlabeng municipality	6	3
Within the boundaries of Free State	4	2
Historically Disadvantaged Individuals	10	5

2.7 The policy should not include Pre-qualification goals.

2.8 Any specific goal for which a point may be awarded, must be clearly specified in the invitation to submit a tender.

2.9 A tenderer failing to submit proof of required evidence to claim preferences for other specified goals, which is in line with section 2 (1) (d) (ii) of the Act.

(i) may only score in terms of the 80/90-point formula for price; and

(ii) scores 0 points for the relevant specific goals where the supplier or service provider did not stipulate locality.

2.10 The preference points scored by a bidder must be added to the points scored for price.

2.11 The points scored must be rounded off to the nearest two decimal places.

2.12 The contract must be awarded to the tenderer scoring the highest procurement points

2.13 (a) If the price offered by a tenderer scoring the highest points is not market related, the organ of state may not award the contract to that tenderer.

(b) The organs of state may-

- (i) negotiate a market-related price with the tenderer scoring the highest points or cancel the tender;
- (ii) if the tenderer does not agree to a market-related price, negotiate a market-related price with the tenderer scoring the second highest points or cancel the tender;
- (iii) if the tenderer scoring the second highest points does not agree to a market-related price, the organ of state must cancel the tender, negotiate a market-related price with the tenderer scoring the third highest points or cancel the tender.

(c) If a market-related price is not agreed as envisaged in paragraph (b)(iii), the organ of state must cancel the tender.

Stage 4: Risk Analysis-Supply Chain Management

In addition to the evaluation of Responsiveness, Functionality and Financial Offer, a risk analysis will be performed on the bidders having the highest ranking/number of points to ascertain if any of the following, as relevant, present an unacceptable commercial risk to the employer in terms of:

1. The bid of any bidder may be disregarded if that bidder, or any of its directors have –
 - (a) Abused the institution's supply chain management system;
 - (b) Committed fraud or any other improper conduct in relation to such system;
 - (c) Failed to perform on any previous contract.
2. The bidder or any of its directors listed on the National Treasury's Database of Restricted Suppliers as companies or persons prohibited from doing business with the public sector?

Companies or persons who are listed on this Database were informed in writing of this restriction by the Accounting Officer/Authority of the institution that imposed the restriction after the audi alteram partem rule was applied.

The Database of Restricted Suppliers is available on the National Treasury's website (www.treasury.gov.za) and can be accessed by clicking on its link at the bottom of the home page.

3. Is the bidder or any of its directors listed on the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004)?

The Register for Tender Defaulters can be accessed on the National Treasury's website (www.treasury.gov.za) by clicking on its link at the bottom of the home page.

- (a) Was the bidder or any of its directors convicted by a court of law (including a court outside of

the Republic of South Africa) for fraud or corruption during the past five years?

- (b) Was any contract between the bidder and any organ of state terminated during the past five years on account of failure to perform on or comply with the contract?

This tender is and shall be implemented in accordance with all relevant and applicable legislation, which includes and is not limited to best practice guidelines of procurement, Engineering Profession Act (Engineering Council of South Africa – ECSA: Guideline for Services and Processes for Estimating Fees for Persons Registered in terms of the Engineering Professions (ECSA) for the typical services stages as listed), tender evaluations and etc.

Appointment of a Service Provider for Supply, Delivery and Installation of 1 × 1500 KVA Generator for Saulspoort Water Treatment Work

STANDARD CONDITIONS OF TENDER

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 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 upon written request to do so.

F.1.5.2 The employer may not subsequent to the cancellation or abandonment of a tender process or the rejection of all responsive tender offers re-issue a tender covering substantially the same scope of work within a period of six months unless only one tender was received and such tender was returned unopened to the tenderer.

F.2 Tenderer's obligations

F.2.1 Eligibility

Submit a tender offer only if the tenderer satisfies the criteria stated in the tender 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 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) might 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 Mack 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 will 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 competitive position of tenderers or substance of the tender offer is sought, offered, or permitted.

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 to 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.

F.3 The employer's undertakings

F.3.1 Respond to clarification

Respond to a request for clarification received up to five working days before 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 that tender documents are available 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, shall then notify 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 meeting 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 advice 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 more than 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 Nondisclosure

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

F.3.8.1 Determine, after opening and before detailed evaluation, whether each tender offer properly received:

- a) complies with 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;

F.3.8.2 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:

- a) detrimentally affect the scope, quality, or performance of the works, services or supply identified in the Scope of Work,
- b) change the Employer's or the tenderer's risks and responsibilities under the contract, or
- c) 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

F.3.9.1 Check responsive tender offers for arithmetical errors, correcting them in the following manner:

- a) Where there is a discrepancy between the amounts in figures and in words, the amount in words shall govern.
- b) If bills of quantities (or schedule of quantities or schedule of rates) apply and there is an error in the line item total resulting from the product of the unit rate and the quantity, the line item total shall govern and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line item total as quoted shall govern, and the unit rate shall be corrected.

c) Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the tenderer's addition of prices, the total of the prices shall govern and the tenderer will be asked to revise selected item prices (and their rates if bills of quantities apply) to achieve the tendered total of the prices.

F.3.9.2 Consider the rejection of a tender offer if the tenderer does not correct or accept the correction of his arithmetical errors in the manner described in F.3.9.1.

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 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.3.12 Acceptance of tender offer

F.3.12.1 Accept tender offer only if the tenderer complies with the legal requirements stated in the Tender Data.

F.3.12.2 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.3.13 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.3.14. 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.3.15 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.3.16 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.3.17 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.

**Appointment of a Service Provider for Supply, Delivery and Installation of 1 × 1500
KVA Generator for Saulspoort Water Treatment Work**

BID DOCUMENT

LIST OF RETURNABLE DOCUMENTS

1. RETURNABLE SCHEDULES REQUIRED FOR TENDER EVALUATION PURPOSES

- | | | |
|-----|------------|--|
| 1.1 | Schedule 1 | : Resolution of Board of Directors |
| 1.2 | Schedule 2 | : Resolution of Board of Directors to enter into consortia or JV's |
| 1.3 | Schedule 3 | : Special Resolution of Consortia or JV's |
| 1.4 | Schedule 4 | : Schedule of proposed sub-contractors |
| 1.5 | Schedule 5 | : Commitments of Tenderer |
| 1.6 | Schedule 6 | : Clarification Meeting Attendance Certificate |
| 1.7 | Schedule 7 | : Compulsory enterprise questionnaire |

2. COMPULSORY MUNICIPAL BID DOCUMENTATION

- | | | |
|-----|---------|--|
| 2.1 | MBD 2 | : Tax clearance certificate |
| 2.2 | MBD 4 | : Declaration of Interest |
| 2.3 | MBD 6.1 | : Preference Certificate |
| 2.4 | MBD 6.2 | : Local Production And Content |
| 2.5 | MBD 7.1 | : Contract Form - Purchase Of Goods/Works |
| 2.6 | MBD 7.2 | : Contract form-rendering of services |
| 2.7 | MBD 7.3 | : Contract Form - Sale Of Goods/Works |
| 2.8 | MBD 8 | : Declaration of bidder's past supply chain management practices |
| 2.9 | MBD 9 | : Certificate of Independent Bid Determination |

SCHEDULE 1

RESOLUTION OF BOARD OF DIRECTORS

RESOLUTION of a meeting of the Board of *Directors / Members / Partners of:

Held at _____ (place)

On _____ (date)

RESOLVED that:

The Enterprise submits a Bid / Tender to Dihlabeng Local Municipality in respect of the following project:

Appointment of a Service Provider for Supply, Delivery and Installation of 1 × 1500 KVA Generator for Saulspoort Water Treatment Work

CONTRACT NUMBER: PW031/2023

1. *Mr/Mrs/Ms: _____

in *his/her Capacity as: : _____ (Position in the Enterprise)

and who will sign as follows: : _____

be, and is hereby, authorized to sign the Bid / Tender, and any and all other documents and/or correspondence in connection with and relating to the Bid / Tender, as well as to sign any Contract, and any and all documentation, resulting from the award of the Bid / Tender to the Enterprise mentioned above.

	Name	Capacity	Signature
1			
2			
3			
5			
6			

- Delete which is not applicable

NB : This resolution must be signed by all the Directors/Members/Partners of the Bidding Enterprise. Should the number of Directors/Members/Partners exceed the space available above, additional names and signatures must be supplied on a separate page.

SCHEDULE 2

RESOLUTION OF BOARD OF DIRECTORS TO ENTER INTO CONSORTIA OR JOINT VENTURES

RESOLUTION of a meeting of the Board of *Directors / Members / Partners of:

(Legally correct full name and registration number, if applicable, of the Enterprise)

Held at _____ (place)

On _____ (date)

RESOLVED that:

1. The Enterprise submits a Bid /Tender, in consortium/Joint Venture with the following Enterprises:

(List all the legally correct full names and registration numbers, if applicable, of the Enterprises forming the Consortium/Joint Venture)

to Dhlabeng Local Municipality in respect of the following project: **Appointment of a Service Provider for Supply, Delivery and Installation of 1 × 1500 KVA Generator for Saulspoort Water Treatment Work**

CONTRACT NUMBER: PW031/2023

2. *Mr/Mrs/Ms:

in *his/her Capacity as: _____ (Position in the

Enterprise)and who will sign as follows: _____

be, and is hereby, authorized to sign a consortium/joint venture agreement with the parties listed under item 1 above, and any and all other documents and/or correspondence in connection with and relating to the consortium/joint venture, in respect of the project described under item 1 above.

3. The Enterprise accepts joint and several liability with the parties listed under item 1 above for the due fulfillment of the obligations of the joint venture deriving from, and in any way connected with, the Contract to be entered into with the Department in respect of the project described under item 1 above.

4. The Enterprise chooses as its *domicilium citandi et executandi* for all purposes arising from this joint venture agreement and the Contract with the Department in respect of the project under item 1 above:

Physical address : _____

_____ (code)

Postal Address : _____

_____ (code)

Telephone number : _____ (code)

Fax number : _____ (code)

	Name	Capacity	Signature
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

* Delete which is not applicable

NB : This resolution must be signed by all the Directors/Members/Partners of the Bidding Enterprise. Should the number of Directors/Members/Partners exceed the space available above, additional names and signatures must be supplied on a separate page.

SCHEDULE 3:

SPECIAL RESOLUTION OF CONSORTIA OR JOINT VENTURES

RESOLUTION of a meeting of the duly authorized representatives of the following legal entities who have entered into a consortium/joint venture to jointly bid for the project mentioned below: *(legally correct full names and registration numbers, if applicable, of the Enterprises forming a Consortium/Joint Venture)*

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

Held at _____ (place)

On _____ (date)

RESOLVED that:

The above-mentioned Enterprises submit a Bid in Consortium/Joint Venture to the Dihlabeng Local Municipality in respect of the following project: **Appointment of a Service Provider for Supply, Delivery and Installation of 1 × 1500 KVA Generator for Saulspoort Water Treatment Work**

CONTRACT NUMBER: PW031/2023

A. Mr/Mrs/Ms: _____

in *his/her Capacity as: _____ (Position in the

Enterprise) and who will sign as follows: _____

be, and is hereby, authorized to sign the Bid, and any and all other documents and/or correspondence in connection with and relating to the Bid, as well as to sign any Contract, and

any and all documentation, resulting from the award of the Bid to the Enterprises in Consortium/Joint Venture mentioned above.

- B. The Enterprises constituting the Consortium/Joint Venture, notwithstanding its composition, shall conduct all business under the name and style of:

- C. The Enterprises to the Consortium/Joint Venture accept joint and several liability for the due fulfilment of the obligations of the Consortium/Joint Venture deriving from, and in any way connected with, the Contract entered into with the municipality in respect of the project described under item A above.
- D. Any of the Enterprises to the Consortium/Joint Venture intending to terminate the consortium/joint venture agreement, for whatever reason, shall give the Department 30 days written notice of such intention. Notwithstanding such decision to terminate, the Enterprises shall remain jointly and severally liable to the municipality for the due fulfilment of the obligations of the Consortium/Joint Venture as mentioned under item C above.
- E. No Enterprise to the Consortium/Joint Venture shall, without the prior written consent of the other Enterprises to the Consortium/Joint Venture and of the municipality, cede any of its rights or assign any of its obligations under the consortium/joint venture agreement in relation to the Contract with the municipality referred to herein.
- F. The Enterprises choose as the *domicilium citandi et executandi* of the Consortium/Joint Venture for all purposes arising from the consortium/joint venture agreement and the Contract with the municipality in respect of the project under item A above:

Physical address : _____

_____ (code)

Postal Address : _____

_____ (code)

Telephone number : _____ (code)

Fax number : _____ (code)

	NAME	CAPACITY	SIGNATURE
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

* Delete which is not applicable

NB : This resolution must be signed by all the Directors/Members/Partners of the Bidding Enterprise. Should the number of Directors/Members/Partners exceed the space available above, additional names and signatures must be supplied on a separate page.

Resolutions, duly completed and signed, from the separate Enterprises who participate in this Consortium/Joint Venture must be attached to the Special Resolution.

SCHEDULE 4

SCHEDULE OF PROPOSED SUB-CONTRACTORS

We notify you that it is our intention to employ the following sub-contractors 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 sub-consultants 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 sub-contractor	Nature and extent of work	Previous experience with sub-contractor
1			
2			
3			
4			
5			

Name of representative	Signature	Capacity	Date

Name of organization:	
------------------------------	--

SCHEDULE 5

COMMITMENTS OF TENDERER

LIST OF RELATED ENGAGEMENT CURRENTLY INVOLVED WITH:

Organizations		Reference / Contact person	Contact Tel. No.	Contract amount	Contract period	Start Date	Scheduled date of completion
1							
2							
3							
4							
5							

Name of Tenderer	Signature	Date

SCHEDULE 6

CLARIFICATION MEETING ATTENDANCE CERTIFICATE

This is to certify that I, _____ representing
_____ in the company of
_____ attended the clarification meeting
on **Appointment of a Service Provider for Supply, Delivery and Installation of 1 × 1500
KVA Generator for Saulspoort Water Treatment Work**

I have made myself familiar with all conditions likely to influence the work and the cost thereof. I further certify that I am satisfied with the description of the work and explanations given at the clarification meeting and that I understand perfectly the work to be done, as specified and implied, in the execution of this contract.

Name of Tenderer	Signature	Date

Name of Municipal Representative	Signature	Date

SCHEDULE 7

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: 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 4: Particulars of companies and close corporations

Company registration number

.....

Close corporation number

.....

Tax reference number

.....

Section 5: 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:

☐	A member of any municipal council	☐	A 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)
☐	A member of any provincial legislation	☐	A member of an accounting authority of any national or provincial public entity
☐	A member of the National Assembly or the National Council of Province	☐	A employee of Parliament or a provincial legislature
☐	A member of the board of directors of any municipal entity	☐	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	
		Current	Within last 12 months

Section 6: Records of spouses, children and parents in the service of the state

Indicate by making the relevant boxes with a cross, if any spouses, 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:

☐	A member of any municipal council	☐	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)
☐	A member of any provincial legislature	☐	A member of an accounting authority of any national or provincial public entity
☐	A member of the National Assembly or the National Council of Province.	☐	An employee of Parliament or a provincial legislature
☐	A member of the board of directors of any municipal entity	☐	A 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 authorized 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 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 frauds 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
- v) confirms that the contents of this questionnaire are within my personal knowledge and are to the best of my belief both true and correct.

Signature : _____ Date : _____

Name : _____ Position : _____

Enterprise: _____

Bidder: Initial of authorized signatory/ies **1**.....

DLM: Initial.....

Witness: Initial **2**.....

MBD 2: TAX CLEARANCE CERTIFICATE

It is a condition of bid that the taxes of the successful bidder must be in order, or that satisfactory arrangements have been made with South African Revenue Service (SARS) to meet the bidder's tax obligations.

1. In order to meet this requirement bidders are required to complete in full form TCC001 "Application for a Tax Clearance Certificate" and submit it to any SARS branch office nationally. The Tax Clearance Certificate Requirements are also applicable to foreign bidders / individuals who wish to submit bids. Form TCC 001 is available from any SARS branch office nationally or on the website www.sars.gov.za.
2. SARS will then furnish the bidder with a Tax Clearance Certificate that will be valid for a period of 1 (one) year from the date of approval.
3. **Valid Tax Clearance reference number and tax compliance status pin must be submitted together with the bid. Failure to submit Tax Clearance reference number and tax compliance status pin will result in the invalidation of the bid.**
4. In bids where Consortia / Joint Ventures / Sub-contractors are involved, each party must submit a separate Tax Clearance Certificate.
5. Applications for the Tax Clearance Certificates may also be made via e-Filing. In order to use this provision, taxpayers will need to register with SARS as e-Filers through the website www.sars.gov.za.
6. Exemption to the provision of a Tax Clearance Certificate will be granted provided that:
 - a) The bidder is registered on the vendor database of the municipality and a valid tax clearance certificate was submitted together with the application for registration
 - b) If the closing date of the price quotation or bid falls within the expiry date of the tax clearance certificate that is in the municipality's possession.

Bidder: Initial of authorized signatory/ies **1**.....

DLM: Initial.....

Witness: Initial

2.....

DECLARATION OF INTEREST

1. No bid will be accepted from persons in the service of the state*.
2. Any person, having a kinship with persons in the service of the state, including a blood relationship, may make an offer or offers in terms of this invitation to bid. In view of possible allegations of favouritism, should the resulting bid, or part thereof, be awarded to persons connected with or related to persons in service of the state, it is required that the bidder or their authorised representative declare their position in relation to the evaluating/adjudicating authority and/or take an oath declaring his/her interest.
- 3 In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.

3.1 Full Name:

3.2 Identity Number:

3.3 Company Registration Number:

3.4 Tax Reference Number:

3.5 VAT Registration Number:

3.6 Are you presently in the service of the state* **YES / NO**

3.6.1 If so, furnish particulars.

.....

.....

* MSCM Regulations: "in the service of the state" means to be –

- (a) a member of –
 - (i) any municipal council;
 - (ii) any provincial legislature; or
 - (iii) the national Assembly or the national Council of provinces;
- (b) a member of the board of directors of any municipal entity;
- (c) an official of any municipality or municipal entity;
- (d) an employee of any national or provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No.1 of 1999);
- (e) a member of the accounting authority of any national or provincial public entity; or
- (f) an employee of Parliament or a provincial legislature.

3.7 Have you been in the service of the state for the past twelve months? **YES / NO**

3.7.1 If so, furnish particulars.

.....

.....

3.8 Do you, have any relationship (family, friend, other) with persons in the service of the state and who may be involved with the evaluation and/or adjudication of this bid? **YES / NO**

3.8.1 If so, furnish particulars.

.....

.....

3.9 Are you, aware of any relationship (family, friend, other) between a bidder and any persons in the service of the state who may be involved with the evaluation and or adjudication of this bid? **YES / NO**

3.9.1 If so, furnish particulars

.....

3.10 Are any of the company's directors, managers, principal shareholders or stakeholders in service of the state? **YES / NO**

3.10.1 If so, furnish particulars.

.....

.....

3.11 Are any spouse, child or parent of the company's directors, managers, principal shareholders or stakeholders in service of the state? **YES / NO**

3.11.1 If so, furnish particulars.

.....

CERTIFICATION

I, THE UNDERSIGNED (NAME)

.....

CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM IS CORRECT.

I ACCEPT THAT THE STATE MAY ACT AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE.

.....
Signature

.....
Date

.....
Position

.....
Name of Bidder

DECLARATION FOR PROCUREMENT ABOVE R10 MILLION (ALL APPLICABLE TAXES INCLUDED)

For all procurement expected to exceed R10 million (all applicable taxes included), bidders must complete the following questionnaire:

1.	Are you by law required to prepare annual financial statements for auditing?	*YES / NO
1.1	If yes, submit audited annual financial statements for the past three years or since the date of establishment if established during the past three years.	
2.	Do you have any outstanding undisputed commitments for municipal services towards any municipality for more than three months or any other service provider in respect of which payment is overdue for more than 30 days?	*YES / NO
2.1	If no, this serves to certify that the bidder has no undisputed commitments for municipal services towards any municipality for more than three months or other service provider in respect of which payment is overdue for more than 30 days.	
2.2	If yes, provide particulars:	
3.	Has any contract been awarded to you by an organ of state during the past five years, including particulars of any material non-compliance or dispute concerning the execution of such contract?	*YES / NO
3.1	If yes, provide particulars:	
4.	Will any portion of goods or services be sourced from outside the Republic, and, if so, what portion and whether any portion of payment from the municipality / municipal entity is expected to be transferred out of the Republic?	*YES / NO
4.1	If yes, provide particulars:	

* Delete which is not applicable

CERTIFICATION

I, THE UNDERSIGNED (NAME)

.....

CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM IS CORRECT.

I ACCEPT THAT THE STATE MAY ACT AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE.

.....
Signature

.....
Date

.....
Position

.....
Name of Bidder

PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 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	80
SPECIFIC GOALS	20
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

“Historically Disadvantaged Individual (HDI)” means a South African citizen who, due to the apartheid policy that had been in place, had no franchise in national elections prior to the introduction of the Constitution of the Republic of South Africa, 1983 (Act No 110 of 1983) or the Constitution of the Republic of South Africa, 1993, (Act No 200 of 1993) (“the interim Constitution”); and/or

(2) who is a female; and/or

(3) who has a disability:

provided that a person who obtained South African citizenship on or after the coming to effect of the Interim Constitution, is deemed not to be a HDI; **“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;

- (a) **“price”** means an amount of money tendered for goods or services, and includes all applicable taxes less all unconditional discounts;
- (b) **“rand value”** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;
- (c) **“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
- (d) **“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:

$$\begin{array}{ccc} \mathbf{80/20} & \mathbf{or} & \mathbf{90/10} \\ \mathbf{Ps} = \mathbf{80} \left(\mathbf{1} - \frac{\mathbf{Pt} - \mathbf{P}_{min}}{\mathbf{P}_{min}} \right) & \mathbf{or} & \mathbf{Ps} = \mathbf{90} \left(\mathbf{1} - \frac{\mathbf{Pt} - \mathbf{P}_{min}}{\mathbf{P}_{min}} \right) \end{array}$$

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:

$$\begin{array}{ccc} \mathbf{80/20} & \mathbf{or} & \mathbf{90/10} \\ \mathbf{Ps} = \mathbf{80} \left(\mathbf{1} + \frac{\mathbf{Pt} - \mathbf{P}_{max}}{\mathbf{P}_{max}} \right) & \mathbf{or} & \mathbf{Ps} = \mathbf{90} \left(\mathbf{1} + \frac{\mathbf{Pt} - \mathbf{P}_{max}}{\mathbf{P}_{max}} \right) \end{array}$$

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.)

A	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)
		4		
		6		
		10		
Within the boundaries of Free State				
Within the boundaries of Dhlabeng municipality				
Historically Disadvantaged Individual				

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.

MBD 7.1

CONTRACT FORM - PURCHASE OF GOODS/WORKS

THIS FORM MUST BE FILLED IN DUPLICATE BY BOTH THE SUCCESSFUL BIDDER (PART 1) AND THE PURCHASER (PART 2). BOTH FORMS MUST BE SIGNED IN THE ORIGINAL SO THAT THE SUCCESSFUL BIDDER AND THE PURCHASER WOULD BE IN POSSESSION OF ORIGINALLY SIGNED CONTRACTS FOR THEIR RESPECTIVE RECORDS.

PART 1 (TO BE FILLED IN BY THE BIDDER)

1. I hereby undertake to supply all or any of the goods and/or works described in the attached bidding documents to (name of institution) in accordance with the requirements and specifications stipulated in bid number..... at the price/s quoted. My offer/s remain binding upon me and open for acceptance by the purchaser during the validity period indicated and calculated from the closing time of bid.
2. The following documents shall be deemed to form and be read and construed as part of this agreement:
 - (i) Bidding documents, viz
 - Invitation to bid;
 - Tax clearance certificate;
 - Pricing schedule(s);
 - Technical Specification(s);
 - Preference claims for Broad Based Black Economic Empowerment Status Level of Contribution in terms of the Preferential Procurement Regulations 2011;
 - Declaration of interest;
 - Declaration of bidder's past SCM practices;
 - Certificate of Independent Bid Determination;
 - Special Conditions of Contract;
 - (ii) General Conditions of Contract; and
 - (iii) Other (specify)
3. I confirm that I have satisfied myself as to the correctness and validity of my bid; that the price(s) and rate(s) quoted cover all the goods and/or works specified in the bidding documents; that the price(s) and rate(s) cover all my obligations and I accept that any mistakes regarding price(s) and rate(s) and calculations will be at my own risk.
4. I accept full responsibility for the proper execution and fulfilment of all obligations and conditions devolving on me under this agreement as the principal liable for the due fulfilment of this contract.
5. I declare that I have no participation in any collusive practices with any bidder or any other person regarding this or any other bid.
6. I confirm that I am duly authorised to sign this contract.

NAME (PRINT)

CAPACITY

SIGNATURE

NAME OF FIRM

DATE

WITNESSES

1

2.

DATE:.....

CONTRACT FORM - PURCHASE OF GOODS/WORKS

PART 2 (TO BE FILLED IN BY THE PURCHASER)

1. I..... in my capacity as.....
accept your bid under reference numberdated.....for the supply of
goods/works indicated hereunder and/or further specified in the annexure(s).
2. An official order indicating delivery instructions is forthcoming.
3. I undertake to make payment for the goods/works delivered in accordance with the terms and conditions
of the contract, within 30 (thirty) days after receipt of an invoice accompanied by the delivery note.

ITEM NO.	PRICE (ALL APPLICABLE TAXES INCLUDED)	BRAND	DELIVERY PERIOD	B-BBEE STATUS LEVEL OF CONTRIBUTION	MINIMUM THRESHOLD FOR LOCAL PRODUCTION AND CONTENT (if applicable)

4. I confirm that I am duly authorized to sign this contract.

SIGNED ATON.....

NAME (PRINT)

SIGNATURE

OFFICIAL STAMP

WITNESSES

1.

2.

DATE

CONTRACT FORM - RENDERING OF SERVICES

THIS FORM MUST BE FILLED IN DUPLICATE BY BOTH THE SERVICE PROVIDER (PART 1) AND THE PURCHASER (PART 2). BOTH FORMS MUST BE SIGNED IN THE ORIGINAL SO THAT THE SERVICE PROVIDER AND THE PURCHASER WOULD BE IN POSSESSION OF ORIGINALLY SIGNED CONTRACTS FOR THEIR RESPECTIVE RECORDS.

PART 1 (TO BE FILLED IN BY THE SERVICE PROVIDER)

7. I hereby undertake to render services described in the attached bidding documents to (name of the institution) in accordance with the requirements and task directives / proposals specifications stipulated in Bid Number: FIN002/2018 at the price/s quoted. My offer(s) remain(s) binding upon me and open for acceptance by the Purchaser during the validity period indicated and calculated from the closing date of the bid.
8. The following documents shall be deemed to form and be read and construed as part of this agreement:
 - (iv) Bidding documents, viz
 - Invitation to bid;
 - Tax clearance certificate;
 - Pricing schedule(s);
 - Filled in task directive/proposal;
 - Preference claims for Broad Based Black Economic Empowerment Status Level of Contribution in terms of the Preferential Procurement Regulations 2011;
 - Declaration of interest;
 - Declaration of Bidder's past SCM practices;
 - Certificate of Independent Bid Determination;
 - Special Conditions of Contract;
 - (v) General Conditions of Contract; and
 - (vi) Other (specify)
9. I confirm that I have satisfied myself as to the correctness and validity of my bid; that the price(s) and rate(s) quoted cover all the services specified in the bidding documents; that the price(s) and rate(s) cover all my obligations and I accept that any mistakes regarding price(s) and rate(s) and calculations will be at my own risk.
10. I accept full responsibility for the proper execution and fulfillment of all obligations and conditions devolving on me under this agreement as the principal liable for the due fulfillment of this contract.
11. I declare that I have no participation in any collusive practices with any bidder or any other person regarding this or any other bid.
12. I confirm that I am duly authorized to sign this contract.

NAME (PRINT)

CAPACITY

SIGNATURE

NAME OF FIRM

DATE

CONTRACT FORM - RENDERING OF SERVICES

PART 2 (TO BE FILLED IN BY THE PURCHASER)

4. I, in my capacity as
accept your bid under Bid Number dated for the rendering of services indicated hereunder and/or further specified in the annexure(s).
5. An official order indicating service delivery instructions is forthcoming.
6. I undertake to make payment for the services rendered in accordance with the terms and conditions of the contract, within 30 (thirty) days after receipt of an invoice.

DESCRIPTION OF SERVICE	PRICE (ALL APPLICABLE TAXES INCLUDED)	COMPLETION DATE	B-BBEE STATUS LEVEL OF CONTRIBUTION	MINIMUM THRESHOLD FOR LOCAL PRODUCTION AND CONTENT (if applicable)

4. I confirm that I am duly authorized to sign this contract.

SIGNED AT ON

NAME (PRINT)

SIGNATURE

CONTRACT FORM - SALE OF GOODS/WORKS

THIS FORM MUST BE FILLED IN DUPLICATE BY BOTH THE SUCCESSFUL BIDDER (PART 1) AND THE SELLER (PART 2). BOTH FORMS MUST BE SIGNED IN THE ORIGINAL SO THAT THE SUCCESSFUL BIDDER AND THE SELLER WOULD BE IN POSSESSION OF ORIGINALLY SIGNED CONTRACTS FOR THEIR RESPECTIVE RECORDS.

PART 1 (TO BE FILLED IN BY THE BIDDER)

1. I hereby undertake to purchase all or any of the goods and/or works described in the attached bidding documents from (name of institution)..... in accordance with the requirements stipulated in (bid number)..... at the price/s quoted. My offer/s remain binding upon me and open for acceptance by the seller during the validity period indicated and calculated from the closing time of bid.
2. The following documents shall be deemed to form and be read and construed as part of this agreement:
 - (i) Bidding documents, viz
 - Invitation to bid;
 - Tax clearance certificate;
 - Pricing schedule(s);
 - Declaration of interest;
 - Declaration of Bidder's past SCM practices;
 - Special Conditions of Contract;
 - (ii) General Conditions of Contract; and
 - (iii) Other (specify)
3. I confirm that I have satisfied myself as to the correctness and validity of my bid; that the price(s) quoted cover all the goods and/or works specified in the bidding documents; that the price(s) cover all my obligations and I accept that any mistakes regarding price(s) and calculations will be at my own risk.
4. I accept full responsibility for the proper execution and fulfilment of all obligations and conditions devolving on me under this agreement as the principal liable for the due fulfillment of this contract.
5. I undertake to make payment for the goods/works as specified in the bidding documents.
6. I declare that I have no participation in any collusive practices with any bidder or any other person regarding this or any other bid.
7. I confirm that I am duly authorized to sign this contract.

NAME (PRINT)

CAPACITY

SIGNATURE

NAME OF FIRM

DATE

WITNESSES

1

2.

DATE:

CONTRACT FORM - SALE OF GOODS/WORKSPART 2

(TO BE FILLED IN BY THE SELLER)

1. I..... in my capacity as.....
accept your bid under reference numberdated.....for the
purchase of goods/works indicated hereunder and/or further specified in the annexure(s).
2. I undertake to make the goods/works available in accordance with the terms
and conditions of the contract.

ITEM NO.	DESCRIPTION	PRICE (ALL APPLICABLE TAXES INCLUDED)		

4. I confirm that I am duly authorized to sign this contract.

SIGNED ATON.....

NAME (PRINT)

SIGNATURE

OFFICIAL STAMP

WITNESSES

1.

2.

DATE

DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

1. This Municipal Bidding Document must form part of all bids invited.
2. It serves as a declaration to be used by municipalities and municipal entities in ensuring that when goods and services are being procured, all reasonable steps are taken to combat the abuse of the supply chain management system.
3. The bid of any bidder may be rejected if that bidder, or any of its directors have:
 - a) abused the municipality's / municipal entity's supply chain management system or committed any improper conduct in relation to such system;
 - b) been convicted for fraud or corruption during the past five years;
 - c) willfully neglected, reneged on or failed to comply with any government, municipal or other public sector contract during the past five years; or
 - d) been listed in the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004).
4. **In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.**

Item	Question	Yes	No
4.1	Is the bidder or any of its directors listed on the National Treasury's Database of Restricted Suppliers as companies or persons prohibited from doing business with the public sector? (Companies or persons who are listed on this Database were informed in writing of this restriction by the Accounting Officer/Authority of the institution that imposed the restriction after the <i>audi alteram partem</i> rule was applied). The Database of Restricted Suppliers now resides on the National Treasury's website (www.treasury.gov.za) and can be accessed by clicking on its link at the bottom of the home page.	Yes ☐	No ☐
4.1.1	If so, furnish particulars:		
4.2	Is the bidder or any of its directors listed on the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004)? The Register for Tender Defaulters can be accessed on the National Treasury's website (www.treasury.gov.za) by clicking on its link at the bottom of the home page.	Yes ☐	No ☐
4.2.1	If so, furnish particulars:		
4.3	Was the bidder or any of its directors convicted by a court of law (including a court of law outside the Republic of South Africa) for fraud or corruption during the past five years?	Yes ☐	No ☐

4.3.1	If so, furnish particulars:		
Item	Question	Yes	No
4.4	Does the bidder or any of its directors owe any municipal rates and taxes or municipal charges to the municipality / municipal entity, or to any other municipality / municipal entity, that is in arrears for more than three months?	Yes ☐	No ☐
4.4.1	If so, furnish particulars:		
4.5	Was any contract between the bidder and the municipality / municipal entity or any other organ of state terminated during the past five years on account of failure to perform on or comply with the contract?	Yes ☐	No ☐
4.7.1	If so, furnish particulars:		

CERTIFICATION

I, THE UNDERSIGNED (FULL NAME)

CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM TRUE AND CORRECT.

I ACCEPT THAT, IN ADDITION TO CANCELLATION OF A CONTRACT, ACTION MAY BE TAKEN AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE.

.....
Signature

.....
Date

.....
Position

.....
Name of Bidder

CERTIFICATE OF INDEPENDENT BID DETERMINATION

- 1 This Municipal Bidding Document (MBD) must form part of all bids¹ invited.
- 2 Section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by, firms, or a decision by an association of firms, if it is between parties in a horizontal relationship and if it involves collusive bidding (or bid rigging).² Collusive bidding is a *pe se* prohibition meaning that it cannot be justified under any grounds.
- 3 Municipal Supply Regulation 38 (1) prescribes that a supply chain management policy must provide measures for the combating of abuse of the supply chain management system, and must enable the accounting officer, among others, to:
 - a. take all reasonable steps to prevent such abuse;
 - b. reject the bid of any bidder if that bidder or any of its directors has abused the supply chain management system of the municipality or municipal entity or has committed any improper conduct in relation to such system; and
 - c. cancel a contract awarded to a person if the person committed any corrupt or fraudulent act during the bidding process or the execution of the contract.
- 4 This MBD serves as a certificate of declaration that would be used by institutions to ensure that, when bids are considered, reasonable steps are taken to prevent any form of bid rigging.
- 5 In order to give effect to the above, the attached Certificate of Bid Determination (MBD 9) must be completed and submitted with the bid:

¹ Includes price quotations, advertised competitive bids, limited bids and proposals.

² Bid rigging (or collusive bidding) occurs when businesses, that would otherwise be expected to compete, secretly conspire to raise prices or lower the quality of goods and / or services for purchasers who wish to acquire goods and / or services through a bidding process. Bid rigging is, therefore, an agreement between competitors not to compete.

CERTIFICATE OF INDEPENDENT BID DETERMINATION

I, the undersigned, in submitting the accompanying bid:

(Bid Number and Description)

in response to the invitation for the bid made by:

(Name of Municipality / Municipal Entity)

do hereby make the following statements that I certify to be true and complete in every respect:

I certify, on behalf of: _____

that:

(Name of Bidder)

1. I have read and I understand the contents of this Certificate.
2. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect.
3. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder.
4. Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign, the bid, on behalf of the bidder.
5. For the purposes of this Certificate and the accompanying bid, I understand that the word "competitor" shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:
 - (a) has been requested to submit a bid in response to this bid invitation;
 - (b) could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and
 - (c) provides the same goods and services as the bidder and/or is in the same line of business as the bidder.
6. 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 consortium³ will not be construed as collusive bidding.

7. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
 - (a) prices;
 - (b) geographical area where product or service will be rendered (market allocation);
 - (c) Methods, factors or formulas used to calculate prices;
 - (d) The intention or decision to submit or not to submit a bid;
 - (e) The submission of a bid which does not meet the specifications and conditions of the bid; or
 - (f) Bidding with the intention not to win the bid.
8. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.
9. 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 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.

10. 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.

.....

Signature

.....

Date

.....

Position

.....

Name of Bidder

DIHLABENG LOCAL MUNICIPALITY

CONTRACT NUMBER: PW031/2023

**Appointment of a Service Provider for Supply, Delivery and Installation of 1
× 1500 KVA Generator for Saulspoot Water Treatment Work**

BID DOCUMENT

C1.1 FORM OF OFFER AND ACCEPTANCE

FORM OF OFFER

The employer, identified in the acceptance signature block, has solicited offers to enter into a contract for the following project:

CONTRACT NUMBER: PW031/2023

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 service provider / consultant 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 THE FOLLOWING:**MBD 3.1:**

.....
...

..... (Amount in words);

R (Amount 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 provider / consultant 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

*** Bidders have to complete the total of prices in words as well as in figures**

FORM OF 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 service provider / consultant the amounts due in accordance with the conditions of contract identified in the contract data. Acceptance of the tenderer's offers 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.

and documents or parts thereof, which may be incorporated by reference into Parts C1 to C3 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) to arrange the 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 fulfill 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

Dihlabeng Local Municipality
P.O. Box 551
Bethlehem
9700

Signature of WitnessDate

Name of Witness.....

SCHEDULE OF DEVIATIONS

1. Subject: _____

Details: _____

2. Subject: _____

Details: _____

4. Subject: _____

Details: _____

4. Subject: _____

Details: _____

By the duly authorized 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.

**Appointment of a Service Provider for Supply, Delivery and Installation of 1
× 1500 KVA Generator for Saulspoort Water Treatment Work**

CONTRACT NUMBER: PW031/2023

BID DOCUMENT

C1.2 CONTRACT DATA

PART 1: DATA PROVIDED BY THE EMPLOYER

- a) The Employer is **Dihlabeng Local Municipality**
- b) The authorized and designated representative of the Employer is Mr. T Mokoena
- c) The address for receipt of communications is:

Address : No. 9 Muller Street East
P.O. Box 551
Bethlehem
9700
Tel. No. : 058 303 5732
Fax No. : 058 303 4703

The Project is: **Appointment of a Service Provider for Supply, Delivery and
Installation of 1 × 1500 KVA Generator for Saulspoort Water Treatment Work**

- d)
- e) The Period of Performance commences on the date of signature of the Form of Acceptance.
- f) The location for the performance of the Project is **the Municipal area of Dihlabeng Local Municipality.**
- g) The Service Provider is required to provide the Service with all reasonable care, diligence and skill in accordance with generally accepted professional techniques and standards.
- h) The Service Provider is required to obtain the Employer's prior approval in writing before taking any of the following actions:
 - i) Appointing Subcontractors for the performance of any part of the Services,
 - ii) Appointing Key Persons or Personnel not listed by name in the Contract Data.
- j) Copyright of documents prepared for the Project shall be vested with the Employer.
- k) Interim settlement of disputes is to be by mediation
- l) Final settlement is by litigation

- m) In the event that the parties fail to agree on a mediator, the mediator is nominated by the South African Local Government Association (SALGA)
- n) Neither the Employer nor the Service Provider is liable for any loss or damage resulting from any occurrence unless a claim is formally made within two (2) months from the date of termination or completion of the Contract.

PART 2: DATA PROVIDED BY THE SERVICE PROVIDER

The Service Provider is : _____

Address : _____

Telephone : _____

Facsimile : _____

The authorized and designated representative of the Service Provider is:

Name : _____

The address for receipt of communications is:

Address : _____

Telephone : _____

Facsimile : _____

Email : _____

**Appointment of a Service Provider for Supply, Delivery and Installation of 1
× 1500 KVA Generator for Saulspoot Water Treatment Work**

BID DOCUMENT

C2: PRICING SCHEDULE

C2.1: PRICING INSTRUCTIONS

- a) These pricing instructions provide the Tenderer with guidelines and requirements with regard to the completion of the Pricing Schedule. These pricing instructions also describe the criteria and assumptions which will be assumed in the Contract to have been taken into account by the Tenderer when developing his prices.
- b) The Pricing Schedule shall be read with all the documents which form part of this Contract.
- c) The following words have the meaning hereby assigned to them:

Unit	The Unit of measurement for each item of work in terms of the Scope of Work.
Rate	The payment per unit of work at which the tenderer tenders to do the work.

- d) The rates to be inserted in the Pricing Schedule are to be full inclusive for the work described under the several items. Such rates shall cover all costs and expenses that may be required in and for the execution 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, as well as overhead charges and profit.
- e) A rate/amount is to be entered against all items in the schedule of fees/Bill of Quantities, an item against which no rate/amount is entered will lead to immediate disqualification due to unfair price advantage.
- f) All rates and sums of money quoted in the Pricing Schedule shall be in Rands and whole cents. Fractions of a cent shall be discarded.
- g) All travelling costs, accommodation, meals and other incidental costs are to be included in the time based costs.
- h) All prices and rates entered in the Pricing Schedule must be **exclusive of Value Added Tax (VAT)**.

1. DETAILED SPECIFICATIONS AND SCOPE OF WORK

C3

1.1 General

This specification covers the manufacture, supply, delivery, offloading, installation, testing, commissioning and handing over of all the electrical works at Water Treatment Works and Abstraction point- **1 x 1500 KVA** Standby Generator installation as per the requirements of Dihlabeng Local Municipality.

The attention of the Tenderer is drawn to the Bill of Quantities that forms an integral part of the specification and especially the following clauses:

Where the term "or other approved" is used in connection with proprietary materials or articles, it is to be understood that approval shall be at the sole discretion of the Engineer. Where brand or trade names are referred to in the Drawings and Bill of Quantities, these shall indicate the quality and type of material or fitting required and no substitution of materials so specified will be permitted, unless the authority of the Engineer has been obtained, in writing, before tenders close.

The drawings listed in the index form an integral part of this specification, but are issued for TENDER PURPOSES ONLY and are not intended to be used for construction without the prior written approval of the Client's Representative.

The positioning of all equipment, light fittings, light switches, socket outlets etc. on the drawing, is schematic only and in some cases may not correspond to the actual layout of the buildings. The successful Tenderer shall be responsible for indicating the correct position of all electrical equipment on their working drawings to enable the Client's Representative to produce "as built" drawings.

2.1 WORK INCLUDED

The successful Tenderer shall provide all labor, materials, equipment, tools and supervision to transport, assemble, erect, install, connect, test and place into service the complete electrical works. The works shall consist of, but are not limited to:

The supply and installation of **1 x 1500 KVA** standby generator units including automatic change over units and associated accessories; the generators must be designed to ISO 8528-5 transient response requirements and to accept 100 per cent load. Minimum Rating of the Generator shall be **1 x 1500 KVA**, low fuel consumption and low emissions.

Electrical Supply particulars: System Voltage (Normal):11kV; 3 phases, 50HZ, Fault level 40 KA at 11kV.

Supply and installation of distribution boards complete terminations and joints;

Supply and installation of earthing and lightning protection system for the new installation complete with earth conductors, rods and lightning arrestors;

Tenderers are to allow for ALL work and materials indicated and implied on the drawings, whether indicated in the specification or not, to deliver a complete and operational project;

2.2 SPECIAL CONDITIONS

The electrical contractor shall provide certified copies as proof of accreditation and registration with the Department of Labor prior to commencement at the site hand-over meeting and prior to commencement of any work.

Lightning protection soil resistivity tests, risk assessment, detail designs and installation work shall be done by a certified person and who are able to provide proof of successfully completed projects with contact details and references.

Electronic systems, detail designs and installation work shall be done by a competent certified person and who are able to provide proof of successfully completed projects with contact details and references.

2.3 SITE ESTABLISHMENT

The successful Tenderer shall provide all the facilities required to enable him to undertake the Contract Works.

2.4 STANDARDS AND CODES OF PRACTICE

All installation work shall comply with the following Specifications, Legal Requirements and Codes of Practice:

2.5 CLIENT STANDARDS

In line with accepted practice, the Client has, from time to time, standardized on the supply of various items of equipment. The Tenderer shall undertake, and by the submission of his tender confirms that he has undertaken, to inform himself of the status of such standardization requirements ruling at the time of tender, and any deviations from such standards shall be corrected by the successful Tenderer at his expense.

2.6 MAINTENANCE OF INSTALLATIONS

With effect from the date of the issue of the Completion (First Delivery Certificate) the successful Tenderer shall, at his own expense, undertake the regular servicing of the installation during the maintenance period and shall make all adjustments necessary for the correct operation thereof.

The maintenance period/ defects liability period shall be 12 months.

If during the said period the installations are not in working order, due to the fault of the successful Tenderer, or if the installations develop defects, the

successful Tenderer shall immediately upon being notified thereof take steps to remedy the defects and make any necessary adjustments.

Should such stoppages however become so frequent as to become troublesome, or should the installations otherwise prove unsatisfactory the successful Tenderer shall, if called upon by the Client, at his own expense, replace the affected part or the whole of the installations or such parts thereof as the Client may deem necessary with apparatus specified by the Client.

2.7 BALANCING OF LOAD

The successful Tenderer is required to balance the load as equally as possible over the multiphase supply where applicable.

2. DIESEL ALTERNATOR GENERATING SET

2.1 GENERAL

This specification covers the design, manufacture, assembly, delivery to site, offloading, installation, testing, commissioning and handing over a new and in first class working order of a complete sound attenuated self-contained emergency diesel alternator generator set and all ancillary equipment necessary and to comply with the requirements of this specification.

The plant generally shall comprise a diesel engine coupled to an alternator mounted on a steel fabricated base frame that incorporates an integral fuel tank, starting batteries, automatic charging unit, interconnecting cables, a control panel housing the generator M.C.C.B. with all necessary switchgear, change-over starting and interconnecting cables and on-load bypass switch.

Any deviation from this Standard Specification or additional information will be given in the Specific Specification. In case of contradiction between this Standard Specification and the Specific Specification, the Specific Specification shall apply.

Full particulars, performance curves and illustrations of the equipment offered, must be submitted with the Tender. Tenderers may quote for their standard equipment, complying as closely as possible with this Specification, but any deviations from the Specification must be fully detailed.

The questionnaire following this Specification must be completed by Tenderers in all respects.

The client reserves the right to accept any portion of any tender and does not bind itself to accept the lowest or any tender.

2.2 SITE CONDITIONS

The stand-by generator set herein specified is to be installed outdoors at the Water Treatment Works and abstraction point, Dihlabeng Local Municipality, Free State Province.

Tenderers are advised to acquaint themselves with the site conditions including access, as no claim on the grounds of lack of knowledge will be entertained.

2.3 OUTPUT POWER RATING & VOLTAGE

After the de-rating factors for the engine and alternator have been taken into account, the generator must have a site output and voltage as follows:

Description	Specification
No load voltage – 3 phase, 4 wire system requirements	415/240V
Full load voltage – 3 phase, 4 wire system requirements	400/230V
Rating at 0.8 power factor	200kVA
From start-up - 60% of initial load within	15 sec
Balance of 40% of the load after a further	10 sec
Frequency	50 Hz
Noise level DBA at 1m	70 dba

2.4 CONSTRUCTION

The engine and alternator of the set shall be built together on a common hot dipped galvanized steel base frame with anti-vibration mountings between the engine/alternator combination and base. The set must be able to be placed direct onto the plant room concrete floor.

The frame must be of the "DUPLEX" type.

The generator set shall be bolted to the base frame by means of stainless steel bolts, nuts and washers.

Provision shall be made in the design of the base for outgoing cables and the main earth connection to pass through and to be connected and disconnected whenever necessary.

2.5 OPERATION

The diesel generating set and its ancillary equipment shall normally operate as an automatic mains failure unit. It shall be capable of delivering its full rated output at any time and any ambient conditions likely to occur at the site. The set is required to supply the essential power requirements in the case of a mains supply failure and be rated for continuous service.

The generating set will not be required to be synchronized with the main supply.

The set shall be fully automatic i.e. it shall start when any one phase of the mains supply fails and shall shut down when the normal supply is re-established. In addition, it shall be possible to manually start and stop the set by means of pushbuttons on the switchboard.

The automatic control shall make provision for three consecutive starting attempts. Thereafter the set must be switched off, and the start failure relay on the switchboard must give a visible and audible indication of the fault.

To prevent the alternator being electrically connected to the mains supply when the mains supply is on, and vice versa, a safe and fail proof system of suitably interlocked contactors shall be supplied and fitted to the change-over switchboard.

Important Notice: The Tenderer must submit, together with his offer, the design of the control system to comply with the requirements for automatic starting, stopping, interlocking and isolation as specified.

Essential power from the stand-by generating plant will be required for minimum 8 hours continuous running capacity including the day tank (1000 liter's) or more.

- ENGINE

2.7 GENERAL

The engine must comply with the requirements laid down in BS 5514 and must be of the atomized injection, compression ignition type, running at a speed not exceeding 1500 r.p.m. at normal full load conditions. The engine must be rated for the required electrical output of the set, when running under any of the specified extreme site conditions.

The engine shall be of the multi cylinder, four stroke cycle, cold starting, direct fuel injection, compression ignition type, suitable for operation on commercial grade diesel fuel.

Any one of the following manufacturer's engines may be used: John Deere, Perkins, Deutz, Volvo, Mitsubishi, and Caterpillar or similar approved and confirmed by the Engineer in writing prior to closing of the tender.

The starting period for either manual or automatic switching-on until the taking over by the generating set of a load equal to the specified site electrical output, shall not exceed 15 seconds. This must be guaranteed by the Tenderer.

Turbo-charged engines will only be accepted if the Tenderer submits a written guarantee that the engine can deliver full load within the specified starting period.

Curves furnished by the engine makers, showing the output of the engine offered against the speed, for both intermittent and continuous operation as well as fuel consumption curves when the engine is used for electric generation, must be submitted with the tender.

2.8 RATING

The rating of the diesel generating set shall be based on operation of the set when equipped with all necessary accessories such as radiator fan, air cleaners, lubricating oil pump, fuel transfer pump, fuel injection pump, water circulating pump, and battery charging alternator.

The set shall be capable of delivering the specified output continuously under the site conditions, without overheating. The engine shall be capable to

deliver an output of 110% of the specified output for one hour in any period of 12 hours consecutive running in accordance with BS 5514.

In addition the engine shall be capable of delivering 110 % load for one hour, after the set has been running at full load for a period of six hours and shall, after the overload period of one hour be capable of maintaining the rated output

continuously without any undue mechanical strain, overheating, incomplete fuel combustion or other adverse effects.

The engine shall have sufficient capacity to start up and shall within 15 seconds from mains failure, supply the full rated load at the specified voltages and frequency.

2.9 DERATING

The engine must be derated for the site conditions as set out in this document.

The derating of the engine for site conditions shall be strictly in accordance with BS 5514 of 1977 as amended to date. Any other methods of derating must have the approval of the Client and must be motivated in detail. Such derating must be guaranteed in writing and proved by the successful Tenderer at the site test.

2.10 STARTING AND STOPPING

The engine shall be fitted with a 12/24 volt starting system of sufficient capacity to crank the engine at a speed, which will allow starting of the engine. The engine shall easily start from cold condition without the use of any special ignition devices under summer as well as winter conditions.

The starting equipment shall include a D.C. starter motor engaging directly on the flywheel ring gear.

Tenderers must state what type of heating is provided to ensure easy starting in cold weather. Full details of this equipment must be submitted. In the case of water cooled engines, any electrical heaters shall be thermostatically controlled.

The electrical circuit for such heaters shall be taken from the control panel, and must be protected by a suitable circuit breaker.

2.11 STARTER BATTERY

The set must be supplied with a fully charged heavy duty type battery, charging alternator and maintenance free batteries.

The battery shall be one of the following reputable manufacturers: Willard; EXIDE; Delco/Deltec or similar approved by the Engineer prior to ordering.

The batteries shall be mounted in a lockable battery box being protected against the corrosive action of the battery electrolyte.

The battery must have sufficient capacity to provide the starting torque stipulated by the engine manufacturer. The battery capacity shall be capable of providing three consecutive start attempts from cold and thereafter a fourth attempt under manual control of not less than 20 seconds duration.

The batteries shall be connected to the engine with suitably rated P.V.C. insulated flexible leads.

The batteries shall have sufficient capacity to provide three automatic attempts to start immediately followed by three manual attempts without any appreciable drop in voltage. The automatic attempts to start shall each be of not less than 10 seconds duration with 10 second intervals between and the manual attempts shall be based on the same cranking period.

A device shall be provided to limit the cranking time of each automatic attempt to start, to the 10 seconds specified above and to provide three automatic attempts after which the automatic starting mechanism will cut out until manually reset and at the same time sound an audible alarm and illuminate the L.E.D. on the AMF 120 controller. The engine driven battery charging alternator shall have sufficient capacity to recharge the batteries back to normal starting requirements in not more than six hours.

A battery charging unit of the trickle charge type shall be provided to maintain the batteries at full capacity. The charging equipment shall be connected so that the battery is normally charged from the mains, but is also charged under mains failure conditions from the diesel generating plant and if required, via an inhibitor relay to prevent dual charging. The unit shall be complete with voltmeter, push button test, D.C. and A.C. protective gear. The charging unit shall be incorporated in the diesel generator control cabinet.

2.12 COOLING

The engine shall be of the water cooled type and the cooling system shall be of sufficient capacity to cool the engine when the set is delivering its full rated load in the ambient conditions specified.

The engine shall be equipped with a heavy duty tropical type pressurized radiator complete with engine driven fan and centrifugal water circulating pump and a thermostat to maintain the engine at the manufacture's recommended temperature level.

A thermostatically controlled immersion heater shall be provided and fitted in the engine cooling circuit to ensure easy starting of the engine at any ambient temperature. The heater shall be fitted that it can easily be withdrawn without having to drain the system. The heater shall be suitable for a 230 volt 50 Hz supply.

A low radiator level shutdown sensor switch shall be fitted in the radiator header tank. A separate temperature sensor must be fitted on the block for the normal high engine temperature shutdown and gauge for protection against running at excessive temperatures. The operation of this protective device must give a visual and audible indication on the switchboard.

Water-cooled engines shall be supplied complete with engine cooling system shall be supplied filled with pure glycol or anti-freeze liquid and be fitted with a low-water, cut-out switch installed in the radiator, to switch the set off in the event of a loss of coolant. The protection shall operate in the same way as the other cut-outs (e.g. low oil pressure).

A permanent notice is to be affixed adjacent to the header tank that only anti-freeze or clean water is to be used for filling or topping up purposes.

All air ducts for the cooling of the engine are to be allowed for.

2.13 RADIATOR EXTRACT DUCTING

A galvanized duct shall be provided and installed between the radiator face and outlet louver to positively duct the hot expelled air out of the plant room.

The air shall not re-circulate in the room and the air duct shall fully cover and enclose the space between the cooling fan cowling/ radiator face to the air outlet louvers in the wall.

2.14 AIR CLEANERS

The engine shall be provided with one or more dry type air cleaners which shall provide positive air filtration.

2.15 LUBRICATION

The engine shall be provided with a forced feed lubricating system with a gear type lubricated oil pump for supplying oil under pressure to the main bearings, crank pin bearings, pistons, piston pins, timing gears, camshaft bearings, valve rocker mechanism and all other moving parts.

Full flow replaceable element type oil filters, conveniently located for servicing, shall be provided. Filters shall be provided with a spring loaded by-pass valve to ensure circulation if the filters become clogged.

An automatic low oil pressure cut-out must be fitted, operating the stop solenoid on the engine and giving a visible and audible indication of the switchboard.

2.16 CYLINDER LINERS

The engine shall be provided with removable wet or dry type cylinder liners of close grained alloy iron.

2.17 FUEL AND FUEL PUMP

The engine and fuel injection equipment shall be capable of satisfactory performance on a commercial grade of distilled petroleum fuel oil such as Number 2 fuel oil, (commercial grade diesel fuel normally available in South Africa).

2.18 DAY FUEL TANK

The fuel tank shall be an integral part of the base frame of the generator set. The tank shall have sufficient capacity to run the engine on full load for a minimum period of 8 hours.

The tank shall be fitted with a suitable filter, gauge, removable inspection cover, drain, filler cap, and low level and extra low shutdown alarm sensors. These shall supply an audible and visible signal on the control panel and building management system.

A water trap and fuel filter must be fitted in the fuel pipeline from the tank to the engine.

The tank shall have a removable cover suitable to facilitate the cleaning of the tank. The cover, with packing, shall be bolted in position with four bolts.

A drainage valve shall be fitted to the tank to drain sludge and water.

The tank shall be fitted with a mechanical contents indicator or meter calibrated 0% to 100%. A sight tube type will not be acceptable.

A visual level gauge, removable inspection cover, drain, Low Level and Extra Low Level shutdown alarm sensors shall be provided which shall supply an audible and visible signal on the control panel. The tank shall be provided with a filler cap which is positioned to conveniently facilitate the filling of the tank from a 20-litre container.

The interconnection fuel piping between the engine and day tank shall consist of copper tubes and the connection to vibrating components shall be in flexible tubing with armored covering.

The set shall be supplied with switches and sensors to start and stop the electric self-priming electric pump. The pump shall be complete with fuel piping and be connected to the bulk fuel tank.

In addition, the set shall be supplied with a hand operated "wing pump" and a suitable length of oil resistant hose. The hose shall be of the "push lock" type and shall be sufficient in length to extend to the door for filling from 200 litre drums.

2.19 BULK FUEL TANK (NOT REQUIRED IN THIS PROJECT)

The composite bulk fuel tank together with all interconnecting supply and return pipes, low level alarm, fuel level indicators, lockable shut off valves, breather and an automatic filling system shall be provided. This installation shall be carried out by a specialized petrochemical installation contractor in accordance with SABS 0131 Part 2/1979 and SABS 089 Part 3/1991. The bulk fuel tank shall be positioned adjacent to the generator room.

The automatic filling of the day tank, from the bulk tank, shall be controlled by level switches mounted in the day tank.

The bulk tank shall be encased in a bund walled area that is of sufficient size to contain any spillage equivalent in volume of the bulk storage tank.

The containment area shall be fitted with an outlet pipe located at floor level and a lockable valve located on the outside of the bund wall.

The complete system including bulk (if considered for additional hours) and day tank shall be sized to allow the set to run continuously for min 8 hours at full load on day fuel tank and additional hours on bulk fuel tank.

2.20 GOVERNOR

The speed of the engine shall be controlled by the latest electronic type controller, or by a Class A1 accuracy governor to maintain a speed for 50 Hz during any operational or site conditions.

The permanent speed variation between no load and full load shall not exceed 4, 5% of the nominal engine speed and the temporary speed variation shall not exceed 10%. External facilities must be provided on the engine to adjust the nominal speed setting by $\pm 5\%$ at all loads between zero and rated load.

2.21 EXHAUST SYSTEM & SILENCER

The engine shall be fitted with an efficient stainless steel exhaust system. Flexible bellows shall be fitted between the exhaust outlet and the silencer. The exhaust silencer shall be suitably lagged then clad in polished stainless-steel sheet.

The flexible piping must at no account be used to form a bend or compensate for misalignment. The silencer and discharge piping shall be suitably supported with stainless steel brackets, nuts, bolts and washers.

The silencer shall be located in the plant room and the discharge pipe run from the silencer out through the wall. The silencer shall be of the highly efficient type suitable for use in residential areas and shall be capable of providing 20 to 30 decibels of suppression.

The exhaust pipe shall be installed in such a way that the exhaust fumes will not cause discomfort to the public or adjacent activities.

The exhaust pipe must be flexibly connected to the engine to take up vibrations transmitted from the engine, which may cause breakage. The exhaust piping and silencer shall be lagged to reduce the heat and noise transmission into the plant room and shall be protected against the ingress of driving rain at 45° to the horizontal. The pipe must extend minimum of 0,5m above the room guttering.

Openings through the wall are to be neatly drilled and stainless steel flashing plates must be fitted on both sides.

2.22 FLYWHEEL

A suitable flywheel must be fitted, so that lights supplied by the set will be free from any visible flicker.

The flywheel shall be designed to limit the cyclic irregularities to within the limits laid down in BS 5514 as amended.

2.23 ENGINE INSTRUMENTS

The following instruments with suitable limit markings shall be provided on the generator panel:

- Water temperature gauge. The gauge shall be calibrated at the lower part of the temperature range, so that when the engine is inoperative, the temperature of the water is readable when heated by the immersion heater only. The temperature range shall extend beyond the operating range of the engine.
- Lubricating oil pressure gauge.
- Battery charging ammeter.

2.24 ACCESSORIES

The engine must be supplied complete with all accessories, air and oil filters, three (3) instruction manuals and a comprehensive spare part list.

- An easily removable drip tray must be fitted under the engine. The tray must be large enough to catch all dripping from any part of the engine.
- Alternator

2.25 CONSTRUCTION AND MANUFACTURE

The generator shall be a revolving field type, coupled directly to the engine flywheel through a flexible disc for positive alignment. The generator housing shall bolt directly to the engine flywheel housing and shall be equipped with a heavy-duty ball bearing support for the rotor. The motor shall be dynamically balanced up to 25 % over speed.

The generator shall be of heavy duty compact design. Insulation shall be Class H to BS 5514.

The generator field excitation shall be performed by a rotating exciter mounted on the generator motor shaft through a brushless rotating diode system. The voltage regulator shall be of the static-magnetic type with silicon diode control. It shall be mounted on the top or side of the generator and enclosed in a drip proof enclosure.

The alternator shall be of the self-excited brushless type, with enclosed ventilated drip-proof housing and must be capable of supplying the specified output continuously with a temperature rise not exceeding the limits laid down in BS 5000 for rotor and stator windings.

Both windings shall be fully impregnated for tropical climate and must have an oil resisting finishing varnish.

The alternator manufacturer shall be equivalent to Leroy Somer, Marelli Motori, New age Stamford or similar approved and confirmed by the Engineer in writing prior to closing of the tender.

2.26 REGULATION

A built-in voltage adjusting rheostat shall provide 10 % voltage adjustment.

The alternator must be self-regulated in accordance with BS 4999 Part 4 of 1977 - Class VR 2.31.

The inherent voltage regulation must not exceed plus or minus 2, 5% of the nominal voltage specified, at cold or hot conditions and all loads with a power factor between unity and 0, 8 lagging and within the driving speed variation of 4,5% between no-load and full load.

The shape for the voltage and current wave shall be within the limits laid down by BS 5000.

Upon application of any load specified in transient, maximum voltage dip shall not exceed 20% of the nominal voltage when measured at the alternator terminals.

2.27 PERFORMANCE

The excitation system shall be designed to promote rapid voltage recovery following the sudden application of the full load. The voltage shall recover to within 2.5% of the steady state within 300 milli-seconds following the application of full load and the transient voltage dip shall not exceed 18%.

Upon application of any load specified in transient, maximum voltage dip shall not exceed 20% of nominal voltage when measured at the alternator terminals.

The alternator shall be capable of delivering continuously delivering the full rated load specified output of 110% of the specified output, for one hour in any period of 12 hours consecutive running.

2.28 WINDINGS

The alternator stator windings shall be star connected with the star point brought out and connected to the neutral terminal in the terminal box to provide a 400/230 volt supply under full load conditions.

2.29 TERMINAL BOX

The terminal box shall be fitted to suit the cable route and it shall be large enough to allow for glanding and connecting the cables specified.

2.30 RADIO AND T.V. INTERFERENCE

The alternator set shall be suppressed within the limits of B.S. 800 against radio and television interference against radio and television interference in accordance with South African statutory requirements.

2.31 COUPLINGS

The engine and alternator must be directly coupled by means of a high quality flexible coupling, equal and similar to the "HOLSET" type.

2.32 CHANGE-OVER SWITCHBOARD AND CONTROL PANEL

A. CONSTRUCTION

The panel shall be designed for the control of the diesel generating set with instrumentation and protective devices to meet both manual and automatic mode requirements.

The control panel shall have a robust construction, floor mounted / generator frame mounted, totally enclosed and dust proof.

The switchboard shall be of the free standing type / generator frame mounted, manufactured from 3CR12 steel, carried on a substantial framework construction with front entry through hinged doors.

Internal chassis plates, circuit breaker pans and gland plates shall be provided.

The gland plate shall be suitably braced to prevent distortion after the cables are secured thereto.

Suitably size holes shall be punched in the gland plates for the required number of cable terminations for both incoming and outgoing cables. Holes which are not used must be blanked off with blind grommets.

Cables shall be secured to the gland plate by means of SABS approved glands. Cable glands shall be Pratley, C.C.G. type or similar approved.

Special attention shall be given to vermin proofing and dust sealing.

All hinged doors shall have suitable bracing to ensure rigidity with heavy duty hinges and door handles.

Prior to painting, all steelwork must be thoroughly degreased and de-rusted and then primed with a zinc chromate primer. All internal steel chassis plates, gland plates and switchgear brackets shall be painted with two coats of white powder epoxy paint and all exterior steel surfaces finished with red powder epoxy paint.

The switchboard must be supplied and installed to incorporate the equipment necessary for the control and protection of the generating set, the automatic change-over, and the battery charging.

The control panel shall be flush fronted with all equipment to be mounted back on the front panel on suitable supports.

All equipment, connections and terminals shall be easily accessible. The front panels may be either hinged or be removable and fixed with studs and chromiumplated cap nuts.

Self-tapping screws shall not be used in the construction of the board.

Cabling, Bus-Bars, Wiring & Switchgear

The contractor shall install all interconnecting cables between the alternator and control panel.

All cabling, bus-bars and wiring shall be adequately rated and suitably supported.

Control wiring shall be neatly laced and numbered with durable plastic ferrules, for easy tracing.

Suitable terminals are to be provided for incoming and outgoing cables.

Circuit breakers shall be of molded case construction.

All instrumentation shall be of 1,5 % accuracy and their performance shall comply with B.S. 89. The instruments shall be flush mounted and the dial dimensions shall be 96 mm x 96 mm.

Tenderers must give an assurance with their tender that replacements for the equipment, switchgear and instruments used in the construction of the panel are readily available from stock held in the Republic of South Africa.

All switch and control gear shall be rated for the highest of the system fault level specified or the generator fault level.

All pushbuttons, pilot lights, control switches, instrument and control fuses, shall be mounted on hinged panels with the control wires in flexible looms.

Suitably rated terminals must be provided for all main circuits and the control and protection circuits. Where cable lugs are used, these shall be crimped onto the cable strands. Screw terminals shall be of the type to prevent spreading of cable strands.

All terminals shall be clearly marked.

For the control wiring, each wire end shall be fitted with a wire marker of approved type and numbering of these markers must be shown on the wiring diagram of switchboards.

Control wiring shall be installed in PVC trucking as far as possible. The trucking shall be properly fixed to the switchboard steelwork. Adhesives shall not be acceptable for the fixing of trucking or wire looms to the steelwork.

The automatic control and protection equipment shall be mounted on a separate easily replaceable small panel with printed circuits. The equipment shall mainly be the "solid state" type. After mounting the equipment on the panel, the rear of this panel shall be sealed with epoxy-resin. However, other proven control systems may also be considered, but must be described in detail.

All equipment on the switchboard, such as contactors, isolators, bus bars, etc. shall have ample current carrying capacity to handle at least 110% of the full load alternator current.

B. SWITCHGEAR

One Triple Pole MCB rated to suit the generator offered and shall have both adjustable thermal and instantaneous overload elements.

C. ALTERNATORS OVER 1500KVA

- One set of Four Pole automatic change-over isolators with motor operated mechanisms (Minimum rating of 630A) with appropriate auxiliary and control contacts complete with electrical and mechanical interlocking arrangements to the approval of the Client.
- One on-load hand operated by pass switch (Minimum rating of 630amps) of the isolator type with three operating positions labelled "NORMAL", "OFF" and "BYPASS" to enable the change-over equipment and control circuitry to be by-passed for maintenance purposes.
- The units are to be Stromberg type or similar approved.

D. ALTERNATORS UNDER 1500KVA

- One set of Four Pole suitably rated contactors with electrical and mechanical interlocking arrangements with appropriate auxiliary and control contacts to the approval of the Client. The units are to be Stromberg type or similar approved.
- No by-pass switch is required.
- 3 x Open ring CT's suitably scaled.
- 110% full load rated Phase, Neutral and Earth bus-bars.

E. CONTROL, PROTECTION AND ALARM DEVICES

Only a solid state programmable system will be accepted.

Control systems may not consist of the electromagnetic relay type.

Only the AMF120 Mk4 or equivalent solid state programmable systems complying with the following will be accepted:

The solid state control systems shall be of South African Manufacture.

Be available "off the shelf".

Has a proven local operating history of at least five years.

Imported or specially made solid state control systems or engine control and/or management systems will not be acceptable under any circumstances.

The control system shall consist of a single unit including all indicators/switches and allow for quick installation using locking connectors.

The solid state controller and associated systems wiring shall be in accordance with the manufacturer's guidelines and shall be adequately protected against transient over voltages arising from lightning effects, switching and power system surges and alternator borne noise or interference. Full details of the suppression system must be provided with the tender. Wiring to and from the solid state programmable controller shall be screened where necessary to prevent electrostatic and magnetic interference.

A circuit breaker and an adjustable current limiting protection relay must be installed, for protection of the alternator. The protection relay shall be of the type with inverse time characteristics. The relay shall cause the contactor to isolate the alternator and stop the engine.

Protection must be provided for high engine temperature, low lubricating oil pressure, over speed, start-failure, low water level, low fuel level.

Individual relays with reset pushes are required, to give a visible signal and stop the engine when any of the protective devices operate. In the case of manual operation of standby sets, it shall not be possible to restart the engine by pushing the reset.

Panel indicators and re-set pushes must be clearly marked or displayed.

The controller status including Warning and Shutdown/ Critical alarms shall be indicated by a combination of LEDs and messages on the LCD display.

The following indications and alarms shall be provided:

Item	Condition	LED	Display Message	Alarm	Cut-out	Reset
a	Overload		X	X	X	X
b	High Temperature		X	X	X	X
c	Oil Pressure Low		X	X	X	X
d	Over / Under Speed		X	X	X	
e	Heater Fault		X	X	X	
f	Fuel Low		X	X		X
g	No Fuel		X	X	X	
h	Water Level Low		X	X	X	
i	Emergency Stop	X	X	X	X	X
j	Start Failure		X	X		X
k	Mains & Alternator On	X				
l	Mains & Phase		X	X	X	

	Alternator Rotation Fault					
m	Mains & Over Alternator Voltage		X	X	X	
n	Mains & Under Alternator Voltage		X	X	X	
o	Battery Voltage Low		X	X		X
p	Battery Charger Fault		X	X		X
q	Control System Fault		X	X		X
r	Auto	X				
s	Test	X				
t	Manual	X				
u	Manual Start	X				
v	Manual Stop	X				

Relays with reset pushes must be fitted giving an audible and visible signal when "FUEL LOW".

In addition, a low-low level sensor must be provided. At this level the engine must stop to prevent air entering the fuel system.

This is also applicable to the engine driven generator/alternator.

All relays must operate an alarm siren. A pushbutton must be installed in the hooter circuit to stop the audible signal, but the fault indicating light and/or on the control panel must remain lit until the fault has been rectified and reset.

After the siren has been stopped, it must re-set automatically, ready for a further alarm. An on/off switch is not acceptable.

The siren must be of the continuous duty and low consumption type. Both hooter and protection circuits must operate from the battery.

Potential free contacts from the alarm relay must be wired to terminals for remote indication of alarm conditions.

A Lamp test push button must be provided to test all indicator lamps.

An alarm mute push button must be provided on the front panel.

F. OPERATION SWITCHES Four individual mode selector push button switches: "OFF, AUTO, MANUAL, TEST" "AUTO" - the set shall automatically start and stop, according to the mains supply being available or not.

"TEST"- it shall only be possible to start and stop the set with the pushbuttons, full functional testing and the running set shall not be switched to the load without a mains failure.

"MANUAL" - the set must take the load when started with the manual pushbutton, but it must not be possible to switch the set on to the mains, or the mains onto the running set. In this mode the load will not be transferred in the event of a mains failure.

"OFF"- the set shall be completely disconnected from the automatic controls, for cleaning and maintenance of the engine.

G. LOGGING OF EVENTS

All events relating to the status of the generator set shall be logged with date and time in a non-volatile memory (which can retain information for a period of 6 months in the absence of power to the controller) and the user shall be able to obtain a hard copy on site.

The controller must have sufficient memory to log at least three months of typical generator set operation and include details to determine the time from mains failure to alternator on load.

H. USER PROGRAMMABLE

The controller shall be user programmable on site via a menu system with an access code and clear prompts for the required data and shall incorporate the following parameters:

HIGH battery volts	
LOW battery volts	
HIGH Mains volts	
LOW Mains volts	
HIGH Alternator volts	
LOW Alternator volts	
OVER-SPEED	
UNDER-SPEED	
Crank Release RPM	
Start delay	
Run-up delay	
Mains return delay	
Cool down time	
Low Oil Pressure	(Normally open /closed)
Low Oil Pressure gauge	Warning level
High Temperature	(Normally open /closed)
High Temperature gauge	Warning level
Low Water	(Normally open /closed)
Low Fuel	(Normally open /closed)
No Fuel	(Normally open /closed)
Low Bulk Tank	(Normally open /closed)
Alternator CT Ratio	

Emergency Stop	(Normally open /closed)
Charging Alternator	(Normally open /closed)

I. PRINTER

The controller shall be able to connect to a printer used to obtain a hard copy of the log on site and this printer must be able to operate from internal rechargeable batteries or allow charging from a 12V DC supply in the event a mains supply is not available.

J. COMPUTER REMOTE STATUS

The controller shall be able to be fitted with an RS-485/ Modbus module to allow the controller to be connected to a BMS or SCADA system.

K. MANUAL STARTING

The switchboard shall be equipped with two separate push buttons marked "START" and "STOP" for manual starting and stopping of the set.

L. BATTERY CHARGING EQUIPMENT

The switchboard shall be equipped with a constant voltage battery charging unit.

The charger shall operate automatically in accordance with the state of the battery and shall generally consist of an air-cooled transformer, a full wave solid state rectifier, and the necessary automatic control equipment to maintain a constant charge voltage.

The charger must be supplied from the mains. An engine driven alternator must also be provided for charging the battery while the set is operational. Failure of this alternator must also activate the battery charger failure circuit.

M. SWITCHBOARD INSTRUMENTS

The switchboard shall be equipped as follows:

- One (1) flush square dial voltmeter, reading the alternator voltage, scaled 0-500V.
- One (1) six position and off selector switch for reading all phase to phase and phase to neutral voltages.

A flush square dial combination maximum demand and instantaneous ampere meter for each phase, with resettable pointer suitably scaled 20% higher than the alternator rating. A red arc stripe above the scale markings from 0-20 A and a red radial line through the scale at full-load current shall be provided. This instrument shall be supplied complete with the necessary current transformer.

One flush square dial vibrating type frequency meter, indicating the alternator frequency.

A six digit running hour meter with digital counter, reading the number of hours the plant has been operating. The smallest figure on this meter must read 1/10th hour.

Fuses for the potential circuits of the meter.

One (1) 22mmØ "Twist to release" type pushbutton marked "Emergency Stop" for the immediate stopping of the engine, by-passing all control circuits.

One (1) flush square dial ampere meter suitably scaled for the battery charging current.

- One (1) flush square dial voltmeter with a spring loaded pushbutton or switch for the battery voltage.
- Circuit breaker for electric fuel pump.

N. MARKINGS

All labels, markings or instructions on the switchgear shall be in English.

O. EARTHING

- An earth bar must be fitted in the switchboard, to which all non-current carrying metal parts shall be bonded.
- The neutral point of the alternator must be solidly connected to this bar by means of a removable link labelled "EARTH". Suitable terminals must be provided on the earth bar for connection of up to three earth conductors, which will be supplied and installed by others.

P. AUTOMATIC CHANGE-OVER SWITCH

A fully automatic change-over system must be provided to isolate the mains supply and connect the standby set to the outgoing supply in case of a mains failure and reverse this procedure on return of the mains.

The contactor for this system must be interlocked in a safe and fail proof way to prevent the alternator being switched onto the mains or visa-versa.

Q. BYPASS SWITCH AND MAINS ISOLATOR

- The switchboard shall be equipped with an on-load isolator to isolate the mains and a manually operated, three (3) position on-load by-pass switches. The by-pass switch shall have an "OFF" position (centre) and shall either connect the incoming mains to the automatic control gear or directly to the outgoing feeder.
- In the "OFF" position the automatic control gear, including the main contactors, shall be isolated for maintenance purposes.
- It shall not be possible to start the engine except with the selector switch in the "TEST" position.

- It is required that this bypass switch and mains isolator be mounted away from the automatic control gear, in a separate compartment, either on the side or in the lower position of the switchboard cubicle, and that the switches are operated from the front of the compartment.

R. START DELAY

Starting shall be automatic in an event of a mains failure. A 0-15 seconds adjustable, start delay timer shall be provided to prevent start-up on power dips or very short interruptions.

S. STOP DELAY

- A stop delay with timer is required for the set, to keep the set on load for an adjustable period of 1 to 10 minutes after the return of the mains supply, before changing back to that supply.
- An additional timer shall keep the set running for a further adjustable cooling period of 5 to 10 minutes at no-load before stopping.

T. DUMMY LOAD

Supply and install an automatic dummy load to ensure that the engine's load is never lower than 30% of the generators full load.

U. RESISTIVE ELEMENTS

- The resistive heating elements shall be installed in the warm air ducting between the engine's radiator and the outlet louvers. The elements shall be of the mineral isolated tubular type.
- The elements shall be connected in star with four conductors equal in a size.
- The elements and connectors shall be easy accessible to ensure easy replacement.

V. CONTROL

- The dummy load shall be switched from a three pole contactor of sufficient size. The contactors shall be installed in the control board.
- Supply and install an indicator lamp on the control board to indicate when the dummy load is connected to the set.
- The total load in kW of the generator set shall be monitored by a semiconductor load monitor. The monitor shall be equipped with two adjustable control switching points. The switching points shall be set at 30% and 70% of the generator set's full load.
- An adjustable timer relay (0-200 sec) must start timing the moment the generator set starts.
- If the generator set's load is less than 30% after a pre-adjusted time, initially 60 seconds, the dummy load shall automatically be

connected to the generator set. If the load rises above 70% the dummy load shall be disconnected. If the load falls below 30% the dummy load shall immediately be reconnected to the generator set.

W. DUMMY LOAD CONNECTION

- The supply to the dummy load shall be through a circuit breaker of sufficient capacity and marked "DUMMY LOAD". The circuit breaker shall be installed on the front panel of the control board.
- The connections between the control board and the elements must consist of a PVC/SDP/PVC copper cable of sufficient size.
- The connections between the elements and the connectors must consist of asbestos isolated copper conductors.

X. CABLE INSTALLATION

- The tenderer shall allow for the complete installation and wiring of the plant, including the connection of the incoming main and outgoing feeder cables for the generating set switchboard.
- All interconnection power cables must be provided and installed between the alternator and the change-over panel.
- All interconnection control cables must be provided and installed between the alternator, engine fuel tanks and the control panel.
- Power cables shall be PVC/SWA/ECC/PVC 4 core copper cables. The control circuits shall be multi-core PVC cables.
- The cable conductors shall be terminated with suitably rated pressure crimped cable lugs.

Y. EARTHING

- The neutral point of the generator shall be solidly connected to the earth bar on the alternator and the panel by means of an appropriate size of insulated earth conductor.
- All plant ancillary equipment and steel work in the plant room shall be suitably bonded with an appropriate size of bare copper and also be solidly connected to the earth bar.
- The earth bar shall be positioned in the cable trench to enable easy access for the main earth point to be connected.

Z. PHASE ROTATION

The Contractor shall ensure that the mains and generator phase rotations are identical.

2.33 PAINTING

The engine and generator shall be painted with best quality Grey Enamel paint.

2.34 WARNING NOTICES

Notices, in English must be installed in the plant room in terms of regulation 4 of the Electrical Machinery Regulations of the Machinery and Occupational Safety Act, No 6 of 1983.

The contents of these notices are summarized below:

- Unauthorised entry prohibited.
- Unauthorised handling of equipment prohibited.
- Procedure in case of electrical shock.
- Procedure in case of fire.
- The successful tenderer must consult the Act and get approval of the wording from the Client's representative, prior to ordering the notices.
- Lettering must be black on yellow background.
- Notice (a) must be installed outside, next to the entrance door. Notices (b) - (d) must be installed inside the plant room.
- In the plant room a clearly legible and indelible warning notice of 450 x 450mm must be mounted in a conspicuous position with white lettering on red background.
- "DANGER- THIS ENGINE WILL START WITHOUT NOTICE. TURN THE SELECTOR SWITCH "OFF" BEFORE WORKING ON THE PLANT."

2.35 TESTS AT CONTRACTOR'S PREMISES

- An acceptance test shall be carried out at the Contractor's premises to establish that the diesel generating set and its ancillary equipment meets with the requirements of the specification.
- The Contractor shall give the consultant and representatives of the Client at least seven days' notice prior to testing the plant.
- In the event of the plant failing the test and having to be re-tested, at some future date, all expenses (including travelling) incurred by the consultant and representatives of the Client in attending the second test will be to the Contractor's account.

The following tests are to be carried out:

- Simulate a mains failure to automatically start the plant from cold to test its ability to attain full rated speed and voltage and assume the full load in specified time of 10 seconds.
- Test-run the plant at full load for a period of one hour.
- Immediately after the above specified run, without stopping the plant, run in for a further one hour at 110% load.
- Test the plant with regards to voltage dip, voltage and frequency recovery, with sudden application of various loads.
- Test the plant for its ability to assume full rated load immediately on failure of normal supply.
- Test and demonstrate (by simulation only where actual conditions could damage the plant and its ancillary equipment) the correct

functional and operation of the engine safety controls and alarms together with other alarms as specified.

- Any other tests the client or his representative may consider necessary to demonstrate that the diesel generator and its ancillary equipment as a whole is functioning correctly and in accordance with the specification.
- The Contractor shall provide all the necessary instruments and equipment, resistance for the load, labour and consumables required to carry out the tests. The test equipment shall be capable to produce the load specified above continuously without interruption. The test load shall be adjustable and balanced over three phases.
- The instrumentation shall be capable of recording and producing printed data pertaining to transient voltage dips, recovery time, applied load, etc., as specified. Complete test results of all tests shall be submitted to the engineer at the end of the tests. In addition, an original set with copies shall be compiled and bound with the As-Built documentation.

2.36 TESTS ON SITE

On completion of the installation of the plant, following tests are to be carried out:

- Simulate a mains failure to automatically start the plant from cold to test its ability to attain full rated speed and voltage and assume the full load in specified time of 10 seconds.
- Automatic starting and stopping with load change over. The load in this instance will be provided by the client.
- Test by simulation only of the operation of the engine protection and alarm devices.
- Any other tests which the consultant may require on site.

2.37 DRAWINGS FOR APPROVAL

The Contractor shall, within 7 days after being awarded the Contract, submit for approval the drawings in electronic format (pdf or dwg format) & 2 sets of drawings showing in detail particulars of the equipment to be supplied.

The following minimum details shall be submitted:

- General arrangement of all plant and equipment.
- Front layout of change-over and control panels.
- Schematic of the complete electrical systems, including starter motor, battery and automatic battery charger.
- Details of diesel alternator base indicating dimensions and weight.
- General arrangement, wiring diagrams and details of the control panel and automatic change-over equipment complete with cabling.

- Details of silencer/s, exhaust system including expansion pieces and brackets.
- Details of the fuel day-tank, pump and piping arrangement.
- Detail of radiator (where applicable), fan cooling arrangement and ventilation ducting.
- Dimensioned layout of all plant in the plant room.
- All drawings, circuit or schematic diagrams and documents prepared by or on behalf of the Contractor for submission shall be thoroughly checked, corrected where necessary and signed as accepted by the Contractor, prior to submission for approval.
- Approval of drawings and documentation will not release the Contractor from any of his responsibility and obligation for the proper operation of the installation or for full compliance with the specification, drawings, local authority and statutory requirements. Special care shall be taken to ensure that the equipment physically fit through access and be accommodated within the space and via the access provided.

2.38 WORKING INSTRUCTIONS

A complete diagram showing complete schematic diagram of the power and control circuitry of the plant together with detailed instructions, being plasticized shall be placed in a durable, non-deteriorating frame, neatly fixed to the wall of the plant room.

2.39 DRAWINGS AND MAINTENANCE MANUALS

- The Contractor shall supply three complete comprehensive sets of operating and maintenance manuals in hard copy and on CD complete with schematic control circuit diagrams for both engine and generator.
- The above manuals are to be handed to Municipal Engineer prior to commissioning of the installation.

2.40 SPARE PARTS AND INFORMATION REQUIRED

- Tenderers shall submit with their tender an assurance that the plant offered as a whole and spares parts for the plant are readily available within the Republic of South Africa and state all contact details where these spares are available.
- Tenderers must furnish detailed descriptions and illustrations of the equipment offered and must complete the questionnaire following this specification. This includes drawings of the switchboard layout and control diagrams.
- Failure to submit any of the information asked for, may, disqualify the tender.

2.41 GUARANTEE, REPAIRS AND MAINTENANCE

- The successful Tenderer will be required to guarantee the complete plant for a period of 12 months from the date it has been taken over after first delivery of the plant.
- If during this period the plant is not in working order, or not working satisfactorily owing to the faulty material, design or workmanship, the Contractor will be notified and immediate steps shall be taken by him to rectify the defects and/or replace the affected parts on site, at the Contractor's expense and to the satisfaction of the client.
- The contractor shall bear all expense incidental thereto including making good of work by others, arising out of removal or reinstallation of equipment. All work arising from the implementation of the guarantee or maintenance of equipment shall be carried out at times which will not result in any undue inconvenience to users of the equipment or occupants of premises.
- If any defects are not remedied within a reasonable time the client may proceed to do the work at the Contractor's risk and expense, but without prejudice to any other rights which the client may have against the Contractor.
- Should the standby plant defects be so frequent as to become objectionable or should the equipment otherwise prove unsatisfactory during the guarantee period of twelve months, the Contractor shall, if called upon by the client, at his own expense replace the whole or such parts thereof as the client may deem necessary with equipment to be specified by the client. Approval - tacit or otherwise - of the equipment installed shall be considered as provisional only and shall not invalidate the client's right as indicated above.
- The successful Tenderer will be required to do initial maintenance and maintain the plant in good running order for a period of twelve (12) months after the plant has been taken over by the Client. The full cost of this maintenance must be included in the tender price, inclusive overheads and travelling fees.
- Apart from the consumables as detailed below, the Client shall not acknowledge any cost claim additional to this maintenance cost as tendered.
- However, should the Contractor fail to hand-over the plant in good working order on expiry of the specified twelve months, the Contractor will be responsible for further monthly maintenance until final delivery is taken.
- At six monthly intervals (2) during the guarantee period of twelve months the Contractor shall adjust and maintain the standby plant and its ancillary equipment in proper working order by a qualified member of his staff.

As a minimum requirement the Contractor shall:

- Report to the Officer-in-Charge, keeping the maintenance records, and enter into a log book the date of the visit, all the test carried out, and adjustments made, and any further details that may be required.
- Grease And Oil Moving Parts Where Necessary.
- Check The Air Filter, And When Necessary, Clean The Filter And Replace Oil Filter.
- Check and top-up if necessary, the fluid levels in the radiator, engine sump, fuel oil tank and batteries.
- Test run the standby plant and ancillary equipment for a period of 15 minutes.
- Wipe down the standby plant and its ancillary equipment and report on any evidence of any fluid leaks or other defects.
- After the plant has run on one oil change for the number of hours stipulated by the makers, drain the sump and refill with fresh lubricating oil. The reading of the hour meter on the switchboard will be taken to establish the number of hours run by the plant.
- Under this heading only the cost of the actual oil used, shall be charged as an extra on the monthly account.
- Clean the lubricating oil filter and/or replace filter element at intervals recommended by the engine maker, the cost of a new filter element to be charged as an extra on the monthly account.
- Check and when necessary adjust the valve settings and the fuel injection equipment.
- Report to the Client and to the consultant on any parts that become unserviceable through fair wear and tear, or damaged by causes beyond the control of the Contractor.
- The Contractor, on receiving the report, shall immediately submit a detailed quotation for the repairs or replacement of such parts to the Client.
- Advise the Client when it has become necessary to decarbonise the engine and submit a quotation for this service.
- Top up the water of the radiator, if applicable.
- Clean the plant and its components when necessary.
- The cost of such inspections, maintenance, adjustments, repairs, etc., shall be included in the tender price, but the cost of renewing any part which may become worn through fair wear and tear, or damaged beyond the control of the Contractor (provided this is not due to unsuitable design) shall be excluded.

2.42 MAINTENANCE AGREEMENT

- After the lapse of this 12 month period, the Contractor may be required to enter into a maintenance agreement, as described under Clause 2.13.1 initially for one year with a possible yearly renewal.
- Acceptance of the tender shall not bind the Client to accept this maintenance service.
- Tenderers must state in the Price Schedule the charge per visit for carrying out the maintenance as detailed above.
- After completion of the installation and when the plant is in running order, the successful Tenderer will be required to instruct an attendant in the operation of the plant, until he is fully conversant with the equipment and the handling thereof.
- Three (3) copies of a maintenance fault-localizing and operating manual are to be handed over to the Client's representatives on site.

2.43 LATENT DEFECTS AND FAILURE TO COMPLY WITH SPECIFICATION

The client reserves the right to demand the replacement or making good by the Contractor at his own expense of any part of the Contract which is shown to have any latent defects or not to have complied with the Specification, notwithstanding that such work has been taken over or that the guarantee period has expired.

2.44 QUALIFICATION BY TENDERER

Should any specified materials or equipment in the Tenderers opinion be of inferior quality, or be unsuitably employed, rated or loaded, the Tenderer shall prior to the submission of his tender advise the consultant accordingly. His failure to do so shall mean that he guarantees the work including all materials or equipment as specified.

3. LOW VOLTAGE PVC INSULATED CABLES (600-1000V)

Low voltage power cables shall be two, three or four core stranded plain annealed copper conductor, PVC insulated, PVC bedded, galvanised steel wire armoured, PVC sheathed, PVC/PVC/SWA-ECC/PVC type cable 600/1000V to SANS 1574 as amended.

All low voltage power cables shall be manufactured in strict accordance to SANS 1507 and shall bear the SABS mark on the outer sheath.

The insulation material shall comprise of PVC in accordance to SANS 1411: Part II as amended.

The bedding shall consist of a continuous impermeable of PVC extruded sheath to fit the core or cores closely and to fill the interstices between the cores of multi-core cables.

Where armouring is specified, the armouring shall consist of one layer of round galvanized steel wire in accordance with SANS 1411: Part IV. Aluminium strip or tape armouring is not acceptable.

Unless otherwise specified specifically, all multi-core cables shall include earth continuity conductor (ECC) in the armouring. Where required additional bare earth copper conductor shall be installed as specified.

All cable connections from 16mm² conductor sizes and larger shall be of the hexagonal crimp method using correct size and type of lugs, ferrule and matching crimp head dices. Smaller conductor sizes shall be done with indent crimp method with tools having the ratchet facility to ensure a full depth crimp.

All routine tests specified by SANS 1507 as amended shall be carried out on production runs of the cable. Two test certificates will be provided for each cable drum delivered to site.

Wooden cables drums shall be clearly marked on both sides in accordance with SANS 1507 as amended. Both ends of the cable on the wooden drum must be sealed to prevent penetration of moisture. Both ends of the cable shall furthermore be fixed to the flange of the drum to avoid loose coiling and mechanical damage. Cable drums shall be placed on firm, well-drained surfaces.

Cable ducting and trenches shall be in accordance with SANS 2001 PD3.

4. LOW VOLTAGE CABLE INSTALLATION

All low voltage cables shall be in accordance with the standard and detail specifications.

Cables shall be loaded, transported and off-loaded on wooden cable drums manufactured and supplied for the purpose by the cable manufacturer.

The transportation, loading, off-loading and installation of the cables shall be in strict accordance with the requirements of the cable manufacturer, this specification and relevant standards which shall be continuously supervised and controlled by a competent person who is well experienced in the handling and installation of cables.

Cables that are not terminated shall at all times be capped and sealed to protect the ends from the ingress of moisture and dirt.

Cables shall be installed in the routes specified. Cable lengths are nominal and shall not be used for ordering purposes. The Contractor shall be remunerated on actual lengths of cable installed. All wastage shall be for the account of the successful Tenderer.

All cables shall be rolled from the wooden cable drum such that the cable will not be subjected to twisting or tensions values exceeding the values specified by the manufacturer.

Cables laid in the same trench shall be laid parallel to each other and shall not cross over one another.

All cables shall be run in single un-spliced lengths and shall be drawn up and terminated in the distribution kiosk, distribution boards, plant or equipment as required. When complete, all cabling and wiring shall present a neat and tidy appearance.

No joints shall be allowed in cables unless specifically called for in the Bill of Quantities or unless the cable lengths exceed the maximum standard drum lengths supplied by the manufacturer or without the prior approval of the Engineer.

The minimum radius of bends in all cables shall be as per the manufacturer recommendation to ensure that the minimum bending radii of the cables are maintained at all times during and after installation. Failure to adhere to this requirement may result in the rejection of the particular cable.

Special care shall be taken during installation to avoid any damage to the sheaths of the cable. Rollers and pulling socks or other suitable means approved by the Engineer shall be used for installing the cables in trenches. The rollers shall be free of sharp edges and shall be spaced to prevent the cable from touching the ground during the pulling process. Corner rollers shall be used at each corner and where required bond pulling shall be used.

Where communication, instrument or signal type service cables run with power cables in the same trench, the minimum separation shall be 500mm. Where "signal" and power services cross, they shall be separated vertically by 500mm.

LV cables no less than 600mm below final ground level measured to the top of the cable.

The cables shall be laid in such a manner that the beginning of a drum shall be laid from the end of the previous drum to ensure that the lay of the cores remain the same. Low voltage cables shall overlap by at least 500mm.

All cables shall be fitted with the appropriate size lugs at the termination. Lugs and ferrules equal or greater the 16mm² shall be crimped with a hydraulic crimper only using a hexagon die.

All glands, lugs, fixers, nuts, bolts and other consumables are, where not specifically detailed in the Bill of Quantities, are to be included within the price for cable terminations.

Where cables cross under roadways, walkways, parking areas, paved areas and other services, and where cables enter buildings, the cables shall be installed in 110mm diameter Class 9 u-PVC pipes or as indicated on the drawings.

Every cable shall be marked on both ends by means of an approved type cable tag label on which the size of cable and its source or destination and

cable number is punched. The label shall be installed around the outer PVC sheath immediately below the cable termination and gland.

5. CABLES IN TRENCHES

All cable trenches shall be routed as indicated on the drawings attached to this specification. Deviations shall only be permitted by prior consent of the Electrical Engineer or the issuing of revised drawings.

Trenches shall be straight and be cut as square as possible and the bottom made flat and free from stones or other hard projections. Where this is not possible, a 50mm layer of stone free sand shall be laid at the bottom of the trench to accommodate the cables. It must be presumed that, where trenching occurs within soft/hard rock, the trenching rate shall include for the stone free layer of soil. After installation, the cables shall be covered with a 100mm layer of fine, stone free soil prior to backfilling. The backfill shall be adequately compacted in layers of 250mm to the approval of the Electrical Engineer.

The minimum width of trenches shall be 300mm for one cable and 500mm for up to three unless otherwise specified.

Cables shall be laid at a minimum depth of 600mm (to top of cable) for cables rated 600/1000V, and 1 000mm (to top of cable) for cables rated greater than 1000V, below the adjoining final ground level, except where intersections take place with other services, adequate clearance between the services shall be allowed.

A cable marking tape shall be run 300mm above each cable. Where multiple services are installed within the same trench, two marker tapes shall be installed marking the width extremities of the trench. For cables rated greater than 1 000V, protective cable tiles shall be laid at 600mm above each main cable for the entire length of the cable trench.

The Tenderer shall excavate by hand due to limited access or the proximity of other services.

Special care shall be taken at intersections with other services. Any damage to other services shall be made good and paid for by the Contractor.

No excavated material shall be left closer than 300mm from the side of the excavation. The excavated material shall take up as small an area as possible with the safety of the workmen and Works taken into consideration.

The Tenderer shall maintain the excavation in a good condition, free of water, mud, loose ground, rocks, stones, gravel and other strange material until the cables are installed and the excavation is backfilled and completed.

The cable shall, after the completion of the trench, be laid with the minimum of delay so that the trench can be backfilled. Timeous arrangements shall be made that all cables be inspected by the Electrical Engineer prior to backfilling and closing trenches. The Tenderer shall be responsible for informing the

Electrical Engineer timeously, and non-inspected closed trenches may be required to be opened up for test inspections or may be rejected.

All open cable trenches shall be effectively barricaded so as to prevent people from falling into the trenches. Cable trenches within demarcated and fenced construction areas shall be barricaded with danger tape and maintained to be clearly visible to all construction activities.

6. CABLES IN SLEEVES

Pulling socks or other suitable means approved by the Engineer shall be used for the installation of cables in sleeves. Care shall be taken to ensure that the maximum allowed mechanical forces on the cables are not exceeded and that the sheaths are not damaged during installation. Furthermore, the Contractor shall ensure that the cables are not kinked or excessively bent while maintaining the minimum bending radius as specified by the manufacturer.

The Contractor shall use necessary precautions to ensure that all cables are not damaged at the mouth of cable sleeves.

The Contractor shall inspect the sleeves before installation of the cables to ensure and confirm that there are no sharp edges present that could cause damage to the sheaths.

Cables found with scratch marks or other forms of damage will be rejected and shall be replaced at the Contractor's cost.

Should long runs of cables in sleeves be encountered, it may be required to grease the cable with petroleum jelly or other non-aggressive compound to facilitate the installation. This will however be discussed with the Engineer prior to installation.

7. CABLES ON CABLE RACKING

Cables to be installed on cable racking shall be secured to the cable racking at intervals not exceeding 1m.

Cables with diameters larger than 50mm and cables in trefoil arrangement shall be secured by means of stainless steel bandit straps (over a PVC strap for the protection of sheath). Smaller cables shall be secured by means of PVC cable ties.

All cables shall be individually strapped, except for cables installed in trefoil format.

8. CABLE NUMBERING AND CORE IDENTIFICATION

Each cable shall be numbered by means of an approved type cable tag attached to both ends below each termination and gland. Each tag shall indicate the designation connected at the other end, cable size, number of cores, length, earth wire size and be easily readable after installation.

9. DISTRIBUTION BOARDS

The successful Tenderer shall be responsible for the design and installation of the distribution boards so as to ensure that they fit comfortably in the positions specified on the drawings, are easily maintained and the doors of the distribution boards can be fully opened.

The layouts and construction of all distribution boards shall be to the approval of the Engineer prior to ordering and manufacturing.

The distribution boards shall be of the flush / floor standing / surface mounting type/s. The distribution board tray shall be constructed of 2mm minimum thickness hot dip galvanized steel or folded 3CR12 sheet metal. Pre-punched knockouts for conduit shall be incorporated in the upper and lower sides of the distribution board tray prior to galvanizing. The size of tray shall be determined by the number of circuits actually installed allowing for 30% additional circuit space and spare conduits installed from the distribution board to the ceiling void where the DB is built into a wall.

The architrave frame shall be constructed with square edges from minimum 2 mm thick 3CR12 steel and be powder coated. The architrave frame shall form a 25 mm border around the bonding tray and shall be fixed to the bonding tray in such a manner as to allow for adjustment for the inequalities in the wall finish. A minimum of 75 mm shall be allowed between the inside of the architrave frame and the equipment.

The distribution board cover shall be constructed of minimum 2mm thick folded 3CR12 steel and be powder coated. The distribution board cover shall have machine cut openings for the specified electrical equipment and as indicated on the single line diagrams. The distribution board cover shall furthermore be fitted with suitable handles to facilitate safe the removal of the cover.

Distribution boards shall be equipped with single/double hinged doors. The doors shall be constructed of 2 mm minimum thick 3CR12 steel and be powder coated. Where required, the doors shall be reinforced to ensure rigidity. The door shall be mounted flush in the architrave frame and will comply with the requirements detailed on the drawings.

The distribution boards shall be equipped with suitably sized tinned solid copper neutral and earth bars as required for earth leakage protected circuits and for the balancing of the circuits. Only one neutral conductor shall terminate in each clamp. 30% extra terminals shall be provided above those circuits actually installed.

Wiring shall be done by means of PVC insulated copper conductors with sizes to suit the relevant switchgear. The ends of the conductors shall be provided with suitably sized lugs, firmly crimped for connection to bus bars.

The main/incoming isolator/circuit breaker shall be mounted at the left hand side of the distribution board. The isolators and circuit breakers shall comprise the list as shown on the single line diagram. Should the distribution board comprise of rows of equipment, then sufficient vertical space shall be allowed

for between equipment for the bending and termination of conductors and cables. The earth leakage circuit breakers/isolators shall be 30mA sensitivity with a tolerance of +0 to -50%.

All metal doors shall be earthed bonded to the distribution board tray by means of an insulated copper strap, tooth washers, bolts and nuts.

Every circuit on each distribution board shall be clearly and legibly labelled. The legend shall be typed and circuit breaker numbering shall be of the engraved type.

All unequipped spaces in the distribution boards shall be fitted with dummy MCB's or approved cover plates.

PVC sleeves installed shall cater for the cable size and the minimum bending radius on the sleeve with minimum 6 times the diameter of the sleeve.

Distribution boards shall be painted and labelled in accordance with the details as specified below:

	Normal Supply	Essential Supply	UPS Supply
Colour of Indoor Distribution Board	White or Beige	White or Beige but preferably Red	White or Beige but preferably Blue
Colour of Outdoor Distribution Board	Electric Orange colour B26 of SANS 10140 (Part II)	Electric Orange colour B26 of SANS 10140 (Part II)	Electric Orange colour B26 of SANS 10140 (Part II)
Colour of Face Plate	White or Beige (Indoor) Electric Orange (Outdoor)	Signal Red colour B26 of SANS 1091	Blue colour F06 of SANS 1091
Label Type	Black letters on White Ivorene label	White engraved letters on red Ivorene label	White engraved letters on blue Ivorene label
Label Fixing	Ivorene label to be glued with super glue or pop riveted to face plate or frame		
Distribution Board Label Details	Distribution Board name e.g. DB A	Distribution Board name e.g. DB AE	Distribution Board name e.g. DB AU
Face Plate Label Details	Distribution Board Name; Indication of Feeder source; Size of Feeder cable; Fault level; Rating of Distribution Board; Phase rotation		
Letter Font	Arial		
Letter Size	Distribution Board label 6mm Face Plate label 3mm		
Labelling of Cables	All incoming and outgoing cables must be labelled with Ivorene labels indicating the designation and size of the cable		

10. CONDUIT AND ACCESSORIES (PVC)

The conduit and wiring system shall include all conduit, draw boxes (where required), joints, elbows and other accessories required for the completion of the Contract Works. Consumables, including saddles, fixers, screws, conduit

bushes, etc., are deemed to be included within the rates quoted. A minimum number of joints shall be permitted in any length of conduit run between draw boxes, switch socket outlets, luminaries, distribution boards, etc.

All the conduiting shall be done on the roof trusses (attached by means of saddles onto the bottom of the trusses) or on top of the ring beams or chased into walls or cast in concrete where applicable. The conduit work shall cater for face brick external wall finishes and plastered/face brick internal finishes to all buildings. No surface conduit shall be allowed and the successful Tenderer shall build conduits into the walls. Where services exit in face brick walls, the successful Tenderer is to ensure that the conduit box or switch box is symmetrical with the nearest brick course.

The successful Tenderer shall be responsible for the conduit routing. Draw-boxes are to be provided in accordance with the Wiring Code and wherever necessary to facilitate easy wiring.

The successful Tenderer shall have a representative in attendance at all times when the casting of concrete slabs takes place, to ensure that no movement or damage to conduit occurs.

Unless other methods of installation are specified for certain circuits, the installation shall be in conduit throughout. No open wiring in roof spaces or elsewhere will be permitted.

The conduit and conduit accessories shall comply fully with the applicable SABS specifications and the conduit shall bear the mark of approval of the South African Bureau of Standards.

The bonding of PVC tubing to connectors, elbows or termination boxes shall be carried out using a good quality adhesive, rendering the pipe work completely watertight.

The loop in system shall be used throughout the installation. This means that all wiring shall be possible from below the ceiling and that no inspection or draw boxes shall be allowed in the ceiling space.

For light and socket outlet circuits, the conduit used shall have an external diameter of 20mm.

For telephone and LAN circuits, the conduit used shall have an external diameter of 25 or 32mm. In all other instances the sizes of conduit shall be in accordance with the Wiring Code for the specified number and size of conductors. For a single outlet point, a 25mm conduit must be installed and a 32mm to power skirting for every 5 or less outlet points.

Only one manufactured type of conduit and conduit accessories will be permitted throughout the installation.

Under no circumstances will conduit having a wall thickness of less than 1.6mm be allowed in screening laid on top of concrete slabs.

Bending and setting of conduit must be done with special bending apparatus manufactured for the purpose and which are obtainable from the manufacturers of the conduit systems. Damage to conduit resulting from the use of incorrect bending apparatus or methods applied must, on indication by the Client's Representative, be completely removed and rectified, and any wiring already drawn into such damaged conduits must be completely renewed at the successful Tenderer's expense.

Flexible connections between conduit and appliance or other equipment shall be by means of flexible conduit.

Tenderers must ensure that general approval of the proposed conduit system to be used is obtained from the local electricity supply authority prior to the submission of their tender. Under no circumstances will consideration be given by the Engineer to any claim submitted by the successful Tenderer that may result from a lack of knowledge in regard to the requirements of the supply authority.

The Contractor shall make himself familiar with the positions of all fittings, such as blackboards, pinning boards, cupboards, shelving, work-tops, etc., before commencing the conduit installation. The position of switches and socket outlets as indicated on the drawings are approximate only. The Contractor must verify that the final position of these will not be covered by the installation of the fittings referred to above, or come midway between the junction of any dados and upper wall finishes.

No extras will be entertained for moving switches or socket outlets as a result of the Contractor's failure to verify the final positions of the fittings or type of wall finish.

11. SURFACE MOUNTED CONDUIT

Wherever possible, the conduit installation is to be concealed in the building work, however, where unavoidable or otherwise specified, conduit installed on the surface must be plumbed or levelled and only straight lengths shall be used.

The use of inspection bends is to be avoided and instead the conduit shall be set uniformly and inspection couplings used where necessary.

Conduit will be secured on heavy duty approved spaced saddles rigidly secured to the mounting surface.

Alternatively, fittings, tees, boxes, couplings etc., are to be cut into the surface to allow the conduit to fit flush against the surface. Conduit is to be bedded into any wall irregularities to avoid gaps between the surface and the conduit.

Crossing of conduits is to be avoided; however, should it be necessary, purpose-made metal boxes are to be provided at the junction. The finish of the boxes and positioning shall be in keeping with the general layout.

Where several conduits are installed side by side, they shall be evenly spaced and grouped under one purpose-made saddle.

Distribution boards, draw-boxes, industrial switches and socket outlets etc., shall be neatly recessed into the surface to avoid double sets.

In situations where there are no ceilings the conduits are to run along the wall plates and the beams.

Only approved plugging materials such as aluminium inserts, fibre plugs, plastic plugs, etc, and round-head screws shall be used for fixing saddles, switches, socket outlets, etc., to walls. Wood plugs and the plugging in joints in brick walls are not acceptable.

No extras will be entertained for moving switches or socket outlets as a result of the Contractor's failure to verify the final positions of the fittings or type of wall finish.

12. WIRING

In general, all wiring used in installations shall be of at least 600/1000V grade in accordance with SABS 1507 and PVC insulated, subject to volt drop calculation results.

Light, ceiling fan and extractor fan circuits shall be wired with 1.5mm² 7 strand copper conductor PVC insulated wire, subject to volt drop calculation results.

Switched socket outlets and power points shall be wired with 2.5mm² 7 strand copper conductor PVC insulated wire, subject to volt drop calculation results.

Geyser, air conditioner and heater circuits shall be wired with 4mm² 7 strand copper conductor PVC insulated wire, subject to volt drop calculation results.

Stove and oven cooker circuits shall be wired with 6mm² 7 strand copper conductor PVC insulated wire, subject to volt drop calculation results.

Wiring for circuits not specified shall be according to SANS 10142-1.

Associated with every circuit, a stranded copper earth conductor shall be run and connected to the terminal of the appliance or outlet and on the installed earth bar within the distribution board. Wire sizes shall be as follows:

6mm ² conductor	:	4mm ² earth wire
4mm ² conductor	:	2.5mm ² earth wire
2.5mm ² conductor	:	2.5mm ² earth wire
1.5mm ² conductor	:	2.5mm ² earth wire

Where circuits are run in metal conduit, bare earth conductor shall be used and PVC insulated earth conductor shall be used for circuits run in PVC conduit.

13. EQUIPMENT ISOLATORS

The colour coding of isolators located adjacent to items of fixed equipment as prescribed in SANS 10142-1 or elsewhere in this specification or drawings, shall be in accordance with the details as specified below:

	Normal Supply	Essential/Emergency Supply	UPS Supply
Colour of Cover Plate	White		
Colour of Isolator Toggle	White	Red	Blue
Label Type	Black letters on White Ivorene label or engraved directly on the cover plate with Black infill	Red letters on White Ivorene label or engraved directly on the cover plate with Red infill	Blue letters on White Ivorene label or engraved directly on the cover plate with Blue infill
Label Fixing	Ivorene label to be glued with super glue or pop riveted to cover plate		
Cover Plate Label Details	Distribution Board name and circuit number feeding the isolator e.g. DBA I1	Distribution Board name and circuit number feeding the isolator e.g. DBAE IE1	Distribution Board name and circuit number feeding the isolator e.g. DBA U/IU1-1
Letter Font	Arial		
Letter Size	3mm		

Where Blue isolator toggles are not obtainable and written approval was obtained from the Engineer, an isolator switch incorporating a Red or Blue neon or LED indicator may be used. Alternatively, a White isolator toggle may be used but the isolator toggle must be tagged with a non-removable Red or Blue sticker.

Unless otherwise specified in the Bill of Quantities or the drawings, the isolator outlets shall be similar in design and construction to the Clipsal Series 2000, Crabtree Diamond or other approved. The correct PVC cover plate shall be provided with the isolator outlet and included in the rate.

14. EARTHING AND LIGHTNING PROTECTION

General

All workmanship and materials used shall be of the highest standard and shall be carried out in accordance with the best modern practice, as determined by the Engineer.

The entire installation shall comply in every respect with the latest amended publication of the relevant specifications.

Definitions

Lightning Protection System

The whole system of conductors used to protect a structure from the effects of lightning.

Air Terminal

The part of a lightning protection system that is intended to intercept lightning discharges directly.

Down Conductor

A conductor that connects the air terminal (s) to the earth terminals (s).

Earth Terminal

The part of a lightning protection system that is intended to discharge lightning currents into the general mass of the earth.

Earthing Electrode

The part of an earth terminal which makes direct electrical contact with the earth.

Bond

A conductor that provides electrical connection between the lightning protection system and the metal work of the structure to be protected or between various parts of this metal work.

Joint

A mechanical junction between two conductors for purpose of providing electrical continuity between two parts of the lightning protection system.

Testing Joint

A joint in a down-conductor or in a bond connecting two sections of the lightning protection system so designed and situated as to enable measurements to be made of the resistance to earth or of electrical continuity of parts of the lightning protection system.

Detailed scope

The contractor shall have a specialist who will undertake the soil resistivity tests and submit a detail design based on soil resistivity results indicating

the expected earth reading to the engineer for approval prior to commencement of the installation.

Each transformer shall have an earth mat that is connected to the earth point of the transformer.

The earth mat shall be provided by the successful Tenderer as close as possible to the distribution board. The earth electrode shall consist of 10mmØ solid copper conductor and treaded copper coated earth spikes bearing the SABS mark of approval. A minimum of 250µm copper coated mild steel threaded on both ends driven into the ground to a depth where the reading obtained on equipment as specified does not exceed 2Ω. The distribution board earth bar shall be connected to the earth by means of a bare stranded copper conductor of size equivalent to that of the main incoming cable.

Earth continuity between any point and an exterior earth connection shall be proven by a Meggar reading of zero, i.e. full continuity.

All light fittings, fixed appliances such as stoves, geysers, etc., switched socket outlets and steel or copper water pipes shall be suitably bonded to a good earth.

Should non-conductive water piping be used in buildings for hot or cold water, the geyser or heat pump earth must be bonded to the main earth in each distribution board and to the main water supply piping.

No exothermic weld connections are allowed.

The lightning protection system shall consist of an aluminium roof conductor system in the case of non-metallic roofs and metallic roofs with which do not conform with minimum SANS62305-3:2011 (as amended), linked via a series of aluminium down conductors to buried earth spikes and 10mmØ solid copper trench earths. In the case of metallic roofs, which conform to minimum SANS requirements, the roof shall be bonded to the buried earth spikes and trench earths by means of down conductors. The down conductors shall be spaced at a maximum of 20m apart around the entire building.

All conductors shall be in accordance with the requirements of BSS 1474 or American Standards Specification 6063. All aluminium conductors shall have a cross-section area of not less than 50mm² (domestic dwelling only) or 70mm² for all other applications. The dimensions of flat section conductors shall be a minimum of 20mm x 3mm. Where conductors are mounted in stand-off guides, the cross-sectional area of the conductor shall be not less than 70mm² to give adequate mechanical strength.

The conductor shall be mounted in aluminium alloy guides conforming to the material specification given above. The guides shall allow for free longitudinal movement of the conductor to cater for expansion and contraction of the system caused by temperature variation. The minimum thickness of any part of the guide shall not be less than 3mm. The guides

shall be securely attached to the structure using two stainless steel screws and plugs; the use of plated screws is not permitted.

The conductor system shall be supported in guides so that an air gap exists at all times between the aluminium and the surface of the structure, the guides being seated upon plastic or other similar insulating material. Should conductors be installed directly upon the surface of concrete or cement plaster, an insulating strip is to be installed over their entire length to prevent contact between the two surfaces. Guides shall be installed to support the conductor at intervals not exceeding 1.2m horizontally or 1.5m vertically.

No part of an aluminium conductor system shall be allowed to come into direct contact with concrete or cement plaster as this may cause the aluminium to corrode.

Where conductors are installed horizontally without deviation from a straight line over long distances, expansion loops shall be provided at distances not exceeding 30m. These expansion loops shall have a cross-sectional area which is at least equal to that of the conductor.

Where external down-conductors are installed in areas which are readily accessible to the public, the lower ends of the conductors shall be enclosed in a semi-rigid insulating material. In the case of a circular section conductor this shall comprise a 2m length of 20mm diameter conduit. The conduit shall be securely attached to the wall by means of galvanized heavy duty steel saddles fixed with stainless steel screws and plugs, spaced at intervals not exceeding 1m. The ends of the conduit shall not be sealed.

Standard Procedure to be followed by the Specialist Contractor

- a. Conduct a risk assessment on various structures and equipment, as required by the SANS Code of Practice.
- b. Conduct resistance test measurements at areas where existing earthing has been installed and measure earth termination points connected and disconnected.
- c. Conduct soil resistivity surveys where new installations are intended by means of the Wenner and fall of potential method.
- d. Analyse from the surveys whether the ground conditions are in any way corrosive as per the SANS Code of Practice.
- e. Block plan/site plan drawing to be provided so that required earthing can be marked up to upgrade wherever necessary.
- f. Once the survey has been conducted and drawings marked up, etc., to provide quotation to upgrade wherever necessary.

- g. Supply and install materials to structures and equipment wherever upgrading or new system may be installed to SANS requirements.
- h. Conduct final resistance test measurements in presence of authorized personnel and issue an Earthing & Lightning Protection Report and Certificate/s.
- i. Provide detail design of the complete earthing system complete with SANS10313 Lightning Protection System Installation Safety Report for acceptance by the Engineer.

The acceptance letter will be submitted by the Engineer.

All test procedures and recommendations will fully comply with the SANS Code of Practice 10313: 2010 in conjunction with SANS 62305-1-2-3-4: 2011 and IEC 62305-1-23-4: 2010.

14.1 JOINTS ABOVE GROUND

Circular section aluminium conductors shall be joined by aluminium ferrules or lugs which are securely crimped into place. Aluminium lugs shall be bolted together using 10mmØ aluminium bolts and washers. The material specification for these components shall conform to that laid down above. Alternatively, heavily tinned copper lugs and ferrules may be used. The lugs should be joined together by means of 10mmØ copper, brass or bronze bolts and washers. Care should be taken to inhibit corrosion where dissimilar metals are used by thoroughly cleaning the surfaces of the metal before assembly and subsequently sealing the joint with an inert tenacious compound or tape.

Flat section aluminium conductors shall be joined by double riveting, using aluminium rivets which comply with the material specification laid down above. Alternatively, 2 x 6mmØ stainless steel bolts, nuts and washers may be used. Fold over type bends will not be permitted.

Down-conductors are to be terminated approximately 200mm above finished ground level. Circular section aluminium is to be jointed to a 70mm² (50mm² in the case of domestic dwellings) stranded copper conductor by securely crimping in place two heavily tinned lugs and bolting these together using 10mm diameter copper, brass or bronze nuts, bolts and washers.

Under no circumstances shall aluminum conductors be buried in the ground.

14.2 JOINTS BELOW GROUND

A joint in the stranded copper conductor which forms part of the earthing system shall be made by using a crimped copper ferrule clamp (not lugs), two copper line taps of suitable dimensions. The copper earth conductor shall be joined to an earth rod by clamping, using a standard earth rod clamp or copper line tap. No exothermic weld connections are allowed.

Joints made between dissimilar metals (i.e. copper conductor to galvanized steel water main), shall be thoroughly cleaned before assembly. They shall be rendered watertight using waterproof adhesive tape or a suitable compound for a minimum distance of 200mm in all directions from the joint.

14.3 **BONDS**

Where it is necessary to bond the aluminium conductor to any other metallic surface, this shall be done by bolting or riveting. When attaching aluminium to a dissimilar metal the joints are to be thoroughly cleaned and sealed to prevent corrosion.

14.4 **AIR TERMINALS FOR NON-METALLIC PITCHED ROOFS**

Aluminium conductors are to be installed along all ridges of roofs and projections such as dormer windows, etc., terminating at the ends with conductors running downwards over the surface of the roof and the eaves. Non-metallic chimneys shall be protected by means of a finial of sufficient length to cover the chimney within a 45° angle struck downwards from its point. Alternatively it should have a conductor installed in the form of a closed loop upon the upper surface. The conductors are to follow the outer contour of the stack and shall be bonded at a convenient point to the nearest component of the air terminal system.

This bond may run in a horizontal or downward direction, but under no circumstances shall any part of it run above horizontal.

Conductors may be dead-ended (i.e. have one end free and unbounded), providing that the length of such a conductor does not exceed 10m and that the unbounded end is either at the same level or higher than the bonded end. This technique may be used where ridge conductors are installed over dormer windows, etc.

In all cases where metallic gutters have been installed along the eaves of a pitched roof, these shall be bonded to the air terminal system. Where metallic gutters do not exist, however, a conductor shall be installed over the surface of the roof at eaves level to which the remainder of the air terminal system is to be bonded, with the following exceptions:

- Where the maximum distance from the ground level to the eaves of the building is less than 4m and the pitch of the roof is more than 1 in 2 (27° from the horizontal).
- Where the maximum distances from ground level to the eaves is less than 7m and the pitch of the roof is more than 1 in 1.5 (34° from the horizontal).
- Where the distance from the ground level to the eaves is more than 7m and the pitch of the roof is more than 1 in 1 (i.e. the included angle at the apex of the roof is less than 90°).

Under these circumstances eaves conductors need not be installed.

Any non-metallic objects which protrude above the general roof lines, such as Cape Dutch gable ends, shall be protected as described above with a suitable air terminal system. Any metallic objects which protrude above the general roof line, such as hot water expansion pipes shall be bonded as directly as possible to the nearest eaves conductor, gutter or other part of the lightning system.

These bonding conductors shall run in a horizontal or preferably a downward direction, from the vent pipe, etc., to the lightning protection system.

14.5 AIR TERMINALS FOR METALLIC PITCHED ROOFS

Buildings with roofs covered with electrically continuous metal sheets do not require separate air terminals but shall be earthed via down conductors generally as described in above. Any non-metallic objects projecting above the general roof line shall be separately protected as described above and bonded to the metal roof covering.

14.6 AIR TERMINALS FOR NON-METALLIC FLAT OR MONO-PITCHED ROOFS

For flat or mono pitched roofs of non-metallic construction the air terminal system shall consist of aluminium alloy conductors installed around the outer perimeter of each section of the roof structure. These conductors shall be installed on top of parapet walls if these exist. Lift motor rooms, tank rooms, penthouses, etc., which protrude above the general roof line shall have air terminal conductors installed around the outer perimeter of each roof slab or parapet wall. Any metallic objects which protrude above the roof line, such as expansion pipes, signs, flag poles, handrails, etc., shall be bonded directly to the nearest component of the lightning protection system.

It is not permissible for the ends of conductors to be bonded directly to the perimeter air terminal system if the latter is installed upon a parapet wall having a height exceeding 500mm above roof slab level. In these circumstances the conductors are to be bonded directly to the down conductors.

14.7 AIR TERMINALS FOR METALLIC FLAT OR MONO PITCHED ROOFS

Metallic flat or mono pitched roofs do not require separate air terminal conductors, providing that there is electrical continuity between the metallic roofing sheets. A metallic roof surrounded by a non-metallic parapet wall shall have conductors installed at the top of the parapet wall and these shall be bonded to the metallic roof at intervals not exceeding 20m. If the parapet wall is clad with metal over its upper surface, or a handrail is installed which affords good electrical continuity, separate air terminal conductors need not be installed. Under these circumstances the metal handrail or cladding shall be bonded to the metal roof covering at intervals not exceeding 20m.

All non-metallic covering such as slates, tiles, asbestos cement sheeting, etc., supported by a steel structure being electrically continuous throughout may be treated as being of a complete metal construction. In these circumstances no separate air terminal system need be installed providing the steel roof structure is bonded to earth at intervals given above.

14.8 DOWN CONDUCTORS FOR NON-METALLIC STRUCTURES

Down conductors shall be installed at regular intervals around structures and run as directly as possible between the air terminal and earthing system. They shall, where practicable, be positioned at the external corners of the structure. The maximum separating distance between down conductors around the perimeter of the structure shall not exceed 30m. In the case of very tall buildings having a slender base (i.e. chimney stacks, water towers, etc.), a minimum of two down conductors shall be installed.

The lower ends of down conductors are to be terminated and bonded to the earthing system. Under no circumstances shall aluminium conductors be buried underground. Test joints shall be provided between the down conductors and earthing system. Down conductors shall run vertically between the air terminal and earthing systems. Where this is impracticable, their course may be deviated to run at any angle up to and including horizontal.

Where it is necessary to run conductors horizontally over the upper surface of a structural protrusion, such as an exposed concrete slab, the conductor may run down vertically over the edge of the slab and return to the main structure, so that the distance between the upper and lower conductors exceeds one third of the length of the horizontal run. Looped down conductors are not permitted. Down conductors shall not run over the underside of large overhangs which are less than 6m above ground level, or other areas where people are likely to be present during a thunderstorm.

External or internal metallic rainwater pipes may be used as down conductors providing these are of substantial section and are joined by screwing one length into another or welding. Thin gauge galvanized steel pipes whose sections are held together by friction, rivets or screws shall not form part of a lightning protection system.

14.9 DOWN CONDUCTORS FOR REINFORCED CONCRETE FRAMED STRUCTURES

The steel reinforcement of this type of structure may be used in place of down conductors. Where the reinforcing system is used, the air terminal system shall be bonded to it at a maximum of 30m intervals using steel clamps. This bond may be achieved by clamping, with a steel clamp, a steel conductor to a selected reinforcing bar, the opposite end of this conductor shall terminate at a corrosion resistant metallic terminal such as Grade 316 stainless steel.

The reinforcing system of prefabricated concrete buildings shall not be used unless special provision is made for bonding the various prefabricated sections together.

The terminals should be mounted flush with the face of the concrete. An aluminium alloy bond shall then be taken from the air terminal system and be connected to the stainless steel terminal by means of a heavily tinned crimp lug for circular section aluminium, or a suitable bi-metallic joint in the case of flat section aluminium. A similar system shall be used to bond the reinforcing system at ground level to the earthing system at points directly below the air terminal bonds. Here copper conductors shall be used as the external bonding material.

Under no circumstances shall copper, or other non-ferrous material be allowed to come into contact with steel reinforcing bars, as this may cause severe corrosion and subsequent structural damage. The lightning protection system shall not be bonded to any part of the structure which is electrically isolated from the remainder of the building, i.e. cantilevered sections. In these circumstances, or where it is otherwise impracticable to use the reinforcing system, external down conductors shall be installed as above.

14.10 DOWN CONDUCTORS FOR STEEL FRAMED STRUCTURES

Where the framework of a building is constructed of structural steel columns, these may be used in place of down conductors providing the separating distance between them does not exceed 30m. The upper ends of the columns shall be bonded to the air terminal systems and the lower ends to the earthing system.

14.11 EARTHING BY MEANS OF VERTICALLY INSTALLED ROD TYPE ELECTRODES

Rod-type electrodes shall be driven into the ground at a position directly below each down connector. The maximum earthing resistance of each electrode or number of electrodes bonded to any one down conductor shall not exceed $N \times 30\Omega$, where N equals the total number of down conductors which are bonded to a common air terminal system, or 200Ω , whichever is the lower value.

The minimum horizontal separating distance between rod-type electrodes bonded together shall not be less than their installed depth. The upper ends of installed rod-type electrodes are to be terminated approximately 500mm below finished surface level. A 50mm^2 copper bonding conductor shall be installed to run between each earthing electrode system and the lower ends of the adjacent down conductors. A joint is to be made between each of these bonding conductors and the down conductors at a position approximately 200mm above finished ground level. These bonding conductors shall be installed in PVC conduit securely affixed to the wall. The length of this PVC conduit shall be approximately 600mm and shall be installed so that approximately 200mm protrudes above ground level, the remainder being buried into the soil.

14.12 EARTHING BY MEANS OF METALLIC WATER MAINS

Where two or three down conductors are installed the water mains may serve as an earth terminal for one of these. Where three or more down conductors are installed the water mains may serve as an earth terminal for two of these. Regardless of whether the water mains are used as an earth terminal or not, the incoming metal water pipe shall be bonded to the lightning protection earthing system underground.

14.13 EARTHING BY MEANS OF TRENCH TYPE ELECTRODES

Where the soil conditions prevent the satisfactory installation of rod-type electrodes, a trench earth system shall be installed. This method is to comprise a 70mm² stranded copper conductor installed horizontally into a trench at a depth of 500mm below finished ground level. The conductor is to follow the general outline of the structure to be protected and be installed 1m away from the outside walls. Where the building stands on rocky ground, the trench earth may be attached to the lower part of the wall in areas where rock protrudes through the soil. The conductor shall, however, be buried wherever possible as described above.

Each down conductor shall be bonded to the trench earth system as directly as possible by means of a copper conductor.

Trench earth systems shall have a maximum earth resistance of 30Ω. An isolated length of trench earth mat shall be bonded to the down conductor system in such a way as to reduce the length of dead-ends to the minimum.

Should trench earths be installed beneath pathways where people are likely to be present during a thunderstorm, a plastic, bitumastic or ceramic pipe shall be installed having a length similar to the width of the pathway and the trench earth conductor run inside it.

The maximum useful length of a dead-ended trench earth is 80m.

14.14 TESTS ON COMPLETION

The lightning protection of the installation shall comply with and shall be tested in accordance with SANS 10313. The installation shall be done by an approved and recognised specialist in the field of lightning protection and earthing.

The submitted price for the lightning protection system shall include all requirements for the detail design and entire installation, compliance with SANS 10313 and shall include all testing and the issue of safety and test certificates. Any additional cost required to enhance the earthing and lightning protection installation shall be paid direct from the project upon Clients approval or Clients representative.

15. TESTING AND INSPECTION

The successful Tenderer shall comply with the relevant requirements concerning registration of electricians, registration of the works, testing and inspection.

The successful Tenderer shall ensure that all equipment is installed and tested in full compliance with the requirements of the manufacturers of the equipment so as to ensure that the guarantees offered by the manufacturers are not compromised. The successful Tenderer shall familiarise himself in detail with the manufacturer's requirements prior to the installation of the equipment, and, where necessary, the installation work shall be carried out under the supervision of the manufacturer/supplier.

The successful Tenderer shall carry out continuity, earth leakage, earth loop impedance and insulation tests to ensure that the installation is functional and safe.

A full functional test will be carried out on the installation for a period to determine the satisfactory working thereof after completion of the works and before first delivery is taken. During this period the installations will be inspected and the successful Tenderer shall make good, to the satisfaction of the Engineer, any defects that may arise.

The successful Tenderer shall provide all instruments and equipment required for testing and any water, power and fuel required for the commissioning and testing of the installations at completion.

The successful Tenderer shall on completion of the tests, submit, in terms of the OHS Act

No.85 of 1993 (as amended), a completed and signed Certificate of Compliance for Electrical Installations to the Clients Representative.

On completion of the Contract Works, the successful Tenderer shall remove all dirt and debris arising from the Contract Works from site, paying particular attention to roof spaces.

Only Tenderers registered with the Electrical Contracting Board of South Africa in accordance with Regulation 5 of the Occupational Health and Safety Act will be accepted and permitted to do work under this Contract. The requirements of Regulation 5(2) will be strictly enforced, and are repeated for convenience purposes:

"5(2) The Electrical Contracting Board of South Africa shall, free of charge, register as an electrical contractor and enter into a register kept for that purpose the name of any person who applies therefore in terms of sub-regulation (1) and who

(a) has a fixed address and has a telephone listed in his name; and

(b) employs an accredited person on a full-time basis, or is himself an accredited person."

An "accredited person" is defined in the Regulations as ".....a person registered in terms of Regulation (9) (of the Act) as an electrical tester for single phase, an installation electrician or a master installation electrician, as the case may be". If, for any reason whatsoever, the successful Tenderer fails to comply with these statutory requirements during the Contract period, after having been accepted initially to do work under this Contract, the services of the successful Tenderer will be terminated in accordance with Clause 56 of the Conditions of Contract.

16. DRAWINGS AND DOCUMENTATION

The successful Tenderer shall provide four sets of "as built" drawings and operational manuals for all equipment installed in terms of this specification, the drawings and Bill of Quantities. One set shall be provided to the Clients Representative and three to the Employer.

The maintenance and operational manuals must be complete with an index and be bound in a suitable hard cover binder such as Bantex A4 Ring Binders. The files must be provided with stiff dividers on which the relevant sections are indicated and are to be in printed or typed format. Drawings shall be housed in plastic pockets in the file, and only one (1) drawing per pocket will be allowed.

In addition all "as built" drawings must be stored on CD in .dwg format and must also be submitted with the manuals.

All schematic electrical "as built" drawings of distribution boards must be laminated and attached to the inside of the doors with double sided tape.

The main distribution board/electrical panel schematic diagram in the low voltage plant room or in other plant rooms as well as the schematic site reticulation layout, if applicable, must be suitably framed with Perspex and be mounted in the plant room in a position as indicated on site.

The maintenance and operational manuals must consist of the following sections where applicable to the project:

- Operations section, covering description of the system and functioning thereof, all starting up and stopping procedures, fault-finding procedures, pre-start checks and equipment running checks.
- Comprehensive data log sheets to be kept by the user of the system.
- General system description and general information schedules of plant and equipment, such as description of equipment, model number, capacity, electrical requirements of equipment, name and address of supplier, name of manufacturer.
- Design information: Design data sheet containing all design and selection parameters, calculations, selection curves, etc. Settings and values recorded during commissioning. Manufacturers' brochures, pamphlets, pump curves, etc.

- Maintenance data and schedules: The lapse of time between services and the description of service requirements for each part, piece of equipment or item installed under the Contract. This section must also include the detailed daily, weekly, monthly, three monthly, six monthly and yearly preventative maintenance instructions and checklists.
- Manufacturers' literature indication lubrication points, lubricants to be used and other data referred to above.
- Commissioning data of all equipment and systems with all set points listed in table format relating to the specific piece of equipment and/or system.
- All other data relating to other components forming part of the system/reticulation such as valves, diffusers, medical gas outlet points, etc.
- Critical spare parts list for all equipment.
- All test certificates (any certificates required in terms of the installations as pertaining to the project), compliance certificates, lightning protection certificates, certificates of construction of electrical panels.
- Schematic wiring diagrams and equipment ratings of all electrical panels and distribution boards.
- All "As-Built" drawings of mechanical and electrical installations pertaining to the project. "As-Built" drawings must be the true reflection of the installation as on site and must include the actual particulars of the equipment as installed on site and must be signed and dated by the responsible consultant and must be marked "AS BUILT". □ All "As-Built" drawings, including wiring diagrams, must be produced in AutoCAD format and be stored on CD as listed above.

17. BILL OF QUANTITIES & PRICING SCHEDULE (To be completed by tenderer)

17.1 CONTRACT SUM INCLUSIONS

The contract sum includes all Contractor's design, administration, supervision, materials, plant, equipment, auxiliary costs, duties, taxes and profit. Similarly, the unit rates for extra work shall also include all the above costs. This includes, but is not limited to, any error or omission by Contractor in estimating the cost of Works; any additional compensation for overtime, even when such overtime is required to maintain or recover progress on instruction of the Engineer; and any premium or bonus paid to secure deliveries of construction tools, equipment and materials.

17.2 PRELIMINARY AND GENERAL

The Preliminary and General costs shall be fully inclusive of all fees, costs, charges, expenses and all other costs incurred to administer the Contract including costs for the administration of subcontractors (if any) and these costs shall include, but not be limited to the following items:

- Supervisory and planning staff, satisfactory to the Engineer as to numbers, qualifications, experience and duration of assignment, as are required to ensure the efficient execution of the Contract in accordance with the agreed programme; and all salaries, burden, transfer costs, housing, travel and living expenses, personnel transport and all other allowances, costs and other charges incurred by or as a result of providing such supervisory personnel.
- Administration and clerical personnel as are required to ensure the efficient execution of the Contract; all necessary security services; warehouse staff for the safekeeping and administration of material intended for permanent incorporation in the Works; as well as all salaries, burden, transfer costs, housing, travel and living expenses, personnel transport and all other allowances, costs and other charges incurred by or as a result of providing such personnel.
- Buildings for the use of Contractor's construction, supervisory and administrative personnel and clerical staff; all mess rooms, washrooms, toilets, workshops, warehousing, stores, and like buildings required by the Contractor; all necessary office furniture and equipment; telephone systems as may be required for the proper administration of the Contract; including delivery, erection and subsequent dismantling and removal from site; and hard standing and open storage areas.
- The provision of, installation, maintenance and dismantling of all temporary facilities, which may be required for the efficient execution of the Contract, including materials, equipment and labor for electrical power supplies, water supply (including drinking water), air supplies, weather protection, foundations, sanitary facilities, sewage system, security fencing.
- Field general expenses such as office cleaning and running expenses, sanitary costs, telephone and fax costs, postal costs, stationery, office equipment hire, labor recruiting and advertising costs, expenses arising from visits to Site by Contractor's home office staff and all costs associated with their visits, staff welfare costs, entertainment expenses, personnel transport costs, permit and license costs, and like costs.
- Insurance and legal fees including payments to statutory authorities or government bodies, local taxes whether public or private, and other similar disbursements or payments necessary for the execution of the Contract as well as all insurance fees in accordance with the Contract.

- All costs incurred in furnishing the Guarantees which are required by the Contract.

18. BILL OF QUANTITIES & PRICING SCHEDULE - GENERAL

An item against which no price is entered will be considered to be covered by the other prices or rates in the bill of quantities.

The General Conditions, the Particular Conditions, the Specification and the drawings are to be read in conjunction with the bill of quantities.

Rates are inclusive of waste. The Employer shall not be held liable for any costs incurred due to over or under ordering.

The prices and rates inserted in the bill of quantities are fully 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 Contract.

NB: The rates shall be fixed and not subject to escalation or foreign exchange variation.

Notwithstanding the fact that the lengths of cables and trenching as given in Bill of Quantities have been measured from scaled drawings, the Contractor shall check such lengths on site before ordering of such material, as he will not be paid for excess. Any allowances for off-cuts are made in the unit rates. The final measurements shall be based on the net route lengths of the cables and cable sleeves only.

Unless a separate rate for the supply and the installation of any item is specifically called for, the supply and installation costs of any item shall be fully included in the unit price.

The description of each item shall, unless otherwise stated herein, be held to include making, conveying and delivering, unloading, storing, unpacking, hoisting, setting, fitting and fixing in position, cutting and waste, patterns, models, brackets, mounting accessories and templates, plant, temporary works, return of packing, establishment charges, profit and all other obligations.

Where the Contractor takes delivery of, handles, stores, uses, applies and/or fixes any proprietary product, he shall do so in strict accordance with the manufacturer's instructions.

All fittings and accessories always include the connection thereto. All light fittings shall be complete with lamps and tubes, unless otherwise stated in the Bill of Quantities.

When using multicore cables, the rates include for all cable tails, and wastage and payment will only be made for the actual length measured from terminal to terminal.

Under no circumstances will any payment be made for wastage, or surplus cable left on drums, by the Contractor.

All measurements are net, unless otherwise stated, and the rates include an allowance for wastage.

All provisional sums shall be expended as directed by the Engineer and any balance remaining shall be deducted from the amount of the Contract Sum.

All items described as "Provisional" shall be measured as executed and paid for according to prices in Bill of Quantities and any unexpected amounts shall be deducted from the amount of the contract sum. No work for which "Provisional" items are provided shall be commenced without written instruction from the Engineer.

The prices for articles described by trade names or catalogue references are based on the type and manufacture specified in these Bills.

Where articles other than of the manufacture specified are used, an adjustment of the prices will be made and Variation Orders issued to cover these adjustments. Substitution will be strictly subject to the Engineer's approval.

BILL OF QUANTITIES & PRICING SCHEDULE

INSTALLATION OF GENERATORS AT SAULSPOORT WTW						
BILL OF QUANTITIES						
Item	Compliance	Description	Unit	Qty	Rate	Amount
1		DIESEL GENERATOR 1500KVA				
		MANUFACTURER, SUPPLY, DELIVER, INSTALL, TEST (ON SITE AND OFF SITE) AND COMMISSION THE FOLLOWING EQUIPMENT AND WORKS AS PER SCOPE OF WORK				
1.1		Supply and deliver enclosed DIESEL GENERATOR, 1500 KVA, //400V, 3 phase, 50Hz, outdoor, Neutral point solid earth, 12% - 92% Relative Humidity, +55 Deg Ambient Temperature, 50Hz Frequency, +/-5% voltage variation, +/- 0.25% frequency variation, +/- 0.5% Voltage regulation.	Each	1	R	R
1.2		Install, Test and Commission, DIESEL GENERATOR specified under item 1.1 above	Each	1	R	R

		CONNECTION POINT BOARD				
1.3		Supply and install Floor standing, Connection Point board, inside substation to interconnect load supply between transformer and generator constructed with 3mm thick 3CR12 mild steel and coated	Each	1	R	R
1.4		CABLES				
		Supply and Install 300mm ² ,				
		4 core SWA Cable with, 4 core SWA cable complete with termination from Generator to 400V AC MCC including cable termination.	Metres	300	R	R
1.5		PLINTH				
	SANS1200D	Excavation				
1.5.1	8.3.2	Excavate in all materials and backfill or place embankment or dispose, as ordered within a free haul distance of 1,0 km	m ³	14	R	R
		Extra-over 3.2 for hard rock excavation	m ³	6	R	R
1.5.2	SANS1200G	Backfill				
1.5.3		150mm G4 Material Compacted to 95%	m ³	21	R	R

		MOD. AASHTO Density				
1.5.4		In-situ material Compacted to 93% MOD. AASHTO Density	m ²	24	R	R
		Concrete Structural				
1.5.5		Blinding layer in 15 MPa/19 mm concrete (50 mm minimum thickness)	m ³	45	R	R
1.5.6		Strength concrete: 30 MPa/19mm	m ³	10	R	R
		Formwork				
1.5.7		Smooth horizontal plane (Class F2) to sides of plinth	m ³	14	R	R
		Reinforcing				
		High-tensile welded mesh reinforcement				
1.5.8		Supply, cut, place, including cover block Type reference 888 in standard sheets	m ²	40	R	R
1.5.9		Supply and fixing of all diameter reinforcing steel to all concrete volumes including cover blocks to shuttering.	Ton	0,6	R	R
		Finishing				
1.5.10		Steel-floated finish (Class U3) to top of	m ²	40	R	R

		plinth				
1.5.11		Supply independent laboratory test of all concrete cast	Each	12	R	R
1.5.12		150mm Flexible PVC Pipe/Sleeve (allow for bitumen sealant)	Metre	10	R	R
1.6		MAINTENANCE				
		Maintenance of generator as per manufacturer's requirements (Warranty)	Month	12	R	R
1.7		TRAINING				
		Training of Employer's personnel in maintenance of generator	Each	1	R	R
		TOTAL 1500KVA				R

TOTAL PROJECT COST SUMMARY	TOTAL AMOUNT
SUB TOTAL BOQ (1500KVA)	R
5% Contingencies	R
7.5% Professional Fees	R
SUB-TOTAL INCLUDING FEES	R
15% VAT	R
GRAND TOTAL	R

General Conditions of Contract

1. Definitions

1. The following terms shall be interpreted as indicated:
 - 1.1 "Closing time" means the date and hour specified in the bidding documents for the receipt of bids.
 - 1.2 "Contract" means the written agreement entered into between the purchaser and the supplier, as recorded in the contract form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.
 - 1.3 "Contract price" means the price payable to the supplier under the contract for the full and proper performance of his contractual obligations.
 - 1.4 "Corrupt practice" means the offering, giving, receiving, or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution.
 - 1.5 "Countervailing duties" are imposed in cases where an enterprise abroad is subsidized by its government and encouraged to market its products internationally.
 - 1.6 "Country of origin" means the place where the goods were mined, grown or produced or from which the services are supplied. Goods are produced when, through manufacturing, processing or substantial and major assembly of components, a commercially recognized new product results that is substantially different in basic characteristics or in purpose or utility from its components.
 - 1.7 "Day" means calendar day.
 - 1.8 "Delivery" means delivery in compliance of the conditions of the contract or order.
 - 1.9 "Delivery ex stock" means immediate delivery directly from stock actually on hand.
 - 1.10 "Delivery into consignees store or to his site" means delivered and unloaded in the specified store or depot or on the specified site in compliance with the conditions of the contract or order, the supplier bearing all risks and charges involved until the goods are so delivered and a valid receipt is obtained.
 - 1.11 "Dumping" occurs when a private enterprise abroad markets its goods on own initiative in the RSA at lower prices than that of the country of origin and which have the potential to harm the local industries in the RSA.

GOVERNMENT PROCUREMENT: GENERAL CONDITIONS OF CONTRACT

- 1.12 "Force majeure" means an event beyond the control of the supplier and not involving the supplier's fault or negligence and not foreseeable. Such events may include, but is not restricted to, acts of the purchaser in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.
- 1.13 "Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of any bidder, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the bidder of the benefits of free and open competition.
- 1.14 "GCC" means the General Conditions of Contract.
- 1.15 "Goods" means all of the equipment, machinery, and/or other materials that the supplier is required to supply to the purchaser under the contract.
- 1.16 "Imported content" means that portion of the bidding price represented by the cost of components, parts or materials which have been or are still to be imported (whether by the supplier or his subcontractors) and which costs are inclusive of the costs abroad, plus freight and other direct importation costs such as landing costs, dock dues, import duty, sales duty or other similar tax or duty at the South African place of entry as well as transportation and handling charges to the factory in the Republic where the goods covered by the bid will be manufactured.
- 1.17 "Local content" means that portion of the bidding price, which is not included in the imported content provided that local manufacture does take place.
- 1.18 "Manufacture" means the production of products in a factory using labour, materials, components and machinery and includes other related value-adding activities.
- 1.19 "Order" means an official written order issued for the supply of goods or works or the rendering of a service.
- 1.20 "Project site," where applicable, means the place indicated in bidding documents.
- 1.21 "Purchaser" means the organization purchasing the goods.
- 1.22 "Republic" means the Republic of South Africa.
- 1.23 "SCC" means the Special Conditions of Contract.

1.24 "Services" means those functional services ancillary to the

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Supply of the goods, such as transportation and any other incidental services, such as installation, commissioning, provision of technical assistance, training, catering, gardening, security, maintenance and other such obligations of the supplier covered under the contract.

1.25 "Supplier" means the successful bidder who is awarded the contract to maintain and administer the required and specified service(s) to the State.

1.26 "Tort" means in breach of contract.

1.27 "Turnkey" means a procurement process where one service provider assumes total responsibility for all aspects of the project and delivers the full end product / service required by the contract.

1.28 "Written" or "in writing" means hand-written in ink or any form of electronic or mechanical writing.

2. Application 2.1 These general conditions are applicable to all bids, contracts and orders including bids for functional and professional services (excluding professional services related to the building and construction industry), sales, hiring, letting and the granting or acquiring of rights, but excluding immovable property, unless otherwise indicated in the bidding documents.

2.2 Where applicable, special conditions of contract are also laid down to cover specific goods, services or works.

2.3 Where such special conditions of contract are in conflict with these general conditions, the special conditions shall apply.

3. General 3.1 unless otherwise indicated in the bidding documents, the purchaser shall not be liable for any expense incurred in the preparation and submission of a bid. Where applicable a non-refundable fee for documents may be charged.

3.2 Invitations to bid are usually published in locally distributed news media and on the municipality/municipal entity website.

4. Standards 4.1 the goods supplied shall conform to the standards mentioned in the bidding documents and specifications.

5. Use of 5.1 The supplier shall not, without the purchaser's prior written **contract** consent, disclose the contract, or any provision thereof, or any **documents** specification, plan, drawing, pattern, sample, or information **and** furnished by or on behalf of the purchaser in connection **information** therewith, to any person other than a person employed by the **inspection** such supplier employed in the performance person shall of be the made contract. in confidence Disclosure and to shall any

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extend only so far as may be necessary for purposes of such Performance.

- 5.2 The supplier shall not, without the purchaser's prior written consent, make use of any document or information mentioned in GCC clause 5.1 except for purposes of performing the contract.
- 5.3 Any document, other than the contract itself mentioned in GCC clause 5.1 shall remain the property of the purchaser and shall be returned (all copies) to the purchaser on completion of the supplier's performance under the contract if so required by the purchaser.
- 5.4 The supplier shall permit the purchaser to inspect the supplier's records relating to the performance of the supplier and to have them audited by auditors appointed by the purchaser, if so required by the purchaser.

- 6. Patent Rights** 6.1 The supplier shall indemnify the purchaser against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the goods or any part thereof by the purchaser.

- 6.2 When a supplier developed documentation / projects for the municipality / municipal entity, the intellectual, copy and patent rights or ownership of such documents or projects will vest in the municipality / municipal entity.

7. Performance security

- 7.1 Within thirty (30) days of receipt of the notification of contract award, the successful bidder shall furnish to the purchaser the performance security of the amount specified in SCC.
- 7.2 The proceeds of the performance security shall be payable to the purchaser as compensation for any loss resulting from the supplier's failure to complete his obligations under the contract.
- 7.3 The performance security shall be denominated in the currency of the contract, or in a freely convertible currency acceptable to the purchaser and shall be in one of the following forms:
- (a) a bank guarantee or an irrevocable letter of credit issued by a reputable bank located in the purchaser's country or abroad, acceptable to the purchaser, in the form provided in the bidding documents or another form acceptable to the purchaser; or (b) a cashier's or certified cheque.
- 7.4 The performance security will be discharged by the purchaser and returned to the supplier not later than thirty (30) days following the date of completion of the supplier's performance obligations under the contract, including any warranty obligations, unless otherwise specified.
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