

BID NOTICE

STELLENBOSCH MUNICIPALITY HEREBY INVITES YOU TO TENDER FOR B/SM 8/23 SUPPLY, DELIVERY, INSTALLATION, COMMISSIONING AND TESTING OF ELECTRICAL SUBSTATION MONITORING AND SUPERVISORY CONTROL SYSTEM IN THE STELLENBOSCH MUNICIPALITY AREA, FOR A CONTRACT PERIOD ENDING 30 JUNE 2025

- TENDER NUMBER: B/SM 8/23
- DESCRIPTION: SUPPLY, DELIVERY, INSTALLATION, COMMISSIONING AND TESTING OF ELECTRICAL SUBSTATION MONITORING AND SUPERVISORY CONTROL SYSTEM IN THE STELLENBOSCH MUNICIPALITY AREA, FOR A CONTRACT PERIOD ENDING 30 JUNE 2025
- CLOSING DATE: **17 April 2023** CLOSING TIME: 12h00: Bids will be opened in the **Council Chambers or Supply Chain Management Boardroom.**

INFORMATION:

Tender Specifications:Lourens De Lange at (021) 808 8302 e-mail:Lourens.Delange@stellenbosch.gov.zaSCM Requirements:Gerald Kraukamp at 021 808 8519 e-mail:Gerald.Kraukamp@stellenbosch.gov.za

Office hours for collection; 08h00-15h30

A Virtual Compulsory Clarification Meeting will be held on **24 March 2023 at 10:00**. The Compulsory Clarification meeting will be held via the Microsoft Teams App. Tenderers must ensure to download the App and give Lourens De Lange at Lourens. Delange@stellenbosch.gov.za the necessary contact details (email address and cell phone number) at least 48 hours prior (**22 March 2023 at 10:00**) to the meeting to enable to set up a virtual meeting. Tenderers who fail to forward their details in the time frame will not attend the briefing session. Tenderers who fail to attend the compulsory information session will be regarded as non-compliant, or did not give the contact details on time will also regard as non-compliant. Provision for load shedding must be made. The end-user will forward the link.

Tenders may only be submitted on the Tender document issued by Stellenbosch Municipality and must be valid for **180 days** after tender closing. Late, electronic format, telephonic or faxed Tenders will not be considered and Stellenbosch Municipality does not bind itself to accept the lowest bid or any of the tenders that has been submitted.

Sealed Tenders, with "B/SM 8/23 SUPPLY, DELIVERY, INSTALLATION, COMMISSIONING AND TESTING OF ELECTRICAL SUBSTATION MONITORING AND SUPERVISORY CONTROL SYSTEM IN THE STELLENBOSCH MUNICIPALITY AREA, FOR A CONTRACT PERIOD ENDING 30 JUNE 2025." clearly endorsed on the envelope, must be deposited in the Tender box at the offices of the Stellenbosch Municipality, Town House Complex, Plein Street, Stellenbosch. The Tender box is accessible 24 hours a day and Tenders must be accompanied by the <u>completed</u> Tender documents. Tenders not accompanied by a complete Tender document, will not be considered.

NOTE: This tender will be evaluated in terms of the General Conditions of Contract, Supply Chain Management Policy and relevant specification as depicted in the document and also the-Stellenbosch Preferential Procurement Policy effective from 16 January 2023 in accordance with the Preferential Procurement Regulations that was promulgated by the Minister of Finance on 04 November 2022 in Government Gazette No 47452

The preferential points system applied is as follows: 80/20 in terms of the approved policy.

Price	80
B-BBEE status level of contribution	10
Locality	<u>10</u>
Total points for Price, B-BBEE and locality	100

The following conditions to Tender exist (failure to comply may result in your Tender being disqualified):

- 1. This Tender is subject to the general conditions of contract (GCC) and special conditions for Tendering.
- 2. Relevant terms of reference.
- Tenderers must be registered on the Central supplier database (CSD) if they wish to conduct business with the municipality.
- No award will be made to tenderers whose tax status is non-compliant.
- Tenders submitted must be in a sealed envelope clearly marked with the Tender number, placed in the tender box before closing time. Failure will result in the tender being invalid.

Tender documents, in English, are available free of charge on the website: <u>www.stellenbosch.gov.za</u>. Alternatively, hard copies of the document are obtainable from the offices of the Supply Chain Management Unit, Stellenbosch Municipality, Town House Complex, 1st Floor, Plein Street, Stellenbosch, upon payment of a non-refundable fe**e of R430.50 per document**.

G Mettler (Ms) MUNICIPAL MANAGER



TENDER KENNISGEWING

STELLENBOSCH MUNISIPALITEIT NOOI U UIT OM TE TENDER VIR DIE VOLGENDE TENDER: B/SM 8/23: VOORSIENING, AFLEWERING, INSTALLASIE, INGEBRUIK EN TOETS VAN ELEKTRIESE SUBSTASIE MONITERING EN TOESIGBEHEER STELSEL IN DIE STELLENBOSCH MUNISIPALITEIT OMGEWING, VIR 'N KONTRAKTYDPERK EINDIG 30 JUNIE 2025

TENDER NOMMER: B/SM 8/23

BESKRYWING: VOORSIENING, AFLEWERING, INSTALLASIE, INGEBRUIK EN TOETS VAN ELEKTRIESE SUBSTASIE MONITERING EN TOESIGBEHEER STELSEL IN DIE STELLENBOSCH MUNISIPALITEIT OMGEWING, VIR 'N KONTRAKTYDPERK EINDIG 30 JUNIE 2025

SLUITINGSDATUM: TYD VAN SLUITING:	17 April 2023 12h00. Tenders sal oopgemaak word in die Raadsaal of in die Voorsieningskanaalbestuurs Raadsaal.
<u>NAVRAE:</u> Tender Spesifikasies: VKB Vereistes:	Lourens De Lange by (021) 808 8302 e-pos: <u>Lourens.Delange@stellenbosch.gov.za</u> Gerald Kraukamp by (021) 808 8519 e-pos: <u>Gerald.Kraukamp@stellenbosch.gov.za</u>

Kantoor Ure: 08h00-15h30

'n Verpligte aanlyn inligtingsessie sal gehou word op 24 Maart 2023 om 10:00. Die verpligte inligtingsessie sal via die Microsoft Teams-app gehou word. Tenderaars moet die app aflaai. U word hiermee versoek om kontakbesonderhede, van die kontakpersoon wat die vergadering gaan bywoon, die naam van u onderneming, e-posadres en selfoonnommer aan Lourens De Lange by Lourens.Delange@stellenbosch.gov.za te verstrek, met verwysing na die tendernommer ten minste 48 uur voor die vergadering (22 Maart 2023 om 10:00) om die departement in staat te stel om 'n virtuele vergadering op te stel. Tenderaars wat nie hul kontakbesonderhede vir die virtuele vergadering verstrek nie, sal as nie-nakomend beskou word.Die bidder moet kragonderbreuking in ag neem. Die end-verbruiker sal die skakel vir u aanstuur.

Tenders mag slegs ingedien word op die tenderdokumentasie verskaf deur Stellenbosch Munisipaliteit en moet geldig wees vir **180.dae** na die sluitingsdatum. Laat, elektroniese formaat of gefakse tenders sal nie aanvaar word nie en Stellenbosch Munisipaliteit is nie verplig om die laagste of enige tender wat ingedien word te aanvaar nie.

Verseëlde tenders duidelik gemerk: "B/SM 8/23 VOORSIENING, AFLEWERING, INSTALLASIE, INGEBRUIK EN TOETS VAN ELEKTRIESE SUBSTASIE MONITERING EN TOESIGBEHEER STELSEL IN DIE STELLENBOSCH MUNISIPALITEIT OMGEWING, VIR 'N KONTRAKTYDPERK EINDIG 30 JUNIE 2025." op die koevert, moet geplaas word in tenderbus buite die kantore van Stellenbosch Munisipaliteit ,Meenthuis Kompleks, Stellenbosch. Die tenderbus is 24 uur per dag beskikbaar en tenders moet vergesel word met die voltooide stel tenderdokumente. Tenderaanbiedinge wat nie deur die volledige tenderdokument vergesel word nie, sal nie oorweeg word nie.

LET WEL: Hierdie tender sal geëvalueer word ingevolge die Algemene Kontrakvoorwaardes, Voorsieningskanaal Bestuursbeleid, relevante spesifikasies, soos vervat in die tender dokument asook die Stellenbosch Munisipaliteit Voorkeurverkrygingsregulasies Beleid effektief vanaf 16 Januarie 2023 ooreenkomstig met die Voorkeurverkrygingsregulasies wat deur die Minister van Finansies op 04 November 2022 in Staatskoerant No 47452 afgekondig is.

Tenderaars mag voorkeurpunte eis in terme van hul B-BSEB status vlak van bydrae as volg:

Prys	80
BBSEB	10
LIGGING	10
Totale punte vir Prys, BBSEB en	100
ligging	

Die volgende voorwaardes vir Tender soos volg: (versuim om te voldoen, kan veroorsaak dat u Tender gediskwalifiseer word):

1. Hierdie tender is onderworpe aan die algemene kontrakvoorwaardes (GCC) en spesiale voorwaardes vir die tender;

- 2. Toepaslike opdrag
- 3. Tenderaars moet geregistreer wees op Sentrale verskaffersdatabasis (SVD) as hulle met die munisipaliteit sake wil doen
- 4. Geen toekenning sal gemaak word aan diensverskaffers wie se Belasting status ongeldig is.
- 5. Die tender wat ingedien moet word, moet in 'n verseëlde koevert wees wat duidelik gemerk is met die Tendernommer, wat in die tenderbus voor sluitingstyd geplaas word. Versuim sal tot gevolg hê dat die tender ongeldig is.

Tenderdokumente, in Engels, is verkrygbaar by die kantoor van die Voorsieningskanaalbestuurseenheid, Stellenbosch Munisipaliteit, Meenthuis Kompleks, 1ste Vloer, Pleinstraat, Stellenbosch na betaling van 'n nie-terugbetaalde tenderdeelnamefooi van **R430.50 per dokument.** Alternatiewelik mag die dokument gratis afgelaai word vanaf die webblad www.stellenbosch.gov.za.

G Mettler (Me) MUNISIPALE BESTUURDER



V7 - 16/01/2023

TENDER NO.: B/SM 8/23

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NAME OF TENDERER:			
Total Bid Price (Inclusive of VAT) <i>(refer to page 107)</i> :			
BBBEE LEVEL			
CLAIM POINTS FOR	LOCALITY	YES	NO

MARCH 2023

PREPARED AND ISSUED BY:

Directorate: Finance: Supply Chain Management Unit Stellenbosch Municipality, PO Box 17, Stellenbosch, 7599 CONTACT FOR ENQUIRIES REGARDING SPECIFICATIONS:

L. De Lange

Manager: Operations and Maintenance Electrical Services

Tel. Number: 021 808 8302



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Tenderaars mag voorkeurpunte eis in terme van hul B-BSEB status vlak van bydrae as volg:

Prys	80
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Die volgende voorwaardes vir Tender soos volg: (versuim om te voldoen, kan veroorsaak dat u Tender gediskwalifiseer word):

- 1. Hierdie tender is onderworpe aan die algemene kontrakvoorwaardes (GCC) en spesiale voorwaardes vir die tender;
- 2. Toepaslike opdrag
- 3. Tenderaars moet geregistreer wees op Sentrale verskaffersdatabasis (SVD) as hulle met die munisipaliteit sake wil doen



V7 - 16/01/2023

- 4. Geen toekenning sal gemaak word aan diensverskaffers wie se Belasting status ongeldig is.
- 5. Die tender wat ingedien moet word, moet in 'n verseëlde koevert wees wat duidelik gemerk is met die Tendernommer, wat in die tenderbus voor sluitingstyd geplaas word. Versuim sal tot gevolg hê dat die tender ongeldig is.

Tenderdokumente, in Engels, is verkrygbaar by die kantoor van die Voorsieningskanaalbestuurseenheid, Stellenbosch Munisipaliteit, Meenthuis Kompleks, 1ste Vloer, Pleinstraat, Stellenbosch na betaling van 'n nieterugbetaalde tenderdeelnamefooi van **R430.50 per dokument.** Alternatiewelik mag die dokument gratis afgelaai word vanaf die webblad <u>www.stellenbosch.gov.za</u>.

G Mettler (Me) MUNISIPALE BESTUURDER



PART A INVITATION TO BID YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE (NAME OF MUNICIPALITY/ MUNICIPAL ENTITY)

					,
BID NUMBER:	B/SM 8/23	CLOSING DATE:	17 April 2023	CLOSING TIME:	12.00
	2/011/0/20				
	SUPPLY, DEL	IVERY, INSTALLATION, COM	MISSIONING AND	TESTING OF ELECT	RICAL SUBSTATION
	MONITORING	AND SUPERVISORY CONTRO	L SYSTEM IN THE S	TELLENBOSCH MUN	ICIPALITY AREA, FOR
DESCRIPTION	A CONTRACT	PERIOD ENDING 30 JUNE 202	25		
THE SUCCESSEUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (MBD7).					

BID RESPONSE DOCUMENTS COMPLEX, PLEIN STREET, ST	MUST BE DEPOSITED IN THE BID BO	X SITUATI	ED AT Stelle	ENBOS	SCH MUNICIPALITY, TOWN HOUSE
SUPPLIER INFORMATION					
NAME OF BIDDER					
POSTAL ADDRESS					
STREET ADDRESS					
TELEPHONE NUMBER	CODE		NUMBER		
CELLPHONE NUMBER				1	
FACSIMILE NUMBER	CODE		NUMBER		
E-MAIL ADDRESS					
VAT REGISTRATION NUMBER					
TAX COMPLIANCE STATUS	TCS PIN:	OF	CSD No:		
B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE ITICK APPI ICABI F BOX1	☐ Yes	B-I ST SV AF	BBEE ATUS LEVEL VORN FIDAVIT		Yes
[A B-BBEE STATUS LEVEL IN ORDER TO QUALIFY FO	. VERIFICATION CERTIFICATE/ SWO R PREFERENCE POINTS FOR B-BBI	ORN AFFI	DAVIT (FOR	EMES	& QSEs) MUST BE SUBMITTED
1. ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED?	□Yes □No [IF YES ENCLOSE PROOF]	2.	ARE YOU A FOREIGN BASED SUPPLIER F THE GOODS /SERVICES /WORKS OFFERED?	OR S	□Yes □No [IF YES, ANSWER PART B:3]
3. TOTAL NUMBER OF ITEMS OFFERED		4.	TOTAL BID PI	RICE	R
5. SIGNATURE OF BIDDER		6.	DATE		
7. CAPACITY UNDER WHICH THIS BID IS SIGNED					
BIDDING PROCEDURE ENQU	IRIES MAY BE DIRECTED TO:	TECHNIC	CAL INFORMA	TION I	MAY BE DIRECTED TO:
DEPARTMENT	Finance	CONTAC	T PERSON	L	ourens De Lange
CONTACT PERSON	Gerald Kraukamp	TELEPH	ONE NUMBER	0	21 808 8302
TELEPHONE NUMBER	021 808 8519	FACSIMI	LE NUMBER		
FACSIMILE NUMBER		E-MAIL A	DDRESS	L	ourens.Delange@stellenbosch.gov.za
E-MAIL ADDRESS	Gerald.Kraukamp@stellenbosch.gov.za				



PART B TERMS AND CONDITIONS FOR BIDDING

1.	BID SUBMISSION:		
1.1.	CONSIDERATION.	SS. LATE BIDS WILL NOT BE ACCEPTED FOR	
1.2.	ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED-(NOT TO	BE RE-TYPED) OR ONLINE	
1.3.	THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEW	ORK ACT AND THE PREFERENTIAL	
	PROCUREMENT REGULATIONS, 2022, THE STELLENBOSCH SUPPLY CHAIN MAN	IAGEMENT POLICY, THE GENERAL	
	CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL (CONDITIONS OF CONTRACT.	
2			
2.1	BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.		
2.2	BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION THE ORGAN OF STATE TO VIEW THE TAXPAYER'S PROFILE AND TAX STATUS.	N NUMBER (PIN) ISSUED BY SARS TO ENABLE	
2.3	3 APPLICATION FOR THE TAX COMPLIANCE STATUS (TCS) CERTIFICATE OR PIN 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.		
2.4	FOREIGN SUPPLIERS MUST COMPLETE THE PRE-AWARD QUESTIONNAIRE IN F	ART B:3.	
2.5	BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH TH	IE BID.	
2.6	IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED, EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.		
2.7	7 WHERE NO TCS IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.		
3.	QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS		
3.1.	IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)?		
3.2.	DOES THE ENTITY HAVE A BRANCH IN THE RSA?	YES NO	
3.3.	DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA?	YES NO	
3.4.	DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA?	YES NO	
3.5.	IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION?	YES NO	
IF T SYS	HE ANSWER IS "NO" TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT T TEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF N	O REGISTER FOR A TAX COMPLIANCE STATUS OT REGISTER AS PER 2.3 ABOVE.	
	NB: FAILURE TO PROVIDE ANY OF THE ABOVE PARTICULARS MAY RENDER NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE ST	THE BID INVALID. ATE.	
	SIGNATURE OF BIDDER:		
	CAPACITY UNDER WHICH THIS BID IS SIGNED:		
	DATE:		

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CONTENTS

PAGE NUMBER

PART A	- ADMINISTRATIVE REQUIREMENTS IN TERMS OF THE SUPPLY CHAIN MANAGEMENT POLICY	10
2.	CHECKLIST	11
3.	VIRTUAL MEETING CERTIFICATE	12
4.	AUTHORITY TO SIGN A BID	13
5.	CERTIFICATE OF AUTHORITY FOR JOINT VENTURES	15
6.	GENERAL CONDITIONS OF CONTRACT – GOVERNMENT PROCUREMENT	16
7.	GENERAL CONDITIONS OF TENDER	25
8.	MBD 4 – DECLARATION OF INTEREST	27
9.	MBD6.1 – PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022 – PURCHASES/SERVICES 80/20 or 90/10	30
10.	MBD 8 – DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES	41
11.	MBD 9 – CERTIFICATE OF INDEPENDENT BID DETERMINATION	43
12.	MBD 10 – CERTIFICATE FOR PAYMENT OF MUNICIPAL SERVICES	45
13.	COMPENSATION FOR OCCUPATIONAL INJURIES AND DISEASES ACT, 1993 (ACT 130 OF 1993)	46
14.	FORM OF INDEMNITY	47
PART B –	SPECIFICATIONS AND PRICING SCHEDULE	48
15.	SPECIFICATIONS	49
9.4.2	Time Stamping	76
9.5. Maste	er Station Local Remote Terminal Unit	82
9.10. Des	cription of Functions	87
Control an	d Supervision Application SCADA	87
9.15. Proj	ect Engineering	96
16.	PRE-QUALIFICATION SCORE SHEET	98
17.	SCHEDULE OF PLANT AND EQUIPMENT	101

Reference No:	B/SM 8/23	Page 8 of 123



18.	SCHEDULE OF SUBCONTRACTORS	102
19.	SCHEDULE OF WORK EXPERIENCE OF THE TENDERER – CURRENT CONTRACTS	103
20.	SCHEDULE OF WORK EXPERIENCE OF THE TENDERER – COMPLETED CONTRACTS	104
21.	PRICING SCHEDULE	105
22.	DECLARATION BY TENDERER	123

Reference No: B/	S/SM 8/23	Page 9 of 123



PART A – ADMINISTRATIVE REQUIREMENTS IN TERMS OF THE SUPPLY CHAIN MANAGEMENT POLICY

Reference No:	B/SM	8/23	Page 10 of 123



CHECKLIST

2.

PLEASE ENSURE THAT THE FOLLOWING FORMS HAVE BEEN DULY COMPLETED AND SIGNED AND THAT ALL DOCUMENTS AS REQUESTED, ARE ATTACHED TO THE TENDER DOCUMENT:

Certificate of Virtual Meeting Attendance - Is the form duly completed and signed by both tenderer and agent of the Stellenbosch Municipality?	Yes	No	
Authority to Sign a Bid - Is the form duly completed and is a certified copy of the resolution attached?	Yes	No	
MBD 4 (Declaration of Interest) - Is the form duly completed and signed?	Yes	No	
MBD 6.1 (Preference Points claim form for purchases/services) - Is the form duly completed and signed? Is a copy of the B-BBEE Certificate issued by a Verification Agency accredited by SANAS or the original Sworn Affidavit attached? (NB! BBBEE CERTIFICATES CAN BE VERIFIED WITH THE VERIFICATION AGENCY BUT A SWORN AFFIDAVIT <u>MUST</u> BE AN ORIGINAL AND NOT A COPY TO BE ELIGIBLE FOR BBBEE POINTS)	Yes	No	
MBD 8 (Declaration of Past Supply Chain Practices) - Is the form duly completed and signed?	Yes	No	
MBD 9 (Certificate of Independent Bid Determination) - Is the form duly completed and signed?	Yes	No	
MBD 10 (Certificate of Payment of Municipal Accounts) - Is the form duly completed and signed? Are the Identity numbers, residential addresses and municipal account numbers of ALL members, partners, directors, etc. provided on the form as requested? (NB! MUNICIPAL ACCOUNTS WILL BE VERIFIED AND USED AS BASIS FOR PREFERENCE POINTS SCORING IN TERMS OF THE STELLENBOSCH PREFERENTIAL PROCUREMENT POLICY. THE BUSINESS ADDRESS, LEASE AGREEMENT OR SWORN AFFADAVIT WILL BE THE BASIS FOR AWARDING POINTS FOR LOCALITY)	Yes	No	
OHSA (Occupational Health and Safety) - Is the form duly completed and signed? Is a valid Letter of Good Standing from the Compensation Commissioner attached?	Yes	No	
Form of Indemnity - Is the form duly completed and signed?	Yes	No	
Pricing Schedule - Is the form duly completed and signed?	Yes	No	
Declaration by Tenderer - Is the form duly completed and signed?	Yes	No	

Reference No:	B/SM	8/23	Page 11 of 123



3. VIRTUAL MEETING CERTIFICATE

Virtual meetings declaration:

I / We*, the undersigned, certify that I / we* have familiarized ourselves with the requirements of this tender as discussed at the virtual meeting for which I / we* am / are* submitting this Tender and have, as far as practicable, familiarized myself / ourselves* with all information, risks, contingencies and other circumstances which may influence or affect my / our* tender

NAME & SURNAME		
CAPACITY		
NAME OF FIRM		
ADDRESS		
TELEPHONE NO	FAX NO:	
E-MAIL	SIGNATURE	

For all compulsory virtual teams meetings, bidders who fail to provide their contact details 48 hours prior to the virtual teams meeting, will be regarded as **non-compliant**

Reference No:	B/SM 8/23	Page 12 of 123
---------------	-----------	----------------



AUTHORITY TO SIGN A BID

1. SOLE PROPRIETOR (SINGLE OWNER BUSINESS) AND NATURAL PERSON

1.1. I, _____, the undersigned, hereby confirm that I am the

sole owner of the business trading as ____

OR

1.2. I, _____, the undersigned, hereby confirm that I am

submitting this tender in my capacity as natural person.

4.

SIGNATURE:	DATE:	
PRINT NAME:		
WITNESS 1:	WITNESS 2:	

2. COMPANIES AND CLOSE CORPORATIONS

- 2.1. If a Bidder is a COMPANY, a certified copy of the resolution by the board of directors, duly signed, authorising the person who signs this bid to do so, as well as to sign any contract resulting from this bid and any other documents and correspondence in connection with this bid and/or contract on behalf of the company **must be submitted with this bid**, that is, before the closing time and date of the bid
- 2.2. In the case of a CLOSE CORPORATION (CC) submitting a bid, a resolution by its members, authorizing a member or other official of the corporation to sign the documents on their behalf, shall be included with the bid.

PARTICULARS OF RESOLUTION BY BOARD OF DIRECTORS OF THE COMPANY/MEMBERS OF THE CC

Date Resolution was taken								
Resolution signed by (name and surname)								
Сара	acity							
Nam	e and surname of deleg	gated Authorised Signatory						
Сара	acity							
Spec	imen Signature							
Full	name and surname of A	ALL Director(s) / Member (s)						
1.			2.					
3.			4.					
5.			6.					
7.			8.					
9.	9.							
Is a CERTIFIED COPY of the resolution attached?					YES		NO	
SIGN COM	SIGNED ON BEHALF OF COMPANY / CC:			DATE:				
PRIN	PRINT NAME:							
WITN	NESS 1:			WITNE	SS 2:			

3. PARTNERSHIP

Reference No:	B/SM 8/23	Page 13 of 123
---------------	-----------	----------------



We, the undersigned partners in the business trading as ______ hereby authorize Mr/Ms ______ to sign this bid as well as any contract resulting

from the bid and any other documents and correspondence in connection with this bid and /or contract for and on behalf of the abovementioned partnership.

The following particulars in respect of every partner must be furnished and signed by every partner:

	Full name of partner	Signature	
SIGNED ON BEHALF OF PARTNERSHIP:		DATE:	
PRINT NAME:			
WITNESS 1:		WITNESS 2:	

4. CONSORTIUM

We, the undersigned consortium partners, hereby authorize____

_____ (Name of entity) to act as lead consortium partner and further authorize Mr./Ms. _

_____ To sign this offer as well as any contract resulting from this

tender and any other documents and correspondence in connection with this tender and / or contract for and on behalf of the consortium.

The following particulars in respect of each consortium member must be provided and signed by each member:

Full Name of Consortium Member	Role of Consortium Member	% Participation	Signature
SIGNED ON BEHALF OF PARTNERSHIP:		DATE:	
PRINT NAME:			
WITNESS 1:	WITN	ESS 2:	

Reference No:	B/SM 8/23	Page 14 of 123
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5. CERTIFICATE OF AUTHORITY FOR JOINT VENTURES

This returnable schedule is to be completed by JOINT VENTURES

We, the undersigned, are submitting this tender offer in joint venture and hereby authorize Mr./Ms.

authorized signatory of the Company/Close Corporation/Partnership (name) _

_, acting in the capacity of lead partner, to sign

all documents in connection with the tender offer and any contract resulting from it on our behalf.

(i) Name of firm (Le	ead partner)			
Addroso				
Address			Tel. No.	
Signature			Designation	
(ii) Name of firm	_			
Address				
Address			Tel. No.	
Signature			Designation	
(iii)Name of firm		 		
Address:				
Audiess.			Tel. No.	
Signature			Designation	
(iv) Name of firm				
Address				
Audress			Tel. No.	
Signature			Designation	

NOTE: A copy of the Joint Venture Agreement showing clearly the percentage contribution of each partner to the Joint Venture, shall be appended to this Schedule.

Reference No:	B/SM 8/23	Page 15 of 123
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6. GENERAL CONDITIONS OF CONTRACT – GOVERNMENT PROCUREMENT

1. DEFINITIONS

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 any thing 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 supplies are so delivered and a valid receipt is obtained.
- 1.11. "Dumping" occurs when a private enterprise abroad market 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.
- 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.
- 1.13. 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.
- 1.14. "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.
- 1.15. "GCC" means the General Conditions of Contract.
- 1.16. "Goods" means all of the equipment, machinery, and/or other materials that the supplier is required to supply to the purchaser under the contract.
- 1.17. "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 supplies covered by the bid will be manufactured.
- 1.18. "Local content" means that portion of the bidding price which is not included in the imported content provided that local manufacture does take place.

Reference No:	B/SM 8/23	Page 16 of 123
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- 1.19. "Manufacture" means the production of products in a factory using labour, materials, components and machinery and includes other related value-adding activities.
- 1.20. "Order" means an official written order issued for the supply of goods or works or the rendering of a service.
- 1.21. "Project site" where applicable, means the place indicated in bidding documents.
- 1.22. "Purchaser" means the organization purchasing the goods.
- 1.23. "Republic" means the Republic of South Africa.
- 1.24. "SCC" means the Special Conditions of Contract.
- 1.25. "Services" means those functional services ancillary to the 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.
- 1.26. "Supplier" means the successful bidder who is awarded the contract to maintain and administer the required and specified service(s) to the State.
- 1.27. "Tort" means in breach of contract.
- 1.28. "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.
- 1.29. "Written" or "in writing" means handwritten 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, 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 supplies, 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 contract documents and information; inspection.

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

Reference No:	B/SM 8/23	Page 17 of 123
---------------	-----------	----------------



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:
 - 7.3.1. 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
 - 7.3.2. 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.

8. Inspections, tests and analyses

- 8.1. All pre-bidding testing will be for the account of the bidder. If it is a bid condition that supplies to be produced or services to be rendered should at any stage during production or execution or on completion be subject to inspections tests and analysis, the bidder or contractor's premises shall be open, at all reasonable hours, for inspection by a representative of the purchaser or an organization acting on behalf of the purchaser.
- 8.2. If there are no inspection requirements indicated in the bidding documents and no mention is made in the contract, but during the contract period it is decided that inspections shall be carried out, the purchaser shall itself make the necessary arrangements, including payment arrangements with the testing authority concerned.
- 8.3. If the inspections, tests and analyses referred to in clauses 8.2 and 8.3 show the goods to be in accordance with the contract requirements, the cost of the inspections, tests and analyses shall be defrayed by the purchaser.
- 8.4. Where the goods or services referred to in clauses 8.2 and 8.3 do not comply with the contract requirements, irrespective of whether such goods or services are accepted or not, the cost in connection with these inspections, tests or analyses shall be defrayed by the supplier.
- 8.5. Supplies and services which are referred to in clauses 8.2 and 8.3 and which do not comply with the contract requirements may be rejected.



- 8.6. Any contract goods may on or after delivery be inspected, tested or analyzed and may be rejected if found not to comply with the requirements of the contract. Such rejected goods shall be held at the cost and risk of the supplier who shall, when called upon, remove them immediately at his own cost and forthwith substitute them with goods which do comply with the requirements of the contract. Failing such removal the rejected goods shall be returned at the suppliers cost and risk. Should the supplier fail to provide the substitute goods forthwith, the purchaser may, without giving the supplier further opportunity to substitute the rejected goods, purchase such goods as may be necessary at the expense of the supplier.
- 8.7. The provisions of clauses 8.4 to 8.7 shall not prejudice the right of the purchaser to cancel the contract on account of a breach of the conditions thereof, or to act in terms of Clause 22 of GCC.

9. Packing

- 9.1. The supplier shall provide such packing of the goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit, and open storage. Packing, case size and weights shall take into consideration, where appropriate, the remoteness of the goods' final destination and the absence of heavy handling facilities at all points in transit.
- 9.2. The packing, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the contract, including additional requirements, and in any subsequent instructions ordered by the purchaser.

10. Delivery

Delivery of the goods shall be made by the supplier in accordance with the documents and terms specified in the contract. The details of shipping and/or other documents to be furnished by the supplier are specified.

11. Insurance

The goods supplied under the contract shall be fully insured in a freely convertible currency against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in the manner specified.

12. Transportation

Should a price other than an all-inclusive delivered price be required, this shall be specified.

13. Incidental

- 13.1. The supplier may be required to provide any or all of the following services, including additional services, if any:
 - 13.1.1. performance or supervision of on-site assembly and/or commissioning of the supplied goods;
 - 13.1.2. furnishing of tools required for assembly and/or maintenance of the supplied goods;
 - 13.1.3. furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied goods;
 - 13.1.4. performance or supervision or maintenance and/or repair of the supplied goods, for a period of time agreed by the parties, provided that this service shall not relieve the supplier of any warranty obligations under this contract; and
 - 13.1.5. training of the purchaser's personnel, at the supplier's plant and/or on-site, in assembly, start-up, operation, maintenance, and/or repair of the supplied goods.
- 13.2. Prices charged by the supplier for incidental services, if not included in the contract price for the goods, shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged to other parties by the supplier for similar services.

Reference No:	B/SM 8/23	Page 19 of 123
---------------	-----------	----------------



14. Spare parts

- 14.1. As specified, the supplier may be required to provide any or all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the supplier:
 - 14.1.1. such spare parts as the purchaser may elect to purchase from the supplier, provided that this election shall not relieve the supplier of any warranty obligations under the contract; and:
 - 14.1.2. in the event of termination of production of the spare parts:
 - 14.1.2.1. advance notification to the purchaser of the pending termination, in sufficient time to permit the purchaser to procure needed requirements; and
 - 14.1.2.2. following such termination, furnishing at no cost to the purchaser, the blueprints, drawings, and specifications of the spare parts, if requested.

15. Warranty

- 15.1. The supplier warrants that the goods supplied under the contract are new, unused, of the most recent or current models, and that they incorporate all recent improvements in design and materials unless provided otherwise in the contract. The supplier further warrants that all goods supplied under this contract shall have no defect, arising from design, materials, or workmanship (except when the design and/or material is required by the purchaser's specifications) or from any act or omission of the supplier, that may develop under normal use of the supplied goods in the conditions prevailing in the country of final destination.
- 15.2. This warranty shall remain valid for twelve (12) months after the goods, or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the contract, or for eighteen (18) months after the date of shipment from the port or place of loading in the source country, whichever period concludes earlier, unless specified otherwise in SCC.
- 15.3. The purchaser shall promptly notify the supplier in writing of any claims arising under this warranty.
- 15.4. Upon receipt of such notice, the supplier shall, within the period specified in SCC and with all reasonable speed, repair or replace the defective goods or parts thereof, without costs to the purchaser.
- 15.5. If the supplier, having been notified, fails to remedy the defect(s) within the period specified, the purchaser may proceed to take such remedial action as may be necessary, at the supplier's risk and expense and without prejudice to any other rights which the purchaser may have against the supplier under the contract.

16. Payment

- 16.1. The method and conditions of payment to be made to the supplier under this contract shall be specified.
- 16.2. The supplier shall furnish the purchaser with an invoice accompanied by a copy of the delivery note and upon fulfillment of other obligations stipulated in the contract.
- 16.3. Payments shall be made by the purchaser **no later than thirty (30)** days after submission of an **invoice, statement** or claim by the supplier.
- 16.4. Payment will be made in Rand unless otherwise stipulated.

17. Prices

Prices charged by the supplier for goods delivered and services performed under the contract shall not vary from the prices quoted by the supplier in his bid, with the exception of any price adjustments authorized or in the purchaser's request for bid validity extension, as the case may be.

18. Variation orders

In cases where the estimated value of the envisaged changes in purchase does not vary more tha15% of the total value of the original contract, the contractor may be instructed to deliver the goods or render the services as such. In cases of measurable quantities, the contractor may be approached to reduce the unit price and such offers, may be accepted provided that there is no escalation in price.

Reference No:	B/SM 8/23	Page 20 of 123
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19. Assignment

The supplier shall not assign, in whole or in part, its obligations to perform under the contract, except with the purchaser's prior written consent.

20. Subcontracts

The supplier shall notify the purchaser in writing of all subcontracts awarded under this contract, if not already specified in the bid. Such notification, in the original bid or later, shall not relieve the supplier from any liability or obligation under the contract.

21. Delays in the supplier's performance

- 21.1. Delivery of the goods and performance of services shall be made by the supplier in accordance with the time schedule prescribed by the purchaser in the contract.
- 21.2. If at any time during performance of the contract, the supplier or its subcontractor(s) should encounter conditions impeding timely delivery of the goods and performance of services, the supplier shall promptly notify the purchaser in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the supplier's notice, the purchaser shall evaluate the situation and may at his discretion extend the supplier's time for performance, with or without the imposition of penalties, in which case the extension shall be ratified by the parties by amendment of contract.
- 21.3. The right is reserved to procure outside of the contract small quantities or to have minor essential services executed if an emergency arises, the supplier's point of supply is not situated at or near the place where the supplies are required, or the supplier's services are not readily available.
- 21.4. Except as provided under GCC Clause 25, a delay by the supplier in the performance of its delivery obligations shall render the supplier liable to the imposition of penalties, pursuant to GCC Clause 22, unless an extension of time is agreed upon pursuant to GCC Clause 22 without the application of penalties.
- 21.5. Upon any delay beyond the delivery period in the case of a supplies contract, the purchaser shall, without cancelling the contract, be entitled to purchase supplies of a similar quality and up to the same quantity in substitution of the goods not supplied in conformity with the contract and to return any goods delivered later at the supplier's expense and risk, or to cancel the contract and buy such goods as may be required to complete the contract and without prejudice to his other rights, be entitled to claim damages from the supplier.

22. Penalties

Subject to GCC Clause 25, if the supplier fails to deliver any or all of the goods or to perform the services within the period(s) specified in the contract, the purchaser shall, without prejudice to its other remedies under the contract, deduct from the contract price, as a penalty, a sum calculated on the delivered price of the delayed goods or unperformed services using the current prime interest rate calculated for each day of the delay until actual delivery or performance. The purchaser may also consider termination of the contract pursuant to GCC Clause 23.

23. Termination for default

- 23.1. The purchaser, without prejudice to any other remedy for breach of contract, by written notice of default sent to the supplier, may terminate this contract in whole or in part:
 - 23.1.1. if the supplier fails to deliver any or all of the goods within the period(s) specified in the contract, or within any extension thereof granted by the purchaser pursuant to GCC Clause 21.2;
 - 23.1.2. if the Supplier fails to perform any other obligation(s) under the contract; or
 - 23.1.3. if the supplier, in the judgment of the purchaser, has engaged in corrupt or fraudulent practices in competing for or in executing the contract.
- 23.2. In the event the purchaser terminates the contract in whole or in part, the purchaser may procure, upon such terms and in such manner as it deems appropriate, goods, works or services similar to those undelivered, and the supplier shall be liable to the purchaser for any excess costs for such similar goods, works or services. However, the supplier shall continue performance of the contract to the extent not terminated.

Reference No:	B/SM 8/23	Page 21 of 123
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- 23.3. Where the purchaser terminates the contract in whole or in part, the purchaser may decide to impose a restriction penalty on the supplier by prohibiting such supplier from doing business with the public sector for a period not exceeding 10 years.
- 23.4. If a purchaser intends imposing a restriction on a supplier or any person associated with the supplier, the supplier will be allowed a time period of not more than fourteen (14) days to provide reasons why the envisaged restriction should not be imposed. Should the supplier fail to respond within the stipulated fourteen (14) days the purchaser may regard the supplier as having no objection and proceed with the restriction.
- 23.5. Any restriction imposed on any person by the purchaser will, at the discretion of the purchaser, also be applicable to any other enterprise or any partner, manager, director or other person who wholly or partly exercises or exercised or may exercise control over the enterprise of the first-mentioned person, and with which enterprise or person the first-mentioned person, is or was in the opinion of the purchase actively associated.
- 23.6. If a restriction is imposed, the purchaser must, within five (5) working days of such imposition, furnish the National Treasury, with the following information:
 - 23.6.1. the name and address of the supplier and / or person restricted by the purchaser;
 - 23.6.2. the date of commencement of the restriction
 - 23.6.3. the period of restriction; and
 - 23.6.4. the reasons for the restriction.

These details will be loaded in the National Treasury's central database of suppliers or persons prohibited from doing business with the public sector.

23.7. If a court of law convicts a person of an offence as contemplated in sections 12 or 13 of the Prevention and Combating of Corrupt Activities Act, No. 12 of 2004, the court may also rule that such person's name be endorsed on the Register for Tender Defaulters. When a person's name has been endorsed on the Register, the person will be prohibited from doing business with the public sector for a period not less than five years and not more than 10 years. The National Treasury is empowered to determine the period of restriction and each case will be dealt with on its own merits. According to section 32 of the Act the Register must be open to the public. The Register can be perused on the National Treasury website.

24. Anti-dumping and countervailing duties and rights

When, after the date of bid, provisional payments are required, or antidumping or countervailing duties are imposed, or the amount of a provisional payment or anti-dumping or countervailing right is increased in respect of any dumped of subsidized import, the State is not liable for any amount so required or imposed, or for the amount of any such increase. When, after the said date, such a provisional payment is no longer required or any such anti-dumping or countervailing right is abolished, or where the amount of such provisional payment or any such right is reduced, any such favourable difference shall on demand be paid forthwith by the contractor to the State or the State may deduct such amounts from moneys (if any) which may otherwise be due to the contractor in regard to supplies or services which he delivered or rendered, or is to deliver or render in terms of the contract or any other contract or any other amount which may be due to him.

25. Force Majeure

- 25.1. Notwithstanding the provisions of GCC Clauses 22 and 23, the supplier shall not be liable for forfeiture of its performance security, damages, or termination for default if and to the extent that his delay in performance or other failure to perform his obligations under the contract is the result of an event of force majeure.
- 25.2. If a force majeure situation arises, the supplier shall promptly notify the purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the purchaser in writing, the supplier shall continue to perform its obligations under the contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the force majeure event.

26. Termination for insolvency

eference No: B/SM 8/23	Page 22 of 123
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The purchaser may at any time terminate the contract by giving written notice to the supplier if the supplier becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the supplier, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the purchaser.

27. Settlement of Disputes

- 27.1. If any dispute or difference of any kind whatsoever arises between the purchaser and the supplier in connection with or arising out of the contract, the parties shall make every effort to resolve amicably such dispute or difference by mutual consultation.
- 27.2. If, after thirty (30) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the purchaser or the supplier may give notice to the other party of his intention to commence with mediation. No mediation in respect of this matter may be commenced unless such notice is given to the other party.
- 27.3. Should it not be possible to settle a dispute by means of mediation, it may be settled in a South African court of law.
- 27.4. Notwithstanding any reference to mediation and/or court proceedings herein,
 - 27.4.1. the parties shall continue to perform their respective obligations under the contract unless they otherwise agree; and
 - 27.4.2. the purchaser shall pay the supplier any monies due for goods delivered and / or services rendered according to the prescripts of the contract.

28. Limitation of liability

- 28.1. Except in cases of criminal negligence or wilful misconduct, and in the case of infringement pursuant to Clause 6;
 - 28.1.1. the supplier shall not be liable to the purchaser, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the supplier to pay penalties and/or damages to the purchaser; and
 - 28.1.2. the aggregate liability of the supplier to the purchaser, whether under the contract, in tort or otherwise, shall not exceed the total contract price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment

29. Governing language

The contract shall be written in English. All correspondence and other documents pertaining to the contract that is exchanged by the parties shall also be written in English.

30. Applicable law

The contract shall be interpreted in accordance with South African laws, unless otherwise specified.

31. Notices

- 31.1. Every written acceptance of a bid shall be posted to the supplier concerned by registered or certified mail and any other notice to him shall be posted by ordinary mail to the address furnished in his bid or to the address notified later by him in writing and such posting shall be deemed to be proper service of such notice
- 31.2. The time mentioned in the contract documents for performing any act after such aforesaid notice has been given, shall be reckoned from the date of posting of such notice.

32. Taxes and duties

- 32.1. A foreign supplier shall be entirely responsible for all taxes, stamp duties, license fees, and other such levies imposed outside the purchaser's country.
- 32.2. A local supplier shall be entirely responsible for all taxes, duties, license fees, etc., incurred until delivery of the contracted goods to the purchaser.
- 32.3. No contract shall be concluded with any bidder whose tax matters are not in order. Prior to the award of a bid SARS must have certified that the tax matters of the preferred bidder are in order.

Reference No:B/SM8/23Page 23 of 1





32.4. No contract shall be concluded with any bidder whose municipal rates and taxes and municipal services charges are in arrears.

33. Transfer of contracts

The contractor shall not abandon, transfer, cede, assign or sublet a contract or part thereof without the written permission of the purchaser.

34. Amendment of contracts

No agreement to amend or vary a contract or order or the conditions, stipulations or provisions thereof shall be valid and of any force unless such agreement to amend or vary is entered into in writing and signed by the contracting parties. Any waiver of the requirement that the agreement to amend or vary shall be in writing, shall also be in writing.

35. Prohibition of restrictive practices.

- 35.1. In terms of section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, an agreement between, or concerted practice by, firms, or a decision by an association of firms, is prohibited if it is between parties in a horizontal relationship and if a bidder(s) is / are or a contractor(s) was / were involved in collusive bidding.
- 35.2. If a bidder(s) or contractor(s) based on reasonable grounds or evidence obtained by the purchaser has / have engaged in the restrictive practice referred to above, the purchaser may refer the matter to the Competition Commission for investigation and possible imposition of administrative penalties as contemplated in section 59 of the Competition Act No 89 0f 1998.
- 35.3. If a bidder(s) or contractor(s) has / have been found guilty by the Competition Commission of the restrictive practice referred to above, the purchaser may, in addition and without prejudice to any other remedy provided for, invalidate the bid(s) for such item(s) offered, and / or terminate the contract in whole or part, and / or restrict the bidder(s) or contractor(s) from conducting business with the public sector for a period not exceeding ten (10) years and / or claim damages from the bidder(s) or contractor(s) concerned.

General Conditions of Contract (revised July 2010)

Reference No:	B/SM	8/23	Page 24 of 123
			5



GENERAL CONDITIONS OF TENDER

- 1. Sealed tenders, with the "**Tender Number and Title**" clearly endorsed on the envelope, must be deposited in the **tender box** at the offices of the Stellenbosch Municipality, Plein Street, Stellenbosch.
- 2. The tender must be lodged by the Tenderer in the tender box in the Main Hall Entrance, Stellenbosch Municipal Offices, Plein Street, Stellenbosch

PLEASE NOTE:

- 2.1. Tenders that are deposited in the incorrect box will not be considered.
- 2.2. Mailed, telegraphic or faxed tenders will not be accepted.
- 2.3. Documents may only be completed in non-erasable ink.
- 2.4. The use of correction fluid/tape is not allowed.

7.

- 2.4.1. In the event of a mistake having been made, it shall be crossed out in ink and be accompanied by an initial at each and every alteration.
- 2.4.2. Alterations or deletions not signed by the Tenderer may render the tender invalid.
- 2.5. All bids must be submitted in writing on the official forms supplied (not to be re-typed)
- 2.6. All prices shall be quoted in South African currency and be INCLUSIVE of VAT.
- 3. Where the value of an intended contract will exceed R1 000 000, 00 (R1 million) it is the bidder's responsibility to be registered with the South African Revenue Service (SARS) for VAT purposes in order to be able to issue tax invoices. The municipality will deem the price above R 1 000 000,00 (R1 million) to be VAT inclusive even if it is indicated that no VAT is charged. Please insure that provision is made for VAT in these instances.
 - 3.1 It is a requirement of this contract that the amount of value-added tax (VAT) must be shown clearly on each invoice.
 - 3.2 The amended Value-Added Tax Act requires that a Tax Invoice for supplies in excess of R3 000 should, in addition to the other required information, also disclose the VAT registration number of the recipient, with effect from 1 March 2005. The VAT registration number of the Stellenbosch Municipality is **4700102181**.
- 3 Any Tender received after the appointed time for the closing of Tenders shall not be considered but shall be filed unopened with the other Tenders received or may be returned to the Tenderer at his request.
- 4 Tenders may not be telefaxed to the Municipality and therefore any tenders received by fax will **not** be considered.
- 5 Tenders shall be opened in public at the Stellenbosch Municipal Offices as soon as possible after the closing time for the receipt of tenders.
- 6 The Municipality shall have the right to summarily disqualify any Tenderer who, either at the date of submission of this tender or at the date of its award, is indebted to the Municipality in respect of any rental, levies, rates and/or service charges; ALTERNATIVELY;
- 6.1 That an agreement be signed whereby the Tenderer agrees that a percentage or fixed amount at the discretion of the Municipality, be deducted from payments due to him for this tender, until the debt is paid in full.
- 6.2 The tenderer shall declare **all** the Municipal account numbers in the Stellenbosch Area for which the enterprise or the proprietors or directors in their personal capacity is/ are responsible or co-responsible.



7. Negotiations for a fair market related price

- 7.1 The award of the tender may be subject to price negotiation with the preferred tenderers.
- 8 This bid will be evaluated and adjudicated according to the following criteria:
 - 8.1 Relevant specifications
 - 8.2 Value for money
 - 8.3 Capability to execute the contract
 - 8.4 PPPFA & associated regulations

9 Service Level Agreement

The award of the tender is subject to the signing of a Service Level Agreement (SLA) between the successful bidder and Stellenbosch Municipality.

10 Inclusion as a standard clause in the tender specification documents where any asset is constructed (delete which ever is not applicable)

On practical completion date, a report or certificate should be issued indicating the total costs of the project attributable to each significant component as identified within the lowest asset hierarchy level (4) as specified within the infrastructure catalogue or Annexure A of the Stellenbosch Municipality's asset management policy as approved in 2014, if not contained in the catalogue.

11 Centralised Supplier Database

No Bids will be awarded to a bidder who is not registered on the Centralised Supplier Database (CSD).

The CSD supplier number starting with (MAAA) number is automatically generated by the Central Database System after successful registration and validation of a prospective service provider. This number is now a mandatory requirement, as referred to in regulation 14(1) (b) of the Municipal Supply Chain Management Regulations, as part of the listing criteria for accrediting a prospective service provider. Prospective suppliers should self – register on the CSD website at <u>www.csd.gov.za</u> Registration on the CSD will be compulsory in order to conduct business with the STELLENBOSCH MUNICIPALITY. Registration on CSD can be done by contacting 021 808 8594 or <u>Nicolene.Hamilton@stellenbosch.gov.za</u>

Centralised Supplier Database No. MAAA.....

Reference No:	B/SM 8/23	Page 26 of 123



MBD 4 – DECLARATION OF INTEREST

1. No bid will be accepted from persons in the service of the state¹.

8.

- 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 of bidder or his or her representative										
3.2.	Identity Number										
3.3.	Position occupied in the Company (director, shareholder ² etc.)										
3.4.	Company Registration Number										
3.5.	Tax Reference Number										
3.6.	VAT Registration Number										
3.7.	Are you presently in the service of the state?							YE	8	NO	
3.7.1.	If so, furnish particulars:										
3.8.	Have you been in the service of the state for th	e pas	t twel	ve mo	onths	?		YE	S	NO	
3.8.1.	If so, furnish particulars:										

¹ MSCM Regulations: "in the service of the state" means to be –

a. a member of –

ii.

- i. any municipal council;
 - 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. an executive member of the accounting authority of any national or provincial public entity; or
- f. an employee of Parliament or a provincial legislature.

² "Shareholder" means a person who owns shares in the company and is actively involved in the management of the company or business and exercises control over the company.

Reference No: B/SM 8/23	Page 27 of 123
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3.9.	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	
3.9.1.	If so, furnish particulars:				
3.10.	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	
3.10.1.	If so, furnish particulars:				
3.11.	Are any of the company's directors, managers, principal shareholders or stakeholders in the service of the state?	YES		NO	
3.11.1.	If so, furnish particulars:				
3.12.	Is any spouse, child or parent of the company's directors, managers, principal shareholders or stakeholders in the service of the state?	YES		NO	
3.12.1.	If so, furnish particulars:				
3.13.	Do you or any of the directors, trustees, managers, principal shareholders, or stakeholders of this company have any interest in any other related companies or business whether or not they are bidding for this contract?	YES		NO	
3.13.1.	If so, furnish particulars:		<u> </u>		



3.14.	Please provide the following information on ALL directors/shareholders/trustees/members below:						
Full Name and Surname		Identity Number	Personal Income Tax Number	Provide State ³ Employee Number			

NB:

- a) PLEASE ATTACH CERTIFIED COPY(IES) OF ID DOCUMENT(S)
- b) PLEASE PROVIDE PERSONAL INCOME TAX NUMBERS FOR ALL DIRECTORS / SHAREHOLDERS / TRUSTEES / MEMBERS, ETC.

4. DECLARATION

I, the undersigned (name)

certify that the information furnished in paragraph 3 above is correct.

I accept that the state may act against me should this declaration prove to be false.

SIGNATURE	DATE	
NAME OF SIGNATORY		
POSITION		
NAME OF COMPANY		

³ MSCM Regulations: "in the service of the state" means to be –

a. a member of –

b.

- i. any municipal council;
- ii. any provincial legislature; or
- iii. the National Assembly or the National Council of Provinces;
- 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. an executive member of the accounting authority of any national or provincial public entity; or

f. an employee of Parliament or a provincial legislature.

9. MBD6.1 – PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022 – PURCHASES/SERVICES 80/20 or 90/10

NB:

Before completing this form, bidders must study the general conditions, definitions and directives applicable in respect of B-BBEE, as prescribed in the Preferential Procurement Regulations, 2022 and the Stellenbosch Preferential Procurement Policy 2022/23

This preference form must form part of all bids invited. It contains general information and serves as a claim form for preference points for Broad-Based Black Economic Empowerment (B-BBEE) Status Level of Contribution and any other applicable preference

1. GENERAL CONDITIONS

- 1.1 The following preference point systems are applicable to all bids:
 - 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

- a) The value of this bid is estimated to not exceed R50 000 000 (all applicable taxes included) and therefore the 80/20 preference point system shall be applicable.
- 1.3 Points for this bid shall be awarded for:
 - (a) Price;
 - (b) B-BBEE Status Level of Contributor. and
 - (c) Locality of supplier
- 1.4 The maximum points for this bid are allocated as follows:

	POINTS
PRICE	80
B-BBEE STATUS LEVEL OF CONTRIBUTOR	10
LOCALITY (See definitions)	10
Total points for Price and Preferences must not exceed	100

- 1.5 Failure on the part of a bidder to submit proof of B-BBEE Status level of contributor together with the bid, will be interpreted to mean that preference points for B-BBEE status level of contribution are not claimed.
- 1.6 Failure on the part of a bidder to submit proof of Locality together with the bid, will be interpreted to mean that preference points for Locality are not claimed.
- 1.7 The purchaser reserves the right to require of a bidder, either before a bid is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the purchaser.

Reference No: B/SM 8/23	Page 30 of 123
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2. **DEFINITIONS**

- (a) **"B-BBEE"** means broad-based black economic empowerment as defined in section 1 of the Broad-Based Black Economic Empowerment Act;
- (b) "B-BBEE status level of contributor" means the B-BBEE status of an entity in terms of a code of good practice on black economic empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;
- (c) **"bid"** means a written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of goods or services, through price quotations, advertised competitive bidding processes or proposals;
- (d) **"Broad-Based Black Economic Empowerment Act"** means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);
- (e) **"EME"** means an Exempted Micro Enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9 (1) of the Broad-Based Black Economic Empowerment Act;
- (f) **"functionality"** means the ability of a tenderer to provide goods or services in accordance with specifications as set out in the tender documents.
 - (g) **"Locality**" means the local suppliers and/or service providers that business offices are within the Municipal area of Stellenbosch (WC024).
- (h) "price" includes all applicable taxes less all unconditional discounts;
- (i) **"proof of B-BBEE status level of contributor**" means:
 - 1) B-BBEE Status level certificate issued by an authorized body or person;
 - 2) A sworn affidavit as prescribed by the B-BBEE Codes of Good Practice;
 - 3) Any other requirement prescribed in terms of the B-BBEE Act;
 - (j) "QSE" means a qualifying small business enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9 (1) of the Broad-Based Black Economic Empowerment Act;
 - (k) "Specific goals" means specific goals as contemplated in section 2(1)(d) of the Act which may include contracting with persons, or categories of persons, historically disadvantaged by unfair discrimination on the basis of race, gender and disability including the implementation of programmes of the Reconstruction and Development Programme as

published in Government Gazette No. 16085 dated 23 November 1994;

(*I*) **"rand value"** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;

Reference No: B/SM 8/23	Page 31 of 123
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3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

4. POINTS AWARDED FOR PRICE

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

A maximum of 80 or 90 points is allocated for price on the following basis: 80/20 or 90/10

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

Where
Ps = Points scored for price of bid under consideration

Pt = Price of bid under consideration

Pmin = Price of lowest acceptable bid

4.2 FORMULAE FOR DISPOSAL OR LEASING OF STATE ASSETS AND INCOME-GENERATING PROCUREMENT

4.3 **POINTS AWARDED FOR PRICE**

A maximum of 80 or 90 points is allocated for price on the following basis: 80/20 or 90/10

$$Ps = 80\left(1 + \frac{Pt - Pmax}{Pmax}\right)$$
 or $Ps = 90\left(1 + \frac{Pt - Pmax}{Pmax}\right)$

Where

Ps = Points scored for price of bid under consideration

Pt = Price of bid under consideration

Pmax = Price of highest acceptable bid

5. POINTS AWARDED FOR B-BBEE STATUS LEVEL OF CONTRIBUTOR

- 5.1 In terms of Regulation 4 (2) and 5 (2) of the Preferential Procurement Regulations, preference points must be awarded to a bidder for attaining a specific goal specified for the tender
- 5.2 The tendering conditions will stipulate the specific goals, as contemplated in section 2(1)(d)(ii) of the Preferential Procurement Act, be attained.
- 5.3 A maximum of 20 points (80/20 preference points system) or 10 (90/10) preference points system), must be allocated for specific goals. These goals are :
 - (a) contracting with persons, or categories of persons, historically disadvantaged by unfair discrimination on the basis of race, gender or disability;
 - (b) Promotion of enterprises located in the municipal area (WCO24)

Reference No:	B/SM 8/23	Page 32 of 123
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5.4 Regarding par 5.3 (a) at least 50% of the 20/10 points must be allocated to promote this goal and points will be allocated in terms of the BBBEE scorecard as follows.

B-BBEE Status Level of Contributor	Number of forPoints 80/20Preference SystemPoints	Number of Points for 90/10 Preference Points System		
1	20	10		
2	18	9		
3	16	8		
4	12	5		
5	8	4		
6	6	3		
7	4	2		
8	2	1		
Non-compliant contributor	0	0		

- 5.5 A tenderer must submit proof of its BBBEE status level contributor.
- 5.6 A tenderer failing to submit proof of BBBEE status level of contributor
 - 5.6.1 may only score in terms of the 80/90-point formula for price; and
 - 5.6.2 scores 0 points out of 10/5 BBBEE status level of contributor, which is in line with section 2 (1) (d) (i) of the Act, where the supplier or service provider did not provide proof thereof.
- 5.7 Regarding par 5.3 (b) a maximum of 50% of the 20/10 points must be allocated to promote this goal. Maximum points will be allocated as follows.

Locality of supplier	Number of Points for 80/20 Preference Points System	Number of Points for 90/10 Preference Points System
Within the boundaries of the municipality	10	5
Outside of the boundaries of the municipality	0	0

Reference No: B/SM 8	3/23	Page 33 of 123
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6. BID DECLARATION

6.1 Bidders who claim points in respect of B-BBEE Status Level of Contribution and/or Locality must complete the following:

7. B-BBEE STATUS LEVEL OF CONTRIBUTOR CLAIMED IN TERMS OF PARAGRAPHS 1.4 AND 4.1

7.1 B-BBEE Status Level of Contributor: . =(maximum of 10 points)

(Points claimed in respect of paragraph 7.1 must be substantiated by relevant proof of B-BBEE status level of contributor.)

7.2 Within the boundaries of Stellenbosch Municipality (WC024)?

YES NO

Address -

.....

.....

(Points claimed in respect of paragraph 7.2 must be substantiated by relevant proof that the business premises is situated in the Municipal area of Stellenbosch (WC024). A valid municipal account or proof of valid lease agreement must be attached)

8. SUB-CONTRACTING

8.1 Will any portion of the contract be sub-contracted?

(Tick applicable box)



- 8.1.1 If yes, indicate:
 - i) What percentage of the contract will be subcontracted.....%
 - ii) The name of the sub-contractor.....
 - iii) The B-BBEE status level of the sub-contractor.....
 - iv) Whether the sub-contractor is an EME or QSE

(Tick applicable box)

YES NO

v) Specify, by ticking the appropriate box, if subcontracting with an enterprise

Designated Group: An EME or QSE which is at last 51% owned	EME	QSE		
by:	\checkmark			
Black people				
Black people who are youth				
Black people who are women				
Black people with disabilities				
Black people living in rural or underdeveloped areas or townships				
Cooperative owned by black people				
Black people who are military veterans				
OR				
Any EME				
Any QSE				
Reference No: B/SM 8/23	F	Page 34 of 123		
Page 35 of 123

9.	DECLARATION WITH REGARD TO COMPANY/FIRM
9.1	Name of company/firm:
9.2	VAT registration number:
9.3	Company registration number:
9.4	TYPE OF COMPANY/ FIRM
	 Partnership/Joint Venture / Consortium One person business/sole propriety Close corporation Company (Pty) Limited [TICK APPLICABLE BOX]
9.5	DESCRIBE PRINCIPAL BUSINESS ACTIVITIES
9.6	COMPANY CLASSIFICATION
	 Manufacturer Supplier Professional service provider Other service providers, e.g. transporter, etc. [<i>TICK APPLICABLE BOX</i>]
9.7	MUNICIPAL INFORMATION
	Municipality where business is situated: Registered Account Number: Stand Number:
9.8	Total number of years the company/firm has been in business:
9.9	I/we, the undersigned, who is / are duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the B-BBE status level of contributor indicated in paragraphs 1.4 and 6.1 of the foregoing certificate, qualifies the company/ firm for the preference(s) shown and I / we 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 6.1, the contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct;
	 iv) If the B-BBEE status level of contributor/Locality points has been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the purchaser may, in addition to any other remedy it may have –
	(a) _disqualify the person from the bidding process;

Reference No:

B/SM 8/23

- (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 bidder or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted by the National Treasury 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.

SIGNATURE OF BIDDER(S):		
WITNESS 1:	WITNESS 2:	
DATE:		
ADDRESS:		

Reference No:	B/SM 8/23	Page 36 of 123
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PLEASE COMPLETE IN FULL TO CLAIM POINTS

SWORN AFFIDAVIT – B-BBEE EXEMPTED MICRO ENTERPRISE – GENERAL (DRAFT EXAMPLE) (DO NOT USE. USE NEW/APPLICABLE TEMPLATE)

I, the undersigned,

Full name & Surname	
Identity number	

Hereby declare under oath as follows:

- 1. The contents of this statement are to the best of my knowledge a true reflection of the facts.
- 2. I am a Member / Director / Owner (**Select one**) of the following enterprise and am duly **NB** authorised to act on its behalf:

Enterprise Name:	
Trading Name (If	
Applicable):	
Registration Number:	
Vat Number (If applicable)	
Enterprise Physical	
Address:	
Type of Entity (CC, (Pty)	
Ltd, Sole Prop etc.):	
Nature of Business:	
Definition of "Black	As per the Broad-Based Black Economic Empowerment Act 53 of 2003 as
People"	Amended by Act No 46 of 2013 "Black People" is a generic term which
	means Africans, Coloureds and Indians –
	(a) who are citizens of the Republic of South Africa by birth or
	descent; or
	(b) who became citizens of the Republic of South Africa by
	naturalisation-
	I. before 2/ April 1994; or
	ii. on or after 27 April 1994 and who would have been
	entitled to acquire citizenship by naturalization prior to
	that date;"

Reference No:	B/SM 8/23	Page 37 of 123
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Definition of "Black Designated Groups"	"Black Designated Groups means:
	 (a) unemployed black people not attending and not required by law to attend an educational institution and not awaiting admission to an educational institution;
	 Black people who are youth as defined in the National Youth Commission Act of 1996;
	 Black people who are persons with disabilities as defined in the Code of Good Practice on employment of people with disabilities issued under the Employment Equity Act;
	 (d) Black people living in rural and under developed areas; (e) Black military veterans who qualifies to be called a military veteran in terms of the Military Veterans Act 18 of 2011;"

Reference No:	B/SM 8/23	Page 38 of 123
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- 3. I hereby declare under Oath that:
- The Enterprise is _____% Black Owned using the flow-through principle as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9

 of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,
- The Enterprise is _____% Black Female Owned as per Amended Code Series 100of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,
- The Enterprise is _____% Black Designated Group Owned as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,
- Black Designated Group Owned % Breakdown as per the definition stated above:
 - Black Youth % =____%
 - Black Disabled % = ____%
 - Black Unemployed % = ____%
 - Black People living in Rural areas % = ____%
 - Black Military Veterans % = ____%
- Based on the Audited Financial Statements/Financial Statements and other information available on the latest financial year-end of ____(DD/MM/YYYY), the annual TotalRevenue was R10,000,000.00 (Ten Million Rands) or less



• Please Confirm on the below table the B-BBEE Level Contributor, by ticking the applicable box.

100% Black Owned	Level One (135% B-BBEE procurement recognition		
	level)		
At least 51% Black	Level Two (125% B-BBEE procurement		
Owned	recognition level)		
Less than 51% Black	Level Four (100% B-BBEE procurement recognition		
Owned	level)		

- 4. I know and understand the contents of this affidavit and I have no objection to take the prescribed oath and consider the oath binding on my conscience and on the Owners of the Enterprise which I represent in this matter.
- 5. The sworn affidavit will be valid for a period of 12 months from the date signed by commissioner.

Deponent Signature:_____

Date :

NB! ORIGINALLY CERTIFIED/ NOT COPY

Commissioner of Oaths Signature & stamp Date:

Reference No: B/SM

8/23



EXAMPLE OF POINT SCORING AND ALLOCATION OF PREFERENCE POINTS (80/20) WHERE LOCALITY AS A GOAL IS INCLUDED. STELLENBOSCH PREFERENTIAL PROCUREMENT POLICY.

BIDDER	PRICE	BBBEE LEVEL (VALID)	BUSINESS PREMISES (IN WC024)
TENDERER A	R 80 000	1	NO
TENDERER B	R 75 000	1	YES
TENDERER C	R 70 000	2	NO

BIDDER	PRICE POINTS (Out of 80)	BBBEE POINTS (Out of 10)	LOCALITY POINTS (Out of 10)	TOTAL POINTS (Out of 100)
TENDERER A	68.57	10	0	78.57
TENDERER B	74.29	10	10	94.29
TENDERER C	80	9	0	89

Reference No:	B/SM 8/23	Page 40 of 123



10. MBD 8 – 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:
 - 3.1. abused the municipality's / municipal entity's supply chain management system or committed any improper conduct in relation to such system;
 - 3.2. been convicted for fraud or corruption during the past five years;
 - 3.3. willfully neglected, reneged on or failed to comply with any government, municipal or other public sector contract during the past five years; or
 - 3.4. 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.

4.1	Is the bidder or any of its directors listed on the National Treasury's database as a company or person 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 National Treasury after the audi alteram partem rule was applied).	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)? (To access this Register enter the National Treasury's website, <u>www.treasury.gov.za</u> , click on the icon "Register for Tender Defaulters" or submit your written request for a hard copy of the Register to facsimile number (012) 3265445).	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

Reference No:	B/SM 8/23	Page 41 of 123
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4.3.1	If so, furnish particulars:		
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	Νο
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
4.5.1	If so, furnish particulars:		

5. 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:	NAME (PRINT):	
CAPACITY:	DATE:	
NAME OF FIRM:		

Reference No:	B/SM 8/23	Page 42 of 123
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11. MBD 9 – CERTIFICATE OF INDEPENDENT BID DETERMINATION

- 1. This Municipal Bidding Document (MBD) must form part of all bids 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).⁴ Collusive bidding is a *per 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:
 - 3.1. take all reasonable steps to prevent such abuse;
 - 3.2. 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
 - 3.3. 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:

CERTIFICATE OF INDEPENDENT BID DETERMINATION:

In response to the invitation for the bid made by:

STELLENBOSCH MUNICIPALITY

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

- 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:

⁴ 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.

Reference No:	B/SM 8/23	Page 43 of 123
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- 5.1. has been requested to submit a bid in response to this bid invitation;
- 5.2. could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and
- 5.3. 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 consortium⁵ 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:
 - 7.1. prices;
 - 7.2. geographical area where product or service will be rendered (market allocation)
 - 7.3. methods, factors or formulas used to calculate prices;
 - 7.4. the intention or decision to submit or not to submit, a bid;
 - 7.5. the submission of a bid which does not meet the specifications and conditions of the bid; or
 - 7.6. 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.
- 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:	NAME (PRINT):	
CAPACITY:	DATE:	
NAME OF FIRM:		

Reference No:	B/SM	8/23	Page 44 of 123
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⁵ 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.



12. MBD 10 – CERTIFICATE FOR PAYMENT OF MUNICIPAL SERVICES

DECLARATION IN TERMS OF CLAUSE 112(1) OF THE MUNICIPAL FINANCE MANAGEMENT ACT (NO.56 OF 2003)

I declare that I am duly authorised to act on behalf of ______ (name of the firm) and hereby declare, that to the best of my personal knowledge, neither the firm nor any director/member/partner of said firm is in arrears on any of its municipal accounts with any municipality in the Republic of South Africa, for a period longer than 3 (three) months.

I further hereby certify that the information set out in this schedule and/or attachment(s) hereto is true and correct. The Tenderer acknowledges that failure to properly and truthfully complete this schedule may result in the tender being disqualified, and/or in the event that the tenderer is successful, the cancellation of the contract.

PHYSICAL BUSINESS ADDRESS(ES) OF THE TENDERER	MUNICIPAL ACCOUNT NUMBER

FURTHER DETAILS OF THE BIDDER'S Director / Shareholder / Partners, etc.:

Director / Shareholder / partner	Physical address of the Business	Municipal Account number(s)	Physical residential address of the Director / shareholder / partner	Municipal Account number(s)

NB: Please attach certified copy (ies) of ID document(s) and Municipal Accounts If the entity or any of its Directors/Shareholders/Partners, etc. rents/leases premises, a copy of the rental/lease agreement or sworn affidavit must be submitted with this tender.

PLEASE SUBMIT MUNICIPAL ACCOUNTS FOR THE FOLLOWING TWO MONTHS AFTER BID CLOSURE TO THE RELEVANT SCM PRACTITIONER SHOULD THE BID NOT BE AWARDED YET.

Signatura	Decition	Data
Signature	Position	Date

Reference No:	B/SM 8/23	Page 45 of 123
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13. COMPENSATION FOR OCCUPATIONAL INJURIES AND DISEASES ACT, 1993 (ACT 130 OF 1993)

COMPENSATION FOR OCCUPATIONAL INJURIES AND DISEASES ACT, 1993 (ACT 130 OF 1993)

Stellenbosch Municipality has legal duty in terms of Section 89 of the said Act to ensure that all contractors with whom agreements are entered into for the execution of work are registered as employers in accordance with the provisions of this Act and that all the necessary assessments have been paid by the contractor.

In order to enter into this agreement, the following information is needed regarding the above-mentioned:

Contractor's registration number with the office of the Compensation Commissioner:

NOTE:

A copy of the latest receipt together with a copy of the relevant assessment OR a copy of a valid Letter of Good Standing must be handed in, in this regard.

PRINT NAME:			
CAPACITY:	1	Name of firm	
SIGNATURE:	ſ	DATE:	

Reference No:	B/SM 8/23	Page 46 of 12
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14. FORM OF INDEMNITY

INDEMNITY

Given by (Name of Company) ______ of (registered address of Company) ______ a company incorporated with limited liability according to the Company Laws of the Republic of South

Africa (hereinafter called the Contractor), represented herein by (Name of Representative)

in his capacity as (Designation)	

of the Contractor, is duly authorised hereto by a resolution dated ______/20___,

to sign on behalf of the Contractor.

WHEREAS the Contractor has entered into a Contract dated _____ / 20___, with the Municipality who require this indemnity from the Contractor.

NOW THEREFORE THIS DEED WITNESSES that the Contractor does hereby indemnify and hold harmless the Municipality in respect of all loss or damage that may be incurred or sustained by the Municipality by reason of or in any way arising out of or caused by operations that may be carried out by the Contractor in connection with the aforementioned contract; and also in respect of all claims that may be made against the Municipality in consequence of such operations, by reason of or in any way arising out of any accidents or damage to life or property or any other cause whatsoever; and also in respect of all legal or other expenses that may be incurred by the Municipality in examining, resisting or settling any such claims; for the due performance of which the Contractor binds itself according to law.

SIGNATURE OF CONTRACTOR:	
DATE:	
SIGNATURE OF WITNESS 1:	
DATE:	
SIGNATURE OF WITNESS 2:	
DATE:	

	Reference No:	B/SM 8/23	Page 47 of 123
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PART B – SPECIFICATIONS AND PRICING SCHEDULE

Reference No:	B/SM 8/23	Page 48 of 12



15. SPECIFICATIONS

SUPPLY, DELIVERY, INSTALLATION, COMMISSIONING AND TESTING OFF ELECTRICAL SUBSTATION MONITORING AND SUPERVISORY CONTROL SYSTEM IN THE STELLENBOSCH MUNICIPALITY AREA, FOR A CONTRACT PERIOD ENDING 30 JUNE 2025.

1 INTRODUCTION

The Stellenbosch Municipality invites suitable and qualified suppliers for the design, manufacturing, inspection, testing and commissioning of a SCADA system to supervise and operate the electrical distribution network. The system is needed for the Stellenbosch and Franschhoek area of electrical supply of the Stellenbosch Municipality. These tender specifications will include the upgrading or replacing the existing system

2 BACKGROUND

- 2.1 The Electrical Services needs to replace the current system hardware of the telemetry system and migrate the existing ABB MICROSCADA system with ABB RTU540 remote terminal units, (RTU) to meet the demands of extending the system to more substations whilst upgrading the existing transmitting units in the substations. The communication between the main server and the substations is currently supplied and maintained by the Municipality's ICT Department, as the successful supplier will have to use the existing communication system and liaise with the ICT department for upgrading and extension of the communication network. The Municipality operates the above-mentioned system at seven (7) primary substations and minimum of 17 secondary substations.
- 2.2 Typical installations in substations consists of electronic protection relays installed on either newly installed HV/MV control panels and switchgear, or retrofitted on older switchgear, therefor all communication will as a standard be transferred primarily over IEC 61850 (Ethernet) protocol on the 11kV equipment and DNP3 (serial) protocol on 66kV control panels. All alarms in the substation are hard-wired to an input card in the RTU.
- 2.3 The successful tenderer shall be responsible for delivery and installation of all supplied and free-issued equipment and do functionality tests on each installation where applicable.

3 SCOPE OF TENDER

This tender specification purpose is to upgrade, extend and / or replace the existing telemetry system with an equal or better system for the monitoring of the substations of the electrical network.

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	

Reference No:	B/SM	8/23	Page 49 of 123	
---------------	------	------	----------------	--



This includes the monitoring for the high voltage (66kV) and medium voltage (11kV) networks. Due to new requirements of being able to operate the network for loadshedding purposes the system and software must be compatible for controlling function when the communication network is able to support this function. The new system must be able to be expandable as the switchgear in the substations are replaced and upgraded to support telemetry monitoring and controlling systems.

Should a different telemetry software system be offered, the transferring and configuring of the existing telemetry system must be included. It is required that no transfer modems / unit be installed. It should be notes that preference will be given to offers that will meet the consideration to rationalize the design of miniature substations. This will affect the direct and indirect costs to the Municipality and the manufacturer's delivery times.

Substations earmarked for a new installation or upgrading will only be verified at the beginning of each financial year, subsequent to funding available and Electricity Services planning.

The scope of works shall include the removal of existing (redundant) equipment, the supply of new equipment or collection, installation of free issued equipment, including labels, cables, cable racks, fibre optic links on equipment inside substations, enclosures, piping, monitoring relays, breakers, door switches, fans, terminals, isolators, and painting of walls prior to an installation. Additional services required may also include extra panel wiring substation equipment or civil works as and when required.

It must be noted that the requirements of the Municipality have been rationalized to improve direct and indirect costs and to benefit of a standardized equipment installation. This is also considered for the operation and maintenance of the distribution network.

Local Labour

It is required that local labour is appointed by the successful tenderer for all unskilled labour tasks as and when needed. The component for unskilled labour in relation to the staff requirements shall be 100%.

Safety file

The successful bidder must always have a current and valid Health-and-Safety file present on site in which all procedures and safety aspects are documented. Failure to issue confirmation of competency will lead to the disqualification of the bid. The successful tenderer must submit this safety file to the Municipal Safety officer 14 days after confirmation of tender awarding.

Guarantee

Tenderers must guarantee their workmanship and supplied equipment and software for a period of twelve months from date of delivery and installation. All flaws, poor workmanship, or faulty installations subsequent to the commissioning and hand-over of each site must be replaced and / or repaired and corrected at the Tenderer's own cost.

4 Unbundling of Assets

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE	



4.1 Unbundling of Municipal Infrastructure Assets

As part of the project closeout, the contractor must also unbundle the assets. The unbundling of capital assets means breaking down the capital assets into components according to the capital asset hierarchy as per GRAP 17 (PPE) in support of the annual compilation of a GRAP compliant Fixed Asset Register. In dealing with the unbundling of capital assets, the unbundling must occur at the end of every financial year and the end of the project.

- 4.2 The unbundling or componentization of the Property, Plant and Equipment (PPE) assets is required to update the Fixed Asset Register (FAR) as well as for effective asset maintenance and provision of services. The FAR will annually be updated for all assets and components. All new assets to be recorded on the FAR would there for have to be unbundled into its constituent components and all components be recorded on the FAR under the parent asset. The unbundling of primary assets into secondary components will be to a level that is sufficient for GRAP 17 compliance. Generally, the componentization of the PPE assets will be based on the component value, type of component (civil, electrical & mechanical) as well as anticipated lifespan of the component.
- 4.3 The unbundling of projects may only commence once the project is complete, all cost is known, including retention fees, and the following documents are available: Final bill of quantities.

As built plans.

Completion certificate; and

Final payment certificate.

All capital expenditure per project or per capital suspense must be verified in order to ensure that the total expenditure on a project is included, that is professional fees, actual cost, retention fees and all other relevant expenditure.

- 4.4 Once the final cost is determined, then the unbundling of the project commences. The total project cost should be broken down to a component level.
- 4.5 The following information should be provided for each component of the capital asset once the project has been unbundled:

Asset description. Original cost. Capital suspense account. WIP Asset code. Expected useful life. Acquisition date (Equal to the date of last expenditure, except retention); Start depreciation date. Asset Class as per Asset hierarchy

4.6 All unbundled capital assets must be captured spatially by geo referencing it in ESRI or ArcMap or a compatible spatial program. In doing so the replaced or upgraded capital assets must be identified.

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	

Reference No:	B/SM 8/23	Page 51 of 123
---------------	-----------	----------------



- 4.7 When a replacement or upgrade is identified, the following information must be provided, the asset code, the portion in units that is replaced or in the case of a complete replacement an indication to this extend.
- 4.8 The GIS layer for as-built plans must be updated independently for the capital asset register layer. All information must be made available in electronic format to the Asset and IT section

Find below list of generic components per asset type is listed below for electricity, but additional/ special components would however also have to be considered when unbundling assets.

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	

Reference No:	B/SM 8/23	Page 52 of 123
---------------	-----------	----------------



OTHER STRUCTURES (INFRASTRUCTURE ASSETS)

ELECTRICITY		USEFUL LIFE IN YEARS		
	MIN	-	MAX	
Cooling towers	25	-	30	
Mains	15	-	20	
Meters	·			
Prepaid	10	-	20	
Credit	20	-	25	
Power stations	·			
Coal	50	-	60	
Gas	50	-	60	
Hydro	50	-	60	
Nuclear	50	-	60	
Supply/reticulation	15	-	25	
Transformers	25	-	50	
Lines	·			
Underground	25	-	45	
Overhead	20	-	30	
Cables	25	-	45	
Substations	·			
Switchgear	20	-	30	
Equipment	·			
Outdoor	20	-	30	
GIS	15	-	30	
Indoor	30	-	40	
Electrical panels	3	-	5	
Telemetry	7	-	15	

NB FAILURE TO COMPLY WITH THE ABOVE REQUIREMENTS THE BID WILL BE CONSIDERED AS NON-RESPONSIVE AND WILL BE DISQUALIFIED

GENERAL SPECIFICATIONS FOR THE SUPPLY, DELIVERY, INSTALLATION AND COMMISIONING OF TELEMETERY MONITORING, COMMUNICATIONS AND CONTROLLING SYSTEMS FOR THE STELLENBOSCH MUNICIPAL ELECTRICAL NETWORK SUBSTATIONS

5. TECHNICAL SPECIFICATIONS FOR THE SCADA SYSTEM AND MASTER STATION

5.1. Functional Requirements

Communication with Control Center

The RTU must be capable of communicating with a Master Station using the tele-control communication protocol IEC 60870-5-104 or DNP 3 level 2 over TCP/IP. It must be possible to communicate simultaneously with multiple Master Stations as a communication Gateway Interface, using different communication protocols.

The protocol DNP3 level 2 slave shall be certificated by an independent institute.

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	



The RTU shall provide serial communication with software parameterized RS232 and or RS485 standard ports.

For Ethernet communication min. one 10/100 Base T port must be available. All communication interfaces shall be accessible on the front side provided as RJ45 jacks.

5.2. General requirements

Reliability

The RTU shall be compliant to the reliability class R3 acc. IEC 60870-4 (MTBF≥8760h). These figures shall be valid for RTU sizes of about 2000 I/O signals.

Availability

The RTU shall meet the availability class A3 acc. IEC 60870-4 (A≥99.95%).

Maintainability

The RTU shall be designed to facilitate no periodic preventive maintenance and inspection. The meantime to repair shall be compliant to class RT4 (MRT≤1h) acc. IEC 60870-4.

Time separating capability

The time separating capability shall be compliant to IEC 60870-4.class SP2 (\leq 10ms) between stations and class SP3 (\leq 5ms) within a station.

Time resolution

The time resolution of the RTU shall be compliant to class TR4 (≤1ms) of IEC 60870-4.

Analog overall accuracy

The analog overall accuracy of the RTU shall comply to class A4 (Error ≤0.5%) of IEC 60870-4.

Analog Resolution

The analog value resolution of the RTU shall be 11 bits plus sign.

Automatic calibration of A/D converter

The RTU shall be equipped with an automatic calibration facility to achieve high long-term stability (e.g. channel for automatic zero calibration).

5.3. System Design

The SCADA Master Station shall facilitate visibility and control of the various substations within the area. The successful contractor shall provide all equipment, engineering, resources and whatever else is required to fulfil the SCADA obligations.

The SCADA Master Station scope will include (but not be limited to):

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	

Reference No:	B/SM 8/23	Page 54 of 123
---------------	-----------	----------------



- 5.3.1The complete engineering processes involved in the design, supply, engineering, configurations, installation, and commissioning of the SCADA Master Station at the Municipal Control Centre.
- 5.3.2 Commissioning of Substation RTU's to the new Master Station.
- 5.3.3 The supply of all licenses for the SCADA Master Station and substations system shall be included in the offer. This must include the function of control of all seven (7) primary substations 66kV as well as 11kV including at least 17 secondary substations as a minimum. 8.3.4This function must be expandable as described elsewhere in this specification.
- 5.3.4 The provision of training to Stellenbosch Municipality technicians / engineers in the use of all related software and system configuration shall be included in the offer.
- 5.3.5 The RTU systems shall be responsible to collect process information and control the substation equipment via different communication protocols described in this specification.
- 5.3.6 Internal and external HW-I/O Module should be included in the RTU unit or extendable. Via described telecommunication protocol communication to higher Central Control Systems must be full field.
- 5.3.7 The assembling of the RTU should be available in centralized architecture or in a de-centralized way with remote I/Os distributed Modules.
- 5.3.8 The equipment shall have front access to indicate operational and error states by light emitting diodes on the front plate.
- 5.3.9 The electronic modules shall be labeled in the front using the same name as indicated in the technical documentation.
- 5.3.10 The equipment shall be designed to restart automatically after power failure. It shall not be necessary to manually restart the equipment after the recovery of the auxiliary power source.
- 5.3.11 The hardware shall be designed for a service life of at least 10 years

6 HARDWARE

General

The RTU shall be microprocessor-based and shall be covered inside DIN rail mountable modules or in scalable housings. Optional centralized and de-centralized solution shall be provided to remove and replace faulty modules without the need of special tools. Processors of RTU

The RTU shall include one CPU board which is responsible for the main processing tasks and for the communication. The main tasks of the CPU boards are managing and controlling of the internal / external I/O boards via the:

- Reading process events from the I/O boards
- Writing commands to the I/O boards

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	



- Communication to control center and to subordinated devices
- Managing of the time base and synchronizing the I/O boards
- It shall be possible to build up a multiprocessor-architecture with more than one module solution.

The RTU shall be capable of handling up to 40 000 data points as a minimum.

The firmware and the configuration of the RTU shall be stored power-fail-save in the Flash/ EE Prom Memory of the RTU. Programs and configurations shall not require reloading due to power outage. It must be possible to easily change or update the firmware to implement enhancements or change protocols.

The RTU should have minimum of 4 serial ports (RS485/RS232-C) which can be configured separately with multi protocols.

Each CPU board shall be equipped with minimum of 2 Ethernet interface to support specified protocols such as IEC 61850, 104, Modbus TCP and DNP3 TCP. It shall also be possible to transfer the configuration of an RTU to a local or remote computer.

The RTU must be able to handle a minimum of 750 I/O (future requirements) Protocol is IEC 61850 (native) with 300 comms I/O (20 I/O per panel) + 16 hardwired binary inputs. The number of panels will vary from substation to substation, but for supply and pricing purposes, use a 15-panel unit.

With the Ethernet interface it shall also be possible to perform a remote diagnostic of the RTU and Ethernet based communication to higher and lower equipment.

The RTU shall provide Data Archives in order to save data like system events from the RTU, process events, measuring values, pulse counter values. It shall be possible to store this information with the timestamp with 1 ms resolution in the data archive which will be saved/stored in a non-volatile memory of the RTU and not be erased in case of an outage of the power supply. The archives shall be locally and remotely accessible.

The central processor shall include a real time clock with the possibility to be synchronized by external GPS equipment or from the operation control center via a periodically transmitted synchronization instruction with a communication protocol supporting this function. The time tagging shall be made within the RTU in accordance with the internal time of the RTU. The RTU shall be equipped with synchronization facilities (procedure) to achieve time accuracy of +/- 5 ms to the host system (master station)

The connection of the respective communication lines shall be possible in several ways: Direct links with RS232-C interfaces, radio links, fibre-optic cables and digital communication networks in order to be flexible with system adaptations

I/O Boards

Each I/O device shall be equipped with its own microprocessor which takes over a part of the data processing, e. g. digital filter for binary inputs, threshold supervision for analog inputs, etc.

The I/O devices shall provide time stamping of events and analog values with an accuracy of +/-1ms within the RTU.

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	

Reference No:	B/SM 8/23	Page 56 of 123
---------------	-----------	----------------



The inputs shall be potentially isolated by the means of optical couplers. Direct connection to the input and output process signals voltages are available with 24...60VDC and 110...125VDC nominal voltages without the need of interposing components.

For commands there should be a 1 out of n check, to ensure that only one command will be activated at a time.

Analogue input modules must be configurable to connect different input signals according to the presented telemetering ranges. (See ranges under Measurements, section 1.3.5) Power supply

The RTU main power supply is nominal 24VDC.

The power supply module shall have the following properties and functions:

- Potential isolation between inputs and outputs
- Cooling by natural convection
- Electronic power limitation
- Short-circuit proof
- Over voltage protection
- Controlled load balancing
- Alarm indication in case of failure

Remote I/O shall feed off the supplied 24VDC signal in the panel. Input voltage for the RTU shall be 30VDC or 110VDC respectively, depending on the substation setup.

7. Communication at IED Level - IEC61850

The RTU shall natively support the communication via IEC61850 station bus. The RTU shall provide IEC61850 client and server functionality.

It shall be possible to combine the RTU in a hybrid solution:

- parallel I/O connections
- serial IED connections via IEC, DNP or Modbus
- station bus via IEC61850

RTU shall combine different IEC61850 functions in one device

- IEC61850 Gateway
- IEC61850 Server
- SNTP time server
- IEC61850 IED Supervision

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	

Reference No:	B/SM 8/23	Page 57 of 123
---------------	-----------	----------------



Data Engineering shall be possible with different system configuration tools. Input Interface of the RTU is the SCD-file, who described the complete substation. The RTU shall have the facility to import SCD-files from different IEC61850 system configuration tools).

The engineering and SCD file structure shall be standard as defined by IEC61850-6. To be able to make future extensions to the complete scope of automation in substations following shall be assured:

- Functions as standard elements (logical nodes LN)
- Process information as standard elements (data and data attributes)
- Communication services independent from physical media and transport protocol
- Engineering process as standard elements

It shall be possible to do following diagnostics with the RTU, IEC61850 and diagnostic tool:

- Browse and display IEC61850 related indications of IEDs (online and offline)
- Signal monitoring
- Protocol analyzer focused on IEC61850 protocol
- Compare two SCL files or compare an IED online with an SCL file

The RTU shall also provide serial / Ethernet interfaces for the communication with subordinated devices like intelligent electronic devices (IEDs). Digital protection relays, metering devices or subordinated RTUs shall be connectable.

Following protocols shall be supported at least: e.g., IEC 60870-5-101, IEC 60870-5-103, DNP3 level 2, Modbus.

8. Commands

The RTU shall be capable of handling the following types of output commands:

- Single command outputs
- Double command outputs
- Regulation step commands
- Set point command outputs (Analog set points and digital set points)

It shall be possible to mix different types of commands at the same binary output module (except analog set points, which are handled by analog output module).

The commands may be executed in one or two step mode (select before operate sequence). The "Select before Operate" mode shall decrease the residual error probability in command direction. An appropriate select acknowledge response shall be issued to the Control Center prior to executing a control. The selection of a point for control shall be cancelled if an Execute command is not received within a period of 20seconds or if another Execute command is issued.

The functionality '1 out of n check' shall be available to check the output circuit of an object command, which must be checked before the actual command is given. The permissible tolerance range shall be defined by means of parameters. The RTU shall support a second output group which will allow parallel output.

Object Command outputs (single and double command outputs) shall be possible as pulse commands in an adjustable pulse length from 0,1 to 20 seconds. Single commands shall also

PRINT NAME:			
CAPACITY:	Na of	ame f firm	
SIGNATURE:	D/	ATE:	

Reference No:	B/SM 8/23	Page 58 of 123
---------------	-----------	----------------



be possible as persistent outputs.

It shall be possible to limit the pulse duration of an object command to the runtime of the switching device (e.g., isolator). The run time end is recognized by the new position indication of the respective switching device.

The binary outputs shall be galvanic isolated from the internal circuits via relay contacts.

8.1 Indications

The state of power system switching devices, other indications and alarm points shall be monitored through dry contacts fed from the RTU. The RTU shall be capable of handling single point inputs as well as double point inputs, represented by two sequential bits of the binary input board.

Its stall be possible to mix different single and double inputs on one binary input board.

Each binary input must have a digital filter in order to prevent ordinary contact bouncing. The digital filter is set by a parameter to specify how many milliseconds an input must be stable before it is accepted as a new signal stage.

To prevent a permanent transmission of indications which frequently change their state, an oscillation suppression must be available, which can be activated or deactivated per indication. The binary inputs shall be isolated from the internal circuits by means of optic couplers.

8.2 Measurements

The RTU shall provide differential analog inputs for the acquisition of analog signals from measuring transducers. The following measuring ranges shall be available:

+/- 2.5mA +/- 5mA +/- 10mA +/- 20mA +/- 1Vdc +/- 10Vdc

The resolution of the measurement shall be 12 bit + sign Unstable input signals shall be smoothed to prevent too many updates. The smoothing factor shall be configurable. The RTU shall have the capability to adjust the input range to other values by means of parameters.

It shall be possible to configure an analog dead band for each analog input point. The purpose of the analog dead band is to prevent noisy input signals from continuously reporting analog fluctuations within the RTU and to the control center. The RTU shall only report new analog values that exceed the dead band. Additionally, it shall be possible to configure background cycles for the transmission of analog values.

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	

Reference No:	B/SM 8/23	Page 59 of 123
---------------	-----------	----------------



The RTU shall also provide the possibility to acquire digital measured values, represented by 8 bits 16 bits of a binary input module. The RTU shall handle conversions of binary data (BIN), binary coded decimals (BCD) and Gray code.

The RTU shall support following processing functions:

- scan analog inputs cyclically
- supervision of zero value and switching detection
- smoothing
- analogue transmitting based with integrator algorithm
- periodic update of RTU data base
- store events into measurement archive with a minimum of 80000 entries with timestamp

The measuring range and line frequency shall be easy to configure by Software adjustments.

8.3 Integrated Total Processing

The RTU shall automatically save pulse accumulator readings from metering devices. Each pulse accumulator input shall be represented by one binary input channel of the binary input board and shall support 32-bit counters.

It shall be possible to read pulses with a pulse frequency up to 25Hz.

CT/VT direct Metering

The RTU should handle direct connection to CT/VTs with independent phase measurement. AC connection of 3 to 4 wires should be supported.

Input metering for 1 and 5 Ampere shall be available without mA transducer.

The following metered parameter shall be available:

- 3-Phase-Neutral Voltage
- 3-Phase-Phase Voltage
- 3-Phase Current
- Active / Reactive Power
- Power Factor
- Frequency
- Phase rotation

Out of these indications, the RTU metering unit should support the following calculated values:

- +/- Active Energy
- +/-Reactive Energy
- Voltage / Current Distortion
- 8.4 Programmable Logic Capability

The RTU shall be provided with programmable logic capabilities supported by easy-to-use editor facilities. These facilities shall allow creation of programmable logic and computational

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	

Reference No:	B/SM 8/23	Page 60 of 123
---------------	-----------	----------------



algorithms for the RTU DIN-Rail. The programmable logic capability shall enable the RTU to perform control functions such as closed-loop analog control, sequencing for equipment startup and shutdown, automatic failover control, and other such functions typically performed by Programmable Logic Controllers (PLCs).

The programming methods shall comply with IEC 61131-3, the emerging international standard for programmable logic controllers in following program languages:

- Function block diagram (FBD)
- Ladder Diagram (LD)

The PLC programs shall run parallel to the tele-control task, but with lower priority

PLC programs shall have access to all process signal value as well as the process signal qualifiers such as invalid, time, etc

PLC variables shall be reported to control centers and issued (in the case of outputs) to subdevices as normal I/O

8.5 Time Management and Synchronization

The time resolution of the RTU shall be 1 ms for events, scanned by the directly connected I/O board.

Synchronization with absolute time shall be possible by following methods:

- Time synchronization of the RTU by the network control center (NCC) via a periodically transmitted synchronization instruction with a communication protocol supporting this function.
- Time synchronization of the RTU using SNTP V4 (RFC2030) on a LAN/WAN network

The long-term time accuracy shall be better than +/- 5 milliseconds.

A time synchronized RTU shall be able to synchronize subordinate RTUs and IEDs via:

- a periodically transmitted synchronization instruction with a communication protocol supporting this function
- Time synchronization using SNTP V4 (RFC2030) on a LAN/WAN network

In due of the quartz drift and accuracy measuring the time will drift not more than ± 144 ms/day after communication is down if the communication link was operating over a period of about 4 hours before.

8.6 Archive Function

The RTU shall be able to handle archive data and shall be protected against voltage loss.

Archives shall store following data with time stamp:

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	

Reference No:	B/SM 8/23	Page 61 of 123
---------------	-----------	----------------



- Process events of the RTU and connected subsystems (subordinate RTU's, IED's, protection relays)
- Virtual data points (e.g., calculated values of PLC function)
- User-login
- Commands
- System events and messages
- Analogue measured values
- Integrated totals (counter values)

The archives shall work as a cyclic buffer with configurable buffer sizes according to the project requirements.

The archive files shall be protected against voltage loss. The archive data shall be accessible via:

- Webserver, TCP/IP channel (remote, WAN/LAN)
- CSV export (text file), Import in EXCEL
- via file transfer

8.7 Diagnostics

All RTU modules, at minimum all Input modules, shall have light emitting diodes (LEDs) to indicate errors or operating modes. The application data shall be stored on removable memory cards, and it shall be possible to exchange these modules without a new configuration download.

The hardware and software shall be continuously monitored from the I/O modules throughout the entire RTU. The hardware and software monitoring shall be carried out by active checks at several levels.

The RTU shall report its system and error states to the Control Center by means of System Events.

The RTU shall provide remote diagnostics capabilities. It shall be possible to connect to the RTU from a remote computer in order to analyze the system and error status, check-up of the configuration or signal values of the RTU remotely, e.g., by means of a Webserver via LAN/WAN.

Remote access via Intranet shall be combined with authority privileges for the user. For following activities:

- Monitoring the RTU-produced internal error messages
- Monitoring and checking the RTU configuration and the status of all connected process signals
- Checking the current version of the configuration file
- Downloading or uploading the RTU configuration file

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	



- Checking and downloading revised software files for the RTU CPU boards
- Uploading the archive files

8.8 Cyber Security

The following security functions shall be included in the RTU560: \

- User Account Management (UAM), integrated in the Webserver
- User Activity Logging (UAL) on the CompactFlash® of the CMU
- Closing of unused TCP/IP ports
- All the above security features fulfill basic requirements of the following security standards:
- NERC/CIP
- North American Electric Reliability Corporation Critical Infrastructure Protection
- IEC 62351
- Power systems management and associated information interchange Data and communications security
- IEEE 1686
- Standard for Substation Intelligent Electronic Devices (IED) Cyber Security Capabilities.

8.9 Tools

Configuration tool

The supplier shall provide a suitable software tool for the configuration and database programming of the RTU. The tool shall be state-of-the-art, running on standard desktop or laptop computers, and shall be based on Windows.

All related RTU software must be HW independent and not related to the different type or architecture of the RTU systems.

The user interface shall be an application according to Microsoft standard presentation format. The configuration tool shall contain an online documentation for easy handling.

The interface shall allow for bulk configuration by means of a convenient mechanism (for example: spreadsheet type functionality)

8.10 Documentation

Comprehensive RTU documentation is required such as:

- System Description
- Function Description
- Connections and Settings of hardware components
- Data Sheets

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	



- Commissioning and Installation
- RTU tool User's Guide
- Communication Interfaces (towards Host and Sub- devices)
- Circuit Diagrams in AutoCAD
- Signal lists in EXCEL
- All documentation shall be in English language.
- All text documents, except for OEM documents, shall be provided both as printed hard copies and as files on CD ROM.

8.11 Training

Tenderers are required to submit the following recommendations for training on <u>all</u> the hardware and the software operation and maintenance aspects of the system (assumed to take at least 2 weeks). The cost of this training shall be included in the Contract Price.

- Full details of training courses available for hardware and software
- Proposed location/s for the training courses

The supplier shall also propose training for the maintenance-, commissioning- and planningpersonnel (up to 4 participants) to give them a general overview over the RTU system and to familiarize them with the details, which ensure safe handling and practical application of the equipment. After the training the participants shall be familiar with the system architecture, with the functionality and with the telecontrol protocol options of the Remote Terminal Unit RTU.

An additional advanced training for up to 3 participants shall be proposed to get familiar with the configuration options and with the functions of the remote terminal unit RTU.

All training shall be conducted in English, using test systems delivered by the supplier.

Maintenance tools and test equipment delivered by the supplier shall be used in the training. The training courses shall be subdivided in theoretical and practical sessions. All training material shall be provided by the supplier.

It is required that the training shall consist of at least following modules:

- At least one day classroom training as an introduction to the system. This part of the training is to be conducted at an early as possible stage of the project.
- At least 1/2 day per operator training at site on the real system. This training module is to be conducted immediately after the system has been commissioned and to be repeated 6 months later as a follow up procedure.
- At least 1-day system maintenance and troubleshooting to be conducted.

PRINT NAME:		
CAPACITY:	Na of f	me ïrm
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8.12 Environmental Conditions



Climatic conditions according to IEC 60870-2-2:Temperature:-25°C... +55°C (Class C2)Relative Humidity:5...95%, non-condensing (Class C1)Atmospheric pressure70 to 106 kPaAltitude (operation)up to 2000 m

Item	Standard		Test Level
1	Low (IEC 60068-2-1)	-10°C	
2	High (IEC 60068-2-2)	Temperature	+60°C
3	Temperature-Humidity (IEC 60068-2-30, cyclic test)		95%
4	Vibration response test, IEC IEC 60255-21-1 Class (10 – 150 Hz)	sinusoidal: 60068-2-6 1 0,5g	0,5g (10 – 150 Hz)

Item	Standard	Test Level
5	Vibration seismic test, sinusoidal: IEC 60068-2-6 IEC 60255-21-3 Class 1: 3,5mm (1 – 9 Hz) IEC 60870-2-2 Class Bm: 3mm (2 – 9 Hz)	3mm (2-9 Hz)
6	Vibration endurance test, sinusoidal: IEC 60068-2-6 IEC 60255-21-1 Class 1: 0,5g (10 - 150 Hz) IEC 60870-2-2 Class Bm: 1g (9 – 200 Hz) - - - 1g	1g (9 – 200 Hz)
7	Vibration high frequency test, sinusoidal: IEC 60068-2-6 IEC 60870-2-2 Class Bm: 1,5g (200 – 500 Hz)	1,5g (200 – 500 Hz)
8	Shock (half sine) IEC 60068-2-27 IEC 60255-21-2 CL1 (15g/11ms) IEC 60870-2-2 (10g / 11ms)	15g / 11ms and 25g / 10ms
9	Bump (half sine) IEC 60068-2-29 IEC 60870-2-2 Class 1: 10g / 16ms / 1000 pulses 100	10g / 16ms / 1000 pulses

PRINT NAME:		
CAPACITY:	Nar of fi	ne rm
SIGNATURE:	DA	E:

Reference No: B/SM	8/23	Page 65 of 123
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8.13 Safety

The RTU should be tested according to safety standard IEC 60950-1 requirements. A CB certificate should be available.

Insulation, EMC Immunity and CE Declaration

	Insulation	
Item	Standard	Test Level
1	Insulation resistance according to IEC 60255-5	>100MOhm / 500V DC
2	Insulation dielectrics withstand voltages according IEC 60255-5 (IEC 60870-2-1 class VW3, ANSI/IEEE C37.90-1989, 1,5kV)	2,5kV, 50Hz, 1min
3	Insulation impulse voltage withstand test IEC 60255-5 (IEC 60870-2-1 class VW3)	5kV (1,2/50µs)

8.14 EMC Immunity Tests

Item	Standard	Test Level
1	Electrostatic discharge immunity IEC 61000-4-2 level 4 (IEC 60870-2-1 A3.1 level 4) (IEC61000-6-2 8/6kV) 8/6kV) (IEC 60255-22-2 8/6kV) (ANSI/IEEE C37.90.3-2001, 8kV) 8/6kV 1	Cubicle: 15/8kV Modules: 8/6kV
2	Radiated electromagnetic field IEC 61000-4-3 (IEC 60870-2-1 A5.1 level 3) (IEC61000-6-2 10V/m) (IEC 60255-22-3 10V/m)	10V/m level 3
3	Electrical Disturbances 1 MHz Burst IEC 60255-22-1 IEC61000-4 IEC61000-18	2.5KV CM, 1.0KV DM
4	Fast Transient Burst Immunity IEC 61000-4-4 (IEC 60870-2-1 A2.3 level 4) (IEC61000-6-2 A/D=2kV, S=1kV) S=1kV) (IEC 60255-22-4 4kV) (ANSI/IEEE C37.90.1-2002, 4kV) S=1kV)	4kV Level 4

PRINT NAME:			
CAPACITY:	N C	Name of firm	
SIGNATURE:	[DATE:	

Reference No: B/SM 8/23	Page 66 of 123
-------------------------	----------------



5	SurgeImmunityIEC61000-4-5(IEC 60870-2-1 A2.2level 3)(IEC61000-6-2 A=1/2kV,S=1kV)(IEC 60255-22-3 2kV)	2kV Class 3
	feederdistributedRTUequipmentIEC61000-4-5(IEC60870-2-1A2.2(IEC61000-6-2A=1/2kV,S=1kV)(IEC60255-22-32kV)	4kV Class 4
6	Conducted RF Disturbance Immunity IEC 61000-4-6 10V) (IEC61000-6-2 10V) (IEC 60255-22-6 10V)	10V Level 3
7	Pulse Magnetic Field Immunity	1000A Level 5
Item	Standard	Test Level
8	Damped Oscillatory Waves IEC 61000-4-12 (IEC 60870-2-1 A2.5 (ANSI/IEEE C37.90.1-2002, 2,5kV) 3-4)	2,5kV / 1kV Level 3
9	Ring Wave IEC 61000-4-12 (IEC 60870-2-1 A2.4 level 3) (ANSI/IEEE C37.90.1-2002, 2,5kV)	2,5kV Level 4
10	Power Frequency Interference 50Hz IEC 61000-4-16 level 4	30V cont. 300V / 10s
11	AC Ripple on DC Supply IEC 60870-2-1 A1.4 level 2 IEC 61000-4-17 level 3	12%
12	Voltage Dips DC IEC 61000-4-29 (IEC 60870-2-1 A1.5 level 1 30% 0,5s)	-30% for 0,1s -60% for 0,1s
13	Voltage Interruption DC IEC 61000-4-29 (IEC 60870-2-1 A1.5 level 1	-100% for 10ms
1		

8.15 EMC Emission Tests

Iter	m St	tandard		Test Level	
PRINT NAME	E:				
CAPACITY:			Name of firm		
SIGNATURE	:		DATE:		

Reference No:	B/SM	8/23	Page 67 of 123
---------------	------	------	----------------



1	Enclosure: Radio Interference Field Strength IEC/CISPR 11 / EN50011	30dB (30 – 230MHz) 37dB (230 – 1000MHz)
2	PowerSupply:RadioInterferenceVoltageIEC/CISPR 11 / EN50011	79dB (0,15 – 0,5MHz) 73dB (0,5 – 30MHz)

8.16 Ethernet Switch Specification

8.16.1 Requirements:

The following conditions shall be met in order for the bidder to be considered for this tender:

- All bidders **must** comply with all requirements in this specification as mentioned below.
- Equipment shall be newly manufactured. No second hand or refurbished equipment shall be accepted.
- The evaluation section (Yes/No) must be completed and confirmed for every requirement. Incomplete sections will lead to the disqualification of the bid.
- Each Tenderer shall issue data sheets/technical information of each individual item offered as supporting documentation to his/her offer. Failure to include required documentation will result in the disqualification of the bid.
- All requirements shall be offered as a complete standard package unit. No separate additional features/units required for an item to conform to our specification will be accepted.
- The bidder must be able to present and demonstrate the features of his/her offer during the evaluation stage of the tender if so requested by the Municipality of Stellenbosch.
- All items shall have a one-year warrantee period. The supplier will be responsible and liable to replace any faulty units within the first three months from date of delivery and be liable for all repairs to the unit for the remaining nine months of the period. If the unit cannot be repaired, the supplier will be liable to replace the unit at own cost.

8.16.2 Compliance:

DESCRIPTION		YES / NO	COMMENTS
1.1	Managed Ethernet Switch - 19" Rack mounted (Item 1) – Substation Network		
•	General Requirements: 1U, 19" Rackmount able unit Managed switch		

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	



DESCRIPTION		YES / NO	COMMENTS
Must be able to be expandablePort indicationRated for substation networks			
 Power requirements Both 30VDC and 110VDC (To be specified/confirmed at ord) 	ering stage)		
Minimum Port Requirements:			
 Ports 1 to 4 (4 ports) Fast Ethernet Copper ports (RJ4: Speed: 100/10MB/s Power over Ethernet (POE) ports two ports required) 	5) (minimum of		
 Ports 5 to 6 (2 ports) back bone Connection via SFP with LC conr Single mode fibre (20km distance Speed: 1GB/s 	e fibre network nectors es)		
 Ports 7 to 8 (2 ports) for 66kV s Multimode fibre (1km distances) Speed: 100MB/s Switch must have the option to a single mode fibre, 1GB/s with LC 	dd 2 off ports for connectors		
1.2 Managed Ethernet Switch – Dir (Item 2) – Substation Network	n mounted		
 General Requirements: Din rail mounted unit Managed switch Must be able to be expandable Port indication Rated for substation networks 			
 Power requirements Both 30VDC and 110VDC (To be specified/confirmed at ord) 	ering stage)		

PRINT NAME:			
CAPACITY:	Ni of	lame f firm	
SIGNATURE:	D	DATE:	

Reference No: B/SM	8/23	Page 69 of 123
--------------------	------	----------------



DESCRIPTION	YES / NO	COMMENTS
 Minimum Port Requirements: Ports 1 to 4 (4 ports) Fast Ethernet Copper ports (RJ45) Speed: 100/10MB/s Power over Ethernet (POE) ports (minimum of two ports required) Ports 5 to 6 (2 ports) Connection via SFP with LC connectors Single mode fibre (20km distances) Speed: 1GB/s (Back bone fibre network) Ports 7 (1 ports) for 66kV substations Multimode fibre (1km distances) Speed: 100MB/s 		
 Standards – for all Ethernet switches Mechanical specifications shall adhere to IEC 60068 requirements. External Interference specifications shall adhere to EN 61000 requirements The switch shall be approved for substations and shall adhere to IEC 61850-3 and IEEE 1613 standard for communication devices. Please note that the port arrangement for both switches need not to be set up as numbered, as long		
All Ethernet switches must support following minimum features: Port mirroring Authentication (802.1x) RSTP – IEEE802.1D-2004 Link aggregation Multiple rings Port prioritization – IEEE 8.2.1D/p VLAN –IEEE 802.1Q Flow Control 802.3x		

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	

Reference No:	B/SM 8/23	Page 70 of 123
---------------	-----------	----------------


DESCRIPTION	YES/ NO	COMMENTS

8.17 Enclosures- RTU, ethernet switches and marshaling boxes

The RTU should be flexible architecture to handle both centralized and decentralized applications.

RTU and marshaling boxes must be supplied and installed by the tenderer.

The enclosure shall be manufactured of 1.6mm mild steel, epoxy-coated with surface mounting facility on the top and bottom of the enclosure. The mounting brackets shall allow the enclosure to be mounted with a gap between the wall and the enclosure. The enclosure shall be grey in color, similar to RAL7035. The enclosure shall be clearly labelled "Telemetry Enclosure", lettering must be 30mm high, and lettering shall be black on a white label. The label shall be screwed to the RTU enclosure door center from the top and sides.

Cable for connections of RTU and marshalling boxes wiring

Hardwired connections to the input cards shall be between the marshalling kiosk and the RTU panel via a 0.22mm 48core multi-core cable.

8.18 RTU control enclosure wiring

The electrical schematic shall consist of a main switch to isolate the DC supply to the enclosure. Sub-breakers shall be wired from the main switch to be able to isolate circuits separately. The power circuit shall consist of 6A 2pole circuit breaker (main switch) feeding the following:

- Circuit breaker to supply the RTU (rating determined by supplier)
- 2A 2pole circuit breaker (30VDC fan)
- 2A 2pole circuit breaker (30VDC Ethernet switch)
- 2A 2pole circuit breaker feeding a 60W 24VDC regulated PSU (radio supply)

All wiring will conform to SANS panel wiring standards.

8.19 Installation of RTU in substations

Installation of the RTU's must be installed in enclosures as specified in this document by the tenderer. A marshaling box needs to be installed approximately 300mm next the RTU enclosure. The installation must include the hard-wired signal connections to the marshalling boxes and the RTU. Comms Ethernet connection (main + spare) to the RTU must be installed from the Ethernet switch (RJ45 ethernet port) mounted in a cabinet above the RTU enclosure. In the case of a RS485 serial bus, the installation of the comms cable will be supplied by the Municipality to the RTU enclosure. All work and requirements (cables, glands, cable numbers etc.) to complete this work shall be included in the installation price offered.

Second RTU option must be installed 2x Serial ports(1xRS-232,1xRS-485) 2x Ethernet interface (10/100BaseT)

PRINT NAME:			
CAPACITY:	N of	lame of firm	
SIGNATURE:	D	DATE:	

Reference No:	B/SM 8/23	Page 71 of 123
---------------	-----------	----------------



USB configuration interface Power Supply input with 24Vdc Integrated I/O (8 Binary inputs, 4 binary outputs) With interface to extension, I/O-modules

8.20 Manuals

An Operation and Maintenance manual shall be issued to the Municipality at every hand-over stage of a contract. The manual shall include the contact details (installation contractor details, date of installation as well as workmanship/supplied products guarantee ending date) as-built drawings, list of confirmed test results and a list of all equipment (product information: type, specification, manufacturer, and ordering code) issued and installed under the contract.

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	

Reference No:	B/SM 8/23	Page 72 of 123
---------------	-----------	----------------



9. Specification for Supply, delivery Master station and Accessories

9.1 MASTER STATION

General

This specification covers the minimum requirements for the design, engineering, supply, installation, and commissioning of the SCADA Master Station in the Control Centre to supervise and operate the distribution network of Stellenbosch Municipality supply area.

Tenderers shall make adequate provision for configuration of the SCADA Master Station system and shall allow for a complete integrated substation protection and control solution utilising the "IEC 61850" network-based communication standard within substations for both protection peerto-peer, and local automation as required, and interfaced via a Substation RTU to the Municipal Control Centre using the IEC60870-5-104 protocol.

The design, engineering, supply, installation, and commissioning of the SCADA Master Station shall be performed by the Original Equipment Manufacturer/ Certified Supplier (by the Original Equipment Manufacturer)/ Channel Supply partner (of the Original Equipment Manufacturer). Should the main contractor choose to subcontract the SCADA Master Station and all associated integration, the main contractor will still be responsible for the overall provision of all SCADA functionality as specified.

The Tenderer must be a specialist in Electrical Power System Protection and SCADA systems with reputable experience in the field. There should be local (within the borders of Western Cape) backup human resources support for the proposed SCADA Master Station solution.

9.2 Scope of Work for master station

The SCADA Master Station shall facilitate visibility and control of the various substations within the area. The successful contractor shall provide all equipment, engineering, resources and whatever else is required to fulfil the SCADA obligations.

The SCADA Master Station scope will include (but not be limited to):

- a) The complete engineering processes involved in the design, supply, engineering, configurations, installation, and commissioning of the SCADA Master Station at the Municipal Control Centre.
- b) Commissioning of Substation RTU's to the new Master Station.
- c) An UPS essential power points will be available for the master station unit in the office space proposed.
- d) Upgrade of all licences for the SCADA Master Station system shall be included in the offer. It must be noted that the licences for seven (7) primary substations must include remote

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	

Reference No:	B/SM 8/23	Page 73 of 123
---------------	-----------	----------------



switching for future use. This includes the high (66kV) and medium voltage (11kV) switchgear in the various primary substations.

9.3 Equipment Location

The SCADA Master Station's central equipment shall be located in a suitable office space at Beltana Electrical Offices, Helshoogte road, Stellenbosch. The following equipment shall be located at this position:

- a) Central computer(s) with accessories and communication controllers.
- b) Remote control communication system

Facilities will be provided to route cables between the various apparatus.

9.3.1 A suitable free-standing cabinet suitable for hard drive racks with cooling fans is required. The cabinet must have hinge doors openings to the sides, front and back for easy access to equipment and wiring and have closing latches so doors can be locked in the closed position. The tenderer is to propose an ideal solution e.g., free if a raised floor or cable ducts shall be used.

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	

Reference No: B/SM 8/23	Page 74 of 123
-------------------------	----------------



9.4 Structure of the Master Station

The SCADA Master Station shall remotely supervise and operate the substations as per the configuration set out in Figure 1.

System Overview



Figure 1 SCADA Interface Block Diagram

(See Annexure 1 for the existing SCADA System overview)

9.4.1 Structure of the SCADA Master Station

The SCADA Master Station is divided into the following levels:

- Network Control Level
- Communication System Level.
- Remote Terminal Level

The **Network Control Level** that will act as the Master Station HMI to the substations shall consist of computer hard drives running the latest **MS Windows Server** software and related SCADA software. The Network Level will physically be operated at the master station unit, and it is required that a dedicated maintenance and operations "station" be installed at the master station cabinet in the office dedicated to this master station.

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	

Reference No:	B/SM 8/23	Page 75 of 123
----------------------	-----------	----------------



The **Communication System Level** between the Network Control Level and the Substation Level shall be based on both the existing radio links supplied and maintained by the Municipality ICT Department, and the existing fibre network. The **Communication System Level** between the Network Control Level and the substations / RTU Level shall be based on the GPRS/ LTE gateways.

9.4.2 Time Stamping

An external GPS Clock shall be provided by the successful bidder. Synchronization of the SCADA System shall be possible by following methods:

- Time synchronization of the RTU's by the SCADA Master Station via a periodically transmitted synchronization instruction of the IEC60870-5-104 communication protocol.
- Time synchronization of the Master Station HMI and RTU's using SNTP V4(RFC2030) on a LAN/WAN network.

Time synchronization of the RTU's using a real time clock that receives the date and time from the Master station system and synchronize the internal time to the master station GPS standard time by means of a minute pulse.

Note:

The communication protocol between the substations and the master station will supplied and maintained at present by the Municipality ICT Department. The existing fibre optic link between substations will be part of this tender and specifications.

9.4.3 Reliability

All RTUs and FRTUs shall be completely independent from each other and from the SCADA Master Station's CPUs. In the case of communication failure or disturbances in the communication, means shall be provided such that the events registered by the RTUs are buffered.

The RTU for the Master Station shall be compliant to the reliability and performance requirements as stipulated in the IEC 60870-4 standard.

9.4.4 System performance

The data base structure of the Network Level CPU (Master Station HMI) shall have extensive capabilities to be extended in the future. Implementation will require a minimum 95 000 data points which must be extendable in future phases.

The Network Level CPU average picture change time for a single line diagram with 60 dynamic objects shall not exceed 2 seconds.

The following signal response times for the total system is accepted (excluding operating time of primary equipment):

 From control command of CB in single line diagram dialogue of Network Level CPU, until output of relay in RTU/ FRTU: - 1 s.

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	

Reference No: B/SM 8/23	Page 76 of 123
-------------------------	----------------



- Change of position of switching object from input of RTU/FRTU, until change position in single line diagram of Network Level CPU: - 2 s
- Change of analogue measurement at RTU/FRTU terminal, until change of value in the single line diagram of Network Level CPU: 5 s

9.4.5 Cybersecurity

The tenderer shall state how the proposed equipment and system operation ensures cybersecurity in terms of local or remote access to the SCADA Master Station system devices and transfer of data. For remote access and support will be done via the municipal APN network and access will be arranged for in liaison with the Municipal ICT Department.

9.4.6 Network Control Level

The **Network Control Level** that will act as the Master Station HMI to the substations and shall consist of PCs running the latest **MS Windows Server** software and related SCADA software. Please refer to item 9.4.1

9.4.7 Communication System Level

The system communication between the Network Control Level and the Substation Level will be as per **Item 9.3 and 9.4.1.**

9.4.8 Computer (PC) requirements

A minimum of two (2) hard drive systems is required. These units must form a fully hot standby system in terms of hardware and software functions with an automatic switching over facility between them, if one of the systems should fail to operate properly. It must be possible to perform a manual system change over if and when required.

The following components is considered the minimum (but not limited to) of the master station. The tenderer will be responsible to ensure that the hardware supplier is compatible and suitable for the platform and SCADA software.

- Rackmount USB keyboard with integrated trackball
- Input devices: 104-key keyboard, 3 button trackballs
- Interface: 2 USB ports (keyboard, trackball)
- Rackmount Touch Monitor
- Scratch resistant glass and drift free accuracy
- 27" monitor (LED) free standing. Must be able to be wall mounted.
- Resolutions: 1280 x 1024 @ 60Hz
- Input 220V AC
- Video Inputs: HDMI, VGA
- Touch interface: USB

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	

Reference No: B/SM 8/23	Page 77 of 123
-------------------------	----------------



- A local RTU shall be of the same type as the RTU used in the HV/MV and MV/MV substations. The RTU shall be equipped with the following number of I/O's and as a minimum requirement:
- 32 binary inputs
- 16 binary outputs
- 12analogue inputs

All the equipment such as the computer with peripherals must be installed in a new free-standing cabinet as specified in this tender.

9.4.9 Maintenance and Development Workstation

A maintenance and development workstation HMI must be supplied and installed specified in **Items 9.3 and 9.4.** Additional to the above, the following is required:

- Standard keyboard and mouse, Microsoft type or equivalent,
- Free standing monitor LED type 27", resolution of 1920 x 1280

The normal working environment shall be based on the standard Microsoft graphical user interface GUI. It shall be possible to open several windows at the same time.

It shall be possible to embed into the operating pictures for the best guidance of the operators e.g., photographs of the controlled objects in a bit map format. It shall further be possible via push buttons in the SCADA software proposed to access third-party software e.g., such as starting up of an excel spread sheet session in the same way as normal operations such as controlling of a switching object.

During a busy state of the SCADA application performing some time-consuming tasks the cursor shall be presented with a different symbol such as e.g., hourglass. The standard keyboard shall be used only for the start-up of the system and keying data. The system is to be entirely operated with mouse.

The user shall operate the system by using the dynamic function keys located on the monitor screen and shall be guided by information windows that can be invoked on demand. By use of the various symbols, it shall be possible to easily control and monitor the substations and the SCADA system itself. The SCADA HMI shall onwards support functions such as zooming, panning and decluttering.

The actual System State shall be displayed by coloured symbols. Windowing technique shall be used to display all information. The applications shall be in full graphics. The windows technique shall allow easy calls for additional, more detail information actually needed by the operator, e.g.:

- Symbols
- Further Pictures
- Measurands displayed in numerical, bar or line-mode
- Texts
- Lists, Tables of Texts, Symbols and Values

PRINT NAME:			
CAPACITY:		Name of firm	
SIGNATURE:	-	DATE:	

Reference No:	B/SM 8/23	Page 78 of 123
---------------	-----------	----------------



9.4.10 Operators Room (Operating Workstation)

The Network Control Level at the Dispatching Centre building in the operation room where the operators will normally control and supervise the distribution networks, must be accessible remotely from laptops operation on Windows operation platform. A local station must be supplied and installed with the latest PC CPU, motherboard, and Solid-state hard drive. Other minimum requirements for the PCs are:

- Intel CPU
- 1 TB GB hard disk
- DVD writer
- 16 GB RAM
- Two Gigabit Ethernet interfaces
- Standard keyboard and mouse
- 1 x 27" Monitor LED resolution of minimum 1920 x 1280

If the above PC specification is below the offered software recommended system requirements the software recommended system requirements must be complied with. A minimum of 6 User Licenses will be required.

The normal working environment shall be based on the standard Microsoft graphical user interface GUI. It shall be possible to open several windows at the same time.

It shall be possible to embed into the operating pictures for the best guidance of the operators e.g., photographs of the controlled objects in a bit map format. It shall further be possible via push buttons in the SCADA software proposed to access third-party software such a starting up of e.g., an excel spread sheet session in the same way as normal operations such a controlling of a switching object.

At a busy state of the SCADA application performing some time-consuming tasks the cursor shall be presented with a different symbol such as e.g., hourglass. The standard keyboard shall be used only for the start-up of the system and keying data. The system is to be entirely operated with mouse.

It shall be possible for the operator to utilise both monitors simultaneously with one mouse and one keyboard only in a "flying mouse" facility.

The user shall operate the system by using the dynamic function keys located on the monitor screen and shall be guided by information windows that can be invoked on demand. By use of the various pictures, it shall be possible to easily control and monitor the substations and the SCADA system itself. There shall onwards be support functions such as zooming, panning and decluttering.

The actual System State shall be displayed by coloured symbols. Windowing techniques shall be used to display all information. The applications shall be in full graphics. The windows technique shall allow easy calls for additional, more detail information actually needed by the operator, e.g.:

Symbols

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	

Reference No:	B/SM	8/23	Page 79 of 123
---------------	------	------	----------------



- Further Pictures
- Measurands displayed in numerical, bar or line-mode
- Texts
- Lists, Tables of Texts, Symbols and Values

To the operator workstations shall be connected following peripherals:

• 1 x A3 colour LaserJet printer to print out screen captures and reports via the local network.

It shall further be possible in the future to connect to the system additional operator workstations based upon lower grade PCs running standard Windows 10 / 11 operating systems. It shall further be possible to run the workstation software over a standard internet browser such as e.g., Microsoft Internet explorer / Crome / Microsoft Edge

9.4.11. Communication Interface

Local Area Network (LAN)

The local area network (LAN) in the dispatching centre and to the substations shall be based on industrial fibre optical switches. Communication to the-substation RTUs shall be via fibre in a ring topology. Failure of one fibre lag is not to cause communication failure.

Network switches shall have the following minimum functionality:

- Supports fast Ethernet 100 MBit/s
- Support for SNMP and Web based management
- Support for Ethernet networks in accordance with IEEE standard 802.3 using optical waveguide (F/O, single or/and multimode), in both line and ring structures.
- Plugged onto standard DIN-rail or 1U rack mount.
- Minimum five 10/100 Mbit/s twisted pair (TP/TX) ports (RJ45 connectors) and two backbone ports (100 Mbit/s Ports).
- It shall be possible to connect data terminal equipment or other network segments to the 10/100 Mbit/s ports using twisted pair cabling TP/TX.
- The ports shall support auto negotiation and autopolarity.
- The built-in control intelligence shall support redundant links between networks and automatic switchover if one route to a node should fail.

The scope of supply shall consist of all required hardware such as switches, termination boxes and pigtail cables all installed in a cabinet where applicable.

9.4.12Remote Interface

Communication from the SCADA Master Station to substation RTUs shall take place over the fibre network using the IEC 60870-5-104 protocol and the radio network operating by the Municipality.

9.4.13Software Maintenance

Software maintenance e.g., For Windows updates and system configuration back-ups a secure access point is required. This will be provided in the form of a Firewall and VPN connection from

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	

Reference No:	B/SM 8/23	Page 80 of 123
---------------	-----------	----------------



the employer's IT system. This will be the only form of connection between the IT system and the SCADA Master Station. The standard procedure for updates and back-ups will be determined by the employer.

9.4.14. SCADA Configuration

For configuration of the system at any level, the system shall not be taken out of operation. During on-line configuration changes, the substation is to be supervised in the background.

The configuration of the SCADA Master Station HMI functions shall be done graphically based on well tested standard functions.

It shall be possible to configure the substation RTUs remotely over the same fibre network and locally at the RTU from a separate portable terminal.

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	

Reference No: B/SM 8/23	Page 81 of 123
-------------------------	----------------



9.5. Master Station Local Remote Terminal Unit

General

The RTU shall have modular design with the use of Rack mounted modules. The Rack mounted RTU shall be assembled in a free-standing cabinet.

It shall be possible at a later stage to easily expand the RTU for more I/O capacity, further communication lines or other functionality.

The equipment shall have front access for modules, electronic modules, terminal blocks, and switches. The electronic modules shall be labelled on the front.

The equipment shall be designed in such a way that in the event of a general failure in the power supply, leaving the RTU out of service, it shall not be necessary to send people to reinitialize the equipment after the recovery of the main source.

The hardware shall be designed for a service life of at least 15 years. The RTU shall be a microprocessor-based modular unit, with modules in Standard European DIN rail or Rack format boards, which comply to the EMC conditions of IEC 60870-2-1.

It shall be possible to remove and replace faulty modules without the need of special tools.

Power Supply

The RTU must have suitable power supply modules having the following properties and functions:

- Dual power supplies shall be provided for redundancy
- Potential isolation between inputs and outputs.
- Cooling by natural convection.
- Electronic power limitation.
- Short-circuit protection.
- Over voltage protection.
- Controlled load balancing.
- Alarm indication in case of failure.

Central Processing Units

The RTU shall provide a CPU board which is responsible for the main processing tasks and for the communication. The main tasks of the CPU board are:

- Managing and controlling of the I/O boards via the peripheral I/O bus
- Reading process events from the I/O boards
- Writing commands to the I/O boards
- Communication to control centre and to subordinated devices
- Managing of the time base and synchronizing the I/O boards

It shall be possible to fit more than one CPU with a 32-bit main processor depending on the application required. The RTUs shall be capable of unlimited data points

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	



The CPU shall be equipped with at least 128 Mbyte RAM-Memory and 250 Mbyte Flash/EEPROM Memory. The firmware and the configuration of the RTU shall be stored power-fail-save in the Flash/EEPROM Memory of the RTU. Programs and configurations shall not require reloading due to power outage. It must be possible to easily change or update the firmware to implement enhancements or change protocols.

The CPU board shall be equipped two Ethernet interfaces, which can both be used for SCADA communications and for the download of configuration or firmware files from a local or remote computer. It shall also be possible to transfer the configuration of an RTU to a local or remote computer. Via this interface it shall also be possible to perform a remote diagnosis of the RTU.

9.6 Data Archives

The RTU shall provide Data Archives in order to save data like system events from the RTU, process events, measuring values, pulse counter values. It shall be possible to store this information with a timestamp of 1ms resolution in the data archive which will be saved power-fail-save in the Flash/EPROM memory of the RTU and not be erased in case of an outage of the power supply. The RTU shall be able to handle archive data and shall be protected against voltage loss.

The upload to a flash memory shall run automatically and the archive shall store the following data with time stamp:

- Process events of the RTU and connected subsystems (subordinate RTU's, IED's, protection relays)
- Virtual data points (e.g., calculated values of PLC function)
- User-login
- Commands
- System events and messages
- Analogue measured values
- Integrated totals (counter values)
- File archive

The archives shall work as a cyclic buffer with configurable buffer sizes according to the project requirements.

The archive data shall be accessible via:

- Webserver, TCP/IP channel (remote, WAN/LAN)
- CSV export (text file)
- Via file transfer

9.7 Programmable Logic Capabilities

The RTU shall be provided with programmable logic capabilities supported by easy-to-use editor facilities. These facilities shall allow creation of programmable logic and computational algorithms for the RTU. The programmable logic capability shall enable the RTU to perform control functions such as closed loop analogue control, sequencing for equipment start-up and shutdown, automatic failover control, and other such functions typically performed by Programmable Logic Controllers (PLCs).

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	

Reference No:	B/SM 8/23	Page 83 of 123
---------------	-----------	----------------



The programming methods shall comply with IEC 61131-3, the emerging international standard for programmable logic controllers in the following program languages:

- Function block diagram (FBD)
- Instruction List (IL)
- Structured Text (ST)
- Ladder Diagram (LD)
- Sequential Function Chart (SFC)

The PLC programs shall run parallel to the tele-control task, or on separate CPU central board used only for the PLC application.

PLC programs shall have access to all process signal value as well as the process signal qualifiers such as invalid time. PLC programs running distributed applications shall use the qualifiers for secure and safe operation.

PLC programs shall update the process signal values via the process data interface. The telecontrol task shall be informed about changes and updates of the new output values either to the process output boards or via the communication line to the network control centres and subdevices.

9.8 Communication

The communication interfaces should be capable of communication with subordinated devices like intelligent electronic devices (IEDs), digital protection relays, metering devices or subordinated RTUs. Different protocols shall be provided, including IEC 60870-5-101, IEC 60870-5-104, DNP 3 level 2, Modbus, Modbus TCP, IEC62056-21 and "IEC 61850".

The protocol DNP3 level 2 slave shall be certificated by an independent institute.

It shall be possible to provide back-up communication lines which takes over the communication to the control centre in case of a failure in the primary communication line.

The RTU shall provide serial communication interfaces RS232 and RS485 as well as two RJ45 Ethernet interfaces. All communication interfaces shall be accessible on the front side of the CPU boards.

The RTU shall report its system and error states to the Control Centre by means of System Events. The RTU shall provide remote diagnosis capabilities. It shall be possible to connect to the RTU from a remote computer in order to analyse the system and error status, check-up of the configuration or signal values of the RTU remotely, e.g., by means of a Webserver via LAN/WAN. Secure remote access provided through a firewall and VPN connection via Internet shall be combined with authority privileges for the user for following activities:

- Monitoring the RTU-produced internal error messages
- Monitoring and checking the RTU configuration and the status of all connected process signals
- Checking the current version of the configuration file
- Uploading the archive files

9.9 Input and Output Process Interface

The process interfaces shall be located in the RTU. The connection to process signals shall be made by means of input and output rack modules. Each I/O board shall be equipped with its own microprocessor which takes over a part of the data processing, e. g. digital filter for binary inputs,

PRINT NAME:		
CAPACITY:	Nan of fi	ne rm
SIGNATURE:	DAT	E:



threshold supervision for analog inputs, etc. The I/O boards shall also have their own times which are synchronized by the CPUs periodically via the I/O bus, in order to provide time stamping of events and analog values with an accuracy of +/-1ms.

The inputs shall be potentially isolated by the means of optical couplers. Direct connection to the input and output process signal voltages from 24-60VDC and 110VDC....220VDC depending on the independent battery unit available for the SCADA system, without the need of interposing components shall be possible.

Binary Outputs

The binary outputs shall be galvanically isolated from the internal circuits via relay contacts. The RTUs shall be capable of handling the following types of output commands:

- Single bit command outputs
- Double bit command outputs
- Regulation step commands
- Set point command outputs (Analog set points and digital set points)

It shall be possible to mix different types of commands at the same binary output board (except analog set points, which are handled by analog output boards).

The commands may be executed in one or two step mode (select before operate sequence). The "Select Before Operate" mode shall decrease the residual error probability in command direction. An appropriate select acknowledge response shall be issued to the Control Centre prior to executing a control command. The selection of a point for control shall be cancelled if an Execute command is not received within a time period of 20seconds.

Object Command outputs (single bit and double bit command outputs) shall be possible as pulse commands in an adjustable pulse length from 0,1 to 25,5 seconds. Single commands shall also be possible as persistent outputs.

It shall be possible to limit the pulse duration of an object command to the runtime of the switching device (e.g., isolator). The run time end is recognized by the new position indication of the respective switching device. To prevent that the command is stopped before the new position is settled, a command release delay time shall be specified.

Binary Inputs

The state of power system switching devices, other indications and alarm points shall be monitored through dry contacts fed from the RTU. The RTUs shall be capable of handling single point inputs as well as double point inputs, represented by two sequential bits of the binary input board. The normal state of a double point input is a non-equivalent bit combination (10 or 01). An intermediate state (00) is given during the runtime of a device from one position to the other.

It shall be possible to mix different single and double inputs on one binary input board.

In order to reach a time resolution of time stamping of events of 1 millisecond, the binary input board shall read all its inputs periodically every millisecond.

Each binary input must have a digital filter in order to prevent ordinary contact bouncing. The digital filter is set by a parameter to specify how many milliseconds an input must be stable before it is accepted as a new signal stage.

To prevent a permanent transmission of indications which frequently change their state, a oscillation suppression must be available, which can be activated or deactivated per indication. The binary inputs shall be isolated from the internal circuits by means of optic couplers.

PRINT NAME:			
CAPACITY:	N of	lame of firm	
SIGNATURE:	D	DATE:	

Reference No: B/SM 8/23	Page 85 of 123
-------------------------	----------------



The RTU shall also provide the possibility to acquire digital measured values, represented by 8 bits or 16 bits of a binary input board. The RTU shall handle conversions of binary data (BIN), binary coded decimals (BCD) and gray code

The RTU shall automatically save pulse accumulator readings from metering devices. Each pulse accumulator input shall be represented by one binary input channel of the binary input board and shall have a resolution of 32 bit. It shall be possible to read pulses with a pulse frequency up to 25Hz.

Analog Inputs

The RTU shall provide differential analog inputs for the acquisition of analog signals from measuring transducers. The following measuring ranges shall be available:

- +/- 2mA
- +/- 5mA
- +/- 10mA
- +/- 20mA
- +/- 40mA
- +/- 2Vdc
- 0...20Vdc

The resolution of the measurement shall be 12 bit + sign. The analog overall accuracy of the RTU shall comply to class A4 (Error <0,5%) of IEC 60870-4. Unstable input signals shall be smoothed to prevent too many updates. The smoothing factor shall be configurable.

It shall be possible to configure an analog dead band for each analog input point. The purpose of the analog dead band is to prevent noisy input signals from continuously reporting analog fluctuations within the RTU and to the control center. The RTU shall only report new analog values that exceed the dead band. Additionally, it shall be possible to configure background cycles for the transmission of analog values.

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	



9.10. Description of Functions

Control and Supervision Application SCADA

For all the substations the following are typical signals to be controlled and supervised. The lists below serve as examples and are not exhaustive and shall only be used in that capacity. The full list of signals should conform to Stellenbosch Municipal requirements and be confirmed between the Tenderer and the employer:

Item	Transformers	Incomers	Feeders	Busbar Sections	Time Tagged
Circuit breaker status	DPI/DCO	DPI/DCO	DPI/DCO	DPI/DCO	х
Isolator status	DPI	DPI	DPI	DPI	х
Earthing switches status	DPI	DPI	DPI	DPI	х
Protection operation(s)	SPI	SPI	SPI	SPI	х
Voltage measurement	MFI	MFI	MFI	MFI	
Current measurement (per phase)	MFI	MFI	MFI	MFI	
Tap change Raise/Lower	RCO				
Tap position indication	STI				х
Tap change Manual/Auto command	DCO/SCO				Х
Tap Change Manual/Auto Indication	DPI/SPI				Х

Used abbreviations:

DCO = Double Command Output SPI = Single Point Input DPI = Double Point Input MFI = Analog Measured value Floating Point RCO = Regulation Command Output STI = Step Position Input SCO = Single Command Output

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	



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SCADA Functionality	Time Tag	Transformers	Incomers	Feeders	Bus Sections
CONTROLS (DIGIT	AL				
BREAKER OPEN		Required	Required	Required	Required
BREAKER CLOSE		Required	Required	Required	Required
	3E	Required	rtoquirou	rtoquirou	rtoquilou
RAISE/LOWER		Roquirou			
TAP CHANG	GE	Required			
MANUAL/AUTO					
STATUS AND ALARI	/IS				
(DIGITAL INPUTS)					
BREAKER OPEN	Required	Required	Required	Required	Required
BREAKER CLOSED	Required	Required	Required	Required	Required
EARTH SWITCH OPEN			Required	Required	Required
EARTH SWITCH CLOSED			Required	Required	Required
BREAKER SELECTED	го				
LOCAL (O	FF		Required	Required	Required
SUPERVISORY)					
BREAKER SELECTED	ГО		Required	Required	Required
MANUAL (OFF AUTO)	10				•
DISCHARGED	NG		Required	Required	Required
OVERCURRENT OPERATI	ED Required		Required	Required	Required
HIGH SET OVER CURRE	NT Required		Required	Required	Required
SENSITIVE EARTH FAU OPERATED	LT Required		Required	Required	Required
EARTH FAULT OPERATED	Required		Required	Required	Required
DIFFERENTIAL	Doguirod		Doguirod	Doguirod	
PROTECTION OPERATED	Required		Required	Required	
INTER TRIP RECEIVED	Reauired		Required	lf	
				equipped	
INTER TRIP SENT	Required		Required	lf equipped	
BREAKER FAIL ISOLATED			Required	Required	Required

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	

Reference No:	B/SM 8/23	Page 88 of 123
		1 490 00 01 120





BREAKER FAIL	_ · ·		.	_ · ·	.
PROTECTION TRIP	Required		Required	Required	Required
CLOSING DISABLED			Required	Required	Required
SF6 PRESSURE LOW			Required	Required	Required
"IEC 61850"	Poquirod		Poquirod	Poquirod	Poquirod
COMMUNICATION FAIL	Required		Required	Required	Required
ARC PROTECTION TRIP	Required		Required	Required	Required
DIFFERENTIAL	Poquirod		Poquirod	Dequired	Required
COMMUNICATION FAIL	Required		Required	Required	
BREAKER NOT HEALTHY	Required		Required	Required	Required
ISOLATOR OPEN	Required		Required	Required	Required
ISOLATOR CLOSED	Required		Required	Required	Required
PROTECTION FAIL	Required		Required	Required	Required
TAP CHANGE ON	Required	Required			
MAMUAL/AUTO					
MEASUREMENTS (ANALOG					
INPUTS)					
VOLTAGE (KV)					
CURRENT (A)					
ACTIVE POWER (MWATT)					
REACTIVE POWER (MVAR)					
APPARENT POWER (MVA)					
FREQUENCY (HZ)					
POWER FACTOR (PF)					

9.11. Single Line Diagrams HMI displays

Basic Functions

The supervision and control of the Substations shall take place via single line diagram pictures.

The colours of the single lines must be in accordance to NRS 040 with regards to the official colours for the various voltages busbars and nodes when off or on.

Each position of a switching object shall be represented by two binary indications. There shall be one for the **ON** position and one for the **OFF** position. Both positions shall be opposite to each other in the normal operation. If both indications are showing the ON position, an alarm shall be issued. If both indications show the OFF position, this shall be interpreted as the "running" of the switch and the function "**Run Time Supervision**" shall be started. During the **Run Time Supervision**, all

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	



commands are blocked. If the switch does not reach a normal state until the **Run Time Supervision** is timed out, an alarm is issued, the switch state is "undefined" and commands for other switches are allowed again.

The symbols of different switching objects, transformers etc. shall be available to be presented in the single line diagrams in at least in three sizes. It shall be possible to install objects both in horizontal and vertical direction.

Control of switching devices from the operator workplace shall be made via a control dialog. This control picture shall be automatically displayed when the switching device to be controlled is selected.

A call up of a control dialog shall be protected by authorisation mechanism to prevent unauthorised control actions. The control dialogue shall further be coupled to the control hierarchy so that a control command to the same object cannot be output from two different workplaces at the same time.

Before a command is executed, the system shall check whether another command or switch is still executing, and whether the interlocking permits the execution of this command. Further, the existence of blocking conditions of the switches shall be checked.

Command execution Failure: If the switching supervision time has exhausted and no change of state of the corresponding switch has been detected, the command output shall reset.

The functions in the single line diagram pictures shall at least be the following:

- 1. Station
 - Updating of data from the stations to the SCADA CPU
 - Station blocking/unblocking
 - Local/remote handling
- 2. Bay
 - Updating of data from the bays to the SCADA CPU
 - Bay blocking/unblocking
 - Bay interlocking
- 3. Switching Devices
 - Breaker
 - Disconnector
 - Three-state disconnector
 - Earth switch
 - Rack In
 - Blocking/unblocking function
 - Auto-reclose lockout
 - Trip tag
 - Reclose tag
- 4. Measurements
 - Up to four measurements per measurement object
 - Minimum and maximum value presentation
 - Bar/unit presentation
 - Fast trend curve presentation
- 5. Transformer OLTC
 - Automatic and manual control mode operation

PRINT NAME:		
CAPACITY:	Na of	ame f firm
SIGNATURE:	DA	ATE:

Reference No: B/SM 8/23	Page 90 of 123
-------------------------	----------------



- Configurable min./max. tap position
- 6. Common functionality included in all functions:
 - Alarm state
 - Blockings
 - State settings
 - Forced operation
 - Operation counting
 - Object messages
 - Operation simulation function
 - Authorization handling
 - Help function available in all dialogs

Busbar Connection Topology

The busbar colouring function shall provide dynamic colouring of the single-line diagram process picture.

The aim of busbar colouring function shall be to give the operator a quick overview of the actual connection topology state of the switchgear or the entire network. The operator shall be able, immediately, to tell whether a busbar segment is earthed, energised or de-energised. This shall help to prevent incorrect switching operations even when switching operations must be performed in stress situations.

Especially in large networks, the operator needs to know which bays are being supplied by which intake feeder (e.g., intake feeder, generators). Thanks to a better overview, undesired parallel switching of e.g., unsynchronised network parts shall be prevented, and the operator shall be able to react quicker to the loss of an intake or generator.

The main features of the bus bar colouring function shall be:

- 1. Fast recognition of infeed conditions
- 2. Energized, de-energized, earthed, and unknown states are presented in different colours
- 3. Multiple in-feeds to be distinguished by different colours
- 4. Voltage levels to be distinguished by different colours
- 5. Freely definable colours

Manual Setting of Object Status

If for some reason (e.g., during maintenance, communication disturbances or system expansion) no communication to the process is operative, the status of the concerned process object in the SCADA Master Station HMI shall be possible to be adjusted manually.

Alarming

Alarm Generation and Acquisition

Alarms can be generated on the following levels:

- In the switchgear
- In the NET, for the SCADA CPU system
- In the PCs

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	

Reference No:	B/SM 8/23	Page 91 of 123
---------------	-----------	----------------



All alarms shall enter the system on their level of origin and are to be transmitted to the SCADA CPU system.

Alarm Handling and Display for SCADA

At Network Level, all alarms shall be printed out together with their time of origin and put into the alarm list. The alarm list shall be possible to be viewed on the SCADA HMI at any time. Alarm conditions shall be possible to show on the appropriate places within the process pictures or within special alarm overview pictures.

As minimum each and every SCADA HMI page shall in addition to the dedicated alarm overview picture such as alarm list have a snapshot of the latest alarms as an alarm row on the top of the page. It shall in the alarm row be possible to scroll the latest few alarms via a separate push button. It shall be possible to suppress the registration and presentation of unwanted alarms.

It shall be possible to acknowledge alarms in the alarm row list. Alarms which are cancelled in the alarm list shall vanish if both the signals which caused the alarm, resets and if an acknowledgement has been made.

The difference between an acknowledged and a not acknowledged alarm shall be shown in the alarm list.

Each and every bay in the single line diagram shall have an alarm overview function. The bay alarm overview picture shall be capable of presenting the status and alarm priority of at least 8 group alarms per bay. It shall further be possible to view a bay alarm list and to acknowledge the alarms via the bay alarm overview function.

9.12. Measurand Handling

9.12.1 General

Measurands shall be recorded in the RTUs and the FRTUs and are to be transmitted to the SCADA CPU. With respect to the operator's place, there shall be the following categories of measurands:

- Measurands intended for display only are requested when the appropriate picture appears on the monitor.
- Measurands to be archived are requested cyclically.
- Measurands to be supervised for limit violations are set if the measured value has changed by a predefined value.

Measurands shall be scaled linearly, i.e., the internal measured values are transformed into process values in a linear way. It shall as well be possible to adjust for e.g., non-linear transducers via a non-linear scaling.

9.12.2 Limit values

It shall be possible to define two upper and two lower limits for every measurand, which can be changed by the operator on demand. Limit violations shall generate a warning or an alarm.

9.12.3 Presentation

The measurement shall be possible to present in the HMI of the SCADA CPU such as e.g. in the single line diagram pictures, trends and reports.

In the single line diagram picture of the SCADA HMI, the operator shall at the first glance

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	



only be presented with the most important measurements. Further measurements shall be possible to view upon the request by the operator, such as one by one measurements or all measurements simultaneously.

9.12.4 Measured Value Processing

The user interface shall provide easy to use dialogs to set the engineering attributes for the different types of processing in case the measurements have not been pre-processed by a system located closer to the process in the data flow chain:

- A raw measured analog value shall be possible to be converted and corrected to proper engineering units with third degree equation. Noise filtering shall be possible to be applied to show the essential changes in a noisy measurement.
- Digital inputs shall be possible to be inverted and there shall be a standard handling for bipolar binaries.
- Pulse inputs shall be converted to engineering units, its increase against time shall be calculated, e.g., to show instant power, and its integrated value in time shall be calculated, e.g., to show amount of energy.

9.13. Reporting

9.13.1 General

Historical data shall be stored on the SCADA Master PC. It shall be possible to generate various reports from the historical data.

It shall be possible to present reports in numbers, texts, bars, curves or tables. The data shall be processed and handled in a report database before presentation, or it can also be calculated at the moment of presentation.

Reports shall be possibly shown on a monitor screen and printed out on a printer. It shall be possible to obtain reports automatically, at a certain point of time, e.g., once a day or manually by means of function keys.

All reports shall be built as pictures in same ways as e.g., a single line diagram. Like ordinary pictures they shall contain static information as well as dynamic. A picture background shall be static while all values, time information etc. shall be dynamic information depicting the momentary state or historical values.

At least the following standard reports shall be available:

- Energy
- Power (Apparent, Active and Reactive)
- Current
- Voltage
- Frequency
- Temperature
- Load duration
- Hourly with 3-minute resolution
- Daily with 15-, 30- and 60-minute resolution
- Weekly and monthly with 1-day resolution
- Yearly with 1-month resolution

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	

Reference No:	B/SM 8/23	Page 93 of 123
---------------	-----------	----------------



It shall be possible to send the report data to standard software packages such as e.g., Microsoft Excel. It shall be possible to edit the raw data e.g., in the hourly report. Manually edited data shall be tagged. The tag shall at least include; when the editing took place, by whom and what was the original value.

The system shall include a special calendar function considering local public holidays.

9.13.2Calculation and Storage

All data shall be calculated and stored in real time. The data shall be collected and calculated either at certain points of time or after certain events.

It shall be possible to collect and calculate data in the following ways:

- Time controlled; Initiation takes place at a predefined point of time or periodically, e.g., printing out a daily report every 24-h.
- Event-controlled; Initiation takes place when a defined event occurs e.g., a disturbance in the process.
- As a consequence of a calculated result or after fulfilling a condition.
- On operator's request.

9.13.3 Display

Browsing in the report shall be possible with arrow keys in a menu or by selecting a specific time according to the date. Non reliable or non-collected values shall be indicated with a specific symbol in the report. The values showed in the report columns shall have five digits without decimals. It shall be possible for the operator to change collected values in daily reports. The corrected values shall be transferred automatically to other reports where the corrected value is used as raw data. If, for some reason (i.e., disturbance in the communication system or maintenance activities) measurands have wrongly been saved, it shall be possible to manually make the corrections (fictitious measurand).

9.13.4 Operation Counting

The switching operation of the breakers shall be registered and counted on a per day basis by the SCADA system. If the number of operations per day exceeds a pre-defined value, an alarm shall be generated.

9.14. Trend Profile graphical displays

General

It shall be possible to show trend pictures in a tabular or curve diagram form. It shall be possible to present both analogue and binary inputs in the trends. The trend pictures shall have the capability to display direct measured values, mean values, or peak values.

It shall be possible to present up to 10 values in one and the same display page.

The trend must be stored for 10 days. It shall be possible to extend this value at a later stage depending on available hard disc space.

Sampling Principle

The trended values shall be sampled once per minute. It shall further be possible to make faster samplings upon special request in order to study certain specific events.

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	

Reference No:	B/SM 8/23	Page 94 of 123
---------------	-----------	----------------



Display

It shall be possible for the operator to change the scale of both the time and the value axis. It shall also be possible for the operator to select switch on and off of each individual signal in a curve diagram as well make a selection for each signal if the presented value is measured, mean or peak.

Authorisation Mechanisms

The SCADA software shall be provided with an authorisation mechanism requesting the operator to use a username and a password in order to get access to certain functions.

The user logins and logouts shall be logged in e.g., an event list as well as printed out on printers in the same manner of event handling as a normal process event.

At least following levels of users shall be included in the system:

- **View level** for operators that only have access to view pictures but no access to e.g., control breakers.
- **Operator level** with access to view all pictures as well control of e.g., circuit breakers.
- **Installer level** with access to set relay protection parameters.
- Engineering level for users with access to the programming tools.
- **System Administrator level** with the access to define other users' access levels as well as adding on and removing users.

The authorisation level shall automatically be reset to the lowest view level automatically e.g., after 30 minutes in the case that an operator has forgotten to log out of the system.

It shall be easy to adapt the user authorisation structure in accordance to changes in the employer's organisation.

Self-Supervision

The SCADA Master PC shall have built-in self-supervision that continuously monitors the state and security of the critical functions. Faults shall be notified either as events or as alarms. The resulting state of the system availability shall be displayed on the monitor at the SCADA system.

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	

Reference No: B/SM 8/23	Page 95 of 123
-------------------------	----------------



9.15. Project Engineering

9.15.1 Planning, Design and Engineering

In choice of equipment, special attention shall be paid to the universal use and suitability for final use. The use of the most common, commercially available equipment shall be preferred. Special attention shall be paid to reliability, availability, and the certainty of deliveries from sub suppliers. The final wishes and demands by the employer shall always been considered.

The application programs implemented for this specific project shall be thoroughly tested in a factory acceptance test before final delivery to site

Factory acceptance testing

A factory acceptance test is to be performed at least one month before the final shipment of the equipment to site.

Those functions that cannot be built in the factory for one reason or the other shall be simulated and tested as closely as possible in a manner corresponding to the final functioning.

The factory acceptance test shall include but not limited to the following aspects:

- Start-ups and shutdowns of the system
- Various kinds of faults and recovery of the system from the faults.

A detailed test report is to be written and submitted to the employer for acceptance. The factory acceptance test shall aim to achieve the testing of the system as close as possible to 100 %.

9.15.2 Documentation

The following documentation shall be provided as part of the tendering stage:

- Datasheets
- High Level Architecture block diagram

The successful bidder shall be required to provide comprehensive documentation covering the supplied SCADA Master station equipment:

- System Description
- Function Description
- Connections and Settings of hardware components
- Data Sheets
- Commissioning and Installation instructions
- User's Guides
- Communication solutions and Interfaces
- Circuit Diagrams in AutoCAD format
- Approved Signal lists in EXCEL format

Each document shall have a document identity. Each change in a document shall be clearly marked. Each document series shall carry the identification of the project, employer, and contents. All the documentation shall be written in English Language in a clear and accurate manner. Documentation shall be provided for all hardware and software supplied in this project. Specific operator manuals shall as well be available in local language if the employer so wish.

The documents shall be delivered in three sets on paper and one set on a commercially readable electronical format preferably on CD ROMs.

PRINT NAME:		
CAPACITY:	Na of	ame firm
SIGNATURE:	DA	ATE:

Reference No:	B/SM 8/23	Page 96 of 123
----------------------	-----------	----------------



9.15.3 Installation and commissioning

The supplier shall handle the installation, cabling and commissioning for all PCs, peripherals and the RTU.

The installation works shall be carried out in accordance with a predefined installation plan.

The scope of supply shall include a site acceptance test to be performed at the latest one week from the date the system has been successfully commissioned. The purpose of the site acceptance test is to verify that the system is fully installed and commissioned within the scope of supply. A site acceptance test report shall be written. If the employer does not approve the site acceptance test a new time for testing shall be agreed upon immediately. The aim shall be to arrange a new test within two weeks from the previous test.

The following requirements shall apply to the installation and commissioning of the SCADA system:

- a) Final end-to-end commissioning of the substation SCADA system to the Stellenbosch Municipal Control Centre is included and will be done in conjunction with Stellenbosch Municipality.
- b) All work referring to the Contractor in this specification shall be performed by Electrical Power System Protection and SCADA specialists.
- c) Curriculum Vitae (CVs) of the Protection and SCADA specialists must be provided.

9.16 Hand-over and warranty

The hand-over of the system to the employer shall take place at an approved site acceptance test. A hand-over document is to be prepared.

The scope of supply shall include a warranty period. The warranty shall guarantee that the system functions faultlessly and makes it possible to get a good use of the system. The warranty shall include:

- Maintenance of the system hardware and software for a period of one (1) year.
- Free of charge use of a remote programming and service connection as described below in order to correct possible faults and errors occurring after the site acceptance test.

After completion of the warranty period a meeting between the employer and the supplier is to be set-up in order to verify that the supplier has fulfilled all warranty obligations as previously agreed.

PRINT NAME:		
CAPACITY:	Name of firm	
SIGNATURE:	DATE:	

Reference No:	B/SM 8/23	Page 97 of 123
---------------	-----------	----------------



16. PRE-QUALIFICATION SCORE SHEET

Preliminary qualification of tenders for Evaluation:

All tenderers must comply with all requirements mentioned in this specification. The technical evaluation will be based on the compliance of tenders with the General conditions of the tender specification.

1 Original Equipment manufacturer (OEM)

- 1.1 Only recognized, suitable suppliers / manufacturers who successfully completed projects of this nature are eligible to submit tenders. Manufacturers and or supplier must submit proof of original equipment manufacturer (OEM) or appointed agent for the SCADA equipment and accessories offered in this tender.
- 1.2 This will not be needed for the general normal enclosures, wiring and tubing materials required in this tender.

2 Company profile and establishment nature

Please include a company profile demonstrating the company establishment, financial status, and experience as well as list of major plant and equipment available for this contract with regards to the experience and qualifications of Tenderer will be considered for the working in substations/live substations.

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

FOR THIS CONTRACT.			
QUANTITY	DESCRIPTION	SIZE	CAPACITY

Attach additional pages if mores space is required.

Failure to include this list may prejudice the Tenderers as being submitted by an insufficiently equipped Tenderer and it may be rejected for such cause.

3 Schedule of references

Reference No:	B/SM 8/23	Page 98 of 123
---------------	-----------	----------------



It is compulsory that the schedule of Contactable References as provided in this tender be completed in full and must accompany each proposal. At least 3 (three) contactable references must be submitted with the tender as a pre-qualification requirement for further evaluation. The Tenderer must submit evidence of proven installations where the database proposed have been used for up to 100 000 process signals.

The following is a statement of similar work successfully executed by myself / ourselves: (Refer to page 103 of tender document)

Attach additional pages if mores space is required.

4 Experience and qualification of key personnel

4.1 The successful tenderer key personnel assigned to this tender project must be suitably qualified and have in-depth experience of communication network and telemetry installations in a typical electrical municipal network. This is a requirement for the duration of the tender period.

The experience and qualifications of Tenderer personnel will be considered for the working in substations/live substations / switch yards and must be familiar with the dangers and safety procedures required in such areas.

- 4.2 Tenderers must include detailed copies of qualifications and experience of the personnel who are going to be working on projects. Emphasis will be placed on the evidence of teamwork experience for the key personnel.
- 4.3 The successful Tendered must have an appointed RESPONSIBLE PERSON/S with valid responsible person's certificate in his/her employment according to HV / MV Voltage Regulations (NRS040), to be further evaluated for this tender. Proof of such accreditation of key staff member/s who will be working on the tender must be submitted with the tender document.
- 4.4. A proposed methodology of Project Engineering in terms of item 9.10 must be included in the tender returnable documents clearly marked "Methodology of project engineering" of the implementation.

Time frames of the proposed upgrade / new installation of the SCADA and relevant systems including hand over and training of relevant municipal staff members is concluded. It is required that the upgrade / new installation of the existing substations must be transferred and at least be able to be monitored within 7 months of awarding of the tender.

4.4.1 The following requirements must be included in the above:

Designs and layout will be agreed upon for each substation. Once the work has been completed and successfully tested, "as built" drawings shall be issued in AutoCAD format as well as printed documents to the Municipality for approval. Approved drawings shall be issued to the Municipality as a final draft for record purposes. Design drawing types shall include general arrangements, electrical schematics, hook-up diagrams and terminal / cable schedules as specified in the quoted standards.

The list shall further include actual point-to point lengths of all cabling installed where required for record and replacement purposes. Information shall be supplied in both printed material and per approved software copies.

Acceptance of this tender shall not be construed as approval of all or any of the listed subcontractors. Should any of the subcontractors not be approved subsequent to acceptance of the tender, this shall in no way invalidate this tender, and the tendered unit rates for the

Reference No:	B/SM 8/23	Page 99 of 123
---------------	-----------	----------------



various items of work shall remain final and binding, even in the event of a subcontractor not listed above being approved by the Engineer.

SIGNATURE (Bidder)	FOR OFFICE	USE ONLY:
CAPACITY	Evaluated by	
NAME OF FIRM	Signature:	
NAME (PRINT)	Designation:	
DATE	Date:	

Reference No:	B/SM 8/23	Page 100 of 123
---------------	-----------	-----------------



SCHEDULE OF PLANT AND EQUIPMENT

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

DETAILS OF MAJOR EQUIPMENT THAT IS OWNED BY AND IMMEDIATELY AVAILABLE FOR THIS CONTRACT.						
QUANTITY	DESCRIPTION SIZE CAPACITY					

Attach additional pages if mores space is required.

17.

DETAIL OF MAJOR EQUIPMENT THAT WILL BE HIRED, ORE ACQUIRED FOR THIS CONTRACT IF MY / OUR TENDER IS ACCEPTED.				
QUANTITY	DESCRIPTION,	SIZE	CAPACITY	

Attach additional pages if mores space is required.

Number of sheets appended by the tenderer to this schedule (If nil, enter NIL)				
SIGNATURE		NAME (PRINT)		
CAPACITY		DATE		
NAME OF FIRM				



18. SCHEDULE OF SUBCONTRACTORS

I/we the tenderer, notify the Stellenbosch Municipality that it is our intention to employ the following Subcontractors for work in this contract.

SUBCONTRACTORS				
Category / Type	Subcont	ractor Name; Address; Contact Person; Tel. No.	Items of work (pay items) to be undertaken by the Subcontractor	Estimated cost of Work (Rand)
	Name of firm			
1	Contact person			
1.	Tel No			
	Address			
	Name of firm			
2	Contact person			
Ζ.	Tel No			
	Address			
	Name of firm			
2	Contact person			
э.	Tel No			
	Address			
	Name of firm			
1	Contact person			
4.	Tel No			
	Address			
	Name of firm			
F	Contact person			
J.	Tel No			
	Address			
Number of st	neets appended	by the tenderer to this schedule (If nil, enter NIL)		

Acceptance of this tender shall not be construed as approval of all or any of the listed subcontractors. Should any of the subcontractors not be approved subsequent to acceptance of the tender, this shall in no way invalidate this tender, and the tendered unit rates for the various items of work shall remain final and binding, even in the event of a subcontractor not listed above being approved by the Engineer.

SIGNATURE	NAME (PRINT)	
CAPACITY	DATE	
NAME OF FIRM		

Reference No: B/SM 8/23	Page 102 of 123
-------------------------	-----------------



19. SCHEDULE OF WORK EXPERIENCE OF THE TENDERER – CURRENT CONTRACTS

CURRENT CONTRACTS					
EMPLOYER (Name, Tel, Fax, Email	1) ((Contact Person Name, Tel, Fax, Email)	NATURE OF WORK	VALUE OF WORK (INCL. VAT)	DATE COMPLETED
Name	Name				
Tel	Tel				
Fax	Fax				
Email	Email				
Name	Name				
Tel	Tel				
Fax	Fax				
Email	Email		7		
Name	Name				
Tel	Tel		1		
Fax	Fax				
Email	Email		1		
Name	Name				
Tel	Tel		7		
Fax	Fax		7		
Email	Email				
Name	Name				
Tel	Tel		1		
Fax	Fax		1		
Email	Email				
Name	Name				
Tel	Tel		7		
Fax	Fax				
Email	Email		1		
Name	Name				
Tel	Tel		1		
Fax	Fax		1		
Email	Email		1		

Attach additional pages if mores space is required.

Number of sheets appended by the tenderer to this schedule (If nil, enter NIL)				
SIGNATURE	NAME (PRINT)			
CAPACITY		DATE		
NAME OF FIRM				

Reference No:	B/SM 8/23	Page 103 of 123
---------------	-----------	-----------------



20. SCHEDULE OF WORK EXPERIENCE OF THE TENDERER – COMPLETED CONTRACTS

COMPLETED CONTRACTS						
EMPLOYER (Name, Tel, Fax, Email)	(Contact Person Name, Tel, Fax, Email)	NATURE OF WORK	VALUE OF WORK (INCL. VAT)	DATE COMPLETED	
Name	Name					
Tel	Tel					
Fax	Fax					
Email	Email					
Name	Name					
Tel	Tel					
Fax	Fax					
Email	Email					
Name	Name					
Tel	Tel					
Fax	Fax					
Email	Email					
Name	Name					
Tel	Tel					
Fax	Fax					
Email	Email					
Name	Name					
Tel	Tel					
Fax	Fax					
Email	Email					
Name	Name					
Tel	Tel					
Fax	Fax					
Email	Email					

The following is a statement of similar work successfully executed by myself / ourselves:

Attach additional pages if mores space is required.

Number of sheets appended by the tenderer to this schedule (If nil, enter NIL)	
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SIGNATURE	NAME (PRINT)	
CAPACITY	DATE	
NAME OF FIRM		

Reference No:	B/SM 8/23	Page 104 of 123



21. PRICING SCHEDULE

NOTE:

- 1. Only firm prices will be accepted. Non-firm prices will not be considered.
- 2. All delivery costs MUST be included in the bid price, for delivery at the prescribed destination.
- 3. Document MUST be completed in non-erasable black ink.
- 4. NO correction fluid/tape may be used.
 - a. In the event of a mistake having been made, it shall be crossed out in ink and be accompanied by an initial at each and every alteration.
- 5. The Bidder MUST indicate whether he/she/the entity is a registered VAT Vendor or not.

I/We

(full name of Bidder) the undersigned in my capacity as _____

of the firm _

a.

hereby offer to Stellenbosch Municipality to render the services as described, in accordance with the specification

and conditions of contract to the entire satisfaction of the Stellenbosch Municipality and subject to the conditions of

tender, for the amounts indicated hereunder:

			INE	DICA	NITH	AN	'X'	
Are you/is the firm a registered VAT Vendor		Y	'ES				NO	
If "YES", please provide VAT number								

Please note the following:

- 1. Stellenbosch Municipality reserves the right to downward adjust the scope of work/ quantity required to stay within its budget.
- 2. Only firm prices will be accepted and non-firm prices will not be considered.

PRICING SCHEDULE:

10 Pricing schedule and pricing conditions

10.1. Pricing conditions

SIGNATURE	NAME (PRINT)	
CAPACITY	DATE	
NAME OF FIRM		

Reference No:	B/SM 8/23	Page 105 of 123
---------------	-----------	-----------------



- 10.1.1 Prices must be **fixed for the duration of each financial year**. The bidder must offer prices in this bid that will be valid and fixed on an annual basis from the commencement date of this contract until 30 June 2025.
- 10.1.2 During the first month of each financial year (July), the successful bidder will have the opportunity to adjust the offered prices in this bid will be according to the CPA (Consumer Price Adjustment).

The bidder must offer supporting documentation to the Municipality to justify any price adjustment that might be required. The successful bidder must be responsible to contact the client to ensure that any price adjustment requests are requested and implemented accordingly. The price adjustment phase will only be valid during the first month (July) of each municipal financial year.

- **10.2.** Should this opportunity be missed by the successful bidder, the Municipality will deem the previous financial year's rates as valid for the duration of the following financial year and same rates will be used as a base rate for the next price adjustment the following year. The successful bidder will under these circumstances be forced to accept these conditions as part of this contract commitment.
- **10.3.** The estimated quantities indicated in the pricing schedule are only for evaluation purpose. The municipality can order more or less than the estimated quantities and therefore such estimated quantities are not bidding to the municipality to order such quantities per municipal financial year.
- 10.4 Bidder must complete all the OQ (1-9). Failure not to it will make your offer non-responsive

SIGNATURE	NAME (PRINT)	
CAPACITY	DATE	
NAME OF FIRM		

Reference No:	B/SM 8/23	Page 106 of 123
---------------	-----------	-----------------


Summary Price page of Bill of Quantities

		Comply to specification	Total of BOQ	DELIVERY PERIOD FOR
BOQ NO.	DESCRIPTION	Y/N		BUQ
1	RTU with master station and computer components:			
2	Enclosures, labels.			
3	Wiring and Wireways			
4	Supply of materials - Supply only			
5	Connection of battery charger units (BTU).			
6	Testing and Commissioning.			
7	Substation, RTU and accessories			
8	Master station, computer and accessories			
9	Price for miscellaneous items			
	TOTAL			
	15% VAT			
	TOTAL VAT INCL			

Signature

Bill of Quantities: Substation Telemetry monitoring and supervisory control system

SIGNATURE	NAME (PRINT)	
CAPACITY	DATE	
NAME OF FIRM		

Reference No:	B/SM 8/23	Page 107 of 123
---------------	-----------	-----------------



BOQ. 1

RTU with master station and computer components: Transform from BOQ. 1 -5

		Comply to specificati			Unit price
Item		on	Estimated	Unit	VAT
no	Description	Y/N	Qnty	measure	excl.
1	Remote Terminal Unit (Complete) – Fibre - optic lead Comms Solution (IEC 61850) – ABB RTU530 or Similar		1	Per unit	
2	Remote Terminal Unit (Complete) – Hard-wired Solution (IEC 61850)		1	Per unit	
3	Remote Terminal Unit (Complete) – Comms Solution (IEC 60870-5-104)		1	Per unit	
4	Installation, Programming, Test & Commissioning of RTU per substation		1	Per unit	
5	Programming, configuration, and setup of Micro SCADA per new substation installation		1	Per unit	
6	Training on offered substation telemetry equipment and RTU Configuration/Setup for 1 individual		1	Per unit	
7	30/110VDC Managed Ethernet Switch – Base mounted		1	Per unit	
8	30/110VDC Managed Ethernet Switch – 19" Rack Mounted		1	Per unit	
9	RTU enclosure		1	Per unit	
10	Marshaling box enclosure		1	Per unit	
11	Ethernet switch enclosure		1	Per unit	
12	Communication accessories: - ICT Department requirements		1	Per unit	
13	Computer accessories: Operating platform including 3- year maintenance		1	Per unit	
14	Master station, software, licenses – monitoring and switching: Transfer price from BOQ Annexure 2 - page 3 of 3 Item 64		1	Per unit	
15	Computer and accessories - Transfer price from BOQ Annexure 2-page 3 of 3 Item 74		1	Per unit	
16	Supply, install automatic Backup facility in liaison with ICT		1	Per unit	
TOTAL					

Total for schedule BOQ1 carried forward to summary page

BOQ.2

SIGNATURE	NAME (PRINT)	
CAPACITY	DATE	
NAME OF FIRM		

Reference No:	B/SM 8/23	Page 108 of 123
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Enclosures, Labels:

		Comply to	Estimated	Unit	Unit
Item		on	Qnty	measur	price
no	Description	Y/N		е	VAT excl.
1	Mounting of 6U Server Cabinet		1	Per unit	
2	Mounting of enclosure (400 w x 500 h) - supplied		1	Per unit	
3	Mounting of enclosure (500 w x 600 h) - supplied		1	Per unit	
4	Mounting of bracket and pole for antenna.		1	Per unit	
5	Supply Beveled Engraved Label - 250 w x 30 h, White				
6	Lettering: Black 15mm High				
7	Title 1: RTU ENCLOSURE		1	Per label	
8	Title 2: MARSHALLING BOX		1	Per label	
9	Title 3: PILOT CABLE BOX		1	Per label	
10	Title 4: SUBSTATION J/BOX		1	Per label	
11	Title 5: PROTECTION BTU		1	Per label	
12	Title 6: RTU BTU		1	Per label	
13	Title 6: Fiber/Ethernet Switch Cabinet		1		
14	Install Label		7	Per label	
15	Stick-on with 2 X 3mm flat head screws tapped in enclosure		1	Per label	
16	Marshaling box wall mount, including terminals as needed per substation. Front door access only with panel key latch. Sand colour powder coated paint. Minimum size 350mm wide, 400mm high and 250 deeps.		1	Per unit	
	TOTAL				
Total for schedule BOQ2 carried forward to summary page					

BOQ.3

Wiring and Wireways:

SIGNATURE	NAME (PRINT)	
CAPACITY	DATE	
NAME OF FIRM		

Reference No: B/SM 8/23	Page 109 of 123
-------------------------	-----------------



		Comply			l lm it
		specific			price
Item	Description	ation	Estimat		VAT
no	Description	Y/N	ed Qnty	Unit measure	exci.
1	Pipe, Trunking and Galv Cable Racks		1	Per meter	
2	White 40mm x 40mm trunking		1	Per meter	
3	Supply white PVC trunking		3	Per meter	
4	Install white PVC trunking		3	Per meter	
5	White PVC Conduit		100	Per meter	
6	Supply 20mm PVC conduit		24	Per meter	
7	Install 20mm PVC conduit		24	Per meter	
8	Gland of PVC conduit with 20mm couplings		6	Per meter	
9	Supply 20mm PVC long bends		5	Per meter	
10	Supply 20mm PVC short bends		5	Per meter	
11	Supply 25mm PVC conduit		3	Per meter	
12	Install 25mm PVC conduit		3	Per meter	
13	Gland of PVC conduit with 25mm couplings		2	Per point	
14	Supply 25mm PVC long bends		2	Per unit	
15	Supply 25mm PVC short bends		2	Per unit	
16	Supply 50mm PVC conduit		16	Per meter	
17	Install 50mm PVC conduit		16	Per meter	
18	Gland of PVC conduit with 50mm couplings		2	Per point	
19	Supply 50mm PVC long bends		2	Per unit	
20	Supply 50mm PVC short bends		2	Per unit	
	Spra	gue Tubing			
21	Supply 20mm PVC Tubing		3	Per meter	
22	Install 20mm PVC Tubing		3	Per meter	
23	Gland of PVC Sprague tubing with 20mm couplings		2	Per meter	
24	Supply 25mm PVC Tubing		3	Per meter	
25	Install 25mm PVC Tubing		3	Per meter	
26	Gland of PVC Sprague tubing with 25mm couplings		2	Per point	
27	Supply 20mm Steel Reinforced Tubing		5	Per meter	
28	Install 20mm Steel Reinforced Tubing		5	Per meter	

	SIGNATURE	NAME (PRINT)	
	CAPACITY	DATE	
_	NAME OF FIRM		

Reference No: B/SM 8/23	Page 110 of 123
-------------------------	-----------------



20	Gland of steel reinforced Sprague tubing with		Э	Dorpoint	
29	20mm couplings		2	Per politi	
30			5	Permeter	
31	Install 25mm Steel Reinforced Tubing		3	Per meter	
32	Gland of steel reinforced Sprague tubing with 25mm couplings		2	Per point	
	Galvanized	Cable Rack/	Tray		
	Installation note: mounted on 40mm x 40mm	Galv Uni -	Strut Rack/T	ray	
33	Supply 100mm x 40mm cable rack		6	Per meter	
34	Install 100mm x 40mm cable rack		6	Per meter	
35	Supply 150mm x 40mm cable rack		2	Per meter	
36	Install 150mm x 40mm cable rack		2	Per meter	
37	Supply 200mm x 40mm cable rack		2	Per meter	
38	Install 200mm x 40mm cable rack		2	Per meter	
	Install 32mm HDPE duct in trench to connect				
39	supplied by client.		3	Per meter	
40	Gland of 32mm HDPE duct with 32mm couplings		1	Per point	
	Removal of existing Wiring and Structures				
41	Remove metal existing metal trunking from		ſ	Dorhour	
41	Remove existing signal wiring from		2	Fer flour	
42	substation		2	Per hour	
43	Removal of Existing Telemetry enclosures (2)		2	Per hour	
44	Removal of existing antenna structure		2	Per hour	
45	Delivery of redundant equipment to Beltana Stores		2	Sum	
	c	abling			
46	Supply 2.5mm ² 3c Cabtyre cable		12	Per meter	
47	Install 2.5mm ² 3c Cabtyre cable		12	Per meter	
48	Termination of cable to include wire number and lugs/ferrule		2	Per Termination	
49	PVC Cable gland of cable to include glands, cable number		2	Per gland	
50	Supply 2.5mm ² 3c SWA Cable		20	Per meter	
51	Install 2.5mm ² 3c SWA cable		20	Per meter	
52	Termination of cable to include wire number and lugs/ferrule		4	Per Termination	

SIGNATURE	NAME (PRINT)	
CAPACITY	DATE	
NAME OF FIRM		

Reference No:	B/SM 8/23	Page 111 of 123
---------------	-----------	-----------------



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53	Cable gland of cable to include glands and cable number	4	Per gland	
	Note: For trench to surface solutions, cable to be gland on a bracket in trench			
54	Supply 4mm ² 4c SWA Cable	10	Per meter	
55	Install 4mm ² 4c SWA cable	10	Per meter	
56	Termination of cable to include wire number and lugs/ferrule	4	Per Termination	
57	Cable gland of cable to include glands and cable number	4	Per gland	
	Note: For trench to surface solutions, cable to be gland on a bracket in trench			
58	Supply 4mm ² 4c SWA Cable	10	Per meter	
59	Install 4mm ² 4c SWA cable	10	Per meter	
60	Termination of cable to include wire number and lugs/ferrule	4	Per Termination	
61	Cable gland of cable to include glands and cable number	4	Per gland	
62	Supply 1.5mm ² 7c SWA Cable	10	Per meter	
63	Install 1.5mm ² 7c SWA cable	10	Per meter	
64	Termination of cable to include wire number and lugs/ferrule	4	Per Termination	
65	Cable gland of cable to include glands and cable number	4	Per gland	
66	Supply 1.5mm ² 19c SWA Cable	10	Per meter	
67	Install 1.5mm ² 19c SWA cable	10	Per meter	
68	Termination of cable to include wire number and lugs/ferrule	8	Per Termination	
69	Cable gland of cable to include glands and cable number	8	Per gland	
70	Supply 16mm ² PVC Earth cable for earthing	10	Per meter	
71	Install 16mm ² PVC Earth cable for earthing	10	Per meter	
72	Termination of cable to include lugs/ferrule	6	Per Termination	
73	Cable gland of cable to include gland	3	Per gland	
74	Supply Line Taps	1	Per line tap	
75	Supply 70mm ² PVC Earth cable for earthing	10	Per meter	
76	Install 70mm ² PVC Earth cable for earthing	10	Per meter	
77	Termination of cable to include lugs/ferrule	2	Per Termination	

SIGNATURE	NAME (PRINT)	
CAPACITY	DATE	
NAME OF FIRM		

Reference No:	B/SM 8/23	Page 112 of 123
---------------	-----------	-----------------



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78	Supply 350mm, 50 x 10 Copper Earth bar with supports and 6 x 8mm holes with bolts, nuts, washers & spring washers		1	Per Unit			
79	Install Earth bar		1	Per Unit			
	Communication Cables						
80	Rugged Fiber fly leads			Per Unit			
81	Communication interface between switchgear relay and RTU shall be over/via fiber. Fiber shall be rated multi-mode or single mode with connections. Connectors and detailed lengths shall be confirmed on site.			Per Unit			
82	Supply Multimode fiber fly leads		200	Per meter			
83	Install Multimode Fiber fly leads		200	Per meter			
84	Supply Single-mode fiber fly leads		2	Per meter			
85	Install Single-mode Fiber fly leads		2	Per meter			
86	Supply 0.22mm 2pair, screened Mylar Grey cable		10	Per meter			
87	Install 0.22mm 2pair, screened Mylar Grey cable		10	Per meter			
88	Termination of cable to include wire number and lugs/ferrule		2	Per Termination			
89	Cable gland of cable to include glands and cable number		1	Per gland			
90	Supply 0.22mm 4pair, screened Mylar Grey cable		10	Per meter			
91	Install 0.22mm 4pair, screened Mylar Grey cable		10	Per meter			
92	Termination of cable to include wire number and lugs/ferrule		2	Per Termination			
93	Cable gland of cable to include glands and cable number		6	Per gland			
94	Supply 2pair, twisted pair Individual screened, overall screened armored cable		10	Per meter			
95	Install 2pair, twisted pair Individual screened, overall screened armored cable		10	Per meter			
96	Termination of cable to include wire number and lugs/ferrule		2	Per Termination			
97	Cable gland of cable to include glands and cable number		2	Per gland			
98	Supply two pair rugged fiber to be spliced on patch tray (Multimode)		50	Per meter			
99	Install two pair rugged fiber to be spliced on patch panel (Multimode)		50	Per meter			

SIGNATURE	NAME (PRINT)	
CAPACITY	DATE	
NAME OF FIRM		

Reference No:	B/SM 8/23	Page 113 of 123
---------------	-----------	-----------------



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100	Splicing of fiber		4	Per fiber			
101	Supply six pair rugged fiber to be spliced on patch tray (Single mode)		200	Per meter			
102	Install six pair rugged fiber to be spliced on patch panel (Single mode) in existing 32mm HDPE pipe		200	Per meter			
103	Splicing of fiber		12	Per fiber			
104	Supply twelve pair rugged fiber to be spliced on patch tray (Single mode)		1000	Per meter			
105	Install twelve pair rugged fiber to be spliced on patch panel (Single mode) in existing 32mm HDPE pipe		1000	Per meter			
Splicing of fibre							
106	Supply of ABB 2A 2P 6kA CB in RTU panel including wiring, wire numbers and lugs fed from main incoming supply		3	Per meter			
107	Wiring of breaker (open/close) statuses on LMR/SPB4 switchgear to REF615 relay inputs. Cost should include all equipment and labour		8	Per panel			
108	Wiring of isolator (open/close) statuses on LMR/SPB4 switchgear to REF615 relay inputs. Cost should include all equipment and labour		8	Per panel			
109	Installation of ABB 2A 2P breaker and PoE in Concrete/Fiberglass Pole for radio supply and Lan connection. Cost to include all equipment and labour (PoE will be supplied)		1	Per unit			
110	Supply Industrial Arm Type Door/Limit Switch		1	Per unit			
111	Install Door/Limit Switch		1	Per unit			
	ΤΟΤΑ	TOTAL					

Total for schedule BOQ3 carried forward to summary page

BOQ.4

SIGNATURE		NAME (PRINT)	
CAPACITY		DATE	
NAME OF FIR	М		

Reference No:B/SM8/23Page 2



	Supply of materials - supply only						
1	Supply 4 mm ² terminals		10	Per unit			
2	Supply Endplate for 4mm Terminal		2	Per unit			
3	Supply End Stopper		2	Per unit			
4	Supply Group marker - to house engraved label		4	Per unit			
5	Supply ABB 6A 2P MCB 6kA		1	Per Unit			
6	Supply ABB 2A 2P MCB 6kA		1	Per Unit			
7	Supply CBI 20A 2P MCB 10kA		1	Per Unit			
8	Supply 30VDC Fan (120mm x 120mm)		1	Per Unit			
9	24VDC DIN Mounted RS-232 (D-SUB-9 Plug) / RS-485 (Pluggable screw connection) converter Transmission: twisted pair	1	Per unit				
10	CAT 5 E cable with D-SUB-9 / RJ45 plugs fitted on each end:			Per meter			
11	Lengths required:						
12	500mm length cable		2	Per Unit			
13	1000mm length cable		1	Per Unit			
14	2000mm length cable		1	Per Unit			
15	24VDC Unmanaged Switch with Multimode10/100 Base TX LC or ST Fiber and 100 BaseFx Copper RJ45 portsFx Copper RJ45 portsCopper:4Fiber: 2		1	Per Unit			
16	30/110VDC Base Mounted Industrial Managed Ethernet Switch - 12 off 10/100 Base TX Multi-mode LC or ST fiber ports and 2 off 100 Base Fx Multi-mode Copper (RJ45) ports		1	Per Unit			
17	30/110VDC Base Mounted Industrial Unmanaged Ethernet Switch - 12 off 10/100 Base TX Multi-mode LC or ST fiber ports and 2 off 100 Base Fx Multi-mode Copper (RJ45) ports		1	Per Unit			
18	NB: Please note that make of these switches (8.2.8 and 8.2.9) must be an industry accredited and accepted device		1				

SIGNATURE	NAME (PRINT)	
CAPACITY	DATE	
NAME OF FIRM		

Reference No: B/SM 8/23	Page 115 of 123
-------------------------	-----------------



19	Supply and Install PVC enclosure as jointing box between 11kV switchgear and Fiber pipe – 200x200x100	6	Sum	
20	Supply and install 4x4 PVC 2P 60A wall mounted Isolator for Battery Charger Unit	6	Sum	
21	Supply and Install 30VDC Fan for Server Cabinet – 120mm x 120mm	1	Sum	

ltem no	Description	Comply to specification Y/N	Estimated Qnty	Unit measure	Unit price VAT excl.
22	AC Mains fail Alarm	Sum		Per Unit	
23	Supply and install 2 Pole, 230VAC industrial type relay in BTU with contacts wired to terminals. Supply to coil must be wired from the incoming 230VAC supply to the BTU, installation to include wiring (minimum 2.5mm ²), wire numbering, din rail, terminals, terminal numbers and trunking.		1	Per Unit	
24	Low volts Alarm			Per Unit	
25	Supply and install an 11-pin base with voltage comparator relay which monitors 110Vdc/30Vdc with an alarm contact if the voltage drops 10% below the nominal voltage. Coil must be 110Vdc/30Vdc whichever rated on BTU. Installation to include wiring (minimum 2.5mm ²) wire numbering, din rail, terminals, terminal numbers and trunking		1		
26	Install BTU in allocated position and fix to wall		7	Per Unit	
		TOTAL			

Total for schedule BOQ4 carried forward to summary page

Testing and commissioning:

BOQ.6

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SIGNATURE	NAME (PRINT)	
CAPACITY	DATE	
NAME OF FIRM		

Reference No:	B/SM 8/23	Page 116 of 123
---------------	-----------	-----------------



Item	Description	Comply to specific ation	Estimated	Unit	Unit price		
1	Injection, status, and alarm tests <i>Current values, Overcurrent and earth fault alarms must be</i> <i>tested by injecting current into the relays. If the relay</i> <i>generates a trip signal, the same alarm must appear on the</i> <i>SCADA system. Testing shall include all required equipment</i> <i>and qualified staff. Status and alarm testing of all 11kV and</i> <i>66kV switchgear shall be tested by physically operating the</i> <i>functional unit, where possible, status and alarm testing will</i> <i>be performed on 66kV equipment by physically operating</i> <i>the equipment in the yard.</i>		420	Per hour			
TOTAL							
Total for	Total for schedule BOQ4 carried forward to summary page						

SIGNATURE	NAME (PRINT)	
CAPACITY	DATE	
NAME OF FIRM		

Reference No: B/SM 8/23	Page 117 of 123
-------------------------	-----------------



BOQ.7 BILL OF QUANTITIES: SUBSTATIONS WITH EXISTING SCADA INSTALLATIONS

BILL OF QUANTITIES: Substation, RTU and accessories

BSM No:

DATE: 2022-07-28

Note: All substations in this schedule are equipped with 1 RTU controller - ABB RTU 540 unless specified otherwise in the remark's

ltem no	PRIMARY SUBSTATIONS (66kV)	CABLE FEEDERS	TRFR FEEDERS	Unit Price each. Excl. VAT	REMARKS
1	Main Substation	3	3		
2	University Substation	3	3		
3	Markotter Substation	3	3		
4	Jan Marais Substation	2	2		
5	Golf Substation	2	2		
6	Cloetesville Substation	Eskom incomer	2		
7	Franschhoek Substation	Eskom incomer	2		
	Primary substatio	ons (11kV)			
8	Main Substation	11	3		
9	University Substation	14	3		
10	Markotter Substation	14	3		
11	Golf Substation	19	3		
12	Jan Marais Substation	10	2		

SIGNATURE	NAME (PRINT)	
CAPACITY	DATE	
NAME OF FIRM		

Reference No:	B/SM 8/23	Page 118 of 123
---------------	-----------	-----------------



13	Cloetesville Substation	14	2	
14	Franschhoek Substation	16	2	

SCHEDULE OF QUANTITITES: Secondary substations: -

11kV switchboards

Note: All substations in this schedule are equipped with 1RTU controller: - ABB RTU 540 unless specified in the remark's column.

lte m no	SECONDARY SUBSTATIONS (11kV)	CABLE FEEDERS	BUS SECTIO N	Unit Price each. Excl. VAT	REMARKS
15	Cemetery	10	2		
16	Polkadraai	9	2		
17	Lower dorp	11	2		
18	Coetzenburg	7	1		
19	Uniepark	8			
20	Sonneblom	7			
21	Tindal	7			
22	Stone	8	1		
23	Merriman Z	12	1		
24	Town Hall	13	1		
25	Curry	12	1		
26	Cascade	6	1		
27	Boord	15	1		
28	Paradyskloof	12	1		
29	Techno Park	9	1		
30	Dalsig Oos	9			Status only
31	Blakes estate	9			Status only
32	Kromrivier	7			Status only
33	La Colline	5			Status only

Note: The following substations which SCADA installations is in process to be installed, and already have communication links form ICT.

SIGNATURE	NAME (PRINT)	
CAPACITY	DATE	
NAME OF FIRM		



lte m no	SECONDARY SUBSTATIONS (11kV)	CABLE FEEDERS	BUS SECTION	Unit Price each. Excl. VAT	REMARKS
34	Devon Valley	6			New
35	Tortel duif	5			New
36	Krige	7			New
37	Braak	12	1		New
38	Bosman	11	1		New
39	Denneoord	5			New status only
40	Tennant	17	1		New
41	Welgevonden	6	1		New
42	Kayamandi	7	1		New existing spectrum
43	Long street South	6			New
44	Watergang	12	1		New
45	SDR Clinic	5			New status only
46	Pappagaairand	10	1		New
47	Hugenote	6			New
48	Groendal	6			New
49	Monument	6			New
50	La Terra	6	1		New
51	Bien Donne	6	1		New

Note: The following substations have the Teleflex (Spectrum) system installed and are client shared installations.

lte m no	SECONDARY SUBSTATIONS (11kV)	CABLE FEEDERS	BUS SECTION	Unit Price each. Excl. VAT	REMA	RKS
52	Distell	2			Client Spectrum	shared-
53	Eikestad mall	2			Client Spectrum	shared-
	TOTAL					

Total for schedule BOQ7 carried forward to summary page

SIGNATURE	NAME (PRINT)	
CAPACITY	DATE	
NAME OF FIRM		

Reference No:	B/SM 8/23	Page 120 of 123
---------------	-----------	-----------------



BOQ.8

SCHEDULE OF QUANTITIES: MASTER STATION, COMPUTER AND ACCESSORIES

Note: All substations in this schedule are equipped with 1 Rtu controller: - ABB RTU 540 unless specified in remarks

MASTER STATION

lte m No	MASTER STATION SOFTWARE	QNTY	TYPE/NAME	Unit Price each. Excl. VAT	REMARKS
1	Supply software	1			1
2	Installing, programming and configuration and setup on master station	Sum			1
3	License per substation monitoring	Sum			55
4	License per substation: remote switching	Sum			7

5	Computer and accessories	1		
6	Computer cabinet	1		
7	Rack mount hard drives	1		
8	Rack mount backup drives	1		
9	Monitor	1		
10	Keyboard and mouse	1		
11	Installation and commissioning	1		
12	Communication setup	1		Liaise with ICT
13	Cabling, trunking, and miscellaneous accessories	1		
14	Other			

<u>BOQ.9</u>

PRICE FOR MICILANOUS ITEMS

SIGNATURE	NAME (PRINT)	
CAPACITY	DATE	
NAME OF FIRM		

Reference No:	B/SM 8/23	Page 121 of 123
---------------	-----------	-----------------



ltem No	MASTER STATION SOFTWARE	QNTY		Unit Price each. Excl. VAT	REMARKS
15	Labour Rate	1			
16	Draughtsman Rate	1			
17	Travelling	1			
Total	Total				

Total for schedule BOQ9 carried forward to summary page



SIGNATURE	NAME (PRINT)	
CAPACITY	DATE	
NAME OF FIRM		



22. DECLARATION BY TENDERER

I / We acknowledge that I / we am / are fully acquainted with the contents of the conditions of tender of this tender document and that I / we accept the conditions in all respects.

I / We agree that the laws of the Republic of South Africa shall be applicable to the contract resulting from the acceptance of *my / our tender and that I / we elect *domicillium citandi et executandi* (physical address at which legal proceedings may be instituted) in the Republic at:

I / We accept full responsibility for the proper execution and fulfillment of all obligations and conditions devolving in me / us under this agreement as the principal liable for the due fulfillment of this contract.

I / We furthermore confirm I / we satisfied myself / ourselves as to the corrections and validity of my / our tender; that the price quoted cover all the work / items specified in the tender documents and that the price(s) cover all my / our obligations under a resulting contract and that I / we accept that any mistake(s) regarding price and calculations will be at my / our risk.

I / We furthermore confirm that my / our offer remains binding upon me / us and open for acceptance by the Purchases / Employer during the validity period indicated and calculated from the closing date of the bid.

SIGNATURE	NAME (PRINT)	
CAPACITY	DATE	
NAME OF FIRM		
WITNESS 1	WITNESS 2	

Reference No:	B/SM 8/23	Page 123 of 123