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BID NOTICE

STELLENBOSCH MUNICIPALITY HEREBY INVITES YOU TO TENDER FOR B/SM 85/26: CONSTRUCTION OF NEW KAYAMANDI 11KV SUBSTATION BUILDING AND SUPPLY, INSTALLATION AND COMMISSIONING OF NEW 11KV INDOOR SWITCHGEAR

TENDER NUMBER: **B/SM 85/26**
DESCRIPTION: **CONSTRUCTION OF NEW KAYAMANDI 11KV SUBSTATION BUILDING AND SUPPLY, INSTALLATION AND COMMISSIONING OF NEW 11KV INDOOR SWITCHGEAR**

CLOSING DATE: **4 May 2026**
CLOSING TIME: 12h00: Bids will be opened in the **Council Chambers or Supply Chain Management Boardroom.**
CIDB: The following CIDB class of construction works will be applicable to the tender, in accordance with the sum tendered or a value determined in accordance with Regulation 25(1B) or 25(7A) of the Construction Industry Development Regulations, 2004 (as amended) as of 23 May 2019. It is estimated that tenderers should have a CIDB contractor grading designation of **7EP** or higher.

INFORMATION:

Tender Specifications: Henk Brand at 083 631 7708: e-mail: henk@lyners.co.za
SCM Requirements: Bulelwa Dolomba at (021) 808 8521: e-mail: bulelwa.dolomba@stelllenbosch.gov.za
Office hours for collection; 08h00-15h30

A **Compulsory Clarification Meeting (in person)** will be held on **9 April 2026 at 11:00** at the Electricity Department Boardroom, Ecclesia Building, 2nd Floor, 71 Plein Street, Stellenbosch. Tenderers who fail to attend the compulsory information session will be regarded as non-compliant.

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 85/26: CONSTRUCTION OF NEW KAYAMANDI 11KV SUBSTATION BUILDING AND SUPPLY, INSTALLATION AND COMMISSIONING OF NEW 11KV INDOOR SWITCHGEAR"** clearly endorsed on the envelope, must be deposited in the Tender box at the offices of the Stellenbosch Municipality, Town House Complex (Main Building between Town Hall and Municipal Library), Plein Street, Stellenbosch. The Tender box is accessible 24 hours a day and Tenders must be accompanied by the completed 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, JBCC, FIDIC or CIDB**,** 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	**10**
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, JBCC, FIDIC or CIDB, and special conditions for Tendering.
2. Relevant terms of reference.

3. Tenderers must be registered on the Central supplier database (CSD) if they wish to conduct business with the municipality.
4. No award will be made to tenderers whose tax status is non-compliant.
5. 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 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 R1075.00.per document.***

Note: The municipality will never contact you to pay money in exchange for the award of a tender.

G Mettler (Ms)
MUNICIPAL MANAGER

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TENDER KENNISGEWING

STELLENBOSCH MUNISIPALITEIT NOOI U VIR DIE VOLGENDE TENDER: B/SM 85/26: KONSTRUKSIE VAN NUWE KAYAMANDI 11KV SUBSTASIE GEBOU EN VORRSIENING, INSTALLASIE EN INWERKINGSTELLING VAN NUWE 11KV BINNESHUISE SKAKELTUIG

TENDER NOMMER: **B/SM 85/26**
BESKRYWING: **KONSTRUKSIE VAN NUWE KAYAMANDI 11KV SUBSTASIE GEBOU EN VORRSIENING, INSTALLASIE EN INWERKINGSTELLING VAN NUWE 11KV BINNESHUISE SKAKELTUIG**

SLUITINGSDATUM: **4 May 2026**
TYD VAN SLUITING: **12h00.** Tenders sal oopgemaak word in die **Raadsaal** of in die **Voorsieningskanaalbestuurs Raadsaal**.
KIOR: Die volgende klas van konstruksie werk in ooreenstemming met Regulasie 25(1B) of 25(7A) van die Konstruksie-industrie Ontwikkelingsraad Regulasies, 2004 (soos gewysig) op 23 Mei 2019. Tenderaars moet 'n geskatte KIOR kontrakgradering van ten minste **7EP of hoër** hê.

NAVRAE:

Tender spesifikasies: Henk Brand by 083 631 7708; e-pos: henk@lyners.co.za
Vkb vereistes: Bulelwa Dolomba at (021) 808 8521: e-mail: bulelwa.dolomba@stelllenbosch.gov.za
Kantoor Ure: 08h00-15h30

'n **Verpligte inligtingsessie (in persoon)** sal gehou word op **9 April 2026 om 11:00** by die Elektriese Afdeling Raadsaal, Ecclesia Gebou, 2de Vloer, 71 Pleinstraat, Stellenbosch. Tenderaars wat nie die verpligte inligtingsessie bywoon nie, sal nie in ag geneem word nie.

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 85/26. KONSTRUKSIE VAN NUWE KAYAMANDI 11KV SUBSTASIE GEBOU EN VORRSIENING, INSTALLASIE EN INWERKINGSTELLING VAN NUWE 11KV BINNESHUISE SKAKELTUIG",** op die koevert, moet geplaas word in tenderbus van die kantore van Stellenbosch Munisipaliteit ,Meenthuis Kompleks, (Hoofgebou tussen Stadsaal en Munisipale Biblioteek), 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, JBCC, FIDIC of CIDB, Voorsieningskettingbestuursbeleid en relevante spesifikasies, soos vervat in die tender dokument asook die Stellenbosch **Voorkeurverkrygingsbeleid effektief vanaf 16 Januarie 2023 in samewerking met die Voorkeurverkrygingsregulasies wat op 04 November 2022 deur die Minister van Finansies in Staatskoerant No 47452 afgekondig is**

Die voorkeurpunte stelsel is soos volg gebaseer: 80/20 in terme van die goedgekeurde beleid:

Prys	**80**
BBSEB status	**10**
Ligging	**10**
Totale punte vir prys, B-BSEB en ligging	**100**

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, JBCC, FIDIC of CIDB, Voorsieningskettingbestuursbeleid en relevante spesifikasies;
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* ***R1075.00 per dokument****.*

Let wel: Die munisipaliteit sal jou nooit kontak om geld te betaal in ruil vir die toekenning van 'n tender nie.

G Mettler (Me)
MUNISIPALE BESTUURDER

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V8 – 13/01/2025

TENDER NO.: B/SM 85/26

CONSTRUCTION OF NEW KAYAMANDI 11kV SUBSTATION BUILDING AND SUPPLY, INSTALLATION AND COMMISSIONING OF NEW 11KV INDOOR SWITCHGEAR

PROCUREMENT DOCUMENT

NAME OF TENDERER:			
Total Bid Price (Inclusive of VAT) *(refer to page 71)*:			
COMPLETION PERIOD IN WEEKS:			
ALTERNATIVE PRICE	**Not Applicable**		
BBBEE LEVEL			
CLAIM POINTS FOR	**LOCALITY**	**YES**	**NO**

MARCH 2026

PREPARED BY:	**ISSUED BY:**	**CONTACT FOR ENQUIRIES REGARDING SPECIFICATIONS:**
Neil Lyners & Associates (Pty) Ltd PO Box 4901 Tygervalley 7536	Directorate: Finance: Supply Chain Management Unit Stellenbosch Municipality, PO Box 17, Stellenbosch, 7599	Henk Brand Lyners Consulting Engineers Tel.: 083 631 7708

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TENDER NOTICE & INVITATION TO TENDER

BID NOTICE

STELLENBOSCH MUNICIPALITY HEREBY INVITES YOU TO TENDER FOR B/SM 85/26 : CONSTRUCTION OF NEW KAYAMANDI 11KV SUBSTATION BUILDING AND SUPPLY, INSTALLATION AND COMMISSIONING OF NEW 11KV INDOOR SWITCHGEAR

TENDER NUMBER:	**B/SM 85/26**
DESCRIPTION:	**CONSTRUCTION OF NEW KAYAMANDI 11KV SUBSTATION BUILDING AND SUPPLY, INSTALLATION AND COMMISSIONING OF NEW 11KV INDOOR SWITCHGEAR**
CLOSING DATE:	**4 May 2026**
CLOSING TIME:	12h00: Bids will be opened in the **Council Chambers or Supply Chain Management Boardroom.**
CIDB:	The following CIDB class of construction works will be applicable to the tender, in accordance with the sum tendered or a value determined in accordance with Regulation 25(1B) or 25(7A) of the Construction Industry Development Regulations, 2004 (as amended) as of 23 May 2019. It is estimated that tenderers should have a CIDB contractor grading designation of **7EP** or higher.

INFORMATION:
Tender Specifications: Henk Brand at 083 631 7708: e-mail: henk@lyners.co.za
SCM Requirements: Bulelwa Dolomba at (021) 808 8521: e-mail: bulelwa.dolomba@stelllenbosch.gov.za
Office hours for collection: 08h00-15h30

A **Compulsory Clarification Meeting (in person)** will be held on **9 April 2026 at 11:00** at the Electricity Department Boardroom, Ecclesia Building, 2nd Floor, 71 Plein Street, Stellenbosch. Tenderers who fail to attend the compulsory information session will be regarded as non-compliant.

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 85/26: CONSTRUCTION OF NEW KAYAMANDI 11KV SUBSTATION BUILDING AND SUPPLY, INSTALLATION AND COMMISSIONING OF NEW 11KV INDOOR SWITCHGEAR"**, clearly endorsed on the envelope, must be deposited in the Tender box at the offices of the Stellenbosch Municipality, Town House Complex (Main Building between Town Hall and Municipal Library), Plein Street, Stellenbosch. The Tender box is accessible 24 hours a day and Tenders must be accompanied by the completed Tender documents. Tenders not accompanied by a complete Tender document, will not be considered.

NOTE: This tender will be evaluated in terms of the Tender Data, General Conditions of Tender, FIDIC 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	**10**
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 Preferential Policy Framework Act and the Preferential Procurement Regulations (2022), the Stellenbosch Supply Chain Management Policy, the Tender Data, General Conditions of Tender, the FIDIC Red Book Conditions of Contract (First Edition 1999) and, if applicable, any other Special Conditions of the Contract.
2. Relevant terms of reference.
3. Tenderers must be registered on the Central supplier database (CSD) if they wish to conduct business with the municipality.
4. No award will be made to tenderers whose tax status is non-compliant.
5. 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 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 fee ***of R1075.00 per document.***

Note: The municipality will never contact you to pay money in exchange for the award of a tender.

G Mettler (Ms)
MUNICIPAL MANAGER

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TENDER KENNISGEWING

STELLENBOSCH MUNISIPALITEIT NOOI U UIT OM THE TENDER VIR DIE VOLGENDE TENDER - B/SM 85/26: KONSTRUKSIE VAN NUWE KAYAMANDI 11KV SUBSTASIE GEBOU EN VORRSIENING, INSTALLASIE EN INWERKINGSTELLING VAN NUWE 11KV BINNESHUISE SKAKELTUIG

TENDER NOMMER: **B/SM 85/26**
BESKRYWING: **KONSTRUKSIE VAN NUWE KAYAMANDI 11KV SUBSTASIE GEBOU EN VORRSIENING, INSTALLASIE EN INWERKINGSTELLING VAN NUWE 11KV BINNESHUISE SKAKELTUIG**
SLUITINGSDATUM: **4 Mei 2026**
TYD VAN SLUITING: 12h00: Tenders sal oopgemaak word in die **Raadsaal** of in die **Voorsieningskanaalbestuurs Komittee Kamer**.
KIOR: Die volgende klas van konstruksie werk in ooreenstemming met Regulasie 25(1B) of 25(7A) van die Konstruksie-industrie Ontwikkelingsraad Regulasies, 2004 (soos gewysig) op 23 Mei 2019. Tenderaars moet 'n geskatte KIOR kontrakgradering van ten minste **7EP of hoër** hê.

INLIGTING:
Tender Spesifikasies: Henk Brand by 083 631 7708; e-pos: henk@lyners.co.za
VKB Vereistes: Bulelwa Dolomba at (021) 808 8521: e-mail: bulelwa.dolomba@stelllenbosch.gov.za
Kantoorure vir afhaal; 08h00-15h30

'n **Verpligte inligtingsessie (in persoon)** sal gehou word op **9 April 2026 om 11:00** by die Elektriese Afdeling Raadsaal, Ecclesia Gebou, 2de Vloer, 71 Pleinstraat, Stellenbosch. Tenderaars wat nie die verpligte inligtingsessie bywoon nie, sal nie in ag geneem word nie.

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 85/26: KONSTRUKSIE VAN NUWE KAYAMANDI 11KV SUBSTASIE GEBOU EN VORRSIENING, INSTALLASIE EN INWERKINGSTELLING VAN NUWE 11KV BINNESHUISE SKAKELTUIG**" op die koevert, moet geplaas word in tenderbus buite die kantore van Stellenbosch Munisipaliteit, Meenthuis Kompleks (Hoofgebou tussen Stadsaal en Munisipale Biblioteek), Pleinstraat, 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 Tender Data, Algemene Tendervoorwaardes, FIDIC Kontrakvoorwaardes, Voorsieningskanaal Bestuursbeleid en die relevante spesifikasies soos vervat in die tender dokument asook die Stellenbosch Voorkeurverkrygingsbeleid effektief vanaf 16 Januarie 2023 in samewerking met die Voorkeurverkrygingsregulasies wat op 04 November 2022 deur die Minister van Finansies in Staatskoerant No 47452 afgekondig is.

Die voorkeurpunte stelsel is soos volg gebaseer: 80/20 in terme van die goedgekeurde beleid:

Prys	**80**
BBSEB status	**10**
Ligging	**10**
Totale punte vir Prys, BBSEB en ligging	**100**

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 Voorkeurbeleidsraamwerkwet en Voorkeurverkrygingsregulasies (2022), die Stellenbosch Voorkeurverkrygingsbeleid, die tender data en algemene tendervoorwaardes, die FIDIC Rooi Boek kontrakvoorwaardes (Eerste Uitgawe 1999) en enige ander spesiale voorwaardes.
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* ***R1075.00 per dokument****.*

Let wel: Die munisipaliteit sal jou nooit kontak om geld te betaal in ruil vir die toekenning van 'n tender nie.

G Mettler (Me)
MUNISIPALE BESTUURDER

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MBD1 PART A
INVITATION TO BID

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF STELLENBOSCH MUNICIPALITY					
BID NUMBER:	B/SM 85/26	CLOSING DATE:	4 MAY 2026	CLOSING TIME:	12h00
DESCRIPTION	CONSTRUCTION OF NEW KAYAMANDI 11KV SUBSTATION BUILDING AND SUPPLY, INSTALLATION AND COMMISSIONING OF NEW 11KV INDOOR SWITCHGEAR				
THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (MBD7).					

BID RESPONSE DOCUMENTS MUST BE DEPOSITED IN THE BID BOX SITUATED AT **STELLENBOSCH MUNICIPALITY, TOWN HOUSE COMPLEX (MAIN BUILDING BETWEEN TOWN HALL AND MUNICIPAL LIBRARY), PLEIN STREET, STELLENBOSCH**						
SUPPLIER INFORMATION						
NAME OF BIDDER						
POSTAL ADDRESS						
STREET ADDRESS						
TELEPHONE NUMBER	CODE			NUMBER		
CELLPHONE NUMBER						
FACSIMILE NUMBER	CODE			NUMBER		
E-MAIL ADDRESS						
VAT REGISTRATION NUMBER						
TAX COMPLIANCE STATUS	TCS PIN:		**OR**	CSD No:		
B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE [TICK APPLICABLE BOX]	☐ Yes ☐ No		B-BBEE STATUS LEVEL SWORN AFFIDAVIT		☐ Yes ☐ No	
[A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE/ SWORN AFFIDAVIT (FOR EMES & QSEs) MUST BE SUBMITTED IN ORDER TO QUALIFY FOR PREFERENCE POINTS FOR B-BBEE]						
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 FOR **THE GOODS /SERVICES /WORKS OFFERED?**		☐Yes ☐No [IF YES, ANSWER PART B:3]	
3. TOTAL NUMBER OF ITEMS OFFERED			**4. TOTAL BID PRICE**		**R**	
5. NAME, SURNAME AND SIGNATURE OF BIDDER	……		**6. DATE**			
7. CAPACITY UNDER WHICH THIS BID IS SIGNED						

BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO:		**TECHNICAL INFORMATION MAY BE DIRECTED TO:**	
DEPARTMENT	SCM	CONTACT PERSON	Henk Brand
CONTACT PERSON	Bulelwa Dolomba	TELEPHONE NUMBER	083 631 7708
TELEPHONE NUMBER	021 808 8521	FACSIMILE NUMBER	021 914 0437
E-MAIL ADDRESS	Bulelwa.dolomba@stellenbosch.gov.za	E-MAIL ADDRESS	henk@lyners.co.za

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MBD1 PART B
TERMS AND CONDITIONS FOR BIDDING

1. BID SUBMISSION:

1.1. BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.

1.2. **ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED (NOT TO BE RE-TYPED).**

1.3. THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 16 January 2023, THE STELLENBOSCH SUPPLY CHAIN MANAGEMENT POLICY, THE FIDIC RED BOOK CONDITIONS OF CONTRACT (FIRST EDITION 1999) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.

2. TAX COMPLIANCE REQUIREMENTS

2.1 BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.

2.2 BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VIEW THE TAXPAYER'S PROFILE AND TAX STATUS.

2.3 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 PART B:3.

2.5 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE 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 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)?	☐ YES ☐ NO
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 THE ANSWER IS "NO" TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO REGISTER FOR A TAX COMPLIANCE STATUS SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 ABOVE.

NB: FAILURE TO PROVIDE ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID INVALID.
NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE.

SIGNATURE OF BIDDER: ……

CAPACITY UNDER WHICH THIS BID IS SIGNED: ……

DATE: ……...

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PARTICULARS OF TENDERER

1. TENDERER: .....

   ADDRESS: .....

   CONTACT PERSON: .....

   TELEPHONE NUMBER: .....

   E-MAIL ADDRESS: .....

2. BANK: .....

   BRANCH: .....

   ACCOUNT NUMBER: .....

   CONTACT PERSON: .....

   TELEPHONE NUMBER: .....

   E-MAIL ADDRESS: .....

3. PERFORMANCE SECURITY: .....

   BRANCH -CONTACT PERSON: .....

   TELEPHONE NUMBER: .....

4. VAT REGISTRATION NUMBER: .....

5. CIDB REGISTRATION NUMBER: .....

I/we hereby give authorisation to Stellenbosch Municipality and/or Neil Lyners and Associates (Pty) Ltd to obtain bank codes from my/our financial institution listed above.

....

SIGNATURE OF TENDERER **DATE**

Bank Code definitions:
Code B: Good for the Amount
Code C: Good for the amount under normal working conditions
Code D: Reasonable risk for amount
Code E: Amount too high
Code F: Financial position unknown
Code G: RD commission occurs/payment deferred
Code H: RD commissions occurs frequently

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CONSTRUCTION OF NEW KAYAMANDI 11KV SUBSTATION BUILDING AND SUPPLY, INSTALLATION AND COMMISSIONING OF NEW 11KV INDOOR SWITCHGEAR

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CONTENTS

Tenderers are required to check these documents and drawings and the number of pages as listed above which together form the Contract Document.

The Tenderer shall satisfy himself that this Document is complete in accordance with the above contents list and if any pages are found to be missing, or duplicated, or the writing of figures illegible, or to contain any obvious errors, he shall immediately apply to the Engineer and have the discrepancy rectified as no liability whatsoever will be admitted by the Engineer in respect of errors in the Contractor's tender due to the foregoing.

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PART T1 : TENDERING PROCEDURES

T1.1 Tender Data

T1.2 General Conditions of Tender

T1.3 CIDB Standard Conditions of Tender

CONSTRUCTION OF NEW KAYAMANDI 11KV SUBSTATION BUILDING AND SUPPLY, INSTALLATION AND COMMISSIONING OF NEW 11KV INDOOR SWITCHGEAR

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T1.1: TENDER DATA

The Conditions of Tender are the Standard Conditions of Tender as contained in Annex C of the CIDB Standard for Uniformity in Engineering and Construction Works Contracts (refer: www.cidb.org.za) as included in the August 2019 edition (published in Government Gazette no 42622 of 8 August 2019) and which incorporates the amendments made in Board Notice No 423 of 2019.

The Standard Conditions of Tender make several references to the Tender Data. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the Standard Conditions of Tender.

Each item of data given below is cross-referenced to the clause in the Standard Conditions of Tender to which it mainly applies.

Clause	Wording
C.1.1	The employer is Stellenbosch Municipality.
C.1.2	The tender documents issued by the employer comprise: **PART T1 : TENDERING PROCEDURES** T1.1: Tender Data T1.2: General Conditions of Tender T1.3: CIDB Standard Conditions of Tender **PART T2 : RETURNABLE DOCUMENTS** T2.0: Supply Chain Management Documents T2.1: List of Returnable Documents T2.2: Returnable Schedules **PART C1: AGREEMENTS AND CONTRACT DATA** C1.1: Form of Offer and Acceptance C1.2: Contract Data C1.3: Form of Performance Security (Pro Forma) C1.4: Form of Retention Money Guarantee (Pro Forma) **PART C2 : PRICING DATA** C2.1: Pricing Assumptions C2.2: Bills of Quantities C2.3: Data Sheets **PART C3 : SCOPE OF WORK** C3.1: Project Specification **APPENDICES** Appendix A : Occupational Health and Safety Specification
C.1.4	*Add the following:* Attention is drawn to the fact that verbal information, given by the Employer or Employer's Agent during site visits/clarification meetings or at any other time prior to the award of the Contract, will not be regarded as binding on the Employer. Only information issued formally by the Employer in writing to tenderers will be regarded as amending the Tender Documents. The Employer's Agent is: Henk Brand – Neil Lyners & Associates (Pty) Ltd Tel: 021 914 0300 Cell: 083 631 7708 Email: henk@lyners.co.za

Clause	Wording
C.1.6.2	*Add the following* A competitive negotiation procedure will not be followed.
C.1.6.3	*Add the following* A two-stage system will not be followed.
C.2.1	**Prequalification Criteria** 1. Only those tenderers who satisfy the following **prequalification criteria** are eligible to submit tenders: a) Attendance of compulsory clarification meeting. b) The tenderer is registered with the Construction Industry Development Board in the appropriate contractor grading designation. Only those tenderers who are registered with the CIDB, or are capable of being so prior to the evaluation of submissions, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations, for a **7EP or higher** class of construction work, are eligible to have their tenders evaluated. c) The tenderer has demonstrated previous experience in projects of the same nature completed in the last five (5) years. A minimum of three (3) similar projects involving construction of 11kV switching station buildings and installation of 11kV indoor switchgear are required for which the cumulative value of work is at least R15 million (Schedule 1E). d) The tenderer must have the following key personnel with experience in three (3) similar projects completed in the last five (5) years that involved construction of 11kV switching station buildings and installation of 11kV indoor switchgear in its permanent employment at the time of tender (Schedule 1C): - Project/Contract's Manager. - Site Agent. - ORHVS Level 3 Responsible Person certified in terms of NRS 040-4 (Operating Regulations for High Voltage Systems). 2. Joint ventures are eligible to submit tenders provided that: 1. each member of the joint venture is registered with the CIDB. 2. the lead partner has a contractor grading designation in the EP class of construction work; and 3. the combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for an EP class of construction work or a value determined in accordance with Regulation 25 (1B) or 25 (7A) of the Construction Industry Development Regulations.
C.2.7	The arrangements for a compulsory clarification meeting are: Location: Stellenbosch Municipality Address: Electricity Department Boardroom, Ecclesia Building, 2nd Floor, 71 Plein Street, Stellenbosch Date: 9 April 2026 Starting time: 11:00 Add the following: Tenderers should be represented at the clarification meeting by a person who is suitably qualified and experienced to comprehend the implications of the work involved.
C.2.11	All corrections in the bill of quantities shall be done by deleting, re-writing and initialling next to the amendment. The use of correction fluid is prohibited.
C.2.12	No alternative offers will be accepted.
C.2.13.2	Tender documents submitted shall be the original completed document, completed by hand in black ink. Copies of the completed document or parts thereof will not be accepted as a legal tender document and will result in such tender to be considered as non-responsive.

Clause	Wording
C.2.13.5	The Employer's address for delivery of tender offers and identification details to be shown on each tender offer are: Location of tender box: Stellenbosch Municipality, Town House Complex (Main Building between Town Hall and Municipal Library) Physical address: Plein Street Stellenbosch Identification details: **TENDER B/SM 85/26: CONSTRUCTION OF NEW KAYAMANDI 11KV SUBSTATION BUILDING AND SUPPLY, INSTALLATION AND COMMISSIONING OF NEW 11KV INDOOR SWITCHGEAR**
C.2.14	All items indicated in the bill of quantities must be priced. The tender amount must therefore cover the total scope of work requested, including any allowances for Contingencies and Escalation.
C.2.15	The closing time for submission of tender offers is: 12:00 on 6 May 2026. Telephonic, telegraphic, telex, facsimile or e-mailed tender offers will not be accepted.
C.2.16	The tender offer validity period is HUNDRED AND EIGHTY (180) days.
C.2.17	Add the following: A tender may be rejected if the unit rates or lump sums for some of the items in the Bill / Schedule of Quantities are, in the opinion of the Employer, unreasonable or out of proportion, and the tenderer fails, within a period of seven days of having been notified in writing by the Employer to justify any specific rates or lump sums (i.e. to provide a financial breakdown of how such rates or sums were obtained) or to adjust the unit rates or lump sums for such items while retaining the total of the prices unchanged.
C.2.19	Add the following Access shall be provided for the following inspections, tests and analyses: All inspections, tests and analyses deemed necessary by the Engineer to enable him to verify the quality of work done.
C.2.23 C.2.23.1	The tenderer is required to submit the following certificates with his tender: A **Certificate of Contractor Registration** (CIDB), issued by the Construction Industry Development Board, must be submitted. Where a tenderer satisfies CIDB contractor grading designation requirements through joint venture formation, such tenderers must submit the Certificates of Contractor Registration in respect of each partner.
C.3.2	**Issue Addenda** *Add the following to C.3.2:* Notwithstanding any requests for confirmation of receipt of Addenda issued, the tenderer shall be deemed to have received such addenda if the employer can show proof of transmission thereof (or a notice in respect thereof) via electronic mail, facsimile or registered post.
C.3.4	The time and location for opening of the tender offers are: Time: 12:00 on 6 May 2026 Location: Tender Box, Town House Complex, Plein Street, Stellenbosch
C.3.8	**Test for Responsiveness** Tender offers will be considered non-responsive if, inter alia: a) the offer section of the "Form of offer and acceptance" (Part C1.1) is not fully completed and signed; b) the tenderer does not comply with the eligibility criteria listed in C.2.1 above; c) the tender does not comply with the prescribed specifications; and d) the tenderer has failed to submit an original and valid Tax Clearance Certificate as issued by the South African Revenue Services or a valid PIN.
C.3.8	**Test for Responsiveness** *Add new sub-clause C.3.8.3* **Risk Analysis** Notwithstanding compliance with regard to CIDB requirements and other eligibility criteria, the Employer will perform a risk analysis in respect of the following:

Clause	Wording
	a) the reasonableness of the financial offer b) the reasonableness of individual rates and prices c) the tenderer's ability to fulfil its obligations in terms of the contract, which will be based upon the tenderer demonstrating necessary technical qualifications, competence, technical expertise, technical and financial resources, and other requirements as per the Tender Data d) the tenderers must have at least a Bank Code C or better (Good for the amount of the enquiry strictly in the way of business). Tenderers must complete and sign page 8, Particulars of Tenderer, to authorize Stellenbosch Municipality and/or Neil Lyners and Associates (Pty) Ltd to obtain bank codes from the tenderer's financial institution. A Tenderer will not be considered should there be a clear possibility that any of the above items can create a financial and/or technical risk for the Employer during the execution of the Contract.
C.3.9	**Arithmetical Errors** The highest ranked Tenderer will be notified of all errors or omissions that are identified in the tender offer and will be requested to either confirm the tender offer as tendered or accept the corrected total of prices as per clauses C.3.9.2 and C3.9.3. As per clause C3.9.4, where a Tenderer elects to confirm the tender offer as tendered, arithmetical errors will be corrected in the following manner: a) If bills of quantities or pricing schedules apply and there is an error in the line item total resulting from the product of the unit rate and the quantity, the line item total shall govern, and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line item total as quoted shall govern, and the unit rate shall be corrected. b) Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the tenderer's addition of prices, the total of the prices shall govern, and the tenderer will be asked to revise selected item prices (and their rates if bills of quantities apply) to achieve the tendered total of the prices. The tender offer will be rejected if the tenderer does not correct or accept the correction of the arithmetical error in the manner described above.
C.3.11	The evaluation of responsive tenders will be done as per the Stellenbosch Municipality Preferential Procurement Policy and will be in line with the Preferential Procurement Regulations of 2022. Price and Preference will be used to evaluate this tender. Preference will include specific goals as included in Form MBD 6.1 included in this document.
C.3.13	Stellenbosch Municipality reserves the right to scale down the Scope of Work in order for the contract value to fit into the available budget for each financial year.
C.3.13	Bid offers will only be accepted if: a) The bidder Tax matter have been declared in order by or has made arrangements to meet outstanding tax obligations**. If an original Tax Clearance Certificate is not included with the tender submitted, a copy thereof will be accepted subject to the Tenderer providing the necessary PIN for the Employer to assess the validity of the certificate on the SARS database.** The bidders or any of its directors is not listed on the Register of Bid Defaulters in terms of the Prevention and Combatting of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector; b) The bidder has not: i) abused the Employer's Supply Chain Management System; or ii) failed to pay municipal rates and taxes of service chargers and such rates, taxes and charges are not in arrears for more than three months iii) failed to perform on any previous contract as has been given written notice to this effect.

Clause	Wording
	c) The bidder has completed the Compulsory Enterprise Questionnaire and there are no conflicts of interest that may impact on the bidder's ability to perform the contract in the best interests of the employer or potentially compromise the bid process.
C.3.16	If the Supply Chain Management or the Municipal Manager, has resolved that a tender be accepted, the successful and unsuccessful tenderers shall be notified in writing of this decision. The Supply Chain Management Policy paragraph 49 allow persons aggrieved by decisions or actions taken by the municipality or municipal entity in the implementation of its supply chain management system, the right to lodge within **14 days** of the decision or action a written objection or complaint to the municipality or municipal entity against the decision. In terms of Section 62 of the Municipal Systems Act No. 32 of 2000 as amended, any person whose rights are affected by a decision taken by the Municipality, in terms of delegated authority, in the implementation of its Supply Chain Management System may appeal against that decision by giving written notice of the appeal and reasons to the Municipal Manager within 21 days of the date of the notification of the decision. Any tenderer wishing to exercise this right, must submit their appeal in writing to the Municipal Manager, marked for the attention of the Stellenbosch Municipality, P O Box 17, Stellenbosch, 7600. The format of the appeal must: • set out the reasons for the appeal; • state in which way the appellant's rights have been affected by the decision; • state the remedy sought, and • be accompanied by a copy of the notification advising the tenderer of the decision of the Supply Chain Management Bid Adjudication Committee or Municipal Manager as applicable. Tenderers are also hereby informed of their right to request reasons for the decision in terms of the Promotion of Administrative Justice Act (No. 3 of 2000). The notification of the decision sent to the successful tenderer is **not** acceptance of the tender and no rights shall accrue to the successful tenderer in terms of this notification. The consideration of appeals and if necessary, the invalidation of any decision made, shall be dealt with in terms of the Municipality's appeals process.
C.3.17	The number of paper copies of the signed contract to be provided by the Employer is one (1).

Annexure G
(normative)

Alpha-numeric associated with the Contractor Grading Designations

Table G1 : Contractor grading designations and associated parameters (as from 5 October 2019)

Contractor Grading Designation	Tender Value Range Designation	Maximum Value of Contract that a Contractor is considered capable of performing (R)
1 (class of construction works)	1	500 000
2 (class of construction works)	2	1 000 000
3 (class of construction works)	3	3 000 000
4 (class of construction works)	4	6 000 000
5 (class of construction works)	5	10 000 000
6 (class of construction works)	6	20 000 000
7 (class of construction works)	7	60 000 000
8 (class of construction works)	8	200 000 000
9 (class of construction works)	9	No limit

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T1.2 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.

   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 ensure 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.**

4. 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.

5. Tenders may not be telefaxed to the Municipality and therefore any tenders received by fax will **not** be considered.

6. Tenders shall be opened in public at the Stellenbosch Municipal Offices as soon as possible after the closing time for the receipt of tenders.

7. 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;

   7.1. 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.

7.2. 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.

8. Negotiations for a fair market related price

8.1. The award of the tender may be subject to price negotiation with the preferred tenderers.

9. This bid will be evaluated and adjudicated according to the following criteria:

9.1. Relevant specifications
9.2. Value for money
9.3. Capability to execute the contract
9.4. PPPFA & associated regulations

10. 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.

11. Inclusion as a standard clause in the tender specification documents where any asset is constructed

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.

If construction is still in progress over the year-end period of the Stellenbosch Municipality, being 30 June of each year, the Municipality should be furnished with a report / certificate at year-end (30 June), which details (a) The cumulative expenditure incurred up to 30 June for the project. (b) any details if the project is taking a significant longer period of time to complete than expected, including reasons for any delays. (c) details where construction or development has been halted either during the current or previous reporting period(s), including reasons for halting the construction or development of the asset/project.

12. 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 www.csd.gov.za 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 Nicolene.Hamilton@stellenbosch.gov.za

Centralised Supplier Database No. MAAA……

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T1.3 CIDB STANDARD CONDITIONS OF TENDER

The Standard for Uniformity in Construction Procurement was first published in Board Notice 62 of 2004 in Government Gazette No 26427 of 9 June 2004. It was subsequently amended in Board Notice 67 of 2005 in Government Gazette No 27831 of 22 July 2005, Board Notice 99 of 2005 in Government Gazette No 28127 of 14 October 2005, Board Notice 93 of 2006 in Government Gazette No 29138 of 18 August 2006, Board Notice 9 of 2008 in Government Gazette No 30692, of 1 February 2008, Board Notice 11 of 2009 in Government Gazette No 31823, of 30 January 2009, Board Notice No 86 of 2010 in Government Gazette No 33239 of 28 May 2010 and Board Notice No 136 of 2015 in Government Gazette No 38960 of 10 July 2015 .

This August 2019 edition incorporates the amendments made in Board Notice No 423 of 2019, published in Government Gazette no. 42622 of 8 August 2019.

C.1 General

C.1.1 Actions

C.1.1.1 The employer and each tenderer submitting a tender offer shall comply with these conditions of tender. In their dealings with each other, they shall discharge their duties and obligations as set out in C.2 and C.3, timeously and with integrity, and behave equitably, honestly, and transparently, comply with all legal obligations and not engage in anticompetitive practices.

C.1.1.2 The employer and the tenderer and all their agents and employees involved in the tender process shall avoid conflicts of interest and where a conflict of interest is perceived or known, declare any such conflict of interest, indicating the nature of such conflict. Tenderers shall declare any potential conflict of interest in their tender submissions. Employees, agents, and advisors of the employer shall declare any conflict of interest to whoever is responsible for overseeing the procurement process at the start of any deliberations relating to the procurement process or as soon as they become aware of such conflict and abstain from any decisions where such conflict exists or recuse themselves from the procurement process, as appropriate.

Note:

1) *A conflict of interest may arise due to a conflict of roles which might provide an incentive for improper acts in some circumstances. A conflict of interest can create an appearance of impropriety that can undermine confidence in the ability of that person to act properly in his or her position even if no improper acts result.*

2) *Conflicts of interest in respect of those engaged in the procurement process include direct, indirect, or family interests in the tender or outcome of the procurement process and any personal bias, inclination, obligation, allegiance or loyalty which would in any way affect any decisions taken.*

C.1.1.3 The employer shall not seek, and a tenderer shall not submit a tender without having a firm intention and the capacity to proceed with the contract.

C.1.2 Tender Documents

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

C.1.3 Interpretation

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

C.1.3.2 These conditions of tender, the tender data and tender schedules which are required for tender evaluation purposes, shall form part of any contract arising from the invitation to tender.

C.1.3.3 For the purposes of these conditions of tender, the following definitions apply:

a) **conflict of interest** means any situation in which:

i) someone in a position of trust has competing professional or personal interests which make it difficult to fulfil his or her duties impartially;

ii) an individual or tenderer is in a position to exploit a professional or official capacity in some way for their personal or corporate benefit; or

iii) incompatibility or contradictory interests exist between an employee and the tenderer who employs that employee.

b) **comparative offer** means the price after the factors of a non-firm price and all unconditional discounts it can be utilised to have been taken into consideration;

c) **corrupt practice** means the offering, giving, receiving or soliciting of anything of value to influence the action of the employer or his staff or agents in the tender process;

d) **fraudulent practice** means the misrepresentation of the facts in order to influence the tender process or the award of a contract arising from a tender offer to the detriment of the employer, including collusive practices intended to establish prices at artificial levels;

C.1.4 Communication and employer's agent

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

C.1.5 Cancellation and Re-Invitation of Tenders

C.1.5.1 An employer may, prior to the award of the tender, cancel a tender if-

a) due to changed circumstances, there is no longer a need for the engineering and construction works specified in the invitation;

b) funds are no longer available to cover the total envisaged expenditure; or

c) no acceptable tenders are received.

d) there is a material irregularity in the tender process.

C.1.5.2 The decision to cancel a tender invitation must be published in the same manner in which the original tender invitation was advertised

C.1.5.3 An employer may only with the prior approval of the relevant treasury cancel a tender invitation for the second time.

C.1.6 Procurement procedures

C.1.6.1 General

Unless otherwise stated in the tender data, a contract will, subject to C.3.13, be concluded with the tenderer who in terms of C.3.11 is the highest ranked or the tenderer scoring the highest number of tender evaluation points, as relevant, based on the tender submissions that are received at the closing time for tenders.

C.1.6.2 Competitive negotiation procedure

C.1.6.2.1 Where the tender data require that the competitive negotiation procedure is to be followed, tenderers shall submit tender offers in response to the proposed contract in the first round of submissions. Notwithstanding the requirements of C.3.4, the employer shall announce only the names of the tenderers who make a submission. The requirements of C.8 relating to the material deviations or qualifications which affect the competitive position of tenderers shall not apply.

C.1.6.2.2 All responsive tenderers or at least a minimum of not less than three responsive tenderers that are highest ranked in terms of the evaluation criteria stated in the tender data shall be invited to enter into competitive negotiations based on the principle of equal treatment, keeping confidential the proposed solutions and associated information.

Notwithstanding the provisions of C.2.17, the employer may request that tenders be clarified, specified and fine-tuned in order to improve a tenderer's competitive position provided that such clarification, specification, fine-tuning or additional information does not alter any fundamental aspects of the offers or impose substantial new requirements which restrict or distort competition or have a discriminatory effect.

C.1.6.2.3 At the conclusion of each round of negotiations, tenderers shall be invited by the employer to revise their tender offer based on the same evaluation criteria, with or without adjusted weightings. Tenderers shall be advised when they are to submit their best and final offer.

C.1.6.2.4 The contract shall be awarded in accordance with the provisions of C.3.11 and C.3.13 after tenderers have been requested to submit their best and final offer.

C.1.6.3 Proposal procedure using the two stage-system

C.1.6.3.1 Option 1

Tenderers shall in the first stage submit technical proposals and, if required, cost parameters around which a contract may be negotiated. The employer shall evaluate each responsive submission in terms of the method of evaluation stated in the tender data, and in the second stage negotiate a contract with the tenderer scoring the highest number of evaluation points and award the contract in terms of these conditions of tender.

C.1.6.3.2 Option 2

C.1.6.3.2.1 Tenderers shall submit in the first stage only technical proposals. The employer shall invite all responsive tenderers to submit tender offers in the second stage, following the issuing of procurement documents.

C.1.6.3.2.2 The employer shall evaluate tenders received during the second stage in terms of the method of evaluation stated in the tender data, and award the contract in terms of these conditions of tender.

C.2 Tenderer's obligations

C.2.1 Eligibility

C.2.1.1 Submit a tender offer only if the tenderer satisfies the criteria stated in the tender data and the tenderer, or any of his principals, is not under any restriction to do business with employer.

C.2.1.2 Notify the employer of any proposed material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used by the employer as the basis in a prior process to invite the tenderer to submit a tender offer and obtain the employer's written approval to do so prior to the closing time for tenders.

C.2.2 Cost of tendering

C.2.2.1 Accept that, unless otherwise stated in the tender data, the employer will not compensate the tenderer for any costs incurred in the preparation and submission of a tender offer, including the

costs of any testing necessary to demonstrate that aspects of the offer complies with requirements.

C.2.2.2 The cost of the tender documents charged by the employer shall be limited to the actual cost incurred by the employer for printing the documents. Employers must attempt to make available the tender documents on its website so as not to incur any costs pertaining to the printing of the tender documents.

C.2.3 Check documents

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

C.2.4 Confidentiality and copyright of documents

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

C.2.5 Reference documents

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

C.2.6 Acknowledge addenda

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

C.2.7 Clarification meeting

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

C.2.8 Seek clarification

Request clarification of the tender documents, if necessary, by notifying the employer at least five (5) working days before the closing time stated in the tender data.

C.2.9 Insurance

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

C.2.10 Pricing the tender offer

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

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

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

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

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C.2.11 Alterations to documents

Do not make any alterations or additions to the tender documents, except to comply with instructions issued by the employer, or necessary to correct errors made by the tenderer. All signatories to the tender offer shall initial all such alterations.

C.2.12 Alternative tender offers

C.2.12.1 Unless otherwise stated in the tender data, submit alternative tender offers only if a main tender offer, strictly in accordance with all the requirements of the tender documents, is also submitted as well as a schedule that compares the requirements of the tender documents with the alternative requirements that are proposed.

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

C.2.12.3 An alternative tender offer must only be considered if the main tender offer is the winning tender.

C.2.13 Submitting a tender offer

C.2.13.1 Submit one tender offer only, either as a single tendering entity or as a member in a joint venture to provide the whole of the works identified in the contract data and described in the scope of works, unless stated otherwise in the tender data.

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

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

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

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

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

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

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

C.2.13.9 Accept that tender offers submitted by facsimile or e-mail will be rejected by the employer, unless stated otherwise in the tender data.

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

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

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C.2.15 Closing time

C.2.15.1 Ensure that the employer receives the tender offer at the address specified in the tender data not later than the closing time stated in the tender data. Accept that proof of posting shall not be accepted as proof of delivery.

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

C.2.16 Tender offer validity

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

C.2.16.2 If requested by the employer, consider extending the validity period stated in the tender data for an agreed additional period with or without any conditions attached to such extension.

C.2.16.3 Accept that a tender submission that has been submitted to the employer may only be withdrawn or substituted by giving the employer's agent written notice before the closing time for tenders that a tender is to be withdrawn or substituted. If the validity period stated in C.2.16 lapses before the employer evaluating tender, the contractor reserves the right to review the price based on Consumer Price Index (CPI).

C.2.16.4 Where a tender submission is to be substituted, a tenderer must submit a substitute tender in accordance with the requirements of C.2.13 with the packages clearly marked as "SUBSTITUTE".

C.2.17 Clarification of tender offer after submission

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

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

C.2.18 Provide other material

C.2.18.1 Provide, on request by the employer, any other material that has a bearing on the tender offer, the tenderer's commercial position (including notarized joint venture agreements), preferencing arrangements, or samples of materials, considered necessary by the employer for the purpose of a full and fair risk assessment. Should the tenderer not provide the material, or a satisfactory reason as to why it cannot be provided, by the time for submission stated in the employer's request, the employer may regard the tender offer as non-responsive.

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

C.2.19 Inspections, tests and analysis

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

C.2.20 Submit securities, bonds and policies

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

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C.2.21 Check final draft

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

C.2.22 Return of other tender documents

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

C.2.23 Certificates

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

C.3 The employer's undertakings

C.3.1 Respond to requests from the tenderer

C.3.1.1 Unless otherwise stated in the tender Data, respond to a request for clarification received up to five (5) working days before the tender closing time stated in the Tender Data and notify all tenderers who collected tender documents.

C.3.1.2 Consider any request to make a material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used to prequalify a tenderer to submit a tender offer in terms of a previous procurement process and deny any such request if as a consequence:

a) an individual firm, or a joint venture as a whole, or any individual member of the joint venture fails to meet any of the collective or individual qualifying requirements;

b) the new partners to a joint venture were not prequalified in the first instance, either as individual firms or as another joint venture; or

c) in the opinion of the Employer, acceptance of the material change would compromise the outcome of the prequalification process.

C.3.2 Issue Addenda

If necessary, issue addenda that may amend or amplify the tender documents to each tenderer during the period from the date that tender documents are available until three (3) working days before the tender closing time stated in the Tender Data. If, as a result a tenderer applies for an extension to the closing time stated in the Tender Data, the Employer may grant such extension and, shall then notify all tenderers who collected tender documents.

C.3.3 Return late tender offers

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

C.3.4 Opening of tender submissions

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

C.3.4.2 Announce at the meeting held immediately after the opening of tender submissions, at a venue indicated in the tender data, the name of each tenderer whose tender offer is opened and, where applicable, the total of his prices, number of points claimed for its BBBEE status level and time for completion for the main tender offer only.

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

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C.3.5 Two-envelope system

C.3.5.1 Where stated in the tender data that a two-envelope system is to be followed, open only the technical proposal of valid tenders in the presence of tenderers' agents who choose to attend at the time and place stated in the tender data and announce the name of each tenderer whose technical proposal is opened.

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

C.3.6 Non-disclosure

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

C.3.7 Grounds for rejection and disqualification

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

C.3.8 Test for responsiveness

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

a) complies with the requirements of these Conditions of Tender,

b) has been properly and fully completed and signed, and

c) is responsive to the other requirements of the tender documents.

C.3.8.2 A responsive tender is one that conforms to all the terms, conditions, and specifications of the tender documents without material deviation or qualification. A material deviation or qualification is one which, in the Employer*'s* opinion, would:

a) detrimentally affect the scope, quality, or performance of the works, services or supply identified in the Scope of Work,

b) significantly change the Employer*'s* or the tenderer's risks and responsibilities under the contract, or

c) affect the competitive position of other tenderers presenting responsive tenders if it were to be rectified.

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

C.3.9 Arithmetical errors, omissions, and discrepancies

C.3.9.1 Check responsive tenders for discrepancies between amounts in words and amounts in figures. Where there is a discrepancy between the amounts in figures and the amount in words, the amount in words shall govern.

C.3.9.2 Check the highest ranked tender or tenderer with the highest number of tender evaluation points after the evaluation of tender offers in accordance with C.3.11 for:

a) the gross misplacement of the decimal point in any unit rate;

b) omissions made in completing the pricing schedule or bills of quantities; or

c) arithmetic errors in:

(i) line item totals resulting from the product of a unit rate and a quantity in bills of quantities or schedules of prices; or
(ii) the summation of the prices.

C.3.9.3 Notify the tenderer of all errors or omissions that are identified in the tender offer and either confirm the tender offer as tendered or accept the corrected total of prices.

C.3.9.4 Where the tenderer elects to confirm the tender offer as tendered, correct the errors as follows:

a) If bills of quantities or pricing schedules apply and there is an error in the line item total resulting from the product of the unit rate and the quantity, the line item total shall govern, and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line item total as quoted shall govern, and the unit rate shall be corrected.

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

C.3.10 Clarification of a tender offer

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

C.3.11 Evaluation of tender offers

The Standard Conditions of Tender standardize the procurement processes, methods and procedures from the time that tenders are invited to the time that a contract is awarded. They are generic in nature and are made project specific through choices that are made in developing the Tender Data associated with a specific project.

Conditions of tender are by definition the document that establishes a tenderer's obligations in submitting a tender and the employer's undertakings in soliciting and evaluating tender offers. Such conditions establish the rules from the time a tender is advertised to the time that a contract is awarded and require employers to conduct the process of offer and acceptance in terms of a set of standard procedures.

The CIDB Standard Conditions of Tender are based on a procurement system that satisfies the following system requirements:	
Requirement	**Qualitative interpretation of goal**
Fair	The process of offer and acceptance is conducted impartially without bias, providing simultaneous and timely access to participating parties to the same information.
Equitable	Terms and conditions for performing the work do not unfairly prejudice the interests of the parties.
Transparent	The only grounds for not awarding a contract to a tenderer who satisfies all requirements are restrictions from doing business with the employer, lack of capability or capacity, legal impediments and conflicts of interest.
Competitive	The system provides for appropriate levels of competition to ensure cost effective and best value outcomes.
Cost effective	The processes, procedures and methods are standardized with sufficient flexibility to attain best value outcomes in respect of quality, timing and price, and least resources to effectively manage and control procurement processes.

The activities associated with evaluating tender offers are as follows:

a) Open and record tender offers received

b) Determine whether or not tender offers are complete

c) Determine whether or not tender offers are responsive

d) Evaluate tender offers

e) Determine if there are any grounds for disqualification

f) Determine acceptability of preferred tenderer

g) Prepare a tender evaluation report

h) Confirm the recommendation contained in the tender evaluation report

C.3.11.1 General

The employer must appoint an evaluation panel of not less than three persons conversant with the proposed scope of works to evaluate each responsive tender offer using the tender evaluation methods and associated evaluation criteria and weightings that are specified in the tender data.

C.3.12 Insurance provided by the employer

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

C.3.13 Acceptance of tender offer

Accept the tender offer; if in the opinion of the employer, it does not present any risk and only if the tenderer:

a) is not under restrictions, or has principals who are under restrictions, preventing participating in the employer's procurement;

b) can, as necessary and in relation to the proposed contract, demonstrate that he or she possesses the professional and technical qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, experience and reputation, expertise and the personnel, to perform the contract;

c) has the legal capacity to enter into the contract;

d) is not; insolvent, in receivership, under Business Rescue as provided for in chapter 6 of the Companies Act No. 2008, bankrupt or being wound up, has his/her affairs administered by a court or a judicial officer, has suspended his/her business activities or is subject to legal proceedings in respect of any of the foregoing;

e) complies with the legal requirements, if any, stated in the tender data; and

f) is able, in the opinion of the employer, to perform the contract free of conflicts of interest.

C.3.14 Prepare contract documents

C.3.14.1 If necessary, revise documents that shall form part of the contract and that were issued by the employer as part of the tender documents to take account of:

a) addenda issued during the tender period,

b) inclusion of some of the returnable documents and

c) other revisions agreed between the employer and the successful tenderer.

C.3.14.2 Complete the schedule of deviations attached to the form of offer and acceptance, if any.

C.3.15 Complete adjudicator's contract

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

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C.3.16 Registration of the award

An employer must, within twenty-one (21) working days from the date on which a contractor's offer to perform a construction works contract is accepted in writing by the employer, register and publish the award on the CIDB Register of Projects.

C.3.17 Provide copies of the contracts

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

C.3.18 Provide written reasons for actions taken

Provide upon request written reasons to tenderers for any action that is taken in applying these conditions of tender but withhold information which is not in the public interest to be divulged, which is considered to prejudice the legitimate commercial interests of tenderers or might prejudice fair competition between tenderers.

CONSTRUCTION OF NEW KAYAMANDI 11KV SUBSTATION BUILDING AND SUPPLY, INSTALLATION AND COMMISSIONING OF NEW 11KV INDOOR SWITCHGEAR

TENDER NUMBER B/SM 85/26

PART T2 : RETURNABLE DOCUMENTS

T2.1 List of Returnable Documents

T2.2 Returnable Schedules

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CONSTRUCTION OF NEW KAYAMANDI 11KV SUBSTATION BUILDING AND SUPPLY, INSTALLATION AND COMMISSIONING OF NEW 11KV INDOOR SWITCHGEAR

TENDER NUMBER B/SM 85/26

PART T2.1 : LIST OF RETURNABLE DOCUMENTS

The following documents are to be completed and returned as they constitute the tender. Whilst many of the returnables are required for the purpose of evaluating the tenders, some will form part of the subsequent contract, as they form the basis of the tender offer. For this reason, it is very important that tenderers return **all information requested.**

1. RETURNABLE SCHEDULES REQUIRED FOR TENDER EVALUATION PURPOSES (included hereafter for completion)

Checklist

Schedule : 1A Authority to Sign Bid

Schedule : 1B Certificate of Authority for Joint Ventures

Schedule : 1C Experience of Key-Personnel

Schedule : 1D Schedule of Plant and Equipment

Schedule : 1E Previous Experience on Contracts of a Similar Value and Nature

Schedule: 1F Estimated Monthly Cash Flow

Schedule : 1G Schedule of Proposed Subcontractors

Schedule : 1H Declaration of Interest (MBD 4)

Schedule : 1I Declaration for Procurement above R10 million (MBD 5)

Schedule : 1J Preference Points Claim Form in Terms of the Preferential Procurement Regulations 2022 (MBD 6.1)

Schedule : 1K Declaration of Bidder's Past Supply Chain Management Practices (MBD 8)

Schedule : 1L Certificate of Independent Bid Determination (MBD 9)

Schedule : 1M Certificate for Payment of Municipal Services (MBD 10

Schedule : 1N Compensation for Occupational Injuries and Diseases Act

Schedule : 1O Form of Indemnity

Schedule : 1P Declaration by Tenderer

2. OTHER DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES

Schedule : 2A Certificate of Attendance at Clarification Meeting

Schedule : 2B Documents of Incorporation

Schedule : 2C Certificate of Contractor Registration Issued by the CIDB

Schedule : 2D B-BBEE Certificate

Schedule : 2E Health and Safety Agreement

RETURNABLE SCHEDULES THAT WILL BE INCORPORATED INTO THE CONTRACT (to be attached with submission)

Schedule : 3A Record of Addenda to Tender Documents

3. OTHER SCHEDULES AND AFFIDAVITS THAT WILL BE INCORPORATED INTO THE CONTRACT (included hereafter for completion)

C1.1 : Form of Offer and Acceptance

C1.2 : Contract Data (Part 1 & 2)

C1.3 : Form of Performance Security (Pro Forma)

C1.4 : Form of Retention Money Guarantee (Pro Forma)

C2.1 : Pricing Instructions

C2.2 : Bills of Quantities

C2.3 : Data Sheets (Technical Schedules)

CHECKLIST

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

MBD 1 Part A : Invitation to Bid (page 6) – Is the form duly completed and signed?	**Yes**		**No**	
MBD 1 Part B : Terms and Conditions for Bidding (page 7) – Is the form duly completed and signed?	**Yes**		**No**	
Particulars of Tenderer (page 8) – Is the form duly completed and signed?	**Yes**		**No**	
Authority to Sign a Bid – Is the form duly completed and is a **certified copy** of the **resolution** attached?	**Yes**		**No**	
Certificate of Authority for Joint Ventures – Is the form duly completed and signed? (If applicable)	**Yes**		**No**	
Experience of Key Personnel – Is the form duly completed and signed?	**Yes**		**No**	
Schedule of Plant and Equipment – Is the form duly completed and signed?	**Yes**		**No**	
Previous Experience on Contracts of the same value and nature – Is the form duly completed and signed and required information included?	**Yes**		**No**	
Estimated Monthly Cash Flow – Is the form duly completed and signed?	**Yes**		**No**	
Schedule of Proposed Sub-Contractors – Is the form duly completed and signed?	**Yes**		**No**	
MBD 4 (Declaration of Interest) – Is the form duly completed and signed?	**Yes**		**No**	
MBD 5 (Declaration for procurement above R10 million, including VAT) – 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 **MUST** 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?	**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**	
Compensation for Occupational Injuries and Diseases Act – Is the form duly completed and signed?	**Yes**		**No**	
Form of Indemnity – Is the form duly completed and signed?	**Yes**		**No**	
Declaration by Tenderer – Is the form duly completed and signed?	**Yes**		**No**	
Clarification Meeting Certificate – Is the form duly completed and signed?	**Yes**		**No**	
CIDB Registration – Is the form duly completed and signed?	**Yes**		**No**	
B-BBEE Certificate – Is the form duly completed and signed?	**Yes**		**No**	
Pricing Schedule – Is the form duly completed and signed?	**Yes**		**No**	
Form of Offer and Acceptance – Is the form duly completed and signed?	**Yes**		**No**	

SCHEDULE 1A – AUTHORITY TO SIGN 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.

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

OR

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)	
Capacity	
Name and surname of delegated Authorised Signatory	
Capacity	
Specimen Signature	

Full name and surname of ALL Director(s) / Member (s)			
1.		2.	
3.		4.	
5.		6.	
7.		8.	
9.		10.	

Is a CERTIFIED COPY of the resolution attached?	**YES**		**NO**	

SIGNED ON BEHALF OF COMPANY / CC:		DATE:	
PRINT NAME:			
WITNESS 1:		WITNESS 2:	

OR

3. PARTNERSHIP

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:	

OR

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:		WITNESS 2:	

SCHEDULE 1B – 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 (Lead partner)			
Address			
		Tel. No.	
Signature		Designation	

(ii) Name of firm			
Address			
		Tel. No.	
Signature		Designation	

(iii)Name of firm			
Address:			
		Tel. No.	
Signature		Designation	

(iv) Name of firm			
Address			
		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.**

SCHEDULE 1C : EXPERIENCE OF KEY-PERSONNEL

The tenderer shall set out in the tables below details of the **relevant experience** in three (3) similar projects (projects involving construction of 11kV switching station buildings and installation of 11kV indoor switchgear) **successfully completed in the last five (5) years** by the key persons identified for each listed position.

Note: One person only to qualify for each of the positions listed below. The key-personnel to be used in this regard will be subject to the approval of the Engineer prior to the commencement date of the contract. **Should any of the persons identified not be available for the position which they are indicated for, then a suitable candidate with equal or superior tertiary qualification and/or relevant experience than that of the person which he/she replaces shall be used for every such position.**

Project/Contract's Manager	**NAME:**				
Contact and Client	**TERTIARY QUALIFICATION**				
	Project Description	**Position held**	**Value of work (Incl. VAT) (R million)**	**Month & Year Commence**	**Month & Year Completed**

Site Agent	NAME:				
Contact and Client	TERTIARY QUALIFICATION				
	Project Description	Position held	Value of work (Incl. VAT) (R million)	Month & Year Commence	Month & Year Completed

* To be filled in by Tenderer

ORHVS Level 3 Responsible Person certified in terms of NRS 040-4	NAME:				
Contact and Client	TERTIARY QUALIFICATION				
	Project Description	Position held	Value of work (Incl. VAT) (R million)	Month & Year Commence	Month & Year Completed

* To be filled in by Tenderer

SIGNATURE		NAME (PRINT)	
CAPACITY		DATE	
NAME OF FIRM			

SCHEDULE 1D : 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 PLANT THAT IS OWNED BY AND IMMEDIATELY AVAILABLE FOR THIS CONTRACT.			
QUANTITY	**DESCRIPTION**	**SIZE**	**CAPACITY**

Attach additional pages if mores space is required.

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			

SCHEDULE 1E : PREVIOUS EXPERIENCE ON CONTRACTS OF THE SAME VALUE AND NATURE

The tenderer shall insert in the spaces provided below a list of the tenderer's past work experience in terms of **similar projects successfully completed in the last five (5) years. A minimum of three (3) similar projects is required for which the cumulative value of work is at least R15 million**. The value and scale of the projects indicated for these purposes must be supplied together with any other relevant information.

Listed projects with invalid or incorrect contact details for the employer and/or consulting engineer and information not supplied in the format as requested below will **NOT** be considered.

Employer (Name and Contact No.)	Consulting Engineer (Name and Contact No.)	Similar projects involving construction of 11kV switching station buildings and installation of 11kV switchgear (Include all details of the completed works)	Value of Work (incl. VAT) (R million)	Month & Year Commence	Month & Year Completed

SIGNATURE		NAME (PRINT)	
CAPACITY		DATE	
NAME OF FIRM			

SCHEDULE 1F : ESTIMATED CASH-FLOW

The Tenderer shall state below the estimated value of work to be completed every month, based on his preliminary programme and his tendered unit rates.

The amounts for Contingencies and Contract Price Adjustment must not be included. The Tenderer must make note of any cash-flow restrictions.

MONTH	VALUE
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
TOTAL	

SIGNATURE		NAME (PRINT)	
CAPACITY		DATE	
NAME OF FIRM			

SCHEDULE 1G : SCHEDULE OF PROPOSED 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	**Subcontractor Name; Address; Contact Person; Tel. No.**		**Items of work (pay items) to be undertaken by the Subcontractor**	**Estimated cost of Work (Rand)**
1.	Name of firm			
	Contact person			
	Tel No			
	Address			
2.	Name of firm			
	Contact person			
	Tel No			
	Address			
3.	Name of firm			
	Contact person			
	Tel No			
	Address			
4.	Name of firm			
	Contact person			
	Tel No			
	Address			
5.	Name of firm			
	Contact person			
	Tel No			
	Address			
Number of sheets 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			

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SCHEDULE 1H : DECLARATION OF INTEREST (MBD 4)

1. No bid will be accepted from persons in the service of the state[1].
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?**	**YES**		**NO**	
3.7.1.	If so, furnish particulars:				
3.8.	**Have you been in the service of the state for the past twelve months?**	**YES**		**NO**	
3.8.1.	If so, furnish particulars:				

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

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

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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:				

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

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SCHEDULE 1I : DECLARATION FOR PROCUREMENT ABOVE R10 MILLION, VAT INCLUDED (MBD5)

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

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

CERTIFICATION

I, the undersigned (name) _____, certify that the information furnished on this declaration form is correct.

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

SIGNATURE		DATE	
NAME (PRINT)			
CAPACITY			
NAME OF FIRM			

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SCHEDULE 1J: PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022 – PURCHASES/SERVICES 80/20 (MBD6.1)

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, 16 January 2023 and the Stellenbosch Preferential Procurement Policy 2025/26

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 **The value of this bid is expected not to exceed R50 000 000 (all applicable taxes included) and therefore the 80/20 preference point system will apply.**

1.3 Points for this bid shall be awarded for:

(a) Price; and

(b) B-BBEE Status Level of Contributor.

(c) Locality of supplier

1.4 The maximum points for this bid are allocated as follows:

	POINTS
Price	80
B-BBEE status level of contribution	10
Locality (see definitions)	10
Total points for Price and B-BBEE (must not exceed 100)	**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 is 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 regarding preferences, in any manner required by the purchaser.

2. DEFINITIONS

2.1 **"B-BBEE"** means broad-based black economic empowerment as defined in section 1 of the Broad-Based Black Economic Empowerment Act;

2.2 "**B-BBEE status level of contributor"** means the B-BBEE status of an entity in terms of a

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code of good practice on black economic empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;

2.3 **"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.

2.4 **"Broad-Based Black Economic Empowerment Act"** means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003); as amended by Act No. 46 of 2013;

2.5 **"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;

2.6 **"functionality"** means the ability of a tenderer to provide goods or services in accordance with specifications as set out in the tender documents.

2.7 "**Locality**" means the local suppliers and/or service providers that business offices are within the Municipal area of Stellenbosch (WC024).

2.8 **"prices"** includes all applicable taxes less all unconditional discounts.

2.9 **"proof of B-BBEE status level of contributor"** means:

2.9.1 B-BBEE Status level certificate issued by an authorized body or person;

2.9.2 A sworn affidavit as prescribed by the B-BBEE Codes of Good Practice;

2.9.3 Any other requirement prescribed in terms of the B-BBEE Act;

2.10 **"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;

2.11 "**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;

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

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1 POINTS AWARDED FOR PRICE

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

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

80/20 **or** **90/10**

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

Where:

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

4. POINTS AWARDED FOR B-BBEE STATUS LEVEL OF CONTRIBUTION

4.1 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.

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4.2 The tendering conditions will stipulate the specific goals, as contemplated in section 2(1)(d)(ii) of the Preferential Procurement Act, be attained.

4.3 A maximum of 20 points (80/20 preference points system) or 10 points (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).

4.4 Regarding par 4.3 (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 points (90/10 system)	Number of points (80/20 system)
1	10	20
2	9	18
3	6	14
4	5	12
5	4	8
6	3	6
7	2	4
8	1	2
Non-compliant contributor	0	0

4.5 A tenderer must submit proof of its BBBEE status level contributor.

4.6 A tenderer failing to submit proof of BBBEE status level of contributor,

4.6.1 may only score in terms of the 80/90-point formula for price; and
4.6.2 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.

4.7 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

5. BID DECLARATION

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

6. B -BBEE STATUS LEVEL OF CONTRIBUTION CLAIMED IN TERMS OF PARAGRAPHS 1.4 AND 3.1

6.1 B-BBEE Status Level of Contributor: = …… (maximum of 20 points)

(Points claimed in respect of paragraph 6.1 must be substantiated by relevant proof of B-BBEE status level of contributor.)

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6.2 Within the boundaries of Stellenbosch Municipality (WC024)?

YES		NO	

Business Address - .....

.....

.....

(Points claimed in respect of paragraph 6.2 must be substantiated by relevant proof that the business premises are situated in the Municipal area of Stellenbosch (WC024). A valid municipal account or proof of valid lease agreement, or sworn affidavit must be attached).

7. SUB-CONTRACTING

7.1 Will any portion of the contract be sub-contracted? *(Tick applicable box)*	**YES**		**NO**	
7.1.1 If yes, indicate:				
7.1.1.1 what percentage of the contract will be subcontracted?				**%**
7.1.1.2 the name of the sub-contractor?				
7.1.1.3 the B-BBEE status level of the sub-contractor?				
7.1.1.4 whether the sub-contractor is an EME or QSE? *(Tick applicable box)*	**YES**		**NO**	
7.1.1.5 Specify, by ticking the appropriate box, if subcontracting with an enterprise	**YES**		**NO**	

Designated Group: An EME or QSE which is at last 51% owned by:	**EME** √	**QSE** √
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		

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8. DECLARATION WITH REGARD TO COMPANY/FIRM

8.1 Name of Company/firm:		
8.2 VAT registration number		
8.3 Company registration number		
8.4 Type of Company/Firm: ***(Tick applicable box)***	Partnership / Joint Venture / Consortium	
	One person business / sole proprietor	
	Close Corporation	
	Company	
	(Pty) Limited	
8.5 Describe Principal Business Activities		
8.6 Company Classification (Tick applicable box)	Manufacturer	
	Supplier	
	Professional service provider	
	Other service providers, e.g. transporter, etc.	

8.7 Municipal Information	
Municipality where business is situated:	
Registered Account Number:	
Stand Number:	
8.8 Total Number of years the Company/Firm has been in business:	

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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 contribution indicated in paragraph 1.4 and 6.1 of the foregoing certificates, qualifies the company/ firm for the preference(s) shown and I / we acknowledge that:

9.1 The information furnished is true and correct.

9.2 The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form.

9.3 In the event of a contract being awarded because of points claimed as shown in paragraph 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.

9.4 If the B-BBEE status level of contribution 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 –

9.4.1 disqualify the person from the bidding process.

9.4.2 recover costs, losses or damages it has incurred or suffered as a result of that person's conduct.

9.4.3 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.

9.4.4 restrict the bidder or contractor, its shareholders, and directors, or only the shareholders and directors who acted on a fraudulent basis, 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

9.4.5 forward the matter for criminal prosecution.

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

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SCHEDULE 1K : DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES (MBD8)

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. wilfully 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. 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, www.treasury.gov.za, 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**

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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**	**No**
4.4.1	If so, furnish particulars:		
4.5	Was any contract between the bidder and the municipality / municipal entity or any other organ of state terminated during the past five years on account of failure to perform on or comply with the contract?	**Yes**	**No**
4.5.1	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:			

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SCHEDULE 1L : CERTIFICATE OF INDEPENDENT BID DETERMINATION (MBD9)

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

[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.

affiliated with the bidder, who:

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 consortium[5] 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:			

[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.*

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SCHEDULE 1M : CERTIFICATE FOR PAYMENT OF MUNICIPAL SERVICES (MBD 10)

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

I, _____, _____ (full name and ID no.), hereby acknowledge that according to SCM Regulation 38(1)(d)(i), the Municipality may reject the tender of the tenderer if any municipal rates and taxes or municipal service charges owed by the Tenderer or any of its directors/members/partners to the Stellenbosch Municipality, or to any other municipality or municipal entity, are in arrears for more than 3 (three) months.

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 a 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.

SIGNATURE		NAME (PRINT)	
CAPACITY		DATE	
NAME OF FIRM			

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SCHEDULE 1N : 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.**	

SIGNATURE		NAME (PRINT)	
CAPACITY		DATE	
NAME OF FIRM			

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SCHEDULE 1O : 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:	

SCHEDULE 1P : 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	

SCHEDULE 2A : CLARIFICATION MEETING CERTIFICATE

I / We*, the undersigned, certify that I / we* have examined the Site for the Works and its surroundings for which I / we* am / are* submitting this Tender and have, as far as practicable possible, 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	

NB: Please note that no latecomers will be allowed.

For all compulsory briefing sessions/site meetings/clarification meetings, bids received from interested bidders that did not attend the meeting or arrived later than predetermined date and time, will be ***disqualified.***

SCHEDULE 2B : DOCUMENTS OF INCORPORATION

The tenderer must attach to this page a certified copy of the certificate of incorporation of his/her company, close corporation or partnership. In the case of a joint venture between two or more firms, the tenderer shall attach a copy of the document of incorporation of the joint venture.

SCHEDULE 2C : CERTIFICATE OF CONTRACTOR REGISTRATION ISSUED BY THE CIDB

CIDB Contractor Registration Certificate

A Certificate of Contractors Registration issued by the Construction Industry Development Board (CIDB) shall be attached to this schedule.

Where a tenderer satisfies CIDB Contractor Grading designation requirements through joint venture formation, such tenderers must submit the Certificates of Contractor Registration in respect of each partner.

Number of sheets appended by the tenderer to this schedule (If nil, enter NIL)	
CRS Number:	

SIGNATURE		NAME (PRINT)	
CAPACITY		DATE	
NAME OF FIRM			

SCHEDULE 2D : B-BBEE CERTIFICATE

The tenderer must attach to this page a **certified copy of their B-BBEE level of contribution certificate** in respect of his/her company, close corporation or partnership. In the case of a joint venture between two or more firms, the tenderer shall attach a certified copy of the B-BBEE Certificate for each of the joint venture partners.

SCHEDULE 2E : OCCUPATIONAL HEALTH AND SAFETY AGREEMENT (SECTION 37(2))

AGREEMENT MADE AND ENTERED INTO BETWEEN STELLENBOSCH MUNICIPALITY (HEREINAFTER CALLED THE "CLIENT") AND

.....

(Contractor/Mandatory/Company/CC Name)

IN TERMS OF SECTION 37(2) OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, ACT No. 85 OF 1993 AS AMENDED.

I, ... , representing

..... , as an employer

in its own right, do hereby undertake to ensure, as far as is reasonably practicable, that all work will be performed, and all equipment, machinery or plant used in such a manner as to comply with the provisions of the Occupational Health and Safety Act (OHSA) and the Regulations promulgated there under.

I furthermore confirm that I am/we are registered with the Compensation Commissioner and that all registration and assessment monies due to the Compensation Commissioner have been fully paid or that I/We are insured with an approved licensed compensation insurer.

COID ACT Registration Number: ……..

OR Compensation Insurer: ..... Policy No.: .....

I undertake to appoint, where required, suitable competent persons, in writing, in terms of the requirements of OHSA and the Regulations and to charge him/them with the duty of ensuring that the provisions of OHSA and Regulations as well as the Council's Special Conditions of Contract, Way Leave, Lock-Out and Work Permit Procedures are adhered to as far as reasonably practicable.

I further undertake to ensure that any subcontractors employed by me will enter into an occupational health and safety agreement separately, and that such subcontractors comply with the conditions set.

I hereby declare that I have read and understand the appended Occupational Health and Safety Conditions and undertake to comply therewith at all times.

I hereby also undertake to comply with the Occupational Health and Safety Specification and Plan.

Signed at .....on the.....day of.....20….

_____ _____

Witness **Mandatary**

Signed at ..... on the.....day of.....20....

_____ _____

Witness **for and on behalf of Stellenbosch Municipality**

OCCUPATIONAL HEALTH AND SAFETY CONDITIONS

1. The Chief Executive Officer of the Contractor shall assume the responsibility in terms of Section 16(1) of the Occupational Health and Safety Act (as amended). Should the Contractor assign any duty in terms of Section 16(2), a copy of such assignment shall immediately be provided to the representative of the Employer as defined in the Contract.

2. All work performed on the Employer's premises shall be performed under the supervision of the construction supervisor who understand the hazards associated with any work that the Contractor performs on the site in terms of Construction Regulations 2014.

3. The Contractor shall appoint a Competent Person who shall be trained on any occupational health and safety aspect pertaining to them or to the work that is to be performed.

4. The Contractor shall ensure that he familiarizes himself with the requirements of the Occupational Health and Safety Act and that he, his employees, and any sub-contractors, comply with them.

5. Discipline in the interests of occupational health and safety shall be strictly enforced.

6. Personal protective equipment shall be issued by the Contractor as required and shall be worn at all times where necessary.

7. Written safe work procedures and appropriate precautionary measures shall be available and enforced, and all employees shall be made conversant with the contents of these practices.

8. No substandard equipment/machinery/articles or substances shall be used on the site.

9. All incidents referred to in terms of Section 24 of the Occupational Health and Safety Act shall be reported by the Contractor to the Department of Labour and the Employer.

10 The Employer hereby obtains an interest in the issue of any formal inquiry conducted in terms of Section 32 of the Occupational Health and Safety Act and into any incident involving a Contractor and/or his employees and/or his sub-contractor/s.

11. No use shall be made of any of the Employer's machinery / plant / equipment / substance / personal protective equipment or any other article without prior arrangement and written approval.

12. No alcohol or any other intoxicating substance shall be allowed on the site. Any person suspected of being under the influence of alcohol or any other intoxicating substance shall not be permitted access to, or allowed to remain on the site.

13. Prior to commencement of any work, verified copies of all documents mentioned in the agreement, must be presented to the Employer

SCHEDULE 3A : RECORD OF ADDENDA TO TENDER DOCUMENTS

We confirm that the following communications received from the Employer before the submission of this tender offer, amending the tender documents, have been taken into account in this tender offer :

No.	Date	Title or Details
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Attach additional pages if more space is required.

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

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

Tenderer
.....

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CONSTRUCTION OF NEW KAYAMANDI 11KV SUBSTATION BUILDING AND SUPPLY, INSTALLATION AND COMMISSIONING OF NEW 11KV INDOOR SWITCHGEAR

TENDER NUMBER B/SM 85/26

PART C1 : AGREEMENT AND CONTRACT DATA

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C1.1 : FORM OF OFFER AND ACCEPTANCE

NOTE:

1. **This form must be completed in duplicate by both the successful bidder (Part 1) and the purchaser (Part 2). Both forms must be signed in the original so that the successful bidder and the purchaser will be in possession of originally signed contracts for their respective records.**
2. **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.**
3. **The Bidder MUST indicate whether he/she/the entity is a registered VAT Vendor or not.**
   a. **In the case of the Bidder not being a registered VAT Vendor, both columns (amount/rate excluding AND including VAT) must reflect the same amount.**

	INDICATE WITH AN 'X'									
Are you/is the firm a registered VAT Vendor	**YES**						**NO**			
If "YES", please provide VAT number										

1. OFFER

1.1 The employer, identified in the acceptance signature block, has solicited offers to enter into a contract in respect of the following works: **B/SM 85/26 – Construction of new Kayamandi 11kV Substation building and Supply, Installation and Commissioning of new 11kV Indoor Switchgear**

1.2 The tenderer, identified in the offer signature block, has examined the documents listed in the tender data and addenda thereto as listed in the tender schedules, and by submitting this offer has accepted the conditions of tender.

1.3 By the representative of the tenderer, deemed to be duly authorized, signing this part of this form of offer and acceptance, the tenderer offers to perform all of the obligations and liabilities of the Contractor under the contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the Conditions of Contract identified in the Contract Data.

THE OFFERED TOTAL OF THE PRICES INCLUSIVE OF VAT IS:	
In figures:	**R**
In words:	

1.4 This offer may be accepted by the Employer by signing the Acceptance part of this Form of Offer and Acceptance and returning one copy of this document to the tenderer before the end of the period of validity stated in the Tender Data, whereupon the Tenderer becomes the party named as the **Contractor** in terms of the conditions of contract identified in the Contract Data.

Signature(s)			
Name(s)			
Capacity			
Name of tenderer:			
Name of witness:	(Insert name and address of organisation)	Date	
Signature of witness:			

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2. ACCEPTANCE OF TENDER

2.1 By signing this part of this form of offer and acceptance, the Employer identified below accepts the tenderer's Offer. In consideration thereof, the Employer shall pay the Contractor the amount due in accordance with the conditions of contract identified in the Contract Data. Acceptance of the tenderer's Offer shall form an agreement between the Employer and the tenderer upon the terms and conditions contained in this agreement and in the contract that is the subject of this agreement.

2.2 The terms of the contract are contained in:

- Part C1 : Agreements and contract data (which includes this agreement)
- Part C2 : Pricing data
- Part C3 : Scope of work
- Part C4 : Site Information
- and drawings and documents or parts thereof, which may be incorporated by reference into Parts C1 to C4 above.

2.3 Deviations from and amendments to the documents listed in the tender data and any addenda thereto, as listed in the Returnable Schedules as well as any changes to the terms of the Offer agreed by the tenderer and the Employer during this process of offer and acceptance, are contained in the Schedule of Deviations attached to and forming part of this Form of Offer and Acceptance. No amendments to or deviations from said documents are valid unless contained in this Schedule.

2.4 The tenderer shall, within two weeks after receiving a completed copy of this agreement including the schedule of deviation (if any), contact the employer's agent (whose details are given in the contract data) to arrange the delivery of any bonds, guarantees, proof insurance and any other documentation to be provided in terms of the conditions of contract identified in the contract data. Failure to fulfil any of the obligations in accordance with those terms shall constitute a repudiation of this agreement.

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

2.6 Notwithstanding anything contained herein, this agreement comes into effect on the date when the tenderer receives one fully completed original copy of this document, including the schedule of deviations (if any). Unless the tenderer (now contractor), within five (5) working days of the date of such receipt, notifies the employer in writing of any reason why he cannot accept the contents of this agreement, this agreement shall constitute a binding contract between the parties.

Signature(s):			
Name(s):			
Capacity:			
For the Employer:	**Stellenbosch Municipality, Plein Street, Stellenbosch**		
Name of witness:		Date:	
Signature of witness:			

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3. SCHEDULE OF DEVIATIONS APPLICABLE TO TENDER

Notes:

1. The extent of deviations from the tender documents issued by the employer before the tender closing date is limited to those permitted in terms of the conditions of tender.

2. A tenderer's covering letter shall not be included in the final contract document. Should any matter in such letter, which constitutes a deviation as aforesaid, be the subject of agreements reached during the process of offer and acceptance, the outcome of such agreement shall be recorded here.

3. Any other matter arising from the process of offer and acceptance either as a confirmation, clarification or change to the tender documents, and which it is agreed by the Parties becomes an obligation of the contract, shall also be recorded here.

4. Any change or addition to the tender documents arising from the above agreements and recorded here, shall also be incorporated into the final draft of the contract.

1. Subject .....
   Details .....
2. Subject .....
   Details .....
3. Subject .....
   Details .....
4. Subject .....
   Details .....

By the duly authorized representatives signing this schedule of deviations, the employer and the tenderer agree to and accept the foregoing schedule of deviations as the only deviations from and amendments to the documents listed in the tender data and addenda thereto as listed in the tender schedules, as well as any confirmation, clarification or changes to the terms of the offer agreed by the tenderer and the employer during this process of offer and acceptance.

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

Signature(s) .....

Names(s) .....

Capacity .....

for the **Employer** .....
(Name and address of organisation)

Name and signature of witness ..... Date .....

Signature(s) .....

Names(s) .....

Capacity .....

for the **Tenderer** .....
(Name and address of organisation)

Name and signature of witness ..... Date .....

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C1.2: CONTRACT DATA (PART 1)

The Conditions of Contract are the "Conditions of Contract for Construction for Building and Engineering Works designed by the Employer" as issued by FIDIC, first Edition 1999, document ISBN2-88432-022-9.

Copies of these conditions of contract may be obtained from CESA Tel no.: (0)11 463 2022.

The clauses listed below are the clauses that was amended or added by the Employer and the contractor must take note of these amendments and additions. Clauses not amended is not listed and the numbering is therefore not sequential.

PART 1 : PARTICULAR CONDITIONS (SPECIAL CONDITIONS)

Clause	Description
1.1	**DEFINITIONS**
1.1.1.1	**Is deleted and replaced by:** "Contract" means the Form of Offer and Acceptance, Contract Data, these Conditions, the Specifications, the Drawings, the Schedules, and the further documents (if any), which are listed in the Form of Offer and Acceptance, and further includes drawings and documents or parts thereof, which any of the aforesaid documents incorporate by reference.
1.1.1.2	**Is deleted and replaced by:** "Contract Agreement" means the document called Form of Offer and Acceptance.
1.1.1.3	**Is deleted and replaced by:** "Letter of Acceptance" means that section of the Form of Offer and Acceptance called "Acceptance". The date of the Letter of Acceptance shall be the date of signing the latter "Acceptance".
1.1.1.4	**Is deleted and replaced by:** "Letter of Tender" means that section of the Form of Offer and Acceptance called "Offer".
1.1.1.5	**Is deleted and replaced by:** "Specification" means that document entitled Scope of Work, as included the Contract, and any additions and modifications to the Scope of Work in accordance with the Contract. Such document specifies the Works.
1.1.1.7	**Is deleted and replaced by:** "Schedules" means the document(s) entitled Tender Schedules, completed by the Contractor and submitted with his tender offer, as included in the Contract. Such document(s) may include the Bill of Quantities, data, lists and schedules of rates and / or prices.
1.1.1.8	**Is deleted and replaced by:** "Tender" means that section of the Form of Offer and Acceptance called "Offer" and all other documents which the Contractor submitted as Returnable Documents, as included in the Contract.
1.1.1.9	**Is deleted.**
1.1.3.7	**Add the following:** The **defects notification period**, for purposes of this contract also called the Defects liability period shall be 365 Calendar Days.
1.1.3.10	**Add the following clause at the end of this section 1.1.3:** **1.1.3.10: "Completion Certificate" means a certificate issued (or deemed to be issued) by the Engineer in accordance with clause 11.1 as amended in the Contract Data.**
1.1.4.6	The contract foreign currency is not applicable.
1.1.4.8	The contract local currency is South African Rand.
1.1.5.3	**Add:** All materials shall be new, unless otherwise stated in the Contract. For purposes of this Contract new means "unused, conforming to the specifications, and

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Clause	Description
	not previously incorporated elsewhere".
1.1.6.2	The contract country is South Africa.
1.1.6.6	**Is deleted and replaced by:** "Performance Security" means the security (or securities, if any) under Sub-Clause 4.2 provided in terms of the Form of Guarantee contained in C1.3.
1.2	**INTERPRETATION** At the end of sub-clause 1.2, insert: In these conditions, provisions including, the expression "cost plus reasonable profit" require this profit to be 10% of this cost.
1.3	**ELECTRONIC TRANSMISSION SYSTEMS** Acceptable transmission methods for all communications during the construction phase of the contract • Mail • E-mail **Add the following:** The reasonable time for responding to any Notices or other communication issued by any of the Parties or Engineer shall be deemed to be seven (7) working days.
[1.1.22] & 1.3	**EMPLOYER'S NAME AND ADDRESS** Stellenbosch Municipality Plein Street, Stellenbosch, 7600
[1.1.2.4] & 1.3	**ENGINEER'S NAME AND ADDRESS** Mr. Henk Brand (PrTech Eng) Neil Lyners And Associates (Pty) Ltd P O Box 4901, Tygervalley, 7536
1.4	**LAW AND LANGUAGES** The Contract shall be governed by the law of South Africa. The ruling language for the Contract shall be English. The ruling language for all communications during this Contract shall be English.
1.5	**PRIORITY OF DOCUMENTS** **Is deleted and replaced by:** The documents forming the Contract are to be taken as mutually explanatory of one another. For the purpose of interpretation, the priority of the documents shall be in accordance with the following sequence: a) the Form of Offer and Acceptance; b) Contract Data: Data provided by the Employer; c) the General Conditions of Contract; d) the Project Specification; e) the Data Sheets (if included) f) the Tender Drawings; g) the Particular Specifications (if applicable); h) the Bills of Quantities If a Party finds an ambiguity or discrepancy in the documents, that Party shall promptly

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Clause	Description
	give Notice to the Engineer, describing the ambiguity or discrepancy. After receiving such Notice, or if the Engineer finds an ambiguity or discrepancy in the documents, the Engineer shall issue the necessary clarification or instruction.
1.15	**DETAILS TO BE CONFIDENTIAL** **Add clause 1.15:** Both parties shall treat the details of the contract as private and confidential, except to the extent necessary to carry out obligations under it or to comply with applicable laws. The Contractor shall not publish, permit to be published, or disclose any particulars of the Works in any trade or technical paper or elsewhere without the agreement of the employer.
1.16	**APPENDIX TO TENDER** **Add clause 1.16:** Where reference is made to "Appendix to Tender" in the Conditions of Contract replace with "Contract Data".
2.1	**TIME FOR ACCESS TO SITE** The Contractor can access the full site any time after the commencement date, with the onus on the Contractor to stay within the contractual completion time. However, the Contractor shall not establish on site later than one (1) calendar month after the commencement date, unless approved by the Engineer in writing.
2.4	**EMPLOYER'S FINANCIAL ARRANGEMENTS** *[Omit clause]*
3.1	**ENGINEER'S DUTIES AND AUTHORITY** The Engineer shall obtain the specific approval of the employer before taking action under the following sub-clauses of these conditions: a) Sub clause 3.1.1 – Issuing of Variation Orders
3.2	**DELEGATION BY THE ENGINEER** Replace the first paragraph with "…… The assignment, delegation or revocation shall be in writing and shall not take effect until a copy has been received by the Contractor". **Delegated Assistant** The engineer may from time to time appoint an assistant or assistants on the project. The engineer's assistant shall have the following delegated authority: * to approve/reject any part of the project; * to perform inspections on behalf of the engineer; * to issue site instructions on behalf of the engineer; * to instruct the contractor to do any test that is deemed necessary; * to issue fault lists on behalf of the engineer; * as listed in a specific letter of delegation.
3.4	**REPLACEMENT OF ENGINEER** Total clause omitted for purposes of this contract.
3.6	**MANAGEMENT MEETINGS** **Add clause 3.6:** The engineer or the contractor's representative may require the other to attend a management meeting in order to review the arrangements for future work. The engineer shall record the business of management meetings and supply copies of the record to those attending the meeting and to the employer. In record,

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Clause	Description
	responsibilities for any actions to be taken shall be in accordance with the contract.
4.1	**CONTRACTOR'S GENERAL OBLIGATIONS** **Add the following sub-clause:** e) Unbundling of Municipal Infrastructure Assets 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. 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 expense 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. 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. 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 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. 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. 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.

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Clause	Description
4.2	**PERFORMANCE SECURITY** Add the following to clause 4.2: **The performance security shall not have a calendar end date, but shall stay in full force until issuing of the "Taking over certificate".** No payments shall be certified before the performance security has been submitted by the Contractor. The performance security shall be provided by the Contractor within fourteen (14) days from the commencement date. The amount of the Performance Security shall be 10% of Accepted contract amount, in the currencies and proportions in which the Contract Price is payable. In this last line of the last paragraph replace the words "Performance Certificate" with "Taking-over Certificate".
4.3	**CONTRACTOR'S REPRESENTATIVE** At the end of sub-clause 4.3, add: The Contractor's Representative and all these persons shall also be fluent in the English language.
4.8	**SAFETY PROCEDURES** Add new paragraphs: f) The Contractor shall be responsible for Health and Safety as prescribed in the relevant acts. g) The Contractor shall provide a site specific Health and Safety plan based on the employer's Health and Safety Specification within fourteen (14) days from date of appointment.
4.10	**SITE CONDITIONS** Responsibility for the determination of site conditions prior to construction shall rest with the Contractor.
4.19	**ELECTRICITY, WATER AND GAS** Add the following at the end of sub-clause 4.19 : a) Electricity is not available at the site. Contractor to apply for temporary connection (Billed to Contractor). b) Water is not available at the site. Contractor to apply for temporary connection (Billed to Contractor).
4.20	**EMPLOYER'S EQUIPMENT AND FREE ISSUE MATERIAL** The following equipment and material are provided by the Employer, free from any defects: • Refer to the project specification (Part C3.1) and bill of quantities (Part C2) for details of material free issued by the Employer.
4.22	**SECURITY OF THE SITE** Add new paragraph: c) From the date on which the site is handed over to the Contractor to the date of handover to the Client, the Contractor shall take full responsibility for the care of the Works and of all Plant intended for incorporation into the Works and all materials on the Site (installed and not installed) intended for incorporation into the Works. The cost of security to protect the Works, Plant and all materials must be priced as part of the time related P&G costs in the bill of quantities.

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Clause	Description
4.23	**CONTRACTOR'S OPERATIONS ON SITE** The Tenderer shall have a fully operational office in the Western Cape, through which all communication with the Employer will flow, for the full duration of the Contract.
6.1	**STAFF AND LABOUR** A minimum of 100% of unskilled labour shall be from the local community of Stellenbosch. Labour to be sourced from the approved Municipal database, with assistance of a CLO employed from the local community.
6.5	**NORMAL WORKING HOURS** Normal working hours are as follows 7h00 – 18h00 (Monday to Friday) Non-working days are Sundays, Public holidays and end-of-the-year builder's break.
7.5	**REJECTION** Costs incurred by the Employer and applicable to re-testing or re-inspection shall include costs of the Engineer.
8.1	**COMMENCEMENT OF WORKS** The commencement date shall be the seventh (7^{th}) working day from the date of the Letter of Acceptance. The Engineer shall give notice of the commencement date to the Contractor.
8.2	**TIME FOR COMPLETION** The start date of the Time for Completion will be the commencement date. The project will run over more than one financial year, and Tenderers are therefore required to submit a construction period (in weeks) from the date of appointment in clause 1.1.3.3 of Part 2 of the Contract Data. Time related P&G's must be calculated and priced accordingly.
8.3	**PROGRAMME** Replace the first sentence of the first paragraph with: "The Contractor shall submit a detailed programme to the Engineer within 14 days of the Commencement Date. If the Contract will be executed over more than one (1) financial year, the Time Related Preliminary and General costs shall be priced accordingly.
8.4	**EXTENSION OF TIME FOR COMPLETION** No extension of time will be granted in respect of any delays attributed to normal climatic conditions. Normal climatic conditions shall be deemed to include normal rainfall and associated wet conditions and materials, strong winds and extremes of temperature. However, in the event that delays to critical activities exceed the number of working days listed below for each month, then abnormal climatic conditions shall be deemed to exist, and an extension of time may be claimed in accordance with the provisions of Clause 8.4. The number of days quoted below shall be regarded as a fair estimate of the delays to be anticipated and allowed for under normal climatic conditions where inclement weather prevents or disrupts critical work. January 2 days February 2 days March 2 days April 2 days May 4 days June 4 days July 4 days August 4 days

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Clause	Description
	September 4 days October 2 days November 2 days December 2 days Claims for delays for abnormal climatic conditions shall be accompanied by substantiating facts and evidence, which shall be submitted timeously as each day or half-day delay is experienced. It shall be further noted that where the critical path is not affected, no extension of time for abnormal climatic conditions or for any other reason will be entertained. It shall remain the responsibility of the Contractor to plan activities on site by taking into account any bad weather or any other factors that may have an impact on the program. In case of bad weather, work can only be stopped after consultation with the Engineer or Client. Agreement reached shall preferably be in writing before stopping of work, but if not possible must be confirmed afterwards in writing. Furthermore, the responsibility shall rest with the Contractor to provide reasons for stopping the work on site to the Engineer, especially if such stopping of work might be regarded as reason for any extension in time.
8.7	**MAXIMUM AMOUNT OF DELAYS DAMAGES** 10 % of the final contract price.
8.7 & 14.15(b)	**DELAY DAMAGES FOR THE WORKS** 0,1 % of the final contract price per day, in the currencies and proportions in which the contract price is payable.
9. 9.1	**TESTS ON COMPLETION** **CONTRACTOR'S OBLIGATIONS** Add the following at the end of paragraph 9.1: The Contractor shall do the following tests on completion: All relevant electrical tests to prove that completed works are as per the specification and safe for operation, including earthing tests, pressure tests, continuity tests and all other applicable tests.
11.1	**CLOMPLETION OF OUTSTANDING WORK AND REMEDYING DEFECTS** After all defects as listed on the "Taking Over" certificate have been remedied, the "Completion" certificate will be issued by the Engineer which will state the start of the 12- months Defects Liability period.
11.10	**UNFUFILLED OBLIGATIONS** For purposes of this contract, the latent defects period shall be ten (10) years, starting from the date of the Performance Certificate.
13.5(b)	**PROVISIONAL SUMS** Percentage for overhead and profit charges shall be 10%. Three (3) quotations will be required for the work included in each provisional sum allowed, unless otherwise instructed by the Engineer or Employer.
13.8	**ADJUSTMENT FOR CHANGES IN COST (CONTRACT PRICE ADJUSTMENT)** **The base date for this Contract shall be March 2026.** The method of calculating adjustments for changes in costs shall be:

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Clause	Description
	A. CHANGES IN COST AND LEGISLATION (LABOUR, MATERIALS AND TRANSPORT) EXCLUDING PRELIMINARY AND GENERAL ITEMS (P&G'S) a) .... Prices will be subject to escalation as per SEIFSA price adjustment schedules. Price adjustment will be calculated in accordance with the formulae:- $PI = PO\left(\frac{M.MEI}{MSI} + \frac{L.LEI}{LSI} + \frac{B.BEI}{BSI} + \frac{D.DEI}{DS1}\right)$ 1. where P = Escalated value of PO PO = Value of work on which escalation is due M = Value of materials as factor of PO L = Value of labour as a factor of PO B to D = Value of other components as factors of PO MEI to DEI = Applicable SEIFSA end indices (Tables G1 – Electrical Engineering and C3 – All Hourly-Paid Employees) MSI to DSI = Applicable SEIFSA start indices; such that the escalation per item 2 below applies (Tables G1 – Electrical Engineering and C3 – All Hourly-Paid Employees). 2. Escalation = (1-x)(PI-PO) where the factor 1-x allows for a non-escalatable profit taken by the Contractor, expressed as a decimal fraction. The value of x is 10%. 3. Escalation adjustments shall cease on the contractual completion date, or taking over date, whichever is first. b) ... Escalation will be calculated on the nett tariff (VAT excluded). Escalation adjustments shall cease on the contractual completion date, or taking over date, whichever is first. c).... Payment for exchange rate variations will only be considered if the value of the imported component of the contract exceeds 10 % of the nett contract value and subject to the following conditions: i) The Tenderer must have listed the values of imported components in his tender offer; ii) The exchange rate on which the offer was based must have been stated in respect of currency, date and rate; iii) No escalation will be payable on the value of the imported components. **B. RATE OF EXCHANGE** All imported goods that will be subject to possible exchange rate variations must clearly be listed as part of the tender offer. The Tenderer must clearly state the currency exchange rate and applicable date on which the tender offer is based. **C. FIXED CHARGE AND VALUE RELATED ITEMS** If the contract value increases, the items for preliminary and general in the schedule of quantities will increase in relation to the increase of contract value. **D. TIME RELATED ITEMS** An approved extension of time will qualify the Contractor to receive payment for time related items as in the schedule of quantities in relation to the extension of time.

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Clause	Description
14.2	**ADVANCE PAYMENT** Advance payments shall not be allowed.
14.3	**METHOD OF APPLICATION** Claim with detail breakdown of costs together with original tax invoice to be submitted to the Engineer by the 25th of each month. Engineer to verify quantities.
14.3	**PERCENTAGE OF RETENTION** 10 % Retention.
14.3	**LIMIT OF RETENTION MONEY** Up to 5 % of the Accepted Contract Amount less provisional sums.
14.4	**SCHEDULE OF PAYMENTS** Add new paragraph: a) Milestone payments for plant and materials ordered but not yet supplied will be allowed subject to the following: 1. The payment terms of the manufacture/supplier detailing the payment milestone dates and the percentage payment per milestone date must be approved by the Employer. 2. The official order for the plant and materials together with a letter from the manufacturer confirming that the order was placed and that manufacturing has started must be supplied to the Employer. 3. A letter from the manufacturer/supplier confirming the manufacturing progress for the milestone payment together with photographic evidence must be submitted with each milestone payment claim. 4. The plant and materials must be ceded to the Employer and a Cession of Rights confirming that the plant and/or materials is the property of the Employer must be issued before claims will be processed. For plant and/or material for which milestone payments are applicable, the Contractor shall provide a guarantee in a similar form to the form described in subclause 14.2.1 (Advanced Payment Guarantee) to the Employer to the value of the specific milestone payment, which guarantee shall be valid until the plant and/or material are properly stored on site and protected against loss or deterioration.
14.5	**PLANT AND MATERIALS INTENDED FOR THE WORKS** Percentage payment for materials on site but not included in the permanent work is 90 % (ninety percent). *Add the following paragraph :* "If so agreed in writing by the Engineer and Contractor, the provisions of this sub-clause 14.5 shall apply equally to Plant and Materials intended for incorporation in the permanent works and stored at places other than the site."
14.6	**MINIMUM AMOUNT OF INTERIM PAYMENT CERTIFICATES** Not applicable.
14.7	**PAYMENT** The period for payment shall be 30 (thirty) calendar days from date of tax invoice.
14.9	**RELEASE OF RETENTION MONEY** Replace the words "Taking-over Certificate" with "Completion Certificate".

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Clause	Description
14.15	**CURRENCIES OF PAYMENT** The currency of account shall be the Local Currency and all payments made in accordance with the contract shall be in Local Currency.
17.6	**LIMITATION OF LIABILITY** In sub-clause 17.6, the sum referred to in the penultimate sentence (limit of liability) shall be the Accepted Contract Amount.
18.1 & 18.2	**INSURANCE** **Add:** The contractor will not be allowed on site until proof of all insurances has been submitted to the engineer. The insured amount shall be 100 % of the final contract price, including replacement values of the contractor's equipment.
18.1	**EVIDENCE OF INSURANCE AND COPIES OF INSURANCE POLICIES** To be provided within 14 days from the commencement date.
18.3	**MINIMUM AMOUNT OF THIRD PARTY INSURANCE** The minimum amount of third part insurance shall be R2 000 000-00 (Two million rand). Third party insurance shall remain in full force until final completion of the contract.
20.1	**DISPUTE RESOLUTION SHALL BE BY DISPUTE ADJUDICATION BOARD**
	The DAB, shall be one sole member. If the Parties cannot agree on the member of the DAB three persons shall be appointed as provided for in 20.2. Dispute determinations shall be by arbitration. Where the parties fail to agree on the appointment of an Arbitrator, the SA Association of Arbitrators will nominate the Arbitrator.
20.2	**Is amended by replacing the first sentence:** Disputes shall be adjudicated by a DAB in accordance with Sub-Clause 20.4.
20.3	**FAILURE TO AGREE DISPUTE ADJUDICATION BOARD** The entity referred to in this paragraph will be the SA Association of Arbitrators.
20.4	**Is amended by deleting:** The word "may" in line 4 and replace with "shall first" and replace "84" in the forth and fifth paragraphs with "42".
20.4	**Is amended by adding:** The wording "or court proceedings as provided for in the Contract Data in the sixth paragraph after "arbitration of a dispute".
20.5	**Is amended by adding** : Should the parties fail to resolve any dispute by way of mutual consultation, either party shall be entitled to refer the matter for mediation. Such referral shall be done by either party giving written notice to the other of its intention to commence with mediation. No mediation may be commenced unless such notice is given to the other party. Irrespective whether the mediation resolves the dispute, the parties shall bear their own costs concerning the mediation and share the costs of the mediator and related costs equally. Where the parties reach settlement of the dispute or any part thereof, the mediator shall record such agreement and on signing thereof by the parties the agreement shall be final and binding. Save for reference to any portion of any settlement or decision which has been agreed

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Clause	Description
	to be final and binding on the parties, no reference shall be made by or on behalf of either party in any subsequent court proceedings, to any outcome of an amicable settlement by mutual consultation, or the fact that any particular evidence was given, or to any submission, statement or admission made in the course of amicable settlement by mutual consultation or mediation. If the parties cannot reach an agreement, the Mediator must refer the matter to Arbitration.
20.6	**ARBITRATION** **Replace clause 20.6 with the following:** A dispute shall be finally settled by a single Arbitrator that will be appointed by mutual agreement as per the provisions of the Arbitration Act of 1965 as amended, nominated from the Association of Arbitrators (Southern Africa). The Arbitrator must be a legal practitioner with more than 10 years legal experience. Must have a good knowledge of the Municipal Finance Management Act and other relevant Municipal Legislation and may in addition be qualified in respect of the main nature of the Contract (Engineer, Quantity Surveyor, Accountant, etc.). The Arbitrator shall hear arguments both in writing and oral representations and parties shall have the right to contend the position of the other party and shall have the right to defend its own position.

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C1.2 : CONTRACT DATA (PART 2)

PART 2 : DATA PROVIDED BY THE CONTRACTOR

Clause	Description
1.1.2.3 & 1.3	The Contractor is the ..... *[Enter the Legal name of the Contractor]*. The Contractor's address for receipt of communications and notices is : Telephone: ..... Facsimile: ..... E-mail : ..... Address (Postal) : ..... Address (Physical) : ....
1.1.3.3	The Works shall be completed in …… working weeks.

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C1.3 : PERFORMANCE SECURITY (PRO FORMA)

TENDER NO. B/SM 85/26

Whereas Stellenbosch Municipality (hereinafter referred to as "the Employer") entered into, a Contract with

.....

(hereinafter called "the Contractor") on the ..... day of ..... 20 .....

for the construction of

.....

at .....

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

AND WHEREAS .....

has/have at the request of the Contractor, agreed to give such guarantee;

NOW THEREFORE WE, ...

do hereby guarantee and bind ourselves jointly and severally as Guarantor and Co-principal Debtors to the Employer under renunciation of the benefits of division and excussion for the due and faithful performance by the Contractor of all the terms and conditions of the said Contract, subject to the following conditions:

1. The Employer shall, without reference and/or notice to us, have complete liberty of action to act in any manner authorized and/or contemplated by the terms of the said Contract, and/or to agree to any modifications, variations, alterations, directions or extensions of the Completion Date of the Works under the said Contract, and that its rights under this guarantee shall in no way be prejudiced nor our liability hereunder be affected by reason of any steps which the Employer may take under such Contract, or of any modification, variation, alterations of the Completion Date which the Employer may make, give, concede or agree to under the said Contract.

2. This guarantee shall be limited to the payment of a sum of money

3. The Employer shall be entitled, without reference to us, to release any guarantee held by it, and to give time to or compound or make any other arrangement with the Contractor.

4. This guarantee shall remain in full force and effect until the issue of the Taking-over Certificate in terms of the Contract, unless we are advised in writing by the Employer before the issue of the said Certificate of his intention to institute claims, and the particulars thereof, in which event this guarantee shall remain in full force and effect until all such claims have been paid or liquidated.

5. Our total liability hereunder shall not exceed the Guaranteed Sum of
……

..... (R .....)

6. The Guarantor reserves the right to withdraw from this guarantee by depositing the Guaranteed Sum with the beneficiary, whereupon our liability hereunder shall cease.

7. We hereby choose our address for the serving of all notices for all purposes arising here from as

.....

IN WITNESS WHEREOF this guarantee has been executed by us at .....

on this ..... day of ..... 20 .....

As witnesses:

1. ..... Signature .....

2. ..... Duly authorized to sign on behalf of

.....

Address .....

.....

.....

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C1.4 : FORM OF RETENTION MONEY GUARANTEE (PRO FORMA)

ISSUED TO: STELLENBOSCH MUNICIPALITY (hereinafter referred to as "the Employer")

ON BEHALF OF ..... **(hereinafter referred to as "the Contractor")**

in connection with TENDER NUMBER B/SM 85/26 (hereinafter referred to as "the Contract")

WHEREAS the Employer and the Contractor have agreed that the Contractor may provide a guarantee in lieu of the whole or portion of the retention monies provided for under the Contract;

NOW THEREFORE we, the undersigned, undertake, in accordance with the following provisions, to pay to the Employer such amounts as the Employer may, from time to time, demand from us.

1. Each demand by the Employer shall be in writing signed by the Employer and delivered to us at .....

   or such other address in .....as we shall

   in writing notify to the Employer and shall be accompanied by a certificate complying with Clause 2, signed by the Engineer in office as such in terms of the Contract.

2. The Engineer's certificate referred to in Clause 1 shall certify:

   a) that he is the Engineer in office as such in terms of the Contract;

   b) that the Contractor is in breach of his obligations under the Contract, and

   c) that the amount demanded, which amount the certificate shall specify,

      i) does not exceed the amount of retention monies which, but for this guarantee, would have been retained by the Employer in terms of the Contract at the date of the certificate, less the aggregate of the amount of retention money actually retained by the Employer and the amounts previously paid by us to the Employer in terms hereof, and

      ii) does no exceed a genuine estimate of the cost to the Employer of having the breach referred to in paragraph (b) remedied less the aggregate of any amounts withheld by the Employer from payments due to the Contractor in terms of the Contract by reason of the breach referred to, and any amount of retention money actually held by the Employer save to the extent that the same had been deducted from any previous demand in terms hereof.

3. We shall within …….. days after our receipt of a demand complying with the provisions of Clause 1 and 2 make payment to the Employer of the amount demanded at ….. ..... or at such other address in .....as the Employer shall in writing notify to us.

4. Subject to compliance with the provisions hereof, our liability to make the payment herein referred to shall be unconditional and shall not be affected or diminished by any disputes, claims or counterclaims between the Employer and the Contractor

5. Our aggregate liability under this guarantee is limited to R..... .

6. This guarantee shall expire on the date on which the last of the retention monies, which but for this guarantee would have been retained by the Employer, becomes payable to the Contractor.

7. This guarantee is not transferable and must be produced for endorsement if any part payment is made and must be returned to us against final payment of our aggregate liability or on the date of the expiry of the guarantee in terms of Clause 6, whichever is the earlier.

Signed in the presence of the subscribing witnesses:

AT ..... for and on behalf of ..... **(Guarantor)**

on this ..... day of .....20……

SIGNATURE: ..... **NAME:** .....
(Print)

CAPACITY: .....

SIGNATURE: ..... **NAME:** .....
(Print)

CAPACITY: .....

ADDRESS: .....

.....

.....

.....

AS WITNESSES:

1. ..... **NAME:** .....
(Print)

2. ..... **NAME:** .....
(Print)

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CONSTRUCTION OF NEW KAYAMANDI 11KV SUBSTATION BUILDING AND SUPPLY, INSTALLATION AND COMMISSIONING OF NEW 11KV INDOOR SWITCHGEAR

TENDER NUMBER B/SM 85/26

PART C2 : PRICING DATA

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C2.1 PRICING ASSUMPTIONS

C2.1.1 **PREAMBLE TO THE SCHEDULE OF PRICES**

C2.1.1.1 All prices shall be quoted in the currency of the Republic of South Africa and will be held to be firm unless otherwise stated, in which case sufficient information must be afforded at the time of tendering to indicate the basis on which payment shall be adjusted.

C2.1.1.2 The Tenderer shall price the full scope of the work and shall enter a price against each item in the schedule of prices where quantities and/or "Rate Only" items have been included. **Should an item specifically be excluded from the offer submitted, such tender will be regarded as non-responsive and not be considered.**

C2.1.1.3 **Any exclusions of any part of the specified scope of work, or exclusion of the allowances for contingencies and escalation on the Tender Summary page shall cause the tender to be regarded as non-responsive.**

C2.1.1.4 The prices quoted against each item of these schedules shall cover the full inclusive cost of everything required for the execution of the work under the item plus an apportionment of any cost involved in meeting the obligations and liabilities imposed by the conditions of contract and in complying with the specifications. Any exclusions of any part of the specified scope of work shall cause the tender to be regarded as non-responsive.

C2.1.1.5 The prices quoted for the supply of plant and equipment shall include for all handling, loading, transporting and of-loading required for the delivery of the plant and equipment to the site, including in the case of of-site storage for double handling at the store.

C2.1.1.6 The prices quoted for erection and installation shall include for all handling, loading, transporting and of-loading, to take plant and equipment to place on site where required, erection, installation, painting, commissioning, operating, testing, adjusting, handing over in proper working order and upholding for a period of 12 months, all as specified.

C2.1.1.7 Any additional charges in connection with off-site storage which there may be over and above the prices quoted in the various sections of these schedules of prices shall be set out in detail by the Tenderer and included in the final offer submitted.

C2.1.1.8 The Summary Page of the priced BoQ shall be completed and the total tender amount including VAT shall be carried forward to the Form of Offer and Acceptance.

C2.1.1.9 The tendered rates and amounts must exclude Value Added Tax (VAT) but must include all levies, other taxes and duties on items to which they apply. Separate provision has been made in the Tender Summary for the purpose of VAT. The final offer submitted must include VAT.

C2.1.1.10 Amounts allowed for contingencies will be spent in part or as a whole at the sole discretion of the Engineer with approval of the Employer.

C2.1.1.11 Schedule of Prices **MUST** be completed by **Hand in non-erasable black ink**. Corrections must be done by deleting, rewriting, and initialling next to the amendment. A soft copy of the pricing schedule shall be made available on request and can be

used by the Tenderer to check arithmetic correctness. The hard copy of the Schedule of Prices in the original tender document shall however take precedence and will form part of the formal contract documentation.

C2.1.1.12 **The final quantities for each item must be verified by the Contractor before ordering. Any discrepancy between the bill of quantities and the verified quantities must be reported to the Engineer before ordering of such material.**

C2.1.1.13 Stellenbosch Municipality reserves the right to scale down on the Scope of Work in order for the tender value to fit into the available budget. The evaluation of the tender offers will however, as per the guidelines of the CIDB, be based on the full tender amounts as received.

C2.1.1.14 For items that are not quantified, i.e. “Qty”-column is not populated, the contractor shall insert the quantities of the item that is foreseen to be utilised as well as the price.

C2.1.1.15 **Tenderers must note that wherever this document refers to any particular trademark, name, patent, design, type, specific origin or producer, such reference shall be deemed to be accompanied by the words ‘or approved equivalent”.**

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C 2.2 BILLS OF QUANTITIES

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CONSTRUCTION OF NEW KAYAMANDI 11KV SUBSTATION BUILDING AND SUPPLY, INSTALLATION AND COMMISSIONING OF NEW 11KV INDOOR SWITCHGEAR
SCHEDULE OF QUANTITIES A - EARTH AND ROADWORKS

All costs related for the complete works as per the Design in accordance with the Tender Specifications, drawings and Stellenbosch Municipality standards.

					UNIT PRICE		
ITEM	**PAYMENT**	**DESCRIPTION**	**UNIT**	**QTY**	**MATERIAL**	**LABOUR**	**TOTAL**
A1	**SABC 1200C**	**SITE CLEARANCE**					
A1.1	PSC 8.2.1	Clear and grub site	m^2	185			
A.1.2		Cut overgrown tree branches and dispose at accredited dumpsite including al haulage, loading and offloading costs.	Sum	1			
A1.3		Break up and remove all exiting tar surfacing and concrete slabs in substation yard and dispose at accredited dumpsite including al haulage, loading and offloading costs.	Sum	1			
A2	**SABS 1200DM**	**EARTHWORKS (ROADS AND SUBGRADE)** As specified in SABS 1200 DM and in the Tender Specifications.					
	PSDM 8.3.3	**Treatment of roadbed**					
A2.1		(a) Roadbed preparation and compaction of material to – (2) Minimum of 93 % of modified AASHTO maximum density.	m^3	155			
A3		**SUBBASE** As specified in SABS 1200 ME and in the Tende specifications					
A3.1	PSME 8.3.3	Construct the subbase course/shoulder/gravel wearing course – C4 base with material from commercial sources and compact to 98 % MOD AASHTO density with 150 mm thickness	m^3	25			
A3.2	8.3.5	Process base material by (d) Stabilization and use in the subbase.	m^3	25			
A3.3	8.3.8	Stabilizing agent - (b) CEM 1 Portland Cement 32.5 N	t	1.5			
A4	**SABS 1200 MJ**	**SEGMENTED PAVING** As specified in SABS 1200 MJ and in the Tender specifications and in accordance with SANS 1058.					
A4.1	PSMJ 8.2.1	Provision of edge restraints – Flat restraints, radius 0 m – 10 m	m	7			
A4.2	PSMJ 8.2.1	Provision of edge restraints – Flat restraints, straight	m	58			

A4.3	PSMJ 8.2.2	Construction of paving complete with 25 mm bedding sand – (a) Concrete/brick pavers and cobbles in roadway - (i) 80 mm thick Class 40/2.6 Type S-A concrete interlocking pavers	m^2	155			
A4.4	PSMJ 8.2.3	Cutting units to fit edge restraints	m	65			
A5	**SABS 1200 MK**	**KERBING AND CHANNELLING** As specified in SABS 1200 MK and in the project specifications					
A5.1	PSMK 8.2.1	Precast concrete kerbing – Edging (E1), radius over 20 m and straight sections	m	75			
A5.2	PSMK 8.2.1	Precast concrete kerbing – Edging (E3), radius up to 4 m	m	7			
A5.3	PSMK 8.2.1	Precast concrete kerbing – Edging (E3), radius over 20 m and straight sections	m	58			
TOTAL FOR SCHEDULE A CARRIED FORWARD TO SUMMARY PAGE:							

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CONSTRUCTION OF NEW KAYAMANDI 11KV SUBSTATION BUILDING AND SUPPLY, INSTALLATION AND COMMISSIONING OF NEW 11KV INDOOR SWITCHGEAR
SCHEDULE OF QUANTITIES B: EARTHING AND BONDING

All costs related for the complete works as per the Design in accordance with the Tender Specifications, drawings and Stellenbosch Municipality standards.

					UNIT PRICE		
ITEM	**PAYMENT**	**DESCRIPTION**	**UNIT**	**QTY**	**MATERIAL**	**LABOUR**	**TOTAL**
B1		**SUBSTATION EARTH MAT DESIGN**					
B1.1		Detailed earth mat design by specialist appointed by the contractor, with submission of a design report to the Engineer for verification (refer to PS.2 of the tender specification)	Sum	1			
B1.2		Soil resistivity survey by specialist appointed by the contractor complete with report to inform the earth mat design	Sum	1			
B2		**MAIN EARTH GRID** Supply and install copper earth grid and equipment earthing including excavations in all material types, backfill, compaction and testing.					
B2.1		70 mm² Bare copper earth grid at depth not exceeding 1 m covering depth including all excavations, backfill, compaction and testing	m	142			
B2.2		Copper coated steel reinforced earthing spikes, 1.5 m long x 16 mm diameter complete with brass connectors and earth tails	No	10			
B2.3		70 mm^2 Insulated copper conductor for roof, fence and gate bonding to earth	m	25			
B3		**EXOTHERMICALLY WELDED EARTH CONNECTIONS** Exothermically (cad weld or similar approved) connections and joints					
B3.1		Main earth grid joints (all T-joints and cross joints)	No	70			
B3.2		Jointing of 70mm² insulated earth tails to main earth grid	No	10			
B3.2		Earth spike joints to main earth grid	No	10			
B4		**BONDING OF EARTH CONNECTIONS**					
B4.1		Bonding of all conductive parts of substation building including reinforcing steel in foundations and roof to main earth grid via 70 mm^2 copper conductor.	Sum	1			

B5		**EARTH BARS**					
B5.1		Supply and install earth bar 500 mm x 60 mm x 8 mm complete with 4 kV stand-off insulators in trench. Include 70 mm^2 earth conductor link between earth bars.	Sum	2			
B6		**EARTHING AND BONDING TESTS**					
B6.1		Test of main earth grid installation including earth resistance and continuity of all earth straps and earth tails and bonding between equipment steelwork and main earth grid on completion of project. Tests must be done by and independent accredited person and witnessed by the Engineer.	Sum	1			
TOTAL FOR SCHEDULE B CARRIED FORWARD TO SUMMARY PAGE:							

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CONSTRUCTION OF NEW KAYAMANDI 11KV SUBSTATION BUILDING AND SUPPLY, INSTALLATION AND COMMISSIONING OF NEW 11KV INDOOR SWITCHGEAR
SCHEDULE OF QUANTITIES C: SUBSTATION BUILDING

All costs related for the complete works as per the Design in accordance with the Tender Specifications, drawings and Stellenbosch Municipality standards.

					UNIT PRICE		
ITEM	**PAYMENT**	**DESCRIPTION**	**UNIT**	**QTY**	**MATERIAL**	**LABOUR**	**TOTAL**
C1		**DEMOLISH EXISTING SUBSTATION BUILDING** Demolish existing 12m x 4.8m substation building complete including removal of tiled roof and foundations and disposal of waste material at accredited dumpsite					
C1.1		Demolish existing substation building complete including foundation where required. Rate must include all required permits and fees for dumping at an accredited dumpsite and all haulage, loading and offloading costs.	Sum	1			
C2		**CONSTRUCT NEW SUBSTATION BUILDING** Construction of complete substation building as specified and shown on the Detailed Drawings including but not limited to foundations, walls, floors, cable trenches, cable trench entries, cable racking, doors, roof, electrical installations, external floodlights, air conditioning units (if specified), all finishings and paintwork and where applicable sewer and water connections to the Municipal network.					
C2.1		Setting out of building	Sum	1			
C2.2		Foundations, Reinforced concrete works, Structure, Brickwork, Loading Bays and Plasterwork complete	Sum	1			
C2.3		Concrete roof complete including reinforcing steel and waterproofing as specified	Sum	1			
C2.4		Paintwork of walls, ceilings, wood and steelwork complete including 1x filler/undercoat and 2x topcoats	Sum	1			
C2.5		Floor and floor finish on all floors (power floated)	Sum	1			
C2.6		Substation steel doors with 3-point locking system as specified - 2000 mm x 2800 mm opening height double leaf substation access door	Each	1			
C2.7		Blast area steel door as specified - 810 mm x 2100 mm opening height single leaf blast area access door	Each	1			
C2.8		Ironmongery	Sum	1			
C2.9		Electrical installation complete including all light fittings, socket outlets, conduiting, wiring and distribution board with essential section	Sum	1			
C2.10		External 19W LED vandal proof bulkhead as specified completing including day/night switch	Each	6			

C2.11		Certificate of Compliance (COC) for building electrical works	Sum	1			
C2.12		PVC floor tiles available from Rubber United, 6mm thick, smooth surface, colour grey	m²	55			
C2.13		GRP grating (38SD) type trench covers as per the drawings	m²	20			
C2.14		Fire extinguisher, 5kg CO2, complete with timber backboard, signage and painted floor markings	Each	1			
C2.15		Fire extinguisher, 9kg DCP, complete with timber backboard, signage and painted floor markings	Each	1			
C2.16		Hot dipped galvanised welded wire mesh cable tray (600mm wide x 50mm high) suspended from roof with galvanised threaded rod complete with bends, risers, droppers and fixtures as detailed	Sum	1			
C2.17		Earth tails and earthing conductor for earthing of cable racks and trays	Sum	1			
C3		**SUBSTATION UPS** Supply and install of a hybrid inverter and battery backup system for the substation essential loads as listed. (refer to clause PS.3.4 of the tender specifications)					
C3.1		5 kVA pure Sine wave Hybrid Inverter complete with Control DB (AC), circuit breakers, surge arresters and AC cabling.	Sum	1			
C3.2		5 kWh Lithium Technology based battery complete with DC disconnect, fuses and DC Battery cabling.	Sum	1			
C3.3		Certificate of Compliance (CoC) and all other required Municipal registrations and sign-off certificates for an inverter installation.	Sum	1			
C4		**SUBSTATION FURNATURE**					
C4.1		Lockable wall mounted emergency first aid kit	No	1			
C4.2		Stick-on notice board 1.2 m x 2.4 m	No	1			
C4.3		Writing table with two chairs	Sum	1			
C5		**SUBSTATION SIGNAGE** Supply and install all required statutory danger notices and safety signage including:					
C5.1		Five-In-One First Aid / Emergency Label (On Gates and Doors)	Sum	2			
C5.2		Required statutory signage for fire extinguishers and first aid box	Sum	2			
C5.3		Door signage (No Entry and Electrical Hazzard)	Sum	2			
C5.4		Fence/gate signage (No Entry and Electrical Hazzard)	Sum	2			

C5.5		Substation name boards on gate and substation door	Sum	2			
C6		**SUBSTATION LOCAL SUPPLY**					
C6.3		Supply and install 16mm² Cu x 2 core PVC PVC SWA PVC 600/1000V LV cable as per Supply Authority Specifications between the local miniature substation in the Kayamandi substation yard and the substation DB	m	20			
C6.4		Supply and install 10mm^2 bare copper earth conductor	m	20			
C6.5		Termination of 16mm² Cu x 2 core LV cables in the miniature substation and substation DB complete including all k-clamps, glands, shrouds and lugs etc.	Sum	2			
C6.6		Termination of 10mm^2 bare copper earth conductor in the miniature substation and substation DB complete including all glands, shrouds and lugs etc.	Sum	2			
C7		**YARD STONING**					
C7.1		Supply and lay 100 mm thick, minimum size 26 mm, solid and unweathered quarried grade granite, tillite, or Colerite stone chips to comply with the specifications of SANS 1200M 1996 Table 1 – single sized stone for roads. The stone must be supplied free of dust and other deleterious substances.	m^3	32			
C7.2		Apply weed control / soil poisoning herbicide (Alion or equivalent approved) before the yard stone is placed	Sum	1			
TOTAL FOR SCHEDULE C CARRIED FORWARD TO SUMMARY PAGE:							

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CONSTRUCTION OF NEW KAYAMANDI 11KV SUBSTATION BUILDING AND SUPPLY, INSTALLATION AND COMMISSIONING OF NEW 11KV INDOOR SWITCHGEAR
SCHEDULE OF QUANTITIES D: SUBSTATION SECURITY AND PERIMETER FENCE

All costs related for the complete works as per the Design in accordance with the Tender Specifications, drawings and Stellenbosch Municipality standards.

					UNIT PRICE		
ITEM	**PAYMENT**	**DESCRIPTION**	**UNIT**	**QTY**	**MATERIAL**	**LABOUR**	**TOTAL**
D1		**ALARM SYSTEM** Supply and install the following equipment for a complete alarm system.					
D1.1		Control panel with power supply (transformer and battery) and 3G link, alarm system keypad – surface mounted.	Each	1			
D1.2		Passive infrared detector	Each	2			
D1.3		Magnetic door contacts	Each	2			
D1.4		Outdoor strip beams including mounting brackets (Substation yard protection – 20 m, 6 x IR beams, 1170H)	Each	8			
D1.5		IP Rated strobe light for outdoor mounting.	Each	1			
D1.6		30 W alarm siren (1 x indoor and 1 x outdoor)	Each	2			
D1.7		All cabling, wireways, terminations, connections etc. for the complete installation and commissioning of the alarm system.	Sum	1			
D2		**ACCESS GATE**					
D2.1		Remove section of existing concrete palisade fence	m	5			
D2.2		Supply and install a 3 m high sliding gate complete with anti-climb over extension, galvanised steel gear rail and gate portals and pedestrian gate as specified (refer to clause PS 1.6.2 of the tender specification and the typical detail Drawing)	Sum	1			
D2.3		Supply and install gate motor including anti-theft cage and four (4) remotes (rate must include supply cable from control room)	Sum	1			
D2.4		Supply and install flat wrap razor wire to the top of the access gate complete including brackets	m	5			
					TOTAL FOR SCHEDULE D CARRIED FORWARD TO SUMMARY PAGE:		

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CONSTRUCTION OF NEW KAYAMANDI 11KV SUBSTATION BUILDING AND SUPPLY, INSTALLATION AND COMMISSIONING OF NEW 11KV INDOOR SWITCHGEAR
SCHEDULE OF QUANTITIES E: 12 kV INDOOR SWITCHGEAR AND SECONDARY CONTROL GEAR

All costs related for the complete works as per the Design in accordance with the Tender Specifications, drawings and Stellenbosch Municipality standards.

					UNIT PRICE		
ITEM	**PAYMENT**	**DESCRIPTION**	**UNIT**	**QTY**	**MATERIAL**	**LABOUR**	**TOTAL**
		PRIMARY PLANT **Supply and install the following primary plant equipment**					
E1		**NEW MV INDOOR SWITCHGEAR** Supply and install the following metal clad 11kV GIS switchgear panels complete with onboard protection as specified:					
E1.1		Bus-Section panel complete including bus riser, 1250 A vacuum circuit breaker, earth switches, CTs and IEDs as specified.	Each	1			
E1.2		Incomer panel complete with 1250 A vacuum circuit breaker, earth switches, circuit connected VT, CTs and IEDs as specified.	Each	3			
E1.3		Feeder panel complete with 630 A vacuum circuit breaker earth switches, CTs and IEDs as specified.	Each	7			
E1.4		Supply and install arc vending ducting to deflect arc fumes to outside of substation building	Sum	1			
E1.5		Supply and install 2400 mm long x 152 mm wide x 76 mm high galvanised U-channel supports over trench and fix to trench walls with 12 x 150 steel expansion bolts.	Sum	1			
E1.6		Supply and install galvanised floor frame on top of U-channel supports for fixing switchgear including all anchor bolts.	Sum	1			
E1.7		Supply remote tripping unit as specified with minimum 15 m extension lead.	Each	2			
E1.8		Supply and install all equipment labels as specified.	Sum	1			
E1.9		Connect all equipment to the earth bar/s in cable trenches.	Sum	1			
E1.10		Supply manuals, drawings and literature as specified	Sum	1			
E2		**EQUIPMENT LOCKS** Supply and fit all required locks in accordance with the Supply Authority specifications.					
E2.1		All temporary locks for protection against vandalism and theft until equipment is handed over to the Supply Authority.	Sum	1			

E2.2		All permanent locks required for safe operation of equipment including locks for equipment boxes, operating mechanisms and earthing mechanisms.	Sum	1			
		SECONDARY PLANT **Supply and install the following secondary control plant**					
E3		**BATTERY CHARGER**					
E3.1		110 V_{DC} 30 A Battery charger in a floor mounted cabinet complete with remote SCADA monitoring. The battery charger shall be equipped with supervisory battery cell condition monitoring and alarm conditioning annunciation functionality as specified.	Sum	1			
E3.2		110 V_{DC} Battery bank rated at minimum 95 Ah complete with NiCad individual cell batteries as specified and mounted in the battery charger cabinet or a secondary cabinet as required.	Sum	1			
E4		**FIBER PATCH PANELS**					
E4.1		Supply and install 12U wall mounted patch panel cabinet with lockable glass door at Kayamandi substation	No	1			
E4.2		Supply and install 24-way fibre patch panels at Kayamandi substation - SS Cloetesville 1 (incomer 1), SS Cloetesville 2 (incomer 2) and SS Watergang (incomer 3)	No	3			
E4.3		Supply and install 24-way fibre patch panels at Watergang substation - SS Kayamandi 1 and SS Kayamandi 2	No	2			
E5		**CONTROL PLANT LABELLING**					
E5.1		Supply and install all Control Plant Labels.	Sum	1			
TOTAL FOR SCHEDULE E CARRIED FORWARD TO SUMMARY PAGE:							

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CONSTRUCTION OF NEW KAYAMANDI 11KV SUBSTATION BUILDING AND SUPPLY, INSTALLATION AND COMMISSIONING OF NEW 11KV INDOOR SWITCHGEAR
SCHEDULE OF QUANTITIES F: TELEMETRY AND SCADA

All costs related for the complete works as per the Design in accordance with the Tender Specifications, drawings and Stellenbosch Municipality standards.

					UNIT PRICE		
ITEM	**PAYMENT**	**DESCRIPTION**	**UNIT**	**QTY**	**MATERIAL**	**LABOUR**	**TOTAL**
F1		**TELEMETRY EQUIPMENT** Design, supply and install new substation telemetry system complete as specified (refer to clause PS6 in the Tender specification)					
F1.1		Detail functional design of telemetry system and submit design document for approval by the Engineer	Sum	1			
F1.2		19" Swing frame panel to house telemetry equipment	No	1			
F1.2		Hitachi RTU 530 RTU complete with all accessories (PS, AI and DI cards) network switches and sufficient I/O for accepting all hard-wired supervisory signals	Sum	1			
F1.3		Local HMI complete including automation controller, media converters, KVM switch, 21" screen, keyboard, mouse and required HMI licence	Sum	1			
F1.4		Substation LAN complete including all required network/ethernet switches, media converters, multimode fibre patch leads and CAT6 ethernet cables using IEC 61850 communication protocol and wiring of all hard-wired supervisory signals including supply of hardwire cable	Sum	1			
F1.6		Configure all 11 kV IED's, substation RTU and local HMI for fully functional SCADA system	Sum	1			
F2		**TELECONTROL**					
F2.1		Supply and install a microwave radio link (Mikrotik DynaDish 5 with integrated antenna or equivalent) complete with power supply (PoE), surge protection and mounting bracket including setup and commissioning to establish point to point RF link with SCADA master station located at ICT server room in Stellenbosch	Prov. Sum	1			R 35 000.00
F3		**SCADA SETUP, TESTING AND COMMISSIONING**					
F3.1		Design and Engineering to setup and configure existing SCADA master station for Kayamandi Substation including all software, development costs and licences required for remote monitoring and remote switching.	Prov. Sum	1			R 60 000.00
F3.2		Testing and commissioning of complete SCADA system from plant at Kayamandi Substation to SCADA master station including simulation of all signals and statuses and remote switching functionality.	Prov. Sum	1			R 150 000.00
						TOTAL FOR SCHEDULE F CARRIED FORWARD TO SUMMARY PAGE:	

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CONSTRUCTION OF NEW KAYAMANDI 11KV SUBSTATION BUILDING AND SUPPLY, INSTALLATION AND COMMISSIONING OF NEW 11KV INDOOR SWITCHGEAR
SCHEDULE OF QUANTITIES G: TESTING AND COMMISSIONING

All costs related for the complete works as per the Design in accordance with the Tender Specifications, drawings and Stellenbosch Municipality standards.

					UNIT PRICE		
ITEM	**PAYMENT**	**DESCRIPTION**	**UNIT**	**QTY**	**MATERIAL**	**LABOUR**	**TOTAL**
G1		**FACTORY ACCEPTANCE TESTS** Witnessing of factory tests in factory of origin. Allow for two persons from the Municipality and the Engineer to attend, if applicable (economy class flights acceptable)					
G1.1		11 kV GIS Switchgear at factory of origin	Sum	1			
G.1.2		Miniature substation	Sum	1			
G2		**TESTING AND COMMISSIONING** Commissioning and Testing of the complete system, including equipment cold commissioning, Protection, Metering, SCADA and AC/DC Systems by a qualified power system protection engineer.					
G2.1		Site acceptance tests and cold commissioning of 11 kV switchboard by Original Equipment Manufacturer complete including cold commissioning test report.	Sum	1			
G2.2		Commissioning of newly supplied 11 kV Protection and Control Schemes and secondary plant equipment including full protection study, configuring of IED's (protection settings and complete pre-commissioning of protection schemes and control plant.)	Sum	1			
G2.3		Final hot commissioning of 11 kV panels, control plant and supervisory systems	Sum	1			
G2.4		Supply complete test and commissioning report including all O&M manuals, drawings and literature as specified.	Sum	1			
TOTAL FOR SCHEDULE G CARRIED FORWARD TO SUMMARY PAGE:							

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SCHEDULE OF QUANTITIES H: MEDIUM VOLTAGE NETWORK

All costs related for the complete works as per the Design in accordance with the Tender Specifications, drawings and Stellenbosch Municipality standards.

					UNIT PRICE		
ITEM	**PAYMENT**	**DESCRIPTION**	**UNIT**	**QTY**	**MATERIAL**	**LABOUR**	**TOTAL**
H1		**TEMPORARY WORKS** **Temporary works to facilitate removal of existing 11kV switchgear and demolishing of the existing substation building and construction of the new building with new 11kV switchgear.**					
H1.1		Supply and install temporary 5-way RMUs as specified for duration of temporary network arrangement	each	2			
H1.2		Supply and install RMU plinths	each	2			
H1.3		Supply and install RMU earth mat	Sum	2			
H1.4		Pre-commissioning of RMU including relay settings, relay trip tests, CT magnetisation and ratio tests and test report	each	2			
H1.5		Removal of temporary RMUs and plinths	each	2			
H2		**REMOVAL OF EXISTING EQUIPMENT** **Removal of the existing Reyrolle type LMS 11kV switchgear, 500kV local transformer, LV Board and control plant complete including transport to Beltana Depot and loading and offloading costs.**					
H2.1		Disconnect and remove existing 11kV switchboard consisting of eight (8) Reyrolle type LMS panels complete including transport to Beltana Depot	Sum	1			
H2.2		Disconnect and remove existing 3-way SF6 RMU complete including transport to Beltana Depot	Sum	1			
H2.3		Disconnect all MV and LV cables and remove existing 500kVA local transformer complete including transport to Beltana Depot	Sum	1			
H2.4		Disconnect all LV feeder cables and remove existing LV Board complete including transport to Beltana Depot	Sum	1			
H2.5		Disconnect and remove existing control plant (battery chargers, RTU and network switches and marshalling kiosk) complete including transport to Beltana Depot	Sum	1			
H2.6		Disconnect and remove existing internal building electrical installation (lights, plugs, conduits, wiring and alarm system) and return to Beltana Depot	Sum	1			

H3		**NEW MINIATURE SUBSTATION** **Supply and install 11kV/415Volt, Dyn11, Type B, 3 phase miniature substations complete with MV switchgear (3-way SafePlus type CCV SF6 RMU or equivalent approved). Note: Miniature substation shall comply with the latest Stellenbosch Municipality specifications.**					
H3.1		New 8000kVA miniature substation with an 1200Amp main MCCB and 3x 200Amp and 2x 300Amp LV feeder MCCB's as detailed complete with all accessories, wiring and Landis + Gyr type E650 ZMD405 CT connected class 0.5 bulk and E650 ZMD310 direct connected class 1 streetlight meter as specified	No	1			
H3.2		Supply and install pre-cast concrete plinth for 800kVA Type B miniature substation including site preparation	No	1			
H3.3		Supply and install miniature substation earth mat as specified and in accordance with Supply Authority specifications complete with all lugs and accessories, earth resistance tests and test reports	No	1			
H3.4		Supply and install additional earth spikes (1.8m length) and connect to minisub earth mat complete including all clamps, lugs, earth tails and connections	No	6			
H3.5		Pre-commissioning of complete miniature substation and RMU including RMU relay settings, relay trip tests, CT magnetisation and ratio tests and test report for each miniature substation	No	1			
H3.6		Supply and install all engraved identification labels on miniature substations, RMU's, MCCB's and LV feeder cables as well as all required statutory safety signage (rate per miniature substation)	No	1			
H3.7		Supply and fit temporary padlocks on miniature substations for protection against vandalism and theft until MV equipment is handed over to Supply Authority (rate per miniature substation)	No	1			
H4		**MV CABLE INSTALLATION** **Supply and install 3 core, 11/11kV PILCDSTA belted cable to SANS 97, Table 18**					
H4.1		35 mm^2 Cu	m	1			Rate Only
H4.2		70 mm^2 Cu	m	20			
H4.3		185 mm^2 Cu	m	1			Rate Only
H5		**MV CABLE JOINTING** **Cast iron jointing kits for jointing of 3-core MV cables complete with all accessories (including weak back ferrules where required) and compound as specified**					
H5.1		Cable range 25 mm^2 to 70 mm^2	Each	1			Rate Only
H5.2		Cable range 95 mm^2 to 120 mm^2	Each	1			Rate Only
H5.3		Cable range 150 mm^2 and larger	Each	1			Rate Only

H6		**MV CABLE TERMINATION** **Termination of 3-core Medium Voltage cable in cable boxes of equipment complete including termination kit with all accessories (indoor termination)**					
H6.1		Cable range 25 mm^2 to 70 mm^2	Set	12			
H6.2		Cable range 95 mm^2 to 120 mm^2	Set	1			Rate Only
H6.3		Cable range 150 mm^2 to 185 mm^2	Set	6			
H6.4		Cable range 240 mm^2 and larger.	Set	2			
H7		**MV CABLE DISCONNECTION** **Disconnect MV cable from existing switchgear**					
H7.1		Cable sizes 25 mm^2 to 70 mm^2	Set	11			
H7.2		Cable sizes 95 mm^2 to 120 mm^2	Set	1			Rate Only
H7.3		Cable sizes 150 mm^2 to 185 mm^2	Set	6			
H7.4		Cable sizes 240 mm^2 and larger	Set	2			
H8		**BARE COPPER EARTH CONDUCTOR** **Supply and install hard drawn bare copper earth wire along MV cable routes complete with termination in miniature substation**					
H8.1		70 mm^2	m	40			
H9		**TERMINATION OF BARE COPPER EARTH CONDUCTOR**					
H9.1		Terminate bare copper earth conductor complete including accessories and consumables, lugs etc. – 70 mm^2	Each	6			
H10		**GENERAL ITEMS**					
H10.1		Supply and install PVC warning tape (300 mm wide) along MV cable route	m	20			
H10.2		Supply and install cable route and joint markers of the pyramid type with metal tag bolted on top as specified.	Each	1			Rate Only
H10.3		Supply and install cable slabs as specified	Each	1			Rate Only
TOTAL FOR SCHEDULE H CARRIED FORWARD TO SUMMARY PAGE:							

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CONSTRUCTION OF NEW KAYAMANDI 11KV SUBSTATION BUILDING AND SUPPLY, INSTALLATION AND COMMISSIONING OF NEW 11KV INDOOR SWITCHGEAR
SCHEDULE OF QUANTITIES I: LOW VOLTAGE NETWORK

All costs related for the complete works as per the Design in accordance with the Tender Specifications, drawings and Stellenbosch Municipality standards.

					UNIT PRICE		
ITEM	**PAYMENT**	**DESCRIPTION**	**UNIT**	**QTY**	**MATERIAL**	**LABOUR**	**TOTAL**
H1		**LV FEEDER CABLE** **Supply and install 2 and 4 core 600/1000V PVC PVC SWA PVC LV cables in prepared trenches or sleeves**					
H1.1		95mm² x 4 core Copper	m	150			
H1.2		150mm² x 4 core Copper	m	30			
H2		**LV CABLE TERMINATIONS** **Supply and install 2 and 4 core 600/1000V PVC PVC SWA PVC LV cables in prepared trenches or sleeves**					
H2.1		95mm² x 4 core Copper	No	5			
H2.2		150mm² x 4 core Copper	No	1			
H3		**LV CABLE JOINTING** **Jointing of LV cables including complete jointing kit with all accessories and compound**					
H3.1		95mm² x 4 core Copper	No	5			
H3.2		150mm² x 4 core Copper	No	1			
H4		**EARTH CONDUCTOR** **Supply and install bare stranded copper conductor in prepared trenches along LV feeder cable routes**					
H4.1		70 mm²	m	150			
H4.2		95 mm²	m	30			

H5		**EARTH CONDUCTOR TERMINATION** **Terminate bare copper earth conductor complete including all lugs and accessories**					
H5.1		70 mm^2	m	5			
H5.2		95 mm^2	m	1			
H6		**EARTH CONDUCTOR JOINTING** **Joint bare copper earth conductor complete including all ferrules and accessories**					
H6.1		70 mm^2	m	5			
H6.2		95 mm^2	m	1			
TOTAL FOR SCHEDULE I CARRIED FORWARD TO SUMMARY PAGE:							

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CONSTRUCTION OF NEW KAYAMANDI 11KV SUBSTATION BUILDING AND SUPPLY, INSTALLATION AND COMMISSIONING OF NEW 11KV INDOOR SWITCHGEAR
SCHEDULE OF QUANTITIES J: EXCAVATIONS

All costs related for the complete works as per the Design in accordance with the Tender Specifications, drawings and Stellenbosch Municipality standards.

					UNIT PRICE		
ITEM	**PAYMENT**	**DESCRIPTION**	**UNIT**	**QTY**	**MATERIAL**	**LABOUR**	**TOTAL**
		TRENCHING AND EXCAVATIONS Rates for trenching and excavations shall include all shoring necessary to support and all pumping necessary to remove water and backfill and compaction with mechanical compactor for 100 % MOD AASHTO density to original finish.					
I1		**LV TRENCHES**					
I1.1		Normal excavations – 800 mm deep x 450 mm wide	m^3	11			
I1.2		Difficult excavations – 800 mm deep x 450 mm wide	m^3	1			Rate Only
I1.3		Hard Rock excavations – 800 mm deep x 450 mm wide	m^3	1			Rate Only
I1.4		Placement of bedding – imported sand 100 mm deep and 450 mm wide, including handling costs.	m^3	2			
I1.5		Backfilling of blinding layer – imported sand 300 mm deep and 450 mm wide, including handling costs.	m^3	4			
I1.6		Backfilling and reinstatement of trench surface – rough material 400 mm deep x 450 mm wide.	m^3	5			
I1.7		Removal of waste material, including handling costs.	m^3	6			
I2		**MV TRENCHES**					
I2.1		Normal excavations – 1200 mm deep x 650 mm wide	m^3	15			
I2.2		Difficult excavations – 1200 mm deep x 650 mm wide	m^3	1			Rate Only
I2.3		Hard Rock excavations – 1200 mm deep x 650 mm wide	m^3	1			Rate Only
I2.4		Placement of bedding – imported sand 200 mm deep and 650 mm wide, including handling costs.	m^3	3			
I2.5		Backfilling of blinding layer – imported sand 300 mm deep and 650 mm wide, including handling costs.	m^3	4			

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	MATERIAL	LABOUR	TOTAL
I1.13		Backfilling and reinstatement of trench surface – rough material 600 mm deep x 650 mm wide.	m^3	8			
I1.14		Removal of waste material, including handling costs.	m^3	12			
I3		**GENERAL ITEMS**					
I3.1		Trenching of pilot holes by hand to determine the exact position of existing underground services.	m	10			
I3.2		Extra over for trenching through concrete, paved and tarred road surfaces	m^2	1			Rate Only
I3.3		Compactions Tests and Certification of trench reinstatement and the provision of compaction certificates for proof of compactions to specification.	Sum	1			
I4		**REPAIRS AND REINSTATEMENT OF CONCRETE, PAVED OR TAR SURFACES (ONLY STANDARD TRENCH WIDTHS SHALL BE MEASURED)**					
I4.1		Concrete surfaces	m^2	1			Rate Only
I4.2		T**ar** surfaces to SABS standards	m^2	1			Rate Only
I4.3		Concrete or brick paved surfaces	m^2	1			Rate Only
I5		**UPVC SLEEVES** **Supply and install class 6 UPVC sleeve complete with steel draw wire**					
I5.1		110 mm Ø	m	1			Rate Only
I5.2		160 mm Ø	m	1			Rate Only
I6		**DIRECTIONAL DRILLING/THRUSTBORING** **Directional Drilling/Thrustboring of driveways and or road crossings complete including site establishment, launching and receiving pits, and HDPE sleeves**					
I6.1		110 mm Ø	m	1			Rate Only
I6.2		160 mm Ø	m	1			Rate Only
TOTAL FOR SCHEDULE J CARRIED FORWARD TO SUMMARY PAGE:							

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CONSTRUCTION OF NEW KAYAMANDI 11KV SUBSTATION BUILDING AND SUPPLY, INSTALLATION AND COMMISSIONING OF NEW 11KV INDOOR SWITCHGEAR
SCHEDULE OF QUANTITIES K: PRELIMINARY AND GENERAL AMOUNTS

All costs related for the complete works as per the Design in accordance with the Tender Specifications, drawings and Stellenbosch Municipality standards.

					UNIT PRICE		
ITEM	**PAYMENT**	**DESCRIPTION**	**UNIT**	**QTY**	**MATERIAL**	**LABOUR**	**TOTAL**
J1		**FIXED CHARGES AND VALUE RELATED ITEMS**					
J1.1		Erection of facilities on site including ablution facilities and accommodation for employees, if required.	Sum	1			
J1.2		Contractual requirements	Sum	1			
J1.3		Provision of Sureties and Guarantees	Sum	1			
J1.4		Site Administration including co-ordination with other contractors on site	Sum	1			
J1.5		Setting out of the works and location of and protections of existing services	Sum	1			
J1.6		Application for wayleaves and permits	Sum	1			
J1.7		Liaison with the Supply Authority to connect into the existing network	Sum	1			
J1.8		Inspection and testing and commissioning of complete works	Sum	1			
J1.9		Removal of facilities from site	Sum	1			
J2		**TIME RELATED ITEMS**					
J2.1		Contractual requirements	Sum	1			
J2.2		Usage and maintenance of facilities on site	Sum	1			
J2.3		Supervision	Sum	1			
J2.4		Company and Head Office overhead costs	Sum	1			
J2.5		Security on site for the duration of the contract in terms of clause 4.22 of the conditions of contract.	Sum	1			
J2.6		Compliance with the Environmental Management Plan (EMP) and requirements.	Sum	1			N/A

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	MATERIAL	LABOUR	TOTAL
J3		**HEALTH AND SAFETY COMPLIANCE** **(This item must be priced.)**					
J3.1		Compile health and safety plan including risk analysis, safe working procedures and work methods	Sum	1			
J3.2		Compliance with the Occupational Health and Safety Act (Act No 85 of 1993) and Construction Regulations and Specification including maintenance of the health and safety file on site for the duration of the contract.	Sum	1			
J4		**PROVISIONAL SUMS**					
J4.1		Erection and removal of notice board	Prov. Sum	1			R 15 000.00
J4.2		Allowance for costs to employ a CLO during the contract.	Prov. Sum	1			R 60 000.00
TOTAL FOR SCHEDULE K CARRIED FORWARD TO SUMMARY PAGE:							

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CONSTRUCTION OF NEW KAYAMANDI 11KV SUBSTATION BUILDING AND SUPPLY, INSTALLATION AND COMMISSIONING OF NEW 11KV INDOOR SWITCHGEAR – SUMMARY OF SCHEDULE OF QUANTITIES		
All costs related for the complete works as per the Design in accordance with the Tender Specifications, drawings and Stellenbosch Municipality standards.		
ITEM	**Description**	**Total**
A	SCHEDULE OF QUANTITIES **A** EARTHWORKS AND ROADWORKS	
B	SCHEDULE OF QUANTITIES **B** EARTHING AND BONDING	
C	SCHEDULE OF QUANTITIES **C** SUBSTATION BUILDING	
D	SCHEDULE OF QUANTITIES **D** SUBSTATION SECURITY AND PERIMETER FENCE	
E	SCHEDULE OF QUANTITIES **E** 12 kV INDOOR SWITCHGEAR AND SECONDARY CONTROL GEAR	
F	SCHEDULE OF QUANTITIES **F** TELEMETRY AND SCADA	
G	SCHEDULE OF QUANTITIES **G** TESTING AND COMMISSIONING	
H	SCHEDULE OF QUANTITIES **H** MEDIUM VOLTAGE NETWORK	
I	SCHEDULE OF QUANTITIES **I** MEDIUM VOLTAGE NETWORK	
J	SCHEDULE OF QUANTITIES **J** EXCAVATIONS	
K	SCHEDULE OF QUANTITIES **K** PRELIMINARY AND GENERAL	
	SUBTOTAL 1	
	CONTINGENCY AMOUNT: 10 % OF SUBTOTAL 1	
	SUBTOTAL 2	
	ALLOWANCE FOR ESCALATION IN TERMS OF CLAUSE 13.8 OF CONTRACT DATA 5 % ON SUBTOTAL 2	
	SUBTOTAL 3	
	VALUE ADDED TAX (15 %) ON SUBTOTAL 3	
Z	**TOTAL CARRIED FORWARD TO FORM OF OFFER AND ACCEPTANCE**	

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C2.3 DATA SHEETS

C2.3 DATA SHEETS (TECHNICAL SCHEDULES)

No tender for any equipment will be accepted unless the schedules have been completed where applicable. Delivery dates must be considered to determine the completion period of the contract.

The purchaser's (*Client*) specific project requirements are listed in Schedule A. The *Contractor's* technical particulars and guarantees of the equipment offered must be listed in Schedule B.

Missing information must be provided for the specified equipment offered or for any alternative/equivalent which the Tenderer might like to offer. When an alternative/equivalent is offered the comparative prices must be given but, only the cost of the specified items must be transferred to the schedule of quantities.

Tenderers must note that wherever Schedule A refers to any particular trademark, name, patent, design, type, specific origin or producer, such reference shall be deemed to be accompanied by the words 'or approved equivalent".

Abbreviations specific to these schedules:

A	Ampere	max	maximum
AMSL	Above Mean Sea Level	min	minimum
CT	Current Transformer	N	Newton
CW	Common Winding (also called PW – Parallel Winding)	Nm	Newton meter
DGA	Dissolved Gas Analysis	N/O	normally open
FDS	Frequency Domain Spectroscopy	N/C	normally closed
g	Acceleration due to gravity	O/H	Overhead
HV	High Voltage	ONAF	Oil Natural Air Forced
Hz	Hertz	ONAN	Oil Natural Air Natural
In	Nominal discharge current	PCD	Pitch Circle Diameter
Iref	Reference current	PRD	Pressure Relief Device
kA	kilo Ampere	PRV	Pressure Relief Valve
Kg	kilogram	rms	Root mean square
kN	kilo Newton	s	seconds
kV	kilo Volt	SFRA	Sweep Frequency Response Analyses
kVA	kilo Volt Ampere	UV	Ultraviolet
kW	kilo Watt	Um	Highest voltage for equipment
MCFL	Minimum Cantilever Failing Load	Ur	Rated voltage
mm	millimetre	Uref	Reference voltage
mV	millivolt	Ures	Residual Voltage / Discharge Voltage
MV	Medium Voltage	U/G	Underground
MVA	Mega Volt Ampere	V	Voltage
MW	Mega Watt	WTI	Winding temperature indicator

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C2.3.1 SITE CONDITIONS

Item	Description	Units	Schedule A	Schedule B
1	**Environment**			
1.1	Altitude	m	Sea level to 1000m	-
1.2	Maximum ambient temperature	°C	45	-
1.3	Minimum ambient temperature	°C	-10	-
1.4	Maximum daily average	°C	35	-
1.5	Maximum daily variation	°C	35	-
1.6	Lightning ground flash intensity (flashes)	km^2 /yr	0 – 1	-
1.7	Annual solar irradiance	kWh/m^2	2500	-
1.8	Corrosion protection	yes/no	Yes (coastal)	-
1.9	Degree of Pollution (IEC 60815)	low/medium/ heavy/very heavy	Very heavy	-
1.10	Application area	-	Indoor	-
1.11	Ventilation method	-	Natural	-
2	**Electrical**			
`2.1	Nominal system voltage (Un)	kV r.m.s	11	-
2.2	Maximum system voltage (Um)	kV r.m.s	12	-
2.3	System voltage range	pu	0.9 to 1.1	-
2.4	Basic Insulation Level	kV peak	95	-
2.5	Frequency of supply	Hz	50	-
2.6	System earthing	-	Solidly earthed	-
2.7	System fault levels at Cloetesville Substation 11kV busbar: - Three Phase - Single Phase	 kA kA	 9.105 1.580	-
2.8	Network characteristics	-	U/G	-

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C2.3.2 11kV GAS INSULATED SWITCHGEAR

11KV GAS INSULATED SWITCHGEAR				
Item	**Description**	**Units**	**Schedule A**	**Schedule B**
1	**General**			
1.1	Manufacturer	-	-	
1.2	Country of Origin	-	-	
1.3	Type/Model designation	-	-	
1.4	Insulation medium	-	SF6	
1.5	Total switchboard mass	kg	-	
1.6	Incomer panels (number)	Qty	3	
1.7	Bus Section panels (number)	Qty	1	
1.8	Feeder panels (number)	Qty	7	
1.9	Expected primary circuit load ranges: - Incomer circuits - Feeder circuits	 MVA MVA	 7 MVA 4.5 MVA	
1.10	Delivery period	-	weeks	
2	**Service Conditions**			
2.1	Nominal system voltage (Un)	kV r.m.s	11	-
2.2	Maximum system voltage (Um)	kV r.m.s	12	-
2.3	Basic Insulation Level	kV peak	75	-
2.4	Frequency of supply	Hz	50	-
3	**Primary and Earth Circuit Ratings**			
3.1.1	Nominal Voltage	kV	11	
3.1.2	Rated frequency	Hz	50	
3.1.3	Rated voltage (insulation) - U_r	kV	12	
3.1.4	Rated lightning impulse withstand voltage - U_p	kV_{PEAK}	75	
3.1.5	Rated short-duration power frequency withstand voltage (50 Hz: 1 min) - U_d	kV_{RMS}	28	
3.1.6	Rated short-time withstand r.m.s. current (short-circuit breaking) - I_k	kA_{RMS}	25	
3.1.7	Rated duration of short circuit - t_k	s	3	
3.1.8	Rated peak withstand current - I_p	kA	63	
3.1.9	Internal arc classification	IAC	A-FLR	
3.1.10	Rated Internal Arc Withstand	kA	25	
3.1.11	Rated Interna Arc Withstand Duration	s	1	
4	**Assembly**			
4.1	Enclosure material	-	Metal Clad	
4.2	Loss of service continuity classification	-	LSC2	
4.3	Partition class to IEC 62271-200	-	PM	
4.4	Degree of protection for gas filled compartments	-	IP65	
4.5	Degree of protection for LV control compartment	-	IP3X	
4.6	Insulation operating pressure	-	130 kPa	
4.7	Insulation warning level	-	120 kPa	
4.8	Tightness leakage rate	-	< 0,1% p.a.	

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11KV GAS INSULATED SWITCHGEAR				
Item	**Description**	**Units**	**Schedule A**	**Schedule B**
4.9	Horizontal levels	-	Single	
4.10	Colour (NRS 003, Clause 4.14.4)	-	RAL 7035	
4.11	Overall board dimensions: Length Depth Height	 mm mm mm	 - - -	
4.12	Component withdraw dimensions: max. width per panel max. depth per panel max. height per panel	 mm mm mm	 - - -	
4.13	Integral shutters to NRS 003-1:1994 (Clause 4.2.8)	-	N/A	
4.14	Integral cable earthing switch: Isolator switch disconnector Circuit breaker	 - -	 Required Required	
4.15	Accessibility of compartments: Switch / disconnector / busbar enclosure Cable compartment Cable test facility compartment	 - - -	 Not accessible Interlocked Interlocked	
4.16	Padlocking facilities: All operating shafts	-	Required	
4.17	Pad-locking facility - shank diameter	mm	6	
4.18	Withdrawable, pad-lockable parts	-	N/A	
4.19	Insulation medium in switch enclosure	-	SF6	
4.20	Switch disconnector / earth switch interrupting medium	-	SF6	
4.21	Circuit breaker interrupting medium	-	Vacuum	
4.22	Circuit breaker operation: - Umbilical cord facility “Cannon socket” with 10 m lead	-	Required	
4.23	Dimensions of cable boxes: Internal arc vented air insulated (interlock front covers) Distance between cable support and bushing center	 - -	 Yes 700mm	
4.24	Separate compartments needed for: Main switch Primary busbar Voltage transformers Power cable Relay & Control	 - - - - -	 Yes Yes No Yes Yes	
4.25	Internal Arc Protection:			
4.25.1	Comply with IEC 62271-200	-	Yes	
4.25.2	Internal Arc Classification	IAC	A-FLR	
4.25.3	Arc sensor required in compartment: - Busbar - Circuit Breaker - Cable	 -	 Yes N/A Yes	
4.25.4	Pressure relief flaps in different compartments	-	Yes	
4.25.5	Arc vent duct to outside of building including all accessories	-	Yes	
5	**Busbar**			
5.1	Type	-	Fully insulated and screened	

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11KV GAS INSULATED SWITCHGEAR				
Item	**Description**	**Units**	**Schedule A**	**Schedule B**
5.2	Busbar rated current	A	1250	
5.3	Number of 3-phase busbar sets	No	1	
5.4	Number of busbar sections	No	2	
5.5	Configuration (Horizontal/Vertical/Delta)	-	Horizontal	
5.6	Section coupling device	-	Circuit breaker with 3-position isolator/earthing switch	
6	**Access**			
6.1	Switching operations	-	From front	
6.2	Panel hinges with removable doors	-	Yes	
6.3	Doorstop	-	Yes/No	
7	**Power Cabling**			
7.1	Min height of cable bushing above floor	mm	700	
7.2	Cable entry	-	Bottom	
7.3	Termination medium	-	Air	
7.4	Cable bushings	-	Outer cone type C or insulated plug-in inner cone to EN 50181	
7.5	Termination method	-	Outer cone right angled screened separable or inner cone plug-in screened separable connectors	
7.6	Termination clearances (Air & bare lugs)	-	N/A	
7.7	Earthing via insulated glands	-	Yes	
7.8	Cores per cable	-	1 or 3	
7.9	Type & Size: - Incomer circuits - Feeder circuits	 mm² mm²	 Copper three core PILC (1 x 185mm² per phase) Copper three core PILC (1 x 70mm² per phase)	
7.10	Anticondensation heaters in cable box: - Required - Voltage	 - V AC	 Yes 230	
8	**Earthing**			
8.1	Busbar/Bus-section earthing facilities	-	Yes	
8.2	Circuit earthing facilities (cables)	-	Yes	
8.3	Manual operation	-	Yes	
8.4	Motorised	-	Yes	
8.5	To be rated for fault making	-	Yes	
8.6	Type of earthing device (Busbar and Circuit) with indication	-	Fixed, Integral (Safety Interlocks)	

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11KV GAS INSULATED SWITCHGEAR				
Item	**Description**	**Units**	**Schedule A**	**Schedule B**
8.7	Details of earthing facilities offered	-	-	
8.8	Details of earthing busbar in bus-section panels	-	-	
8.9	Copper earth-strap (rectangular)	mm^2	3 x 50	
9	**Current Transformers**			
9.1	Rated short-time withstand r.m.s. current	kA_{RMS}	25kA, 3s	
9.2	Location	-	Cable box	
9.3	Position of bar primary	-	Cable Side	
9.4	Type	-	Ring Core	
9.5	Used ratios	-	As per Project Specification	
9.6	Protection current transformers	-	As per Project Specification	
9.8	Metering current transformers	-	As per Project Specification	
9.9	Shorting-facility on terminal blocks	-	Yes	
9.10	Secondary winding circuits wired to	-	LV Cubical	
10	**Voltage Transformers**			
10.1	Rated short-time withstand r.m.s. current	kA_{RMS}	25	
10.2	Location	-	Busbar connected (plug in) on Incomer panels	
10.3	Position of primary	-	Cable	
10.4	Function	-	Indication & Metering	
10.5	Type		Single Phase	
10.6	Quantity per busbar section	Set of three	1	
10.7	Ratio	-	11000/110 V	
10.8	Class	-	3P/0.5	
10.9	Rated Burden	VA	25	
10.10	Accuracy Range	-	IEC 60044-2	
10.11	Voltage factor: - Continuous - 30 s	-	 1.2 1.9	
10.12	Short-circuit withstand capability (1s)	-	IEC 60044-2	
10.13	Retractable/Withdrawable with shutters	-	No	
10.14	Protection of primary windings	-	MV Fuses	
10.15	VT MV fuse rating	A	-	
10.16	VT MV fuse make and type	-	-	
10.17	Protection of secondary windings	-	Fuses/MCB	
10.18	Secondary winding circuits wired to	-	LV Cubical	
11	**Power Supply**			
11.1	Peak power requirement/panel	VA	-	
11.2	Standby power requirement/panel	VA	-	
11.3	AC auxiliary supply (available on site)	V_{ac}	240	

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11KV GAS INSULATED SWITCHGEAR				
Item	**Description**	**Units**	**Schedule A**	**Schedule B**
11.4	DC auxiliary supply	V_{dc}	110	
11.5	Power supply cable access	-	Top	
12	**11kV Circuit Breaker**			
12.1	**General**			
12.1.1	Manufacturer	-	-	
12.1.2	Country of origin	-	-	
12.1.3	Interrupting technology	-	Vacuum	
12.1.4	Mode designation	-	-	
12.1.5	Total breaker mass (Cart included)	kg	-	
12.1.6	Rating nameplate position	-	Front	
12.2	**Primary Circuit Ratings**			
12.2.1	Rated normal (630/800/1250/2000/2500)			
	- Incomer circuits	A	1250	
	- Bus Section	A	1250	
	- Feeder circuits	A	630	
12.3	**Operation & Function**			
12.3.1	Type of arc control method	-	Vacuum	
12.3.2	Number of poles	-	3	
12.3.3	Interchange ability with units in existing switchboard **(main & control circuits)**	-	Only to breakers rated equivalent or lower	
12.3.4	Isolation displacement (Vertical/Horizontal)	-	-	
12.3.5	Withdrawable with self-alignment device	-	N/A	
12.3.6	Transport device (Integral/External)	-	N/A	
12.3.7	Transport-device wheels	-	N/A	
12.3.8	Level alignment on **external** transport device, if applicable	-	N/A	
12.3.9	Number of external transport-devices, **if** applicable	no	N/A	
12.4	**Status Indication**			
12.4.1	Location of indicators		Front on Breaker	
12.4.2	Breaker Open/Closed		Mechanical	
12.4.3	Breaker racking/test position		N/A	
12.4.4	Mechanism charged/discharged		Mechanical	
12.4.5	Trip counter		Mechanical	
12.4.6	Earthing position		Mechanical	
12.5	**Operating Mechanism**			
12.5.1	Mechanical Open, Close & Trip	-	Yes	
12.5.2	Closing mechanism type in accordance with [NRS 300-2(4.3)] Incomer and feeder circuits Coupler circuits (XEM – Motor charged spring with manual or electrical release)	- -	XEM XEM	

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11KV GAS INSULATED SWITCHGEAR				
Item	**Description**	**Units**	**Schedule A**	**Schedule B**
12.5.3	Operating sequence	-	O – 0.3s – CO - 3min – CO	
12.5.4	Charge method for closing device (Spring)	-	Hand & Motor	
12.5.5	Spring-charge motor ratings DC Supply voltage DC real power (max)	 Vdc kW	 110 -	
12.5.6	Isolation of trip-circuit if breaker earthed	-	Yes	
12.5.7	Trip-free breaker operation	-	Yes	
12.5.8	Lock-out on SF_6 pressure failure	-	Yes	
12.6	**Coil Devices**			
12.6.1	Range of operation (as applicable): AC supply voltage DC supply voltage	 % %	 85 TO 110 70 TO 110	
12.6.2	Ratings for continuous operation: DC supply voltage DC real power (max)	 V_{dc} kW	 110 1,5	
12.6.3	Trip coils required	Qty	1	
12.6.4	Close coils required	Qty	1	
12.7	**Auxiliary Contacts/Facilities** (Spare, mechanically operated)			
12.7.1	Duty rating: AC & DC supply current AC supply voltage DC supply voltage	 A V_{ac} V_{dc}	 10 240 110	
12.7.2	N/O & N/C contact reference positions	-	Breaker Open Spring Discharged	
12.7.3	Alarm SF_6 contacts	N/O N/C	1 1	
12.7.4	Lockout - SF_6 contacts	N/O N/C	1 1	
12.7.5	Breaker auxiliary "a" and "b" contacts	N/O N/C	5 5	
12.7.6	Spring-limit-switch contacts	N/O N/C	0 3	
12.7.7	Breaker earthed	N/O	1	
12.7.8	Motor protection (Fuses/MCCB's/None)	-	MCB	
13	**Control and Ancillaries**			
13.1	**Control Cabling**			
13.1	Cross-sectional area: Control wires CT & VT wires	 mm^2 mm^2	 2.5 2.5	
13.1	Minimum number of strands	-	7 min	
13.1	Colour: Earth wires DC wires AC wires	 - - -	 Green & Yellow Grey Black	
13.1	Screening in main circuit compartments	-	Yes	
13.1	Insulated gland plates - cable screens	-	Yes	
13.1	Wiring to separate external terminal box	-	Yes	

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11KV GAS INSULATED SWITCHGEAR				
Item	**Description**	**Units**	**Schedule A**	**Schedule B**
13.2	**Contact Rating**			
13.2.1	DC category duty rating	A V_{dc}	10 110	
13.2.2	AC category duty rating	A V_{ac}	10 240	
13.3	**Miniature Circuit Breakers**			
13.3.1	Type	-	-	
13.3.2	Location		LV Compartment	
13.4	**Indicators**			
13.4.1	Type		LED	
13.4.2	Location		Front of Panels	
13.4.3	Equipment status: SF6 low gas alarm Breaker closed Breaker open Breaker earthed Heaters on	-	 Yes Red Green Blue White	
13.4.4	Busbar section/s in-service	-	Per Phase	
13.4.5	Live phase indication	-	Per Phase with Phasing Facility	
14	**Marking & Labels**			
14.1	Label visibility		During In-Service Conditions	
14.2	Main circuit label dimensions on front and rear of switch-panels min width min height	 mm mm	 - 50	
14.3	Main circuit label positions		Front and Rear of Panels (**NOT ON REMOVABLE DOORS**)	
14.4	Function label dimensions (min height)	mm	5	
14.5	ON, OFF, EARTH labels per NRS 003-1		Yes	
14.6	Shutter labels per NRS 003-1		N/A	
14.7	Busbar blanking plates		N/A	
15	**Accessories (where applicable)**			
15.1	Racking, charging and closing handles	Sets	1	
15.2	Ramp/alignment plates	Sets	N/A	
15.3	Special and custom tools	Sets	1	
15.4	Accessories cabinet	Qty	1	
15.5	Service trolley (if applicable)	Qty	1	
15.6	Maintenance trolley (if applicable)	Qty	1	
15.7	Spares for routine maintenance	Sets	2	
16	**Documentation**			
16.1	Type test certificates	Sets	2	
16.2	Routine test certificates for each panel	Sets	2	
16.3	General arrangement as-built drawing	Sets	2	

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11KV GAS INSULATED SWITCHGEAR				
Item	**Description**	**Units**	**Schedule A**	**Schedule B**
16.4	Schematic & wiring diagrams	Sets	2	
16.5	Replacement part lists	Sets	2	
16.6	Operation & maintenance manuals	Sets	2	
16.7	Units used in Republic of South Africa		In Tender/ Offer	
16.8	Spare lists, if applicable		2	
16.9	Pack lists, if applicable		2	

C2.3.3 11 kV PROTECTION AND BAY CONTROL SCHEMES

11KV IEDs				
Item	**Description**	**Units**	**Schedule A**	**Schedule B**
1	**General**			
1.1	Mounting		LV compartment of 11kV switchgear	
1.2	IED Input Energizing Current (CT Inputs) for Phase and Earth Faults	Amp	1	
1.3	IED Input Energizing Voltage (VT Inputs)	Volt	110	
1.4	Frequency of supply	Hz	50	
1.5	IED Communication Protocol	-	IEC 61850	
1.6	Bay Controls and Status Indication		On display of IED	
2	**11kV Incomer Protection and Bay Control IED**			
2.1	Main Protection Relay	-	REX615 or equivalent approved	
2.2	Backup Protection and Bay Control Relay	-	REX615 or equivalent approved	
3	**11kV Bus-Section Protection and Bay Control IED**			
3.1	Main Protection and Bay Control Relay	-	REX615 or equivalent approved	
4	**11kV Feeder Protection and Bay Control IED**			
4.1	Main Protection and Bay Control Relay	-	REX615 or equivalent approved	

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C2.3.4 110 V BATTERY CHARGER AND BATTERY BANK

110V BATTERY CHARGER AND BATTERY BANK				
Item	**Description**	**Units**	**Schedule A**	**Schedule B**
1	**General**			
1.1	Charger Manufacturer	-	-	
1.2	Charger type/model designation	-	-	
1.3	Mounting type	-	Floor mounted cubical	
1.4	Battery Supplier	-	-	
1.5	Battery type/model designation	-	-	
1.6	Delivery period	weeks	-	
2	**Battery Charger Specification**			
2.1	Supply power	V	230/250V single phase	
2.2	Output voltage	V	110V DC	
2.3	Minimum charging capacity	A	30A DC continuous	
2.4	Minimum standing load capacity	A	2.5A DC	
2.5	Charger type	-	Constant voltage, Ampere limited	
2.6	Regulation	-	± 10% Input variation, ± 1% DC	
2.7	Amp hour rating (minimum)	Ah	95 Ah	
3	**Battery Bank Specification**			
3.1	Battery type/technology	-	Single Nickle Cadmium vented plate cells (NiCAD)	
3.2	Nominal voltage per cell	V	1.2V	
3.3	Amp hour rating (minimum)	Ah	95 Ah	
3.4	Quantity for 95 Ah rating	-	85 series connected Alcad type VTX1 L95 batteries or equivalent approved	
3.5	Battery nominal voltage	V	110V DC	
3.6	Maximum boost / float voltage	V	125V DC /125V DC (pre-settable)	
3.7	Operating temperature	-	-10 to +40 deg Celsius	
4	**Documentation**			
4.1	Type test certificates	Sets	2	
4.2	Routine test certificates	Sets	2	
4.3	General arrangement as-built drawing	Sets	2	
4.4	Schematic & wiring diagrams	Sets	2	
4.5	Replacement part lists	Sets	2	
4.6	Operation & maintenance manuals	Sets	2	

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C2.3.5 HYBRID INVERTER

HYBRID INVERTER				
Item	**Description**	**Units**	**Schedule A**	**Schedule B**
1	**General**			
1.1	Manufacturer	-	-	
1.2	Type/Model designation	-	-	
1.3	On Stellenbosch Municipality approved inverter list	-	Yes/No	
1.4	Delivery period	weeks	-	
2	**Inverter Specification**			
2.1	Minimum Certification Requirements	-	NRS-097-2-1:2017 & IEC62109	
2.2	Size	kW	5	
2.3	Minimum Efficiency	%	96%	
2.4	AC Output Voltage	V	230V ±10%	
2.5	Rated frequency	Hz	50	
2.6	Current Harmonic Distortion	%	THD < 3%	
2.7	Output Power	-	Single Phase	
2.8	Noise	dB	< 30	
2.9	Operating Temperature Range	°C	-25 to 60	
3	**Status Indication**			
3.1	Status Indicators Visible	Yes	Front of Inverter	
3.2	DC Isolation	Yes	Front of Inverter	
3.3	Remote control and Monitoring	Yes	Online Platform	
4	**Documentation**			
4.1	Operation & maintenance manuals	Sets	2	
4.2	General arrangement as-built drawing	Sets	2	
4.3	Schematic & wiring diagrams	Sets	2	

C2.3.6 INVERTER BACKUP BATTERY

BACKUP BATTERY				
Item	**Description**	**Units**	**Schedule A**	**Schedule B**
1	**General**			
1.1	Manufacturer	-	-	
1.2	Type/Model designation	-	-	
1.3	Delivery period	weeks	-	
2	**Battery Specification**			
2.1	Battery type/technology	-	Lithium Phosphate (LIFE PO4)	
2.2	Nominal Capacity	kWh	5	
2.3	Minimum Efficiency	%	93%	
2.4	Discharge Rate		1C	
2.5	Depth of Discharge	%	80	
2.6	Operating Temperature Range	°C	-25 to 60	
2.7	Expandable	Unit	2	

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BACKUP BATTERY				
Item	**Description**	**Units**	**Schedule A**	**Schedule B**
3	**Status Indication**			
2.1	Status Indicators Visible	Yes	Front of Battery	
2.2	Battery Management System	Yes	Integrated	
2.3	Remote control and Monitoring	Yes	Tie-in to Inverter	
4	**Documentation**			
3.1	Operation & maintenance manuals	Sets	2	
3.2	Schematic & wiring diagrams	Sets	2	

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C2.3.7 MINIATURE SUBSTATION

MINIATURE SUBSTATION				
Item	**Description**	**Units**	**Schedule A**	**Schedule B**
1	**General**			
1.1	Manufacturer	Name	xxxx	
1.2	Country of origin	-	xxxx	
1.3	Type	-	Type B to Stellenbosch Municipality Specifications	
1.4	Enclosure material	-	3CR12	
1.5	Colour	-	Avocado Green C12	
1.6	Cable bushings	-	Outer cone type C to EN 50181 with capacitive voltage indication	
1.7	Termination method	-	Outer cone right angled separable connector for plug type “C” bushings	
1.8	Delivery period	Weeks	xxxx	
2	**HV Compartment (RMU)**			
2.1	Ring Main Unit (RMU) type	-	3-Way CCV or equivalent approved	
2.2	Insulation medium	-	SF6	
2.3	Rated voltage (insulation) - U_r	kV	12	
2.4	Rated lightning impulse withstand voltage - U_p	kV_{PEAK}	95	
2.5	Rated short-duration power frequency withstand voltage (50 Hz: 1 min) - U_d	kV_{RMS}	28	
2.6	Rated short-time withstand r.m.s. current (short-circuit breaking) - I_k	kA_{RMS}	20	
2.7	Rated duration of short circuit - t_k	s	3	
2.8	Rated peak withstand current - I_p	kA	50	
2.9	Internal arc classification	IAC	A-FLR	
2.10	Rated Internal Arc Withstand	kA	20	
2.11	Rated Interna Arc Withstand Duration	s	1	
2.12	Rated current of busbar	A	630	
2.13	Integral cable test facilities	-	Yes	
2.14	Partition class	-	PM	
2.15	Loss of service continuity category	-	LSC1	
2.16	Degree of protection for gas filled compartments	-	IP 67	

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MINIATURE SUBSTATION				
Item	**Description**	**Units**	**Schedule A**	**Schedule B**
2.17	Degree of protection for control compartments	-	IP 4X	
2.18	Voltage detection system	-	VDS	
2.19	Live phase indication	-	Per Phase with Phasing Facility CAPDIS-S1 + R4	
2.20	Switch Disconnector:			
2.20.1	Rated normal current of a switch-disconnector	A	630	
2.20.2	Switch disconnector interrupting medium	-	SF6	
2.20.3	Motor required for disconnector switch supplied from an external Auxiliary power source	-	No	
2.20.4	Breaking capacity	A	630	
2.20.5	Making capacity	kA	62.5	
2.20.6	Earthing switch making capacity	kA	62.5	
2.20.7	Operating mechanism with two separate operating shafts for load break switch and earthing switch	-	Yes	
2.20.8	Switch position indication for load break switch and earthing switch	-	Yes	
2.20.9	Arc proof cable compartment	-	Yes	
2.21	Vacuum Circuit Breaker:			
2.21.1	Circuit breaker interrupting technology	-	Vacuum	
2.21.2	Rated current	-	200A	
2.21.3	Circuit Breaker Electrical Operations	-	E2 (2000)	
2.21.4	Circuit Breaker mechanical operations	-	M2 (10 000)	
2.21.5	Circuit breaker class	-	S1 (Cable Systems)	
2.21.6	Operating sequence	-	O – 0.3s – CO - 3min - CO	
2.22	Protection Relay (Self-Powered):			
2.22.1	Relay make and model	-	In accordance with SBM specifications	
2.22.2	Relay over current and earth fault characteristics	-	DT, NI, VI, EI	
2.23	Protection Current Transformers:			
2.23.1	Means of current measurement	-	CT's / Current Sensors	
2.23.2	CT Ratio	A	200/1	
2.23.3	CT Class and accuracy limit factor	-	5P10	
2.23.4	CT burden	VA	2.5	
2.23.5	Short-circuit withstand capability (1s)	kA for 1 s	20	

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MINIATURE SUBSTATION				
Item	**Description**	**Units**	**Schedule A**	**Schedule B**
2.23.6	Current sensor make and designation	-	xxxx	
2.23.7	Current sensor type	-	xxxx	
2.23.8	Current sensor rating/ratio	A	0 to 100%	
3	**Transformer**			
3.1	Ratio	-	11kV/415V at no load	
3.2	Rating	kVA	800	
3.3	Frequency	hz	50	
3.4	Vector Group	-	Dyn 11	
3.5	Losses	-	Low losses as per SANS 780	
3.6	Impedance	-	As per SANS 780, Table 8	
3.7	Construction	-	Double Wound Core, Oil Immersed	
3.8	Winding material	-	Copper	
3.9	Sealed/Free breathing	-	Hermetically Sealed – Welded Cover, Nitrogen Filled	
3.10	Tap settings	-	Range of ± 6% in 3% Steps	
3.11	Oil level indicator	Yes	LV side of transformer	
3.12	Oil temperature measurement	Yes	Top-oil thermo electric temperature sensing element	
4	**LV Compartment**			
4.1	MCCB's	-	Hydraulic Magnetic, J25S & L40B or similar approved	
4.2	Voltmeter	-	Yes	
4.3	Voltmeter selector switch	-	Yes	
4.4	Maximum demand ammeters	-	Yes	
4.5	Mult ratio busbar CT's		Yes, 1500-1000/5 Class 0.5	
4.6	Bulk LV meter		Yes, see below	
4.7	LV cable support	-	Galvanized Uni-Strut Bar and Cable Clamps	
4.8	Streetlight control	-	Yes	
4.9	Streetlight meter		Yes, see below	
Additional information		1. The LV compartment shall be equipped with a Landis + Gyr type E650 3-phase 4 wire Class 0.5 meter (model ZMD405 1/5A CT connected class 0.5) complete with an		

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MINIATURE SUBSTATION				
Item	**Description**	**Units**	**Schedule A**	**Schedule B**
		E65C communication module and 13-way test block, fuses and wiring for bulk meter of the minisub LV busbar.		
		2. The streetlight compartment shall be equipped with a Landis + Gyr type E650 3-phase Class 1 meter (model ZMD310 120A direct connected class 1) complete with RS485 communication port to measure the streetlight consumption.		
		3. Miniature substations must comply with the following SANS codes: SANS 1029, SANS 1030 and SANS 780 and all relevant amendments.		
		4. Miniature substations must comply with the latest internal arc testing procedure as per SANS/IEC 62271-200 and 202		

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C2.3.8 11 kV CABLE

11KV CABLE				
Item	**Description**	**Units**	**Schedule A**	**Schedule B**
1	**General**			
1.1	Manufacturer	name	-	
1.2	Country of origin	-	-	
1.3	Type/Model designation	-	-	
1.4	Delivery period	weeks	-	
2	**Cable Specification**			
2.1	Cable type	-	Fully impregnated paper insulated lead alloy “E” sheathed in accordance with SANS 97	
2.2	Operating voltage	kV	11	
2.3	Voltage rating	kV	11/11	
2.4	Conductor size	mm²	70mm² as specified	
2.5	Conductor material	-	Stranded annealed copper to SANS 1411	
2.6	No of cores	-	3-core	
2.7	Electric field control	-	Belted **(Table 18)**	
2.8	Bedding	-	PVC	
2.9	Armouring	-	Double steel tape	
2.10	Serving	-	PVC	
2.11	Markings: • SABS 97 • Stellenbosch Municipality unique marking (refer below)	-	 Yes Yes	
2.12	Packaging	-	300m lengths on wooden drums	
Additional information		1. Cables shall be sequentially marked with a 4mm wide tape which is inserted inside the conductor with the legend “Stellenbosch Municipality” appearing at intervals of approximately 100mm on the tape as specified, refer to PS.10.2.		

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C2.3.9 11kV CABLE TERMINATIONS

11KV CABLE TERMINATIONS				
Item	**Description**	**Units**	**Schedule A**	**Schedule B**
1	**General**			
1.1	Manufacturer	name	-	
1.2	Type/Model designation	-	-	
1.3	Delivery period	weeks	-	
2	**Termination Specification**			
2.1	Voltage rating	kV	11	
2.2	For RMU	-	Heat shrink type with unscreened separable T-connectors for plug type “C” bushings complete with earthing kit	
2.3	For Indoor GIS Switchgear	-	Heat shrink type with screened separable T-connectors for plug type “C” bushings complete with earthing kit	

C2.3.10 11kV CABLE JOINTS

11KV CABLE JOINTS				
Item	**Description**	**Units**	**Schedule A**	**Schedule B**
1	**General**			
1.1	Manufacturer	name	-	
1.2	Type/Model designation	-	-	
1.3	Delivery period	weeks	-	
2	**Joint Specification**			
2.1	Voltage rating	kV	11	
2.2	Joint type	-	Cast Iron Compound Filled	

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C2.3.11 LV CABLE

LV CABLE				
Item	**Description**	**Units**	**Schedule A**	**Schedule B**
1	**General**			
1.1	Manufacturer	name	-	
1.3	Type/Model designation	-	-	
1.4	Delivery period	weeks	-	
2	**Cable Specification**			
2.1	Caple type	-	PVC PVC SWA PVC in accordance with SANS 1507	
2.2	Voltage rating	V	600/1000	
2.3	Conductor size	mm²	As indicated	
2.4	Conductor material	-	Stranded Copper to SANS 1411	
2.5	No of cores	-	2 and 4-core	
2.6	Bedding	-	PVC	
2.7	Armouring	-	Steel wire armoured	
2.8	Sheath	-	General purpose fire retardant PVC with red stripe	
2.9	Markings: • SABS 97 • Stellenbosch Municipality unique marking (refer below)	-	Yes Yes	
Additional information		1. Cables shall be sequentially marked with a 4mm wide tape which is inserted inside the conductor with the legend “Stellenbosch Municipality” appearing at intervals of approximately 100mm on the tape as specified, refer to PS.10.2.		

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CONSTRUCTION OF NEW KAYAMANDI 11KV SUBSTATION BUILDING AND SUPPLY, INSTALLATION AND COMMISSIONING OF NEW 11KV INDOOR SWITCHGEAR

TENDER NUMBER B/SM 85/26

PART C3 : SCOPE OF WORK

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CONSTRUCTION OF NEW KAYAMANDI 11KV SUBSTATION BUILDING AND SUPPLY, INSTALLATION AND COMMISSIONING OF NEW 11KV INDOOR SWITCHGEAR

TENDER NUMBER B/SM 85/26

C3.1 : PROJECT SPECIFICATION

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SECTION 1 : DESCRIPTION OF THE WORKS AND GENERAL REQUIREMENTS

C3.1.1 SCOPE OF WORK

This tender comprises the replacement of the 11kV switchgear and substation building at Kayamandi substation due to the age of the equipment and the building.

The scope of work for this tender mainly involves the demolishing of the existing Kayamandi 11kV substation building and construction of a new substation building complete with new 11kV GIS indoor switchgear and includes the following works:

a) Temporary works to facilitate the removal of the existing Reyrolle type LMS 11kV indoor switchgear, LV board and secondary equipment (refer to item C3.1.2 below for the detail of the temporary works).
b) Demolishing of the existing switching station building complete including disposal of building rubble at recognised dumpsite.
c) Construction of a new 11kV switching station building.
d) Construction of internal substation road and installation of new 5m wide sliding gate.
e) Supply and installation of 11kV GIS indoor switchgear with onboard protection.
f) Supply and installation of all secondary equipment (110V battery charger, telemetry/SCADA system, substation security).
g) Supply and installation of a new 800kVA miniature substation (MS Local).
h) Disconnection and reconnection of 11kV underground cables, LV feeder cables and LV control cables.
i) Supply and installation of 11kV and LV underground cables.
j) Testing and commissioning of the complete works.
k) Placement of yard stone.
l) Guarantee of equipment and installation against all defects for a period of 12 months after handover.

C3.1.2 TEMPORARY WORKS

This section aims to address the necessary works needed to provide a temporary network solution to adequately provide the affected areas with electricity supply while SS Kayamandi is being upgraded.

The Contractor will be required to supply two (2) temporary outdoor ring main units (5-way type CCVVV or equivalent approved) complete with weatherproof cubicles and plinths for the duration of the temporary network solution. Once the 11kV cables are connected to the new 11kV indoor switchgear the Contractor must remove the RMUs and plinths and level the substation yard.

The following pre outage and outage works will apply to the temporary scope of works.

1. Pre Outage Works:
   - Apply for and obtain all necessary wayleaves & permits.
   - Cross trench to accurately identify positions of existing MV cables.
   - Determine if existing MV cables have enough slack to reach new RMU positions.

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- Should slack not be enough, contractor to inform Consulting Engineer so the necessary arrangements can be made for additional cables and joints to be available on day of outage.
- Installation of concrete plinths for RMUs (KAYA 1 & KAYA 2).
- Installation of two temporary RMUs (KAYA 1 & KAYA 2) as detailed.
- On day before outage open trenches of existing cables. Armed security to be appointed to guard exposed cables for the duration that they are exposed.

2. Outage Works

- Confirm that SS Kayamandi is completely shut down before commencing with any works. (Note that Stellenbosch Municipality will be rresponsible for switching off all the network feeders supplying SS Kayamandi and for isolating and earthing the existing 11kV switchgear and all the 11kV feeders that must be rerouted to the temporary RMUs).
- Disconnect the following cables from the existing 11kV breaker panels:
  - SS CLOETESVILLE 1 (Incomer)
  - SS CLOETESVILLE 2 (Incomer)
  - SS WATERGANG (Incomer)
  - LOCAL TRANSFORMER 500KVA (Feeder)
  - MS BASSI (Feeder)
  - MS 6TH AVENUE (Feeder)
  - MS CORRIDOR (Feeder)
  - MS MONDE CRESCENT (Feeder)
- After disconnection of the above cables, all cables to be pulled out of substation trenches and extended & jointed if necessary.
- Cables to be reinstalled into new trenches leading to the two newly installed temporary RMUs, KAYA 1 & KAYA 2.
- Cables are to be terminated onto KAYA 1 & KAYA 2 as follows:
  1. KAYA 1 (CCVVV):
     - V – MS LOCAL 800KVA
     - V - MS BASSI
     - V - MS 6TH AVENUE
     - C – SS CLOETESVILLE 1
     - C – KAYA 2
  2. KAYA 2 (CCVVV):
     - V – MS CORRIDOR
     - V – MS MONDE CRESCENT
     - V – KAYA 1
     - C – SS CLOETESVILLE 2
     - C – SS WATERGANG
- Program the necessary protection settings on the RMU breaker panel relays and test and commission the complete temporary works.

The following permanent works must also be executed on the day of the outage:

- Remove the existing 500kVA local transformer complete with plinth.
- Install a new 800kVA miniature substation (MS Local 800kVA) complete with plinth.
- Install and connect 70mm² 3-core Cu PILC 11kV cable between temporary RMU KAYA 1 and new MS Local.
- Disconnect all LV feeder cables from LV Board inside substation building and reroute to new MS Local and terminate on MCCB in miniature substation LV compartment.
- Test and commission new MS Local complete with LV feeders.

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C3.1.3 INSTALLATION OF NEW 11KV INDOOR SWITCHGEAR PANELS

The 11 kV indoor switchgear panels shall be installed by the OEM or an OEM approved contractor with relevant experience in the installation of similar switchgear in order to maintain the switchgear guarantee.

All panels shall be installed on a pre-approved galvanized steel floor frame and shall be installed as part of the switchgear installation. The floor frames shall be manufactured from 76 x 38 x 5mm mild steel channel iron with 76 x 38 x 5 mm cross support brackets, cut to the width and length of the individual substation board size. The completed frame must then as a unit be hot dip galvanized and no alterations or changes to the floor frame will be allowed on site.

The floor frames must be fastened to the substation floor with suitable rawl bolts and shall be levelled with a laser level device and checked after the frame was bolted to the floor.

C3.1.4 RESPONSIBLE PERSON

The successful tenderer shall have a duly responsible person in terms of the Occupational Health and Safety Act on site while any work is in progress.

The requirement for a responsible person will require the Tenderer to provide evidence that an employee certified as a responsible person as a minimum in terms of NRS 040-03-2007 is in the employment of the Tenderer. No other type of certification will be considered. Please note that the employee's certificate must be valid throughout the contract period.

In terms of the OHVRS operation regulations the Stellenbosch Electrical Services staff will fulfil the function of AURTHORISED PERSONS, that is to switch off, isolate, earth equipment and cables for the Tenderer to work on, as such the Tenderer's staff (key personnel) must have a person with a valid RESPONSIBLE PERSON certificate in order to be able to take control of the work site, and are authorized to sign the permit issued by the Electrical Services.

A Tenderer can also have an employee with a valid AUTHORIZED PERSON certificate, as such a person will be able to sign the permits as a RESPONSILBE PERSON.

C3.1.5 DESCRIPTION OF THE SITE AND ACCESS

C3.1.5.1 Site Location and Access

The site, Kayamandi substation, is located next to the Kayamandi Taxi Rank along Masitandane Road in Kayamandi, Stellenbosch.

The site co-ordinates of Kayamandi substation are Latitude 33° 55' 6.56" South and Longitude 18° 51' 4.77" East.

Access to the site will be via existing tar roads.

C3.1.5.2 Site Conditions

Tenderers must satisfy themselves regarding the quality and type of material on site since it is the Contractors responsibility to supply all material compliant with the minimum requirements.

Tenderers are advised to visit the site and thoroughly acquaint themselves with the nature and extent of the Work to be done and conditions of the site specifically relating to underground conditions, slope, accessibility and security risks and to make allowance for the items obviously intended and

necessary for the proper completion of the Work, even if not specifically detailed in this Tender document. Claims due to lack of knowledge will not be entertained.

C3.1.5.3 **Environmental Information**

Height above sea level:	Less than 1000 m
Typical local conditions	Yes
Snow/Ice	No
Atmospheric Conditions	The hottest months of the year are January and February, with average daily temperatures ranging from 15 °C to 30 °C, while in the coolest moth of July temperatures range between 5 °C and 16 °C. the driest month of the year, February, sees an annual average rainfall of only 17 mm, while the wettest month, May, sees 108 mm.
Lightning:	Low
Pollution:	Very heavy

C3.1.6 DETAILS OF THE CONTRACT

The works will be carried out as a direct electrical contract. Trenching and backfilling will be done by the Electrical Contractor.

The nature of the Contract will be the FIDIC Red Book as per the Contract Data.

It is a pre-requisite of this tender that local labour be used as far as possible during the execution of the contract. Minimum criteria applicable to the use of local labour are as per Clause 6.1 of the Contract data.

C3.1.7 CONSTRUCTION PROGRAMME

All Tenderers must indicate their completion periods in the Contract Data, under Part C1.2.

Once appointed, the Contractor must submit a detailed construction programme within fourteen (14) days of the Contract commencement date, taking into consideration delivery dates of equipment, material and plant.

The Contractor shall submit an outline programme for the project, which shall indicate at least the following key milestones:

- Start of the Project;
- Detailed Design Specification Documentation for various systems;
- Protection Setting Submission;
- FAT Dates & Duration for various systems;
- Start of Construction for the various phases;
- Start of installation and integration;
- Outage Plan, Switching Plan and requirements;

- Commencement & completion of Site Acceptance Testing;
- Hand-over of the system(s) providing full and final functionality;
- Submission of all Equipment and Maintenance Manuals; and
- Handing over of all “as-built” documentation and associated drawings.

C3.1.8 SITE FACILITIES AVAILABLE

The Contractor shall make his own arrangements with the relevant authorities for obtaining power and potable water for construction and domestic purposes. The Contractor shall pay for the water at the rates and tariffs as determined by the local authority. including the cost of supplying a temporary standpipe as required.

The Contractor must make his own arrangements for a Camp Site. The location of the Contractor's camp including the material storage areas. will be subject to the Engineer's approval.

No housing is available for the Contractor's employees, and the Contractor shall make his own arrangements for housing his employees or transporting them to and from the site. The Contractor is in all respect responsible for the housing and transporting of his employees, and for the arrangement thereof, and no extension of time due to any delays resulting from this, will be granted.

C3.1.9 WORKS LAYOUTS

The general layout of the works is shown on the drawings included as stipulated in Section 4 of C3.1.

C3.1.10 COMPLIANCE WITH OH&S ACT

The complete installation shall be in accordance with the Occupational Health and Safety Act (Act 85, 1993) and must comply with all requirements as per the Construction Regulations of 2014.

A site-specific Occupational Health and Safety Plan based on the requirements of the Occupational Health and Safety Specification included with this Tender must be submitted within 14 days from date of award of the Tender.

For the protection of excavations, including trenches and pole holes, only plastic barricading netting will be allowed.

All equipment installed by the Contractor shall be locked with temporary locks provided by the Contractor. These temporary locks shall be replaced with municipal locks, provided by the Contractor, after take-over of the networks.

C3.1.11 TESTING

Equipment and associated designs offered under the contract shall have been type tested to the specified standards and standards which are customary for such equipment. Equipment which is not fully type tested shall not be offered from the outset. Meeting this requirement is mandatory.

Works test certificates from the manufacturers for all the HV equipment must be provided.

The structure footing to earth measurements, all cable testing and earth measurements of all other equipment must be done with the Engineer’s representative present.

The earth resistance may not be more than:

a) For 11 kV switching station earthing: 1 Ω

b) For 11 kV RMU: 1 Ω

c) For transformers MV earth electrode: 1 Ω

d) For LV earth electrode: 10 Ω

All medium voltage cables must be pressure-tested as per the guidelines of the manufacturer. Certificates for these tests must be provided to the Engineer.

All costs applicable to the above tests, and any other tests that might be required for proving the works to be safe and in compliance with the scope of work, shall be taken as included in the offer submitted.

C3.1.12 SITE FACILITIES REQUIRED

Site facilities and any services required by the Contractor shall be negotiated directly with the Local Authority.

The provision of facilities for the Engineer is not required.

Store facilities for material and equipment for the entire duration of the contract must be provided by the Contractor. The Contractor's camp site shall be fenced off and shall contain all offices, stores, workshops and toilet facilities as per the requirements of the approved Occupational Health and Safety Plan.

The site does not have any water or sewerage connection. All costs associated with the provision of services, such as water, waste and sewerage removal, builder's electrical supplies, security etc. shall be for the cost of the Contractor and shall be included in his Tendered price.

C3.1.13 ITEMS REQUIRING SPECIAL ATTENTION

As the work progresses, the Contractor must keep an accurate record of any variation or deviation from the original drawings as approved by the Engineer. The actual position of all equipment as installed on site shall be noted on the drawings. The completion certificate will not be issued unless these "as built" drawings have been submitted to the Engineer.

C3.1.14 CABLE AND SERVICE CROSSINGS

The Contractor shall take care during trenching not to damage any existing services and shall liaise with the following parties to establish exact positions of services prior to trenching or installing poles. It is the responsibility of the Contractor to obtain wayleaves as necessary.

a) Stellenbosch Municipality – Electrical

b) Stellenbosch Municipality – Civil

c) Telkom/Neotel/Dark Fibre Africa (as applicable)

d) Eskom (as applicable)

e) Roads Authorities (as applicable)

Municipal wayleaves shall be obtained from the Department Planning, Development and Implementation. A deposit will be payable for the Municipal wayleaves and the Contractor shall make allowance for the deposit in the relevant P&G item.

C3.1.15 CABLE JOINTS

Cable lengths in the schedule of quantities are provisional and the Contractor is responsible to determine the correct length of cable before it is cut. No joint will be allowed in any length of cable less than 300 metres where practically possible.

C3.1.16 BEACONS AND MARKERS

Cable markers must be placed as per the Engineer's instruction along all 11 kV cables at each street crossing, at each joint and at each sealed off point.

The markers shall be of the 25 MPa unreinforced concrete type (150 mm x 150 mm top, 220 mm x 220 mm bottom and 300 mm high) with 2 mm aluminium plate indicating cable size, type, direction and "joint" as applicable (100 mm x 100 mm epoxied to recess in top of marker).

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SECTION 2 : ELECTRICAL CONSTRUCTION

THE SPECIFIC TECHNICAL CONSTRUCTION DETAILS FOR THIS PROJECT ARE AS FOLLOWS:

PS.1 CIVIL WORKS

Civil work will include the following:

- Paved internal substation road
- Precast concrete kerbing and edging
- High security welded mesh access gate.
- Water and sewer connections (not applicable)
- Yard stoning (crushed stone layer)

All civil work shall in general be carried out in accordance with SANS 1200 as well as the relevant Design Drawings and Bill of Quantities included in this tender.

PS.1.1 WORKS SPECIFICATIONS

All work shall be in accordance the relevant SANS 1200 documents and the drawings included in the *Tender*. The following specific standards are applicable for Civil Designs:

a) SANS 1200G – Concrete structural.

b) SANS 1200GB – Concrete buildings.

c) SANS 10164 – Structural use of masonry.

The following specific standards are applicable for steelwork:

a) SANS 1200H

b) SANS 1200HA

c) SANS 1200HC

The following must be noted when pricing for the works:

a) All labour and transport cost shall be included in quoted rate.

b) Risk of collapse and keeping excavations free of water shall be included in the quoted rate.

PS.1.2 SUBSTATION PLATFORM

Not required, existing platform.

PS.1.3 SUBSTATION INTERNAL ROAD

A paved internal road shall be constructed as per the relevant Civil drawings and the following specific details:

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- The internal road shall be 5 m wide with length and cross fall as per the platform terrace.
- Layer works of the internal road shall be as detailed on relevant Civil drawings.
- The internal access roads will be designed for large vehicles carrying heavy loads up to 10 tons.

PS.1.4 STORMWATER DRAINAGE

Stormwater drainage shall be supplied for the substation platform as detailed on the Civil drawings.

PS.1.5 SUBSTATION WATER AND SEWER SERVICES

Water and sewer connections will not be provided for the substation.

PS.1.6 HIGH SECURITY PERIMETER FENCE AND ACCESS GATE

PS.1.6.1 High Security Perimeter Fence

Not required, existing perimeter fence.

PS.1.6.2 Access Gate

The sliding gate shall be 5m wide with a minimum 3m height and 600mm extension for fitment of flat wrap razor wire and shall be constructed as detailed in the relevant conceptional design drawings.

The top and side frame shall be manufactured from hot dipped galvanized square hollow sections, minimum 60 x 60 x 3mm and the bottom carrier beam shall be manufactured from hot dipped galvanized rectangular hollow sections minimum, 150 x 100 x 3mm. Two 150Ø bottom rollers will be set and housed into the gate carrier beam.

The gate system shall be provided with two gate portals made from hot dipped galvanized square hollow sections, minimum 100 x 100 x 3mm.

The mesh panels shall be of the Securifor 358 Doubleskin type or similar/equivalent approved and shall have an initial Zincalume coating and a secondary PVC coating (Colour RAL 7021 Anthracite). The mesh panels shall be fixed to the gate posts using a 70mm x 6mm cover plate with stainless steel cup-square bolts (M8 mushroom head) with tamper proof shear-off nuts and flat washers.

Anti-climb serrated spikes and 600mm anti-climb over prevention extensions shall be fitted to the top rail of the gate for the fitment of flat wrap razor wire.

The concrete slab underneath the gate runner must accommodate a 10-ton payload as minimum.

PS.1.7 KERBING AND CHANNELING

Type E3 kerbing and E1 edging shall be installed where required to retain yard stoning.

Precast kerbs, edging and channels shall be of grade 25 MPa/19 mm concrete.

The material on which concrete kerbs, channels and edging are bedded, shall be in accordance with the dimensions shown on the drawings and shall consist of a 15 MPa concrete mix with a 6.7 mm single size coarse aggregate.

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PS.1.8 YARD STONE

Yard stone shall be placed in the substation yard.

The 25 mm - 38 mm yard stone shall be spread over the entire substation yard to a thickness of at least 100 mm. The yard stone shall have a wet resistivity value of at least 3000 Ωm. The material must be free of dust and other deleterious substances.

The yard stone shall be lightly compacted to set levels.

Pesticide and herbicide must be applied to the platform before spreading the yard stone in order to keep any weeds from growing.

PS.2 SUBSTATION EARTH MAT AND EQUIPMENT EARTHING

A preliminary design for the earth grid has been included with provisional quantities allowed for in the Bill of Quantities. The exact measurement of the earthing system to be installed will be dependent on the solution offered by an earthing design specialist.

The *Contractor* shall be responsible to appoint a specialist to perform a soil resistivity survey and a detailed earthing design. The *Contractor* must submit the earthing design to the Engineer for review and approval before ordering any materials.

The earth mat design shall be simulated with IEEE80 compliant software, and the final design must provide for safe step- and touch potentials in and around the substation as well as the complete substation erf and surrounds. The soil model must be verified against the soil resistivity survey included in the Geotechnical Investigation Report (refer Appendix B).

The substation earthing system will cover the whole substation area and will consist of buried interconnecting horizontal earthing grids, connecting earth straps from the buried earthing grid to metallic parts of structures and equipment, connections to grounded system neutrals, and the ground surface insulating covering material.

All new equipment must be bonded to the substation earthing system, that consist of a buried interconnecting horizontal earthing grid, via connecting earth straps from the buried earthing grid to metallic parts of structures and equipment.

PS.2.1 MAIN EARTH GRID

An earth grid consisting of 70mm² bare copper earth wire or 10 mm diameter round black annealed copper conductor buried at least one (1) meter below finished ground level shall be installed as shown on the Substation Earth Grid drawing (conceptual design).

All joints shall be exothermically welded (Cadweld or similar approved) or oxy-acetylene brazed using 3 mm silbralloy brazing rods (no crimping will be allowed).

Where the main earth grid is passing under deeper foundations and drains, it must be 150 mm below the concrete. Back-filling around the earth conductors and rods is to be well compacted. Where a concrete blinding is cast under building foundations, the earth grid meshes are to be installed on top of the blinding and under the concrete footing of the foundation. Where passing over drains with less than 1000 mm of cover, they are to be buried as deep as possible. The outer grid is to be a minimum of 1000 mm outside the internal security fence.

Additional earth rods shall be installed to bring down the earth resistance reading if the initial earth resistance measurement is too high.

Any chemical treatment of soil to bring down the earth resistivity must first be discussed with and approved by the Engineer.

All equipment shall be earthed with 50 x 3 mm copper earth straps to the earth mat.

PS.2.2 EARTHING OF FOUNDATION REINFORCING

All reinforcement bars and reinforcing mesh shall be bonded to the main earth grid on one side only.

PS.2.3 EARTHING OF FENCES AND GATES

All fences must be earthed on both sides of any gate or removable panel. Fence posts must be earthed at interval less than or equal to 20 m. Copper earth straps (50 x 3 mm) shall be bolted to the steel fence posts; these connections must not be visible above the final layer of the yard stone.

Each gate leaf of all gates, installed in the security fence, shall be electrically coupled to the adjacent gate post, via a 70 mm^2, UV stabilized, sheathed, stranded flexible copper conductor that is suitably lugged and bolted at each end.

PS.3 SUBSTATION BUILDING

PS.3.1 BUILDING CONSTRUCTION

The MV switchgear and control room building for the new Kayamandi 11kV switching station must be provided as part of this contract. The Contractor may subcontract the construction of the building to a building contractor but remains the responsible party.

The substation building will be a single room for the 11kV switchgear and control plant.

The building layout and site layout must be as shown on the relevant drawings and must be constructed complete with all light and plug fittings, AC units, cable trays, cable ladders and trench cover boards as detailed.

The building shall be constructed with cavity walls. The external walls of the building will be face brick (Ironspot Rustic) with allowance for brick-force every fourth layer with a concrete roof. The building must be plastered and painted internally (1 coat plaster primer and two topcoats) with a white washable PVA paint as approved by the Engineer.

Protection and control cabling shall enter the switchgear LV control boxes from the top by means of overhead galvanized steel cable trays suspended from the concrete roof.

The Contractor shall seal all cable duct entries with an appropriate product to prevent the ingress of water and vermin to each room of the substation building.

All building works shall be carried out strictly in accordance with local authority requirements, National Building Regulations and SANS standards at all times.

The foundations of the building shall be signed off by a Professionally Registered Structural Engineer.

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Compaction tests must be performed before casting any concrete. The Contractor must notify the Engineer at least a week prior to the planned casting of the floor. The Contractor must co-ordinate the compaction tests.

PS.3.2 SUBSTATION DOORS

All outside doors shall be heavy duty high security steel doors manufactured from galvanised steel with a minimum thickness of 3 mm and without ventilation louvers (as manufactured by Conferheur Engineering or equivalent approved by the Engineer).

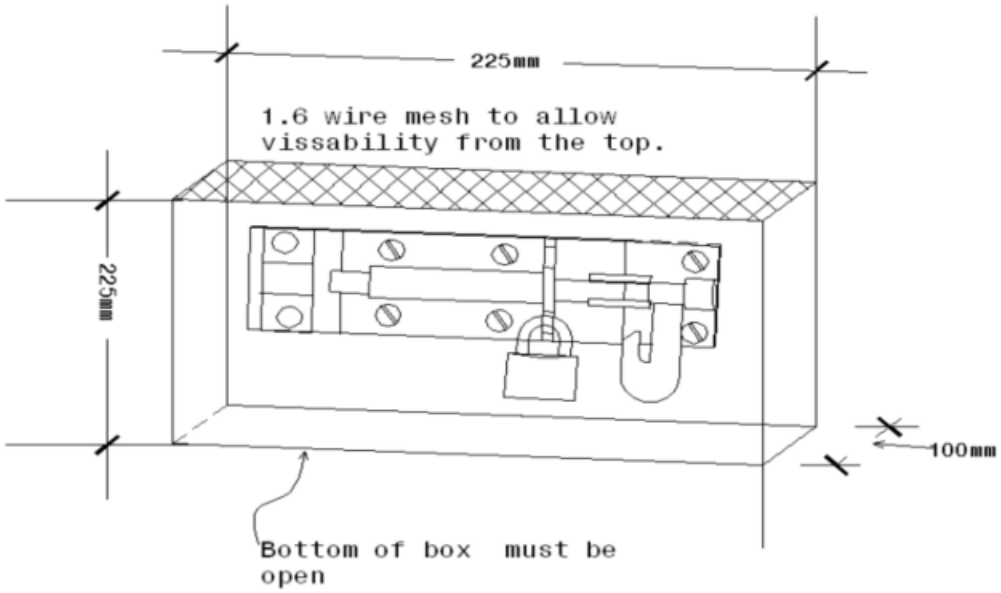
The double doors for entry to the switchgear room shall have a minimum height of 2800 mm.

The frames of the doors shall be bolted into the walls with a front cover plate to prevent the frame from being dislodged from the wall.

The door shall be fixed to the frame with recessed/concealed heavy duty swing back hinges to allow an opening radius of 180 degrees. The hinges shall be mounted such as to ensure there is no gap between the frame and the door.

The locking facility of the double door shall consist of tree (3) barrel bots, two mounted on the inside of the left-hand side of the door (one at the top and one at the bottom) and one mounted on the outside in the centre of the right-hand side door.

The barrel bolts fitted on the outside will be protected by a vandal proof lock protection cover as indicated below.



VANDAL PROOF
LOCK-BOX

The Engineer must approve the design of the door before manufacture commences.

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PS.3.3 BUILDING ELECTRICAL INSTALLATION

The general layout of the electrical installation in the building shall be in accordance with the drawings. All wiring must be done inside the walls in PVC conduit. A 12-way flush mounted distribution board supplied from the AC supply shall be installed at a height of 1700 mm above floor level in the control room. Switched socket outlets and light switches shall be installed at a height of 1200 mm above floor level. The layout of the distribution board shall be as shown on the Control Building Power & Lighting layout drawing.

LED type light fittings shall be mounted against the ceiling of the switch room and control room. A weatherproof bulkhead LED light fitting as indicated on the drawing shall be mounted above the porch area.

Outdoor weatherproof LED bulkheads (BEKABULK 19W 4000K complete with wireguard or approved equivalent) shall be mounted on all four sides of the substation building as detailed on the substation building power & lighting layout.

An 5kW pure sine wave hybrid inverter and 5kWh lithium phosphate (LiFePO4) battery backup system will be installed in the control room to power the following essential loads during power blackouts:

- All internal lights in the 11kV switchgear and control room;
- Security lights fitted on the outside of the 11kV switchgear building;
- Gate motor;
- Security system (alarm system and CCTV cameras if specified).

PS.3.4 SUBSTATION AUXILIARY SUPPLY

The substation AC supply shall be fed from the local miniature substation installed in the Kayamandi substation yard via a 600/1000V 16mm^2 two-core copper PVC insulated PVC bedded SWA PVC sheathed cable.

The AC supply will feed into the single-phase DB in the substation building as shown on the relevant design drawings.

PS.4 12 KV INDOOR GIS SWITCHGEAR

PS.4.1 DESIGN PARAMETERS

PS.4.1.1 General Requirements

The switchgear shall be a type tested, metal-enclosed, factory assembled, factory gas-filled and factory routine tested SF6 gas-insulated switchgear. All primary components of the equipment shall be made and assembled by the same Manufacturer.

The switchgear shall be designed for indoor installation and equipped with fixed mounted vacuum circuit breakers which are serially connected to tree-position disconnectors suitable for local and remote control.

All switching functions (vacuum circuit breaker and three-position disconnectors etc.) shall be contained in a Sulphur hexafluoride (SF6) filled stainless-steel tank.

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Each switchgear panel shall be partitioned into four compartments consisting of a gas insulated high voltage core module, solidly insulated busbar module, air insulated low voltage compartment and an air insulated cable termination compartment. A pressure relief duct shall be provided on top of the switchboard.

The switchgear shall be partitioned both between the busbar to the circuit breaker and from panel to panel.

The horizontal busbar shall be outside the gas tank, metallically separated, as a fully insulated, touch proof, system with integrated screen to earth. The busbar connections between each panel shall be of the plug-in type.

Extension of the switchgear panel must be possible on both sides without requiring interventions into the existing gas compartments.

The panel shall be supplied with all equipment, insulating material, bus wiring, bus bar joints and any tools and components required to assemble and extend the switchboard. The panels shall be delivered to site as factory assembled, tested units.

The degree of protection shall be as defined in IEC 62271-1 and shall be at least IP65 for gas compartments and a minimum of IP3X for the low voltage compartments.

Each switchgear panel shall be provided with a flush mounted SF6 gas monitoring gauge to indicate gas pressure on the front of the panel. The gauge shall indicate bar pressure and safe and unsafe pressures. A gas leakage rate of maximum 0.1% per annum must be guaranteed.

The high voltage part of the switchgear shall not require maintenance under normal conditions during the lifetime of the switchboard. The circuit breaker drive mechanism shall be located outside on the front of the SF6 enclosure and shall be accessible for inspection and maintenance without opening the gas system.

Each switchboard shall be identified by an appropriately size label which indicates the functional units and their electrical characteristics.

The switchgear modules shall be equipped with a busbar earthing interlock scheme in accordance with SANS 1855, SANS 62271-200 and SANS 62271-201.

Separate cable termination compartments are required covered by a bolted interlocked cover panel and shall have a minimum of IP3X protection index. The 11kV power cables shall be bottom entry (either front or rear bottom cable entry). The cable termination compartments will have an overhang over the cable trench.

The power cables shall be connected via outer-cone type C or insulated inner cone cable bushings in accordance with EN 50181. The type C bushings shall have M16 x 2 threads and be suitable for the use of screened separable T-type connectors. Cable clamps and a copper earth bar shall be provided for connection of the cable screens.

Current transformers (CTs) shall be installed in the cable compartment outside of the gas compartment for easy access.

The voltage transformers (VTs) shall be busbar connected plug in type fitted on the incomer panel busbars for easy access.

Replacement of the CTs and VTs must be possible without gas-handling.

A three-phase capacitive voltage detection system (VDS) in compliance with IEC 61243-5 / SANS 60270 is required on each control cubicle of each switch panel.

In addition, each switch panel shall be equipped with a Voltage Presence Indicating System (VPIS) in compliance with IEC 61958 to indicate presence of operating voltage. These units shall be equipped with Red LEDs for indication and 4 mm plugs for electrical phasing of live cables between modules. Universal phase comparators shall be supplied for phasing if required. The VPIS shall be mounted on an easily visible position on the front of the control cubicle above the cable box of the switchgear panels.

PS.4.1.2 **Functional Requirements**

All switching functions (vacuum circuit breaker and three-position switch etc.) shall be contained in a Sulphur hexafluoride (SF6) filled stainless-steel tank at a pressure to ensure insulation and load breaking functions. The gas compartments shall be designed as hermetically sealed pressure systems in accordance with IEC 62271-1.

Gas monitoring shall be carried out with temperature compensated manometers with two remote contacts (warning, alarm) or with temperature compensated gas density devices with to remote contacts (warning, alarm). The SF6 gas monitoring gauge shall be flush mounted on the front of all panels. The gauge shall indicate bar pressure and safe and unsafe pressures.

Overpressure relief shall be provided for each gas compartment via appropriate arc venting ducting to the outside of the building.

The switchboard shall comprise a combination of extensible single panels and shall include two (2) incomer panels, ten (10) feeder panels and one (1) bus section panel complete with busbar riser, as specified, designed for assembly into one switchboard through interconnection with fully insulated and screened bus bar couplers.

It shall be possible to exchange panels or circuit breakers within an erected switchboard without having to remove adjacent panels.

The position of the switch disconnectors, circuit breakers and earth switches shall be clearly visible from the front of the panels. Mechanical interlock systems shall prevent access to the operating shafts of the earth switch when the switch disconnector and/or circuit breaker are closed. This system must also prevent access to operate the switch disconnector and/or circuit breaker when the earth switch is closed. The switchgear shall be provided with protective covers to shroud the external busbars on all sides.

The mechanical operation and the mechanical switch position indication must be arranged along with a mimic diagram in an optically highlighted control panel. All operations of the switchboard must be by means of a common, removable handle for the disconnectors, circuit breakers and earth switch.

The combination modules shall have three (3) positions to clearly show the positions of the switch disconnectors, circuit breakers and earth switches: open-disconnected, closed and earthed on the control cubicle of the module.

The operating mechanism shall be used to manually close the circuit breaker and charge the mechanism spring in a single movement. The circuit breakers shall be fitted with a local system to manually and electrically close and open by integrated push buttons. The spring shall be rechargeable with the circuit breaker closed to permit an immediate tripping, recloser and tripping without having to recharge the spring. The spring charge supply shall be from the 110V DC supply.

The switchgear shall be designed to operate on a 12 kV, 3 phase, 50 Hertz supply, solidly or

impedance earthed and shall have a minimum internal arc classification (IAC) of AFLR 25 kA for 1 s. All circuit breakers shall meet the requirements of SANS 62271-200. This rating shall apply to the complete assembled compact switchgear switchboard, including cable termination enclosures and any necessary pedestals or raising bases, as installed.

Earth continuity shall be provided between the metallic parts of the switchboard and cables so that there is no electrical potential or field in the surrounding air, to ensure safe operation of the modules.

Earthing of the switchgear units shall be by means of an earth connection terminals and tinned copper earth bars complying with the relevant standards.

The earthing system on the switchgear units shall be suitable for the maximum earth fault current as specified in the Rating schedule. The earth bars must be bonded together to provide continuity. Earth bar must be fitted with M12 stainless steel bolts and nuts and a minimum of 2 x M12 bolts and nuts, including flat and spring washers for the connection of external earth conductors.

The earth bars shall be fitted inside the cable compartments and allowance shall be made to cover external connections to prevent vandalism and theft.

The switchgear shall be made corrosion proof and painted according to SANS 1091 and SANS 1874. The colour of the switchgear shall be the manufacturer's standard colours.

Documentary proof of all tests carried out on the complete panel equipped with current and voltage transformers is to be submitted in the form of certificates before commissioning of switchgear.

Every breaker shall be provided with an adequate amount of normally closed and normally open auxiliary contacts. No repeat relays for these contacts will be allowed.

An internal light (LED type) shall be provided in each LV compartment.

Heaters must be installed in the cable compartments to prevent condensation in accordance with the recommendations of the switchgear manufacturer.

PS.4.2 PANEL REQUIREMENTS

PS.4.2.1 Incomer Panel

The incomer panel shall contain a 1250 A vacuum circuit breaker, three-position isolator/earthing switch, 1250 A busbars, interlocking, earth-bar, busbar connected VT and stored spring energy mechanism (A-mech) with open- and close coil for motor operation.

Each incomer circuit breaker panel will be supplied with a pendant control station (Cannon plug socket) standard with a 10 m meter lead (chicken switch).

The three-position isolator/earthing switch shall be rated for 1250 A and shall be maintenance free, housed inside the SF6 enclosure with suitable seals around the shafts where they enter the enclosure. The operating mechanism shall be outside the SF6 enclosure.

The position indication of the switch shall be clearly visible from the front of the panel. The indications system must be non-corrosive and mimic indication shall not fade in the life span of the switchgear.

The operation of the isolator shall provide independent manual opening and closing functions as well as mechanical stored tripping energy.

The 1250 A circuit breaker shall be connected in series with the disconnector. The circuit breaker

shall have the interrupting capacity specified in the ratings schedule. The current interrupters shall use vacuum bottles and the operation between the circuit breaker and the disconnector shall be interlocked.

The operating mechanism shall be used to manually close the circuit breaker and charge the mechanism spring in a single movement. The circuit breakers shall be fitted with a local system to manually and electrically close and open by integrated push buttons. The spring shall be rechargeable with the circuit breaker closed to permit an immediate tripping, recloser and tripping without having to recharge the spring. The spring charge supply shall be from the 110 V DC supply.

The panel shall be fitted with integrated DC powered protection relays that shall be housed in a low voltage compartment mounted on top of the panel.

Three single-phase plug-in type busbar connected VTs shall be connected to the busbars of each of the incomer panels (refer to PS.4.7 for VT specifications).

Ring core current transformers shall be incorporated in the cable termination compartment

The CTs shall be fitted as such to enable easy removal of the current transformer bracket for the installation if the cable is termination.

The protection current transformers must be able to supply the energy to meet the following minimum values:

- 200/400/1, Class PX, 25 kA at 3 seconds for differential protection.
- 200/400/1, 10VA, Class 5P20, 25kA at 3 seconds for OC & EF protection.
- 200/400/1, 10VA, Class 0.5, 25 kA at 3 seconds for metering.

The wiring to the CTs and the relay must be protected against accidental damage and shall be connected to a PK2 terminal block in the circuit breaker low voltage compartment of the module.

The low voltage compartment must be an integral part of the panel and flush mounted with the face of the panel.

PS.4.2.2 **Feeder Panel**

The feeder panel shall contain a 630 A vacuum circuit breaker, three-position isolator/earthing switch, 1250 A busbars, interlocking, earth-bar and stored spring energy mechanism (A-mech) with open- and close coil for motor operation.

Each feeder circuit breaker panel will be supplied with a pendant control station (Cannon plug socket) standard with a 10 m meter lead (chicken switch).

The three-position isolator/earthing switch shall be rated for 630 A and shall be maintenance free, housed inside the SF6 enclosure with suitable seals around the shafts where they enter the enclosure. The operating mechanism shall be outside the enclosure.

The position indication of the switch shall be clearly visible from the front of the panel. The indications system must be non-corrosive and mimic indication shall not fade in the life span of the switchgear.

The operation of the isolator shall provide independent manual opening and closing functions as well as mechanical stored tripping energy.

The 630 A circuit breaker shall be connected in series with the disconnector. The circuit breaker shall

have the interrupting capacity specified in the ratings schedule. The current interrupters shall use vacuum bottles and the operation between the circuit breaker and the disconnector shall be interlocked.

The operating mechanism shall be used to manually close the circuit breaker and charge the mechanism spring in a single movement. The circuit breakers shall be fitted with a local system to manually and electrically close and open by integrated push buttons. The spring shall be rechargeable with the circuit breaker closed to permit an immediate tripping, recloser and tripping without having to recharge the spring. The spring charge supply shall be from the 110 V DC supply.

The panel shall be fitted with an integrated DC powered protection relay that shall be housed in a low voltage compartment mounted on top of the panel.

Ring core current transformers shall be incorporated in the cable termination compartment.

The CTs shall be fitted as such to enable easy removal of the current transformer bracket for the installation if the cable is termination.

The protection current transformers must be able to supply the energy to meet the following minimum values:

- 200/400/1, 10VA, Class 5P20, 25kA at 3 seconds for OC & EF protection.
- 200/400/1, 10VA, Class 0.5, 25kA at 3 seconds for metering.

The wiring to the CTs and the relay must be protected against accidental damage and shall be connected to a PK2 terminal block in the circuit breaker low voltage compartment of the module.

The low voltage compartment must be an integral part of the panel and flush mounted with the face of the panel.

PS.4.2.3 **Metering Panel**

Not applicable.

PS.4.2.4 **Bus Section Panel**

The bus section panel (sectionalizer) complete with busbar riser shall contain a 1250 A vacuum circuit breaker, two three-position isolator/earthing switches (one in bus section/coupler and one in busbar riser), 1250 A busbars, interlocking, earth-bar and stored spring energy mechanism (A-mech) with open- and close coil for motor operation.

The bus section panel will be supplied with a pendant control station (Cannon plug socket) standard with a 10 m meter lead (chicken switch).

The three-position isolator/earthing switch shall be rated for 1250 A and shall be maintenance free, housed inside the SF6 enclosure with suitable seals around the shafts where they enter the enclosure. The operating mechanism shall be outside the SF6 enclosure.

The position indication of the switch shall be clearly visible from the front of the panel. The indications system must be non-corrosive and mimic indication shall not fade in the life span of the switchgear.

The operation of the isolator shall provide independent manual opening and closing functions as well as mechanical stored tripping energy.

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The 1250 A circuit breaker shall be connected in series with the disconnector. The circuit breaker shall have the interrupting capacity specified in the ratings schedule. The current interrupters shall use vacuum bottles and the operation between the circuit breaker and the disconnector shall be interlocked.

The operating mechanism shall be used to manually close the circuit breaker and charge the mechanism spring in a single movement. The circuit breakers shall be fitted with a local system to manually and electrically close and open by integrated push buttons. The spring shall be rechargeable with the circuit breaker closed to permit an immediate tripping, recloser and tripping without having to recharge the spring. The spring charge supply shall be from the 110 V DC supply.

The panel shall be fitted with an integrated DC powered protection relay that shall be housed in a low voltage compartment mounted on top of the panel.

Ring core current transformers shall be incorporated on the busbar connecting the bus section and the bus riser.

The protection current transformers must be able to supply the energy to meet the following minimum values:

- 600/1200/1, 10 VA, Class 5P20, 25 kA at 3 seconds for OC & EF protection.

The wiring to the CT's and the relay must be protected against accidental damage and shall be connected to a PK2 terminal block in the circuit breaker low voltage compartment of the module.

The low voltage compartment must be an integral part of the panel and flush mounted with the face of the panel.

The bus section panel shall make provision for the fitment of a 19" rack mounted network switch (supplied and installed by others) including a single 110V DC supply to power the switch.

PS.4.2.5 Busbar Earthing Switch

The busbar earthing switched shall be integrated in bus coupler and busbar riser panels.

PS.4.3 SWITCHBOARD DETAILS

Three (3) incomer circuit breaker panels, seven (7) feeder circuit breaker panels and one (1) bus section panel complete with bus riser with 1250 A busbars and 25 kA fault rating shall be supplied and installed as detailed in the table below.

Panel Identification	Circuit Breaker/Isolator Rating	On Board Instruments	Relay Function	Current Transformer Ratio
SPARE 1	630 A	REX 615	O/C & EF	200/400/1 Class 5P20 200/400/1 Class 0,5
MS LOCAL 800KVA	630 A	REX 615	O/C & E/F	200/400/1 Class 5P20 200/400/1 Class 0,5
MS BASSI	630 A	REX 615	O/C & E/F	200/400/1 Class 5P20 200/400/1 Class 0,5
MS 6TH AVENUE	630 A	REX 615	O/C & E/F	200/400/1 Class 5P20 200/400/1 Class 0,5

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Panel Identification	Circuit Breaker/Isolator Rating	On Board Instruments	Relay Function	Current Transformer Ratio
SS CLOETESVILLE 1 (INCOMER 1) WITH BUSBAR VT	1250 A	REX 615 REX 615	Diff Backup O/C & E/F	200/400/1 Class PX 200/400/1 Class 5P20 200/400/1 Class 0,5
BUS-COUPLER	1250 A	REX 615	O/C & E/F	600/1200/5 Class 5P20
SS CLOETESVILLE 2 (INCOMER 2) WITH BUSBAR VT	1250 A	REX 615 REX 615	Diff Backup O/C & E/F	200/400/1 Class PX 200/400/1 Class 5P20 200/400/1 Class 0,5
SS WATERGANG (INCOMER 3)	1250 A	REX 615 REX 615	Diff Backup O/C & E/F	200/400/1 Class PX 200/400/1 Class 5P20 200/400/1 Class 0,5
MS CORRIDOR	630 A	REX 615	O/C & E/F	200/400/1 Class 5P20 200/400/1 Class 0,5
MS MONDE CRESCENT	630 A	REX 615	O/C & E/F	200/400/1 Class 5P20 200/400/1 Class 0,5
SPARE 2	630 A	REX 615	O/C & EF	200/400/1 Class 5P20 200/400/1 Class 0,5

PS.4.4 TERMINATION OF CABLES TO SWITCHGEAR

The cable box shall be able to accommodate heat shrink terminations and wiped gland terminations shall be made.

Connection to the bushings shall be made using either outer cone right angled screened separable connectors (T-connectors) or inner cone plug-in screened separable connectors depending on the type of bushing provided (type C outer cone or plug-in inner cone).

Only materials of approved type and manufacture may be used. The position of the phases in any panel, when viewed from the front shall be:

Red : Left

White : Centre

Blue : Right

The phases shall be identified as such in colour code on the cable box of each panel.

Spacing of terminations shall be in accordance with NRS 003. The cable connection height, with one bushing per phase, shall be minimum 700 mm, from cubicle bottom edge.

Panel heaters (240 V AC) must be installed in the cable box to prevent condensation in accordance with the recommendations of the switchgear manufacturer.

PS.4.5 CURRENT TRANSFORMERS

Current transformers (ring core type) shall be of the class and rated accuracy limit factor so that it will not saturate under maximum fault level condition for the burden of protection relays and instruments

connected to it. All current transformers shall have a short time factor corresponding to the fault rating of the 11 kV switchgear.

All current transformers specified shall be installed in all three phases, irrespective of whether it shall be in use.

PS.4.6 INDICATING INSTRUMENTS

One voltmeter and one ampere meter with additional maximum demand indication, shall be installed on all panels. The ampere meter shall be connected to the white phase of the CT.

Instruments shall be of the flush mounted, 100 mm dial, spring controlled moving iron type conforming to BS 89. It shall have shadow-free dished scale plates, free from parallax errors.

Ampere meters shall have their CT ratio inscribed on its scale plate and shall be driven with saturation auxiliary current transformers so it shall be capable of withstanding an overload primary current corresponding to fault rating of the 11 kV switchgear. Ampere meters shall have overload scales of 120 % of the nominal rating.

PS.4.7 VOLTAGE TRANSFORMERS

Voltage transformers shall comply with the requirements of SANS 61869-3.

The busbar connected VT's shall be fitted in the busbar compartment of the SS Cloetesville 1 and 2 incomer circuit breaker panels and shall be fully screened, solid dielectric type VTs.

The windings shall be separated by an earth screen, and the neutral star point shall be internally earthed through a solid link and clearly marked as such. A separate neutral conductor shall be brought out to the terminal strip where it shall also be earthed through a link.

The VT ratio shall be 100:1 for an output of 25 VA, 110 V, Class 3P/0,5 for metering purposes to vector group Yyno.

The VTs shall be discharge free and shall have a minimum voltage factor of 1,2 continuous and 1,9 for 30 s and with a short circuit withstand capability in accordance with SANS 61869-3.

Particular attention shall be given to ensuring that saturation or undamped ferro-resonant oscillations do not occur during all foreseeable system conditions and where required to fulfil this requirement tertiary (or residual) windings shall be provided and connected as an open delta winding with suitable protective circuitry. Such circuitry shall also make provision for VT earth fault conditions.

The VTs shall be protected by appropriately rated MV HRC fuses or an isolating device that will allow isolation and removal of the VT without breaching the SF6 tank.

The VTs shall be fitted with fuses on the LV side, which shall be housed within the Low Voltage compartment.

PS.4.8 PANEL TEST BLOCKS

Test blocks (PK-2 4 way) for the protection CT and VT circuits shall be installed on the protection panels. Test blocks shall be clearly marked with circuit entry at the bottom side and relay connections at the top. The Contractor shall include a set of 3 test handles that can be used with the PK-2 test blocks for testing purposes.

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Provision must be made for test points in all the protection panels. Potential free contacts from the protection relay shall be wired to the test points for protection start, protection trip and circuit breaker fail (where applicable) signals.

PS.4.9 11 kV PROTECTION AND CONTROL SCHEMES

PS.4.9.1 General

All protection relays (IED's) shall conform to the requirements of IEC 60225.

Protection relays as detailed below must be installed and wired up for the logical functioning of such relays described. All 11 kV IED's shall be on-board and mounted in the Low Voltage compartment of the 11 kV switchgear. The Low Voltage compartment shall be sufficiently sized to accommodate the IED's complete with all required other indication functions and control circuit protection mcb's.

All IED's shall be microprocessor-based multifunction protection relays, suitable for use on medium voltage cable distribution networks. The IED's offered will provide for an integrated protection, control, interlocking and monitoring solution to allow optimum and seamless integration into the SCADA system. IEC61850 GOOSE messaging shall be used for communication between protection relays. Each IED unit will provide protection, control, interlocking and monitoring functions for its individual feeder only and will act as gateway for switchgear statuses to the SCADA system.

All differential protection shall be done via fibre optic cable, and all differential protection relays must therefore be able to accommodate this technology.

All panels with differential protection relays shall have multimode fibre optic patch leads from the 11 kV panel to the patch panel in the control room.

The relay system shall ensure fast tripping for both over current and earth fault conditions and where applicable sensitive earth fault conditions and shall be able to control all breaker and isolator operations and indicate all statuses on the IED display.

Protection relays shall be fitted with clearly visible indicators identifying when a relay-initiated circuit breaker trip has commenced timing or has occurred and identifying the specific cause of the trip.

The relay shall have an LCD display indicating load current of the module with back light facilities preferred for poor light conditions.

The switchgear manufacturer shall be responsible for the programming and mapping of the relays.

The communication protocol for the substation shall be IEC 61850.

PS.4.9.2 IED Details for Incomer Panels

The two incomer panels shall be fitted with two (2) REX615 relays as follows:

1. Relay 1 for differential protection with followings details.

Protection Relay	REX 615_1AT4 (Standard)
Ordering Code	REX615A10GN+AIM16+APP6+BIO5+CMP1+COM15+HMI1+PCL1+PSM4 +SCT1
Protection Functions	67/67N, 50/51/51B, 50N/51N, 81U/81O, 86, 87L

Metering Functions	3I, In, 3U, Vn, P, E, f, DREC
Communication	IEC 61850

2. Relay 2 for bay control and backup overcurrent and earth fault protection with followings details.

Protection Relay	REX 615_11DN8 (Wide)
Ordering Code	REX615B10GN+AIM4+APP1+BIO5+BI05+BIO7+CMP4+COM32+HMI1+ PCL1+PSM4+SCT1
Protection Functions	27, 59, 67/67N, 50/51/51B, 50N/51N, 81U/81O, 86, TCM, ARC
Metering Functions	3I, In, 3U, Vn, P, E, f, DREC
Communication	IEC 61850

PS.4.9.3 **IED Details for Feeder Panels**

All the feeder panels shall be fitted with one (1) REX615 relay for bay control and overcurrent and earth fault protection with followings details.

Protection Relay	REX 615_11DN8 (Wide)
Ordering Code	REX615B10GN+AIM4+APP1+BIO5+BI05+BIO7+CMP4+COM32+HMI1+ PCL1+PSM4+SCT1
Protection Functions	27, 59, 67/67N, 50/51/51B, 50N/51N, 81U/81O, 86, TCM, ARC
Metering Functions	3I, In, 3U, Vn, P, E, f, DREC
Communication	IEC 61850

PS.4.9.4 **IED Details for Bus Section Panel**

The bus section panel shall be fitted with one (1) REX615 relay for bay control and overcurrent and earth fault protection with followings details.

Protection Relay	REX 615_11DN8 (Wide)
Ordering Code	REX615B10GN+AIM4+APP1+BIO5+BI05+BIO7+CMP4+COM32+HMI1+ PCL1+PSM4+SCT1
Protection Functions	27, 59, 67/67N, 50/51/51B, 50N/51N, 81U/81O, 86, TCM, ARC
Metering Functions	3I, In, 3U, Vn, P, E, f, DREC
Communication	IEC 61850

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PS.4.9.5 **Arc Detection Protection**

An ARC fault detection scheme shall be installed on the bank of panels, with the possibility to extend the system in future when additional panels are added.

The scheme shall include 2-compartment arc detection (busbar and cable compartments) on each panel complete with fibre optic loops and sensors. The protection must be integrated into the REX615 protection IED's.

The Contractor (in conjunction with his equipment supplier) must supply a diagram indicating the placement of arc sensors.

The ARC detection scheme shall monitor for internal arc presence and be set to only operate when both internal arc and excess current are present.

The ARC detection philosophy will operate as follows:

a) Busbar ARC protection philosophy

- Both the incomer feeders and the bus section currents must be supervised in conjunction with busbar arc supervision for a busbar ARC fault.
- If an arc flash is detected on the lefthand side busbar with current present on the incomer panel all the panels/bays on the lefthand side including the bus section panel must trip.
- If an arc flash is detected on the righthand side busbar with current present on the incomer panel all the panels/bays on the righthand side including the bus section panel must trip.

b) Cable compartment ARC protection philosophy

- If an arc flash is detected in any of the cable compartment with current present on the feeder only the panel/bay with the cable compartment arc flash must trip.

The fast output contacts of the IED's must be used for tripping the circuit breakers in case of an ARC fault.

The ARC detection scheme must be fully set up as part of the factory acceptance test to simulate both light and current input in order to test the functionality of the scheme.

PS.4.9.6 **Control and Secondary Wiring Parameters**

The control and secondary wiring of the panels shall Halogen free and shall comply with SANS 1885 and NRS 003 with the following stranded copper conductor sizes and insulation colouring.

Circuit Name	**Conductor Size**	**Colour**
AC Circuit: Phase Neutral	 2.5mm² 2.5mm²	 Black Black
DC Circuit: Phase Neutral	 1.5mm² 1.5mm²	 Grey Grey

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CT Secondary Circuit: Phase 1 Phase 2 Phase 3 Common	 2.5mm² 2.5mm² 2.5mm² 2.5mm²	 Red White Blue Black
VT Secondary Circuit: Phase 1 Phase 2 Phase 3 Common	 2.5mm² 2.5mm² 2.5mm² 2.5mm²	 Red White Blue Black
Earthing Circuit	4mm²	Green / Yellow
Supply Interconnection	4mm²	
Logic Interconnection	2.5mm²	

The Low Voltage compartment shall be sufficiently sized to accommodate the specified IED's and all secondary wiring and equipment including all the required mcb's, test blocks, sufficient terminals for all input and output signals, auxiliary relays, wiring, ferrule numbers and trunking.

All terminals shall be of the Entrelec type M10/10-RS Spring Load terminals, except for the following:

- SCADA hardwire signals for which M4/6 screw terminals shall be used
- Links for which D6/8-RS Slide link terminals shall be used

The connectors shall be as follows:

- All control and protection circuitry wiring shall be terminated with crimp type, insulated, hook blade lugs.
- Communication wiring shall be terminated with either hook blade crimped lugs or boot-lace ferrules depending on the type of terminal connector.

PS.4.10 LABELLING OF MV SWITCHGEAR

All items of equipment such as fuses, circuit breakers, relays, terminal blocks, push button, etc. shall be clearly labelled with engraved plastic labels mechanically fixed. Adhesive labels are not acceptable.

PS.4.11 EARTHING OF MV SWITCHGEAR AND EQUIPMENT

All equipment in the substation must be bonded to earth with 50 x 3 mm copper earth straps.

A 6 mm x 30 mm x 600 mm earth bar shall be fitted in the cable trench. The earth bar shall be connected to the substation earth mat via 2 x 70 mm diameter bare copper earth wires (solid or stranded).

Both ends of the 11 kV switchgear earth bar shall be connected to the trench earth/earth mat via 70 mm diameter bare copper earth wires (solid or stranded).

PS.5 BATTERY CHARGER AND BATTERY BANK

The 110 V battery charging unit for protection functions shall be a free standing 30 A charger complete in a floor mounted cabinet suitable to house a set of 95 Ah 110 V batteries and shall have three (3) load circuit breakers.

The DC power supply is required with a nominal voltage of 110 V, with a firm capacity to supply the base load of relays and protection for a minimum 12 hours. Note that the battery size must assume a 20 % thermal reduction in capacity as well as a 2 5% capacity degradation over life, and an additional 20 % future load. Full calculation of sizing for the offered equipment must be given as per IEEE 1115. For the purposes of the tender the recommended minimum size of the battery installation shall be 95 Ah (final rating to be confirmed by the Engineer).

The battery bank shall consist of 85 x series connected ALCAD VTX1 L95 or equivalent approved Ni-Cd individual (single cell 1.2 V) low maintenance type cells complying with IEC 60623 and having an estimated life of 20 years and requiring topping up every 10+ years. The batteries shall be supplied factory filled with electrolyte and first charge completed. Each cell shall have its own filler cap so positioned that the electrolyte levels can be checked and refilling with water easily done without disconnecting and removing the cells from the battery bank.

The battery chargers shall be supplied from the 230 V AC distribution board. The charger must be capable of charging fully discharged batteries to 80 % of nominal voltage within five (5) hours while supplying the station load. A minimum charging capacity of 30 A is recommended.

The battery shall be sized to supply the DC load for 12 hours in the instance that the AC supply has failed.

The battery chargers shall be equipped with supervisory battery cell conditioning monitoring (mid-point monitoring of the battery bank to indicate cell imbalance) and alarm conditioning annunciation with the following alarms and features:

a) Alarm when voltage is less than 90 % of nominal via two sets of potential free contacts;
b) Alarm when the AC mains supply fails via two sets of potential free contacts;
c) An orange warning light which indicates a battery earth fault;
d) Boost charge fail alarm via two sets of potential free contacts;
e) High voltage alarm;
f) Low voltage alarm;
g) Charge fail alarm;
h) A scale ammeter with a midpoint zero to show the charge/discharge circuit. The ammeter must be a moving coil type. The range must be sufficient to show maximum currents in both modes;
i) Voltmeter showing the battery voltage;
j) Boost charge facility that will reset automatically to normal float charge after predetermined time which must be adjustable.
k) A test voltage function, under load conditions.

PS.6 TELEMETRY AND SCADA INSTALLATION

PS.6.1 SCADA REQUIREMENTS

The SCADA and HMI for Kayamandi switching station shall have at least the following functionality:

- Supervisory and control of all switchgear that can be remotely controlled.
- Status indications of all substation primary and secondary equipment.

- All equipment and substation alarms and warnings.
- Measurements of voltages, currents, frequency and active & reactive power.

The substation SCADA includes a complete substation automation system and the architecture of this system, and the associated communications is shown on the relevant SCADA layout drawing.

All 11 kV switchgear shall be supplied with motorised switchgear and auxiliaries to enable remote switching operation.

All protection relays/IEDs and metering equipment must be connected to the substation LAN and the LAN equipment and architecture shall include the following as a minimum:

- Backbone Ethernet switch.
- The various IEDs connected to the backbone switch.
- The communications mediums between IEDs and the SCADA communication system shall be all multimode fibre optic.

IEC 61850 communication protocol shall be used for the substation LAN communication and the following shall be provided for:

- MMS communications for all SCADA signalling.
- GOOSE messaging for all inter-bay protection signalling.

The substation automation system shall be housed in a 19” swing frame panel and shall consist of the following equipment:

- One (1) 110V-12V 40 Watt DC-DC Converter (fed from battery charger)
- Three (3) 110V-24V 40 Watt DC-DC Converter (fed from battery charger)
- Remote Terminal Unit (RTU);
- Substation HMI with one 19’’ screen, industrial substation PC, keyboard and mouse including HMI licence;
- KVM switch (if required);
- All required industrial Ethernet switches and media converters;
- Substation I/O Unit/s as required and Global Positioning System (GPS) clock with an NTP server if required by RTU.

Only industrial grade equipment will be accepted for the SCADA system.

The substation automation system shall also be connected to the Substation LAN via the backbone Ethernet.

The I/O unit(s) shall be provided for accepting all hard-wired supervisory signals (alarms) from the equipment in the substation which is not connected to the LAN. These include the battery charger alarm, door magnets, substation alarm, etc.

The RTU shall act as both a controller and data concentrator with a complete SCADA signal database and shall provide the necessary communications interface to the substation SCADA, complete with IEC 61850, MODBUS and DNP3.0 suite of communication protocols.

The contractor shall ensure that the SCADA system provides as a minimum for all the required signals.

PS.6.2 REMOTE TERMINAL UNIT (RTU)

Alarms and supervisory functions described below must be connected to a SCADA Remote Terminal Unit (RTU) within the substation control room.

For purposes of this contract the RTU shall be the Hitachi RTU530 as currently used by Stellenbosch Municipality (or equivalent approved). The RTU shall be supplied complete with all accessories, ethernet switch etc., and shall be installed and commissioned as part of the contract complete including all control cabling and multimode fibre patch leads as required to ensure a functional unit.

The RTU and HMI shall be housed in a 19" swing frame panel and shall be powered from the 110Volt battery charger.

PS.6.3 ALARM SIGNALS

Typical signals to the SCADA should include at a minimum the following:

i. Measurements and Alarms Signals:

- All alarms, group alarms and statuses from IEDs
- All measurements via IEDs, including:
  - Currents
  - Voltages
- All equipment statuses and alarms:
  - Position of circuit breakers, isolators and earth switches (Open or Closed)
  - Closing spring status (charged/discharged)
  - Alarms, Local / Remote selection
  - Circuit breaker fail
  - AC fail
- Any inter-trip signals received and sent
- Any communication failure alarms
- Any DC failures alarms
- Any battery charger alarms, signals and statuses
- Any security alarms

ii. Control and Interlocking Signals:

- Circuit breaker control
- Isolator / Earth Switch control where applicable
- Interlocking status of equipment
- Historical measurements
- Historical events

PS.6.4 GRAPHIC DISPLAY

A new graphic display must be set up for the new substation and associated equipment.

Graphic display of status and analogue parameters monitored, as well as trend screens must be provided. The existing Municipal standards must be applied for the graphic display.

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PS.6.5 TELECONTROL

Remote communication with the existing SCADA Master Station using the tele-control communication protocol IEC 60870-5-104 shall be through a microwave radio link (MikroTik DynaDish 5 or equivalent approved) complete with integrated antenna as specified below.

- Mikrotik DynaDish 5 Dual chain 5 Ghz 802.11a/n/ac QCA9882, 128 MB RAM, 720 MHz CPU, 25 dBi antenna gain (Product code RBDynaDishG-5HacD) complete with 24 V 0.8 A power adaptor, precision mount bracket and Gigabit PoE injector and surge protection.

The Contractor will be responsible for the supply and installation of the complete radio communication system including all setup and configuration required to establish a point-to-point link with the SCADA Master Station located in the ICT server room in Stellenbosch.

PS.6.6 SCADA SETUP, TESTING AND COMMISSIONING

The contractor shall be responsible for all subcomponents of the SCADA installation including all work necessary to install and commission the system, including all software, development costs and recoverable costs.

Stellenbosch Municipality is currently using the ETAP suite of SCADA software with the SCADA Master Station located in the ICT server room in Stellenbosch.

The Contractor will be responsible for all work related to design and engineering to configure the SCADA master station for the new substation and additional signals and functions including testing and commissioning from plant to Master Station.

The setup of the SCADA system shall include functionality for remote switching of all 11 kV switchgear.

Altek Solutions is the currently appointed SCADA service provider, and the Contractor shall sub-contract Altek Solutions to assist with the design and engineering of the master station and the testing and commissioning from plant.

PS.7 FIBRE PATCH PANEL

A 12U wall mounted patch panel cabinet with a lockable glass door shall be installed in the control room for differential protection functions.

Three (3) 24 port fibre optic patch panels with splice tray pig tails and SC connectors shall be supplied and installed in the patch panel cabinet.

Multimode fibre patch leads shall be installed between the fibre patch panels and the protection relays (IED's) on the following protection schemes:

- SS Cloetseville 1 (incomer 1) 11 kV feeder protection schemes.
- SS Cloetseville 2 (incomer 2) 11 kV feeder protection schemes.
- SS Watergang (incomer 3) 11 kV feeder protection schemes.

The patch leads shall be rated multi-mode and shall be made off on the patch panel and the IED's using SC or duplex LC connectors.

The price of the patch panels in the Bill of Quantities shall include the cost of the patch leads, as well as all labour associated with this component of work.

PS.8 SUBSTATION SECURITY

PS.8.1 ALARM SYSTEM

An alarm system complete including internal passive infrared motion sensors, door magnets and outdoor infrared point to point perimeter beam detectors coupled to an on-site siren and an armed response company via radio link or 3G link must be installed inside the MV switchgear building and the substation yard.

PS.9 MINIATURE SUBSTATION

PS.9.1 GENERAL CONSTRUCTION

The miniature substation shall comply with Stellenbosch Municipality specifications. A copy of the specification can be obtained from the Engineer if required. The full unit shall be type tested with approved certificates.

The miniature substations shall be suitable for outdoor use and shall be divided into three compartments, namely:

(a) MV compartment for housing of the RMU
(b) Transformer compartment
(c) LV compartment and streetlight control gear

Each compartment shall have its own compartment door. The streetlight compartment shall be isolated from the MV and LV sides.

The design and construction of the miniature substation shall be in accordance with the arrangement for a Type B, unitary design substation as specified in SANS 1029, NRS 004 and where applicable SANS 1030. The overall dimensions of the miniature substation shall be in accordance with SANS 1029, and it shall be suitable for installation on a Type B concrete plinth as shown in Figure C.7 of SANS 1029.

The miniature substations shall be designed for coastal conditions and shall be manufactured from materials as detailed below with the following minimum thicknesses:

Housing Walls and Roof	2mm 3CR12 stainless steel
Doors	3mm 3CR12 stainless steel
Channel Underbase-	6mm hot dip galvanised mild steel
Transformer Bottom	6mm hot dip galvanised mild steel
Transformer Tank	3mm 3CR12 stainless steel
Tank Cover	3mm 3CR12 stainless steel
Radiator Tubes	1,6mm hot dip galvanised mild steel

The miniature substation housing shall be manufactured from 3CR12 as detailed above with all bolts, nuts, washers, hinges and three-point locking system and outside door handles made from stainless

steel.

All fabrication shall be complete before galvanising which will include the completion of all cutting, drilling, bending, punching, forming and welding and the removal of all burrs and welding slag.

The roof and walls shall be of a single unitary construction. The roof shall have a distinct double slope to shed water.

The roof shall be secured in place in such a way as to ensure that the internal arc rating of the miniature substation is maintained at all times during service. The miniature substation shall be transported with the roof fitted and secured, and removal on site for inspections, maintenance or other routine activities shall not be necessary.

Lifting lugs shall be provided and shall be positioned so that the entire miniature substation can be safely slung and transported without the necessity of removing the roof, and without distortion of the miniature substation enclosure or frame.

The internal equipment shall be protected against the ingress of water and shall be vermin proof.

Ventilation openings shall be provided in the roof, to prevent condensation.

The overhanging edge of the roof shall be folded back towards the housing on all sides.

The miniature substation shall be fitted with vandal proof covers over the handles of the locking mechanisms.

The miniature substation shall be fitted with strip heaters with ON/OFF switches and temperature control.

The colour of the miniature substation shall be C12 Avocado Green according to SANS 1091.

The size and weight of the miniature substation, as well as “MV/LV” signs, must be stenciled on the outside.

All component materials shall be identified on the miniature substation rating plate in an approved manner.

The miniature substation shall bear the SANS mark.

The naming/numbering system of the miniature substations shall be as indicated on the drawings but needs to be confirmed before manufacturing. All naming labels shall be manufactured from aluminium (white background with red lettering) and shall be fastened using stainless steel pop-rivets.

PS.9.2 BASE CONSTRUCTION

The miniature substation housing shall be erected on a U-section steel frame with measurements of not less than 75 mm x 70 mm. The U-section shall be hot dip galvanised and painted with two coats black bitumen paint. It shall be rigid, robust and completely self-supporting.

Facilities shall be provided for bolting of the miniature substation underbase to a concrete plinth utilising holding-down set screws as necessary in order to provide for a safe installation and to comply with the miniature substation internal arc classification.

Flanges that are provided for the fitting of holding-down set screws shall be of a minimum of 5 mm thick steel or alternatively be reinforced to prevent bending during transportation, handling and installation.

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PS.9.3 MINIATURE SUBSTATION RATINGS

The miniature shall have the following ratings:

Rated primary voltage	11kVrms
System frequency	50 Hz
Number of phases	Three (3)
Rated no-load secondary voltage	415 Vrms
Rated power frequency voltage	12 kVrms
Rated lightning impulse withstand voltage	95 kV peak
Rated short-duration power frequency withstand voltage (50Hz : 1 min)	28 kVrms
Induced voltage withstand level	22 kVrms

PS.9.4 MV COMPARTMENT

The MV compartment shall contain a SafeRing type CCV ring main unit or equivalent approved as detailed in the data sheets.

The ring main units shall be SF_6 insulated. The ring main units shall be filled with new SF_6 gas complying with the requirements of IEC 60376. An SF_6 gas monitoring gauge shall be provided to indicate safe and unsafe gas pressure and shall be visible from the front panel.

The rated normal current of the ring main switch disconnectors shall be a minimum of 630Amp.

The vacuum circuit breaker tee-off shall be equipped with a self-powered protection relay as approved by Stellenbosch Municipality. The rated current of the circuit breaker shall be 200Amp and the interrupting medium shall be Vacuum in accordance with IEC 62271-100.

The protection relay shall provide an over-current function with normal inverse, very inverse and extremely inverse protection elements. The over current pick-up setting range shall be selectable from 50Amp to at least twice the rated load current of the circuit breaker in steps not exceeding 25Amp.

The MV compartment shall be designed and constructed so as to complement the internal arc requirements of the ring main unit. Therefore, in the event of an internal arc fault occurring in any air or gas filled compartment within the ring main unit, the mini-substation MV compartment shall be designed for the safe venting (i.e. away from the operator) of gases released during the internal arc fault.

The MV bushings on the transformer shall be Type C bushings in accordance with BS 7215 and shall comply with the requirements of SANS 60137.

In addition to the voltage test specified in SANS 60137 the transformer MV bushings shall be partial discharge tested, and the discharge shall be measured when the test voltage is increased to and again when it is reduced from 1,2 times phase to neutral voltage. The magnitude of the discharge shall not be greater than 5 pC. The surface of the bushings shall be smooth and free from any blemishes, patches or fillings.

The bushings shall be made from insulating material to the approval of the Engineer. Dough moulded compound bushings are not acceptable.

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All dimensions, clearances and creepage paths for the transformer MV bushings shall comply with the requirements of NRS 012 for 12 kV Type 1 unshrouded cable terminations.

The connections between the ring main unit and the transformer shall be made directly by means of single core XLPE 35 mm² screened 11 kV trailing cables, which should be as short as possible. The termination of the single core screened 11 kV trailing cables shall be to approval. The screening shall be earthed at the RMU end only.

The terminations shall be appropriate for the screened single core trailing cable, shall provide appropriate proven stress relief and shall have no sharp projections.

The termination of the trailing cables on the Type C bushings of the transformer shall be shrouded with Raychem Type RCAB, or equivalent to approval, push-on unscreened insulated bushing boots, rated at 17,5 kV and 95 kV BIL. These insulating boots shall be installed in accordance with the manufacturer's Installation Instructions.

Phase colour indication, RWB, shall be positioned above the MV bushings.

Approved removable barriers and shrouding shall be installed to prevent access by the operator to the MV connections.

PS.9.5 **TRANSFORMER COMPARTMENT**

The integral transformer unit shall have a hermetically sealed tank and comply with the following requirements.

The transformers shall be double-wound core type, three phase, oil-immersed units designed for natural (ONAN) cooling suitable for installation outdoors at unattended substations and shall comply with SANS 780.

The transformer shall be of the hermetically sealed type in a rigid tank.

An oil level indicator gauge complying with SANS 780 shall be fitted to the transformer tank.

The transformer shall be fitted with a top-oil thermo electric temperature-sensing element. This shall trip the main LV circuit breaker unit through a 230V shunt-trip facility when the transformer top-oil temperature exceeds 95 ºC. The relay used to provide the shunt-trip facility shall be housed in an enclosure and sealed with a stainless-steel meter sealing wire and a 12mm tinned copper ferrule. The thermo electric shall have a transparent front cover in order to view the temperature setting on the relay. The supply to the shunt trip facility shall be fitted with a 10Amp HRC fuse and a neutral fuse link.

The transformer shall be of the low loss type as per SANS 780. The load, no-load losses and the percentage impedance at 80°C as well and the X/R ratio shall be supplied for evaluation the total capitalised cost of the transformer.

The transformers shall be supplied to the following specifications:

Electrical requirements	**As per SANS 780**
Type	ONAN
kVA Rating	800
Rated primary voltage	11kV

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Rated secondary no-load voltage	415V
Vector group	Dyn 11
Losses	Low loss in accordance with SANS 780
Sound level	In accordance with SANS 780
Temperature rise limits	As per SANS 780 : Table 6
Secondary voltage regulation (%)	± 6% in 3% steps (Padlockable with 6mm diameter shackle)
Transformer tank	Sealed (welded cover)
MV Connections	Bushings, direct connection to ring main unit
LV Connections	Bushings, direct connection to LV main switch
Winding material (MV and LV)	Copper
Winding construction	Double wound

PS.9.6 LOW VOLTAGE COMPARTMENT

The miniature substation LV compartment shall include all internal connections, wiring, busbars and earth bars.

The miniature substation earth bar shall make provision, by means of a dedicated hole, for the fitting of a LV neutral surge arrester. A surge arrester shall be provided by the miniature substation manufacturer and positioned so that the 250 mm insulated jumper is connected to the LV neutral-earth bus-bar. In addition, two electrolytic copper conductors, each with a cross-sectional area of at least 70 mm2 shall be fitted (in parallel with the surge arrester) to provide an electrical bridge between the miniature substation earth bus-bar and the LV neutral-earth bus-bar.

In addition, the LV compartment shall contain:

- A suitably rated LV main MCCB for the miniature substations shall be provided and connected between the transformer and the busbars to act as the main switch.

- Space for distribution feeder protective devices shall be provided as shown on the drawings. Feeder MCCB's and k-clamps sets. MCCB sizes as per single line on design drawing. Allowance has to be made for 2 spare MCCB's per substation.

- A voltmeters, complete with associated 4A HRC fuses and a selector switch for reading between phases and neutral. The voltmeter shall have a 96 mm x 96 mm face.

- Three thermal combined instantaneous/15minute maximum demand indication ammeters complete with multi-ratio (1500-1000/5) ring type CT's of Class 0.5 shall be provided in the LV compartment.

- A bulk meter for measuring the overall consumption of the miniature substation. The bulk meter shall be a Landis & Gyr E650 3-phase 4 wire Class 0.5 meter (type ZMD405 1/5A CT connected class 0.5) complete with an E65C communication module, and all required CT and VT test

blocks, fuses and wiring required for bulk metering of the miniature substation LV busbar.

- Streetlight control complete with circuit breakers, fuses, contactors, daylight switch and a meter for measuring the streetlight consumption of the miniature substation. The streetlight energy meter shall be a Landis & Gyr E650 3-phase Class 1 meter (type ZMD310 120A direct connected class 1) complete with RS485 communication port.

- A galvanised mild steel front panel shall be fitted over the equipment with cut-outs provided for operating levers, instruments etc. The paint finish of the front panel shall be white enamel on both sides. Fuses and circuit breaker levers shall be accessible without removing the front panel and cut-outs provided for future equipment shall be blanked off with removable plates. Equipment of normally surface mounted types such as kWh meters, contactors etc. shall be mounted on suitable chassis behind the front panel. In the case of meters the front panel shall have transparent inserts to facilitate reading the meter.

- All LV bushings shall be porcelain or other insulating material to the approval of the Engineer. DMC components or similar will not be accepted.

- All busbars, neutral bar and earth bar shall be made of hard-drawn copper, tinned, colour coded and be so dimensioned that at full load the current density shall not exceed 1,8 A/mm².

- The neutral bar shall have the same cross-sectional area as the phase busbars.

- A full-length tinned copper earth bar of minimum dimensions of 31,5 mm x 6,3 mm and in compliance with SANS 1029 shall be mounted above the gland plate. This shall be connected to the transformer neutral, transformer tank, miniature substation metal works, LV distribution and MV switchgear, using a removable 70 mm² bare stranded copper conductor.

- The busbar load current carrying capacity and fault current rating shall be in accordance with the transformer rating.

- The connections of the transformer LV bushing flags onto the spindles and the connections of the LV flexible conductors onto the flags shall be fitted with locknuts at each connection point.

Labels must be provided according to the drawings (white with black lettering) and shall be fastened using stainless steel pop-rivets.

The low voltage cables shall be terminated by using K-clamps.

PS.9.7 **EARTHING**

Earth terminals, (M12 x 50 mm minimum) shall be welded to the transformer tank and shall be accessible from the MV and LV compartments.

The ring main unit and miniature substation base shall be securely bonded to these earth terminals in the MV compartment.

Copper bonding conductors shall have a minimum cross-sectional area of 70 mm².

Two stainless steel nuts and washers shall be provided on each earth terminal.

Each compartment shall be provided with an earthing terminal that complies with the relevant requirements of SANS 1029.

All earthing conductors shall be painted to assist with the prevention of vandalism.

The miniature substation shall be earthed at the MV and LV side. The two earths shall be interconnected if an earth reading of 1 ohm or less is acheived.

The MV earth electrode shall consist of a 60 m 70 mm^2 hard drawn copper conductor. A continuous copper conductor rated at the next standard size of half the cross-sectional area of the LV cable (as shown on the drawings), with a minimum of 35 mm^2, will be installed on the LV side and run together with all low voltage cables and connected onto the neutral busbars of the kiosks.

PS.9.8 CONCRETE PLINTH

The mini-substation plinth shall be 600mm minimum thickness cast in accordance with the supplier's requirements and specifications.

The top surface of the plinth shall be at least 150 mm but not more than 200 mm above final ground level. The strength of the concrete foundation shall be at least 25 MPa.

A wax-impregnated polyurethane foam strip ("Sonderband" or equivalent), 20 mm thick, shall be placed between the base frame and concrete plinth.

Openings in the plinth shall be sealed with a 10:1 sand cement mixture after cable installation.

PS.10 11 kV UNDERGROUND CABLES

PS.10.1 TYPE

The cables must be of the paper insulated type with lead alloy-E cover and double steel tape armouring. It must be 3-core copper and must comply with Table 18 of SANS 97 (copper, three core, belted PILC DSTA, 11/11 kV, PVC sheathed).

The sizes of the cables will be as shown on the drawings and shall bear the Stellenbosch Municipality unique marking.

Cable connections throughout the 11 kV system shall follow the same phase rotation and core numbers shall be allocated to the various phases as follows (or as required from the Local Supply Authority).

Red Phase : Core No 1
White Phase : Core No 2
Blue Phase : Core No 3

A 32 mm^2 light blue HDPE cable duct shall as a standard be installed with the new 11 kV cable between the substations for the installation of a fibre optic cable network.

PS.10.2 CABLE MARKINGS

MV cables shall be supplied with the unique Stellenbosch markings.

The cable shall be sequentially marked with a 4 mm wide tape which is inserted inside the conductor with the legend "STELLENBOSCH MUNICIPALITY" appearing at intervals of approximately 100 mm on the tape.

The cable embossing and drum markings shall include the following information:

- Stellenbosch Municipality

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- Year of Manufacture
- Voltage rating
- Conductor size
- Relevant SANS number
- Supplier's name

PS.10.3 **INSTALLATION**

The Electrical Contractor shall supply and install the 11 kV cables in accordance with the requirements depicted on the drawings and as per Supply Authority's specifications.

The 11 kV reticulation cables shall be installed underground along the routes as shown on the drawings. The cable must, wherever applicable, be installed in the same trench as other services. The provision of the required bedding for the cables, backfilling and compacting shall be in accordance with SANS 1200.

MV cable trenches shall be excavated to a depth of 1200 mm deep. The position of the cable trenches must be finalised with the Engineer before excavations start.

The bottom of the trench shall be filled across the full width with a 200 mm bedding of imported sand or a 200 mm layer of suitable soil sifted through a 6mm mesh and levelled off.

The bedding under joints shall be fully consolidated to prevent subsequent settling.

The MV cables shall be laid at a depth of 1000 mm below finished ground level measured to the top of the 200 mm bedding.

Only sandy or loam soil with satisfactory thermal resistivity (not exceeding 1.5 °Cm/W) may be used for this purpose. The use of crusher sand is acceptable.

Where no suitable soil is available on site, the Contractor shall import fill from elsewhere and make all the necessary arrangements to do so. The cost of providing soil for bedding purposes shall be included in the unit rates for excavations.

After cable laying, a further blanket of compacted imported sand shall be provided to extend to 300 mm above the cables before covering with compacted backfill.

Orange PVC warning sheet shall be laid along the entire 11 kV cable route. These sheets shall be installed at minimum 400 mm above the cable.

Water shall not be allowed to accumulate at any part of the works. The Electrical Contractor will therefore ensure that no cable laying is carried out until the trenches are free from water.

The MV cable shall be installed with a spacing of 300 mm to other MV cables, 150 mm to LV cables and 300 mm to all other services.

Where required cable protection reinforced concrete slabs, "vibracrete" type, shall be installed 300 mm above the cables.

The protective slabs shall have the following measurements:

Length : 1440 mm
Width : 300 mm

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Thickness : 40-60 mm

The slabs shall be manufactured from 35 MPa at 28 days concrete and each slab shall have 2 x 3.5 mm² rods.

All street-crossings shall be by means of 160 mm PVC ducts. Only one 11 kV cable per duct will be allowed.

The cables shall be connected to the miniature substations by means of approved heat shrink terminations with insulted separable T-connectors.

The Contractor shall supply test certificates for the insulation of the installed cable, i.e. MV pressure test of all 11 kV cables.

The following minimum values shall apply when performing the MV pressure testing:

Table 18 cables between phases : 31 kV DC / 13 kV AC
Table 18 cables between phases and earth : 17.9 kV DC / 2.7 kV AC

PS.10.4 CABLE LAYING

The cable shall be removed from the drum in such a manner that the cable is not subjected to twisting or tension exceeding that stipulated by the cable manufacturer.

The Electrical Contractor shall lay the cables on the prepared bed carefully to avoid cuts and damage. Cable rollers shall be used as far as possible to run out cables. Rollers shall be spaced so that the length of cable in the trench will be totally suspended during the laying operation and sufficiently close to prevent undue sagging and the cable from touching the ground. Rollers shall also be placed in the trench in such a manner that they will not readily capsize.

Cable rollers shall have no sharp projecting parts liable to damage the cables.

Where cables have to be drawn around corners, well lubricated skid plates shall be used. The skid plates shall be exercised to avoid abrasion, elongation or distortion of any kind.

The maximum allowable tension when pulling a cable, is 70 N/mm² of conductor area.

Cables shall not be bent during installation to a radius smaller than twelve times the overall diameter. Care should be taken during installation that the protective sheathing serving is not damaged.

It will be assumed that the price of rates contained in the tender includes for the installation of cables in pipes and trenches. The Engineer shall be informed timeously of the intention to carry out cable laying operations to allow an inspection of the works by the Engineer if so required.

The Electrical Contractor shall supply three copies of the certified reports for the insulation of the installed cables. MV pressure test of all 11 kV cables, in full compliance to SANS 97, as well as continuity and phase rotation tests.

The Electrical Contractor shall keep accurate records of cable positions, namely distance from kerb, erf boundary, corner peg etc.

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PS.10.5 **JOINTS**

The successful tenderer shall be responsible for jointing cables where required. Only jointers accredited by Stellenbosch Municipality will be allowed to joint cables.

Details of the type of joints and terminations proposed by the contractor shall be submitted to the Engineer for approval before work commences and shall conform to the Municipality's specification. All cable through joints and terminations shall be made in accordance with the cable manufacturer's recommendations and shall be carried out by a qualified cable jointer.

Joints shall only be made at full drum length intervals and shall be compound filled. All cable accessories (joint and terminations) shall comply with Municipal specification.

Cross phasing or cross numbering at joints will not be permitted.

PS.10.6 **TERMINATIONS**

The successful tenderer shall be responsible for making off the ends of all cables. Only jointers certified to perform heat shrink terminations from the supplier and accredited/pre-approved by Stellenbosch Municipality will be allowed to terminate cables.

Heat shrinkable kits with 12 kV insulated separable T-connectors (as supplied by Tank/Raychem or approved equivalent) shall be used for the 11 kV indoor cable terminations.

The complete kit shall be packed in a container that is marked for the type of cable insulation and construction as well as the voltage range for which the materials are suitable.

An illustrated set of instructions for the installation of the materials shall accompany every kit.

The terminations shall make minimal, if any, use of insulating or stress relieving tapes. The use of electrical stress control and insulating tubing that is heat shrunk on to the terminations is preferred above other methods.

The kits shall include suitable boots for the covering of the terminal studs on the equipment. The ends shall be terminated strictly in accordance with the termination manufacturer's specification and shall withstand the same test voltage as the rest of the cable. The cable shall be supported with wooden cleats at the terminations in the miniature substations to ensure that no undue stress is placed on the terminals.

Jointing and terminations shall only be carried out by personnel competent in the types of cable used. The Contractor shall notify the Engineer timeously of the day on which jointing and terminations are to be carried out in order that the inspection may be arranged if so required. Any cable, joint or inspection not inspected by the Engineer because of insufficient notice being given shall be opened for inspection and redone at the discretion of the Engineer at the cost of the Contractor.

PS.11 **LOW VOLTAGE FEEDER CABLES**

PS.11.1 **TYPE**

The low voltage feeder cables shall be of the 4-core 600/1000V PVC SWA PVC type with copper conductors manufactured in accordance with SANS 1507.

The sizes of the cables are shown on the drawings.

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PS.11.2 **MARKINGS**

LV cables shall be supplied with the unique Stellenbosch markings.

The cable shall be sequentially marked with a 4mm wide tape which is inserted inside the conductor with the legend "STELLENBOSCH MUNICIPALITY" appearing at intervals of approximately 100mm on the tape.

The cable embossing and drum markings shall include the following information:

- Stellenbosch Municipality
- Year of Manufacture
- Voltage rating
- Conductor size
- Relevant SANS number
- Supplier's name.

PS.12 **EXCAVATIONS**

PS.12.1 **GENERAL**

The excavations for this project will be done by the electrical contractor. The electrical contractor will be responsible for checking the depth of the trenches and the compliance thereof with requirements.

All excavations must comply with SANS 1200 LC.

The electrical contractor shall do the backfilling and install the danger tape. Trenches for road crossings shall be backfilled with clean compactable sand and excavated material removed from site.

The Contractor will be responsible to ensure that trenching and backfilling are done in accordance with the requirements of this Specification. The contractor will be responsible for the supply and installation of the bedding layer of shifted sand for preparation of the cable installation.

The Contractor shall, before trenching commences, familiarize himself with the routes and Site conditions and the procedure and order of doing the work shall be planned in conjunction with the general construction programme for other services and building requirements.

All re-instatements of the disturbed areas shall be done by the electrical contractor to the satisfaction of the Engineer. For asphalted road surfaces a 30 mm thick continuously graded medium asphalt layer using 60/70 penetration grade asphalt on MC-30 cutback bitumen prime coat shall be put down, whilst for pavements/sidewalks it shall be 20mm thick fine graded asphalt using 60/70 penetration grade asphalt on MC-30 cutback bitumen prime coat. Proper sub-base material to the Engineer's approval shall be used.

A Specialist Subcontractor, to be approved by the Engineer, shall perform directional drilling of sleeves underneath existing road surfaces, if determined to be required.

PS.12.2 **EXISTING SERVICES**

The Electrical Contractor shall exercise care so as not to damage existing underground services. The Electrical Contractor will be responsible to obtain all the available drawings of existing underground services, affected by the works as described in this specification. All costs thus incurred shall be for the account of the contractor.

The Contractor shall acquaint himself with the positions of all the existing services such as stormwater pipes, water mains, sewer mains, gas pipes, telephone cables, etc. before any excavations are commenced. For this purpose, he shall approach the Engineer, the Local Authority and any other authority which may be involved, in writing.

In the event of damage to other services or structures during trenching operations the Contractor shall immediately notify the Engineer and institute repairs. The Contractor will be held responsible for damage to any existing services brought to his attention by the relevant authorities and shall be responsible for the cost of repairs.

PS.12.3 MECHANICAL EXCAVATIONS

Power driven mechanical excavators may be used for trenching operations provided that they are not used in close proximity to other plant, services or other installations likely to be damaged by the use of such machinery.

The use of power-driven mechanical excavators shall be subject to the approval of the Engineer. Should the excavator produce trenches that exceed the required dimensions, payment based on volumetric excavation rates will be calculated on the required dimensions only.

PS.12.4 BLASTING

No guarantee is given or implied that blasting will not be required.

Should blasting be necessary and approved by the Engineer, the Contractor shall obtain the necessary authority from the relevant Government Departments and Local Authorities. The Contractor shall take full responsibility and observe all conditions and regulations set forth by the above authorities.

PS.12.5 ROUTES

Trenches shall connect the points shown on the drawings in a straight line. Any deviations due to obstructions or existing services shall be approved by the Engineer beforehand.

The Engineer reserves the right to alter any cable route or portion thereof in advance of cable laying. Payment in respect of any additional or wasted work involved shall be at the documented rates.

The removal of obstructions along the cable routes shall be subject to the approval of the Engineer.

PS.12.6 SHORING AND WATERLOGGING

The Contractor shall provide shoring for use in locations where there is a danger of the sides of the trench collapsing due to waterlogging or other ground conditions.

The strength if shoring must be adequate for Site conditions prevailing and the shoring must be braced across the trench.

The Contractor shall provide all pumps and equipment required to remove accumulated water from trenches. Water or any other liquid removed shall be disposed without any nuisance or hazard.

PS.12.7 TRENCHING

The electrical contractor shall be responsible for laying the cables in the prepared trenches. The electrical contractor shall also cover the cables with the appropriate blanket (300 mm thickness) and install the danger tape.

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On completion of the cable installation the civil contractor shall do the backfilling and compact the trench to specification.

Trenches for road crossings shall be backfilled with clean sand and excavated material removed from site.

Trenching shall be programmed in advance, and the approved programme shall not be departed from except with the consent of the Engineer.

The Contractor's rates for excavation shall include for the following:

- Any shoring which may be required to prevent the collapse of trench walls before cable and conductor laying and danger tape laying are completed.
- Any pumping which may be required to remove water from the trenches before cable and conductor laying and marker tape laying are complete.

Trenches shall be as straight as possible and shall be excavated to the dimensions indicated in this specification. The bottom of the trench shall be of smooth contour and shall have no sharp dips or rises which may cause tensile forces in the cable during backfilling.

The excavated material shall be placed adjacent to each trench in such a manner as to prevent nuisance, interference or damage to adjacent drains, gateways, trenches, water furrows, other works, properties or traffic. Where this is not possible the excavated materials shall be removed from site and disposed of at the cost of the Contractor.

Topsoil shall be saved on excavation and replaced as topsoil after backfilling.

Prior to cable laying the trench shall be inspected thoroughly and all objects likely to cause damage to the cables either during or after laying shall be removed.

Where ground conditions are likely to reduce maximum current carrying capacities of cables or where the cables are likely to be subjected to chemical or electrolytic damage the Engineer shall be notified before installing the cables. The Engineer will advise on the course of action to be taken.

PS.12.8 SURVEYOR'S PEGS

Extreme care shall be taken not to disturb surveyors' pegs. These pegs shall not be covered with excavated material. If the surveyors' pegs are disturbed, they shall be replaced by a qualified surveyor only and the Contractor will be liable for the cost involved, which cost the Contractor shall not recover from the Employer.

PS.12.9 CLASSIFICATION OF EXCAVATED MATERIAL AND MEASUREMENT

Payment for excavations will be made on volumetric excavation rates calculated on the basis of the given maximum dimension or the actual dimensions of the trenches, whichever is the lesser.

All measurements for payments shall be made jointly by the representatives of the Engineer and the Contractor. The Contractor shall obtain the signature of the Engineer's Representative including approval of such measurements.

No allowances shall be made for the breaking away or caving in of the trench sides, other earth movements or for trenches excavated in excess of the stipulated dimensions.

Volumetric excavation rates will be based on the different types of excavated materials as classified below.

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The general soil conditions will vary from area to area. The Contractor shall familiarise himself with the various ground conditions found in each area. For the purposes of this contract and due to the different soil conditions, excavations shall be classified into “Normal Excavation”, “Difficult Excavation” and “Hard Rock Excavation”. The Engineer shall approve the classification of any excavation and the rate used before work is done. The Contractor shall identify and mark all areas that are to be excavated by chalk to indicate the cable route and to ensure straight lines for excavations.

A) Normal Excavations

Digging, loosening or removal of the soil material making use of normal hand tools e.g. pick, shovels etc.

B) Difficult Excavations

Digging, loosening or removal of hard material that can only be practically done with the use of mechanical plant. Hard dry clay, soil containing layers of rock, paved surfaces, road crossings etc can be categorised as difficult excavation materials. The Contractor shall obtain authority before any difficult excavation is done.

C) Hard Rock Excavations

Hard rock excavation shall be excavation in material that cannot be efficiently removed without blasting or without wedging and splitting before removal. The Contractor shall obtain authority before any hard rock excavation is done.

Wherever soft rock and earth is encountered, the Contractor can proceed to excavate the trenches at this convenience and in accordance with the program. Where hard rock and very hard rock are encountered, the prior approval of the Engineer shall be obtained before proceeding with the excavation. This requirement is stipulated in order to afford the Engineer the opportunity to determine whether an alternative cable route is justified.

The onus will be upon the Contractor to have the excavated hard rock and very hard rock classifies and the extent thereof measured by the Engineer’s Representative in order to determine the applicable rates for payment. Such classification and measurement shall take place prior to the back-filling of the trenches and shall be certified in writing by the Engineer’s Representative.

PS.13 DUCTS

Where electrical cables cross under roads or other services areas they will be installed in cable sleeves.

Sleeves for electrical services shall be class 34 uPVC or class 400 Corflo and be installed under this contract. The installations shall be according to the drawings.

Before the sleeves are laid the bottom of the trench shall be filed across the full width with a 150 mm (minimum) layer of suitable bedding soil sifted through a 6 mm mesh and levelled off.

Sleeves shall be joined in accordance with the manufacturer’s specifications to ensure a smooth inner surface along the full length of the sleeves. Sleeves shall cross existing roads and railway tracks at right angles. All sleeves shall be graded 1:400 for water drainage.

A galvanised draw-wire of 2.5 mm in diameter shall be installed in each duct. The ducts shall extent 1,0 metre from the kerb line and the kerb shall be marked with a grooved “E” and vertical lines that shall indicate the number of ducts. Grooves to be painted red.

The ducts shall be buried 1,0 metre deep and the ends shall be sealed off.

Trenches for sleeves shall be backfilled with clean sand and compacted. Re-instatement shall be done as per the requirements of the specific area.

PS.14 TEST RECORDS AND AS BUILT DRAWINGS

PS.14.1 DEFINITIONS

Commissioning procedures:

The documented method whereby the contractor shall ensure that the installation is constructed in accordance with the requirements of the applicable manufacturers' specifications, the engineer's specification and design, regulations and codes of practice.

Performance tests:

The physical testing in the manufacturing works or on site of the equipment or systems as needed to demonstrate the ability to reach the performance levels specified or required.

Acceptance tests:

The physical testing and inspection on site of the system or sub-system to show that it is supplied, installed and operates generally in accordance with the specifications, design and regulations.

PS.14.2 COMMISSIONING

The Contractor shall supply, as part of the contract documentation and for approval before implementation, the commissioning procedures to be used on the project.

The commissioning procedure will cover in detail all the major items of equipment and sub-systems of the works.

The procedures must allow for the recording in writing and the signing off by a qualified person in terms of applicable regulations for any inspections or tests made in accordance with the procedures. The records and signed documents will form part of the as-built records.

PS.14.3 PERFORMANCE TESTS

Where required in terms of the commissioning procedure, specification or an instruction, a supplier or Contractor shall carry out on site or at the manufacturer's premises, performance tests on selected equipment or portions of the works. Type test certificates in accordance with appropriate standard specifications will be accepted as performance tests unless otherwise specified.

On-site performance tests will always be carried out on the following:

- Voltage withstand tests of all cabling, wiring and distribution boards.
- The mechanical operation and tripping and control of all LV circuit breakers and all MV switchgear.
- Earth continuity and resistance.
- The operating threshold of all earth leakage units.
- Polarity and phase rotation of three phase circuits.
- Rigidity of all fastenings.

The results of all tests shall be recorded in writing by the Contractor.

Only a representative sample of performance tests on site will be witnessed.

PS.14.4 ACCEPTANCE TESTS

Acceptance tests will be carried out in terms of the commissioning procedure and in particular the following:

- All switching procedures.
- Repetition of selected performance tests on a random basis.
- Operation of the most important control, protection and emergency systems.

On completion of acceptance tests, a test certificate shall be signed by the Contractor and taking-over authority to the effect that the tests specified on the certificate have been completed successfully.

PS.14.5 RESPONSIBILITY OF CONTRACTOR

The Contractor shall provide not less than seven days' notice in writing of all performance and acceptance tests so that they may be witnessed if considered necessary.

Notwithstanding the attendance at or failure to attend performance or acceptance tests by any witness, the Contractor is responsible for the correctness of the installation in terms of the manufacturers' requirements, the design and specification and applicable regulations and for the preparation of a written record of the tests and test results.

PS.14.6 AS BUILT RECORDS

The Contractor shall supply, after approval of the works, three bound sets of operating instructions, parts lists and maintenance manuals covering all items of equipment forming part of the contract.

The Contractor shall supply two bound copies of the records of all inspections and tests carried out in accordance with the commissioning procedures, performance tests and acceptance tests, not later than two weeks after completion of the acceptance tests.

The Contractor shall supply marked up original size, transparency drawings of the as-built installation. The original drawings may be used as the basis for the as-built record provided that the marking up is neat and clearly understandable.

PS.15 GENERAL PROJECT REQUIREMENTS

PS.15.1 PACKAGING OF MATERIAL

Packing shall give adequate protection to the enclosed materials against mechanical damage during transport to its final destination, including rough handling during sea, rail and road transport and transition from one mode of transport to another. Packing shall preferably be stout close-boarded wooden cases of adequate thickness, suitably braced and banded and lined internally with water resistant material. Cases transported or stored on open decks shall be roofed with asphalted felt.

Certain types of outdoor equipment may be crated, provided that adequate protection of vulnerable parts is assured. All pipe flanges shall be fitted with wooden covers not less than 40 mm larger in diameter than the flange. Steelwork sections and similar items may be bundled provided that the ends are adequately protected, and the enclosing bands or wires are robust. Indoor electrical equipment must be enclosed in welded polythene envelopes inside packing cases, and the envelopes shall be evacuated or have a desiccant inside.

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All items in cases or crates shall be secured so that they are not free to move and cannot work loose in transport. If rotating parts are shipped within their bearings or mountings, they must be adequately braced and restrained to prevent relative movement. Loose items shall be placed in bags in a case, each bag having stitched onto it a metal label indicating the number and nature of its contents. Where a filler material is used in a case to restrict movement or provide additional protection it shall be non-hygroscopic.

All surfaces liable to corrosion shall be thoroughly cleaned and special steps adapted to the nature of the materials and the time interval between packing and unpacking shall be taken to prevent corrosion. Steps shall be taken to ensure that insulated materials cannot be damaged by moisture, mold, insects, or rodents. Items that include materials liable to be damaged by moisture shall be packed in hermetically sealed containers in which silica gel, or some other approved desiccant has been inserted.

PS.15.2 GALVANIZING

Galvanising shall be applied by the hot dipped process in accordance with SANS 121. In all other cases, as required iron and steel components used for this contract shall be galvanized in accordance with the appropriate SANS Standards 763 and 935. In the case of the counterpoise, the class of coating shall be “heavy” (Class A to SANS 935). In all other cases the zinc coating shall be as for general applications (Table 1 as per SANS 763). Galvanizing shall be applied by the hot dipped process. The preparation for galvanizing and the galvanising process shall not affect the mechanical properties of the material being coated, especially the possible manifestation of hydrogen embrittlement.

Drilling, punching, cutting, bending, removal of burrs and all machining shall be completed before galvanizing.

The zinc coating shall be smooth, clean and of uniform thickness and free from defects.

All galvanised steel shall only be cut, drilled or worked on site with the Engineer’s approval and shall then be painted with an approved zinc rich paint.

The average thickness of the zinc coating shall be equivalent to not less than 0.6 kg/m^2 of zinc for all surfaces, except steel wires, bolts and nuts. Galvanising will be tested in accordance with the appropriate ISO or equivalent standards in order to determine that it complies with this requirement.

The thickness of the zinc coating for steel wires shall be in accordance with the relevant SABS standard and shall be approved by the Engineer. All galvanised wires on which tools have been used or cut shall be treated with approved bitumastic paint.

All bolts and screwed rods for the connection of galvanised steel parts shall be galvanised including the threaded portion(s) to a minimum average coating weight of 305 g/m^2. The threads of all bolts and screwed rods shall be cleared of spelter by spinning or brushing. A die shall not be used for cleaning the threads unless specially approved by the Engineer. All nuts shall be galvanised with the exception of the threads which shall be oiled. White rust formation subsequent to galvanising must be inhibited using an approved inhibitor applied according to the manufacturer’s instructions.

Material on which galvanising has been damaged shall be re-dipped unless; in the opinion of the Engineer the damage is local and can be repaired by applying a coat of galvanising repair paint. Where such repair is authorised, the damaged area shall be cleaned by wiping with clean rags saturated with mineral spirits or xylene followed by wire brushing. After wire brushing, the area shall be re-cleaned with solvent to remove residue and shall be given a minimum of two coats of zinc rich paint in accordance with the manufacturer’s instructions.

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PS.15.3 MARKING AND LABELLING

All equipment shall be clearly and permanently marked in English text, to the approval of the Engineer. Rating and diagram plates of all equipment shall specify the rating and data specified in the appropriate standards for the equipment.

Labels, marking and name plates, and their fixing screws for outdoor use shall be of chromaprep (Z275) or other corrosion resistant material. Where the use of vitreous enamelled labels is approved, the whole surface including the back and edges shall be properly covered and protective washers shall be provided on the front and back fixing screws. The fixings shall prevent undue vibration in particular on the transformer nameplates.

Indoor labels shall be made of engraved three-layer sandwich board. Painting of labels shall not be permitted. Marking for similar equipment shall be of uniform appearance and size, and the dimensions of the labels and size of the letters shall be to the approval of the Engineer.

PS.15.4 NUTS BOLTS AND WASHERS

Nuts and bolts in metric sizes shall be used. Bolts and studs for electrical connections shall preferably be of brass M6 size. Alternatively size M5 may be used, but these must be of stainless steel, phosphor bronze or high tensile brass.

Nuts and pins shall be locked in position with lock nuts or lock washers, or other devices if approved. Lock washers shall not be used above M24 size except when a spring type is specially approved.

In steel constructions no bolt or stud shall project through its nut by more than approximately 10 mm or four threads whichever is the less, except for terminals and relay stems. Bolts, nuts and washers on outdoor equipment shall be of non-corroding material where they are in contact with non-ferrous parts in conductor clamps and fittings and elsewhere if specially required.

Suitable special spanners shall need to be utilised by the contractor for bolts and nuts which are not properly accessible by means of an ordinary spanner. All steel bolts of any one diameter on a structure shall be of the one grade of steel.

All towers components shall be secured by means of steel bolts and nuts with hexagonal heads. Under no circumstances shall shearing forces be born on screwed threads and in general bolts with a diameter smaller than 16 mm shall not be used. All bolts used for the attachment of tower and fittings, shall be suitably locked and in all cases screwed threads shall be to ISO Standards as applicable.

PS.15.5 CORONA AND RADIO INTERFERENCE

All equipment shall be designed so as to minimize electrical discharges and interference with radio and television receiving equipment. Tests shall be carried out to ensure compliance with statutory values.

PS.15.6 SAFETY SCREENING OF EQUIPMENT

The minimum heights from the ground of any live part of the equipment which is not in an earthed screen enclosure shall be not less than 2,5 m plus the length of the supporting insulator or the bushing insulator and comply with the statutes. Where these clearances are not obtainable with an approved arrangement of the equipment, earthed screen enclosures or partitions shall be provided which shall prevent approach to any live part.

The screens and partitions necessary for each type of equipment shall be provided therewith and included in the cost thereof. The means of access to the guarded or screened area shall be provided

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with interlocking equipment, in accordance with the relevant clauses of the specification and the statutes.

PS.15.7 **MINIMUM ELECTRICAL AND WORKING CLEARANCES**

The following minimum Electrical clearances shall apply to all installations and activities performed in and around the substation:

System Nominal Voltage (kV)	System Highest Voltage (kV)	Air Clearances (mm)		Working Clearances (mm)	
		Phase to Earth (mm)	Phase to Phase (mm)	Vertical (mm)	Horizontal (mm)
11	12	200	270	2700	1300
66	72	770	1050	3200	1800
132	145	1200	1650	3700	2300

PS.15.8 **EARTHING OF EQUIPMENT**

All equipment in the substation must be bonded to earth in two places with 50 x 3 mm copper earth straps.

All electrical equipment shall be connected to the main earth grid via 50 mm x 3 mm flat strap between the earth stud of the equipment and the equipment steelwork.

PS.15.9 **SUBSTATION EQUIPMENT AND OFFICIAL NOTICES**

All substation equipment, notices, signage and labels as per the compulsory Occupational Health and Safety Act shall be supplied and installed.

PS.15.10 **SUBSTATION EQUIPMENT AND OFFICIAL NOTICES**

Two (2) copies of the maintenance manual, operating instructions complete with associated wiring diagrams, layout drawings, etc. pertaining to the equipment, shall be supplied for each complete panel.

The drawings etc. shall be complete and to the satisfaction of the Client. Both copies shall be handed to the consulting engineer, who will examine same, and issue receipt therefore, and distribute to the officials concerned. These manuals and drawings must be supplied as soon as possible after receipt of order.

Handbooks shall be in English.

Handbooks shall cover at least the following:

a) system description and interconnection diagrams;
b) description with circuit diagrams, of each unit of equipment;
c) drawings of each unit of equipment showing component layout and identification;

d) component lists of all components, for each component, the circuit diagram identification, manufacturer's part number, component description and the supplier's code number, where applicable;

e) maintenance and setting-up instructions;

f) performance specifications and performance tests;

g) A complete set of laminated schematic wiring diagrams shall be mounted on the notice board inside the substation control building.

PS.15.11 GUARANTEES

All equipment must be guaranteed for a period of 12 months from date of commissioning, against defective materials and workmanship. Any such defects must be repaired free of charge by the Contractor.

Equipment shall be adequately protected against possible damage during transportation, off-loading and handling on site.

Movable elements shall be adequately fixed in a stationary position by means of an approved method. Special care shall be taken to protect the glass covers of instruments and relays.

PS.15.12 TEST CERTIFICATES

All test reports shall be from an accredited testing laboratory.

Single copies of all type test certificates shall be submitted with tender.

Drawings shall also be submitted with the test certificates.

Drawings shall display the following details in English:

- General outline
- Manufacturers type designation
- Overall height and maximum diameters of the unit
- Number of sheds and typical shed profile of insulators
- Fixing arrangements
- Minimum creepage and dry arcing distance
- Rated electrical characteristics
- Mass of complete unit
- Colour

Type testing of the unit shall be subject to all relevant type tests specified in SANS 62271-102.

Certified copies of type and routine test certificates in respect of impulse level and fault rupturing capacity must be submitted with the tender.

Certificates of all tests done on the equipment to be commissioned must be submitted to the Engineer, before final commissioning takes place.

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PS.15.13 TESTS IN THE MANUFACTURERS WORKSHOP

The Contractor shall notify the consulting engineer two (2) weeks in advance of acceptance tests due to be carried out by the manufacturer, in order to enable him and/or a representative of the Client to be present at such tests if he/they so desire.

At least the following tests are required to be witnessed by the consulting engineer in the manufacturer's works:

a) High voltage pressure tests on equipment between phases and between phases and earth such that all combinations are fully tested. Conditions for corona discharge shall be as specified in the relevant specification.

b) A 1 kV pressure test to earth on all auxiliary low voltage circuits.

c) A secondary current injection test at not less than full rated current to verify the tripping times of and operation of all over current and earth fault and other protection relays. This test must also verify the current transformer ratios.

d) A polarity check and magnetising curve tests on all current transformers and their associated circuitry.

e) A polarity and phasing check on all voltage transformers.

f) An injection and voltage test on all metering circuits to ensure the correct connection and operation of all power meters and verify the current transformer ratios.

g) An operational test on all circuit breaker operating mechanisms and checking of mechanical and other interlocking breaker spring charging mechanisms and all opening and closing systems.

h) The testing and checking of all indication lamp circuits and the operation of lamp test and other facilities.

i) The testing of all alarms.

PS.15.14 COMMISSIONING

The Contractor will be responsible for all testing, configuring, setting and commissioning of all equipment by competent persons and the provision of all test equipment required to fulfil his obligations in this regard. The company to do the final testing, relay setting, and final commissioning of the panels shall be independent and unrelated to the manufacturer or supplier of the switchgear.

Testing shall be carried out in the presence of the consulting engineer or his representative. At least five days' prior notice shall be given of any such commissioning tests to be carried out.

The testing programme shall include for all items necessary to prove the safe and correct operation of all parts of the installation, and shall in particular cover the following:

a) Voltage withstands tests of all switchgear and cables after termination of same, to SANS or, in the absence of same to the manufacturer's specification.

b) Operational tests on all protection relays.

c) Operational tests including primary injection tests, on switchgear mechanisms and interlocks, etc.

d) Performance tests on DC supply units.

e) DC ductor tests of switchgear busbars to determine busbar to riser contact resistance.

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SECTION 3: APPLICABLE STANDARDS AND SPECIFICATIONS

The following minimum specifications will form an integral part of the contract as applicable, but are not provided with this document:

SANS

SANS 1200 AA	-	GENERAL (SMALL WORKS)
SANS 1200 C	-	SITE CLEARANCE
SANS 1200 LC	-	CABLE DUCTS
SANS 121	-	HOT DIP GALVANIZED COATINGS ON FABRICATED IRON AND STEEL ARTICLES: SPECIFICATIONS AND TEST METHODS
SANS 156	-	MOULDED-CASE CIRCUIT BREAKERS
SANS 290	-	MINERAL INSULATING OILS, MANAGEMENT OF POLYCHLORINATED BIPHENYLS (PCB)
SANS 555	-	UNUSED AND RECLAIMED MINERAL INSULATING OILS FOR TRANSFORMERS AND SWITCHGEAR
SANS 780	-	DISTRIBUTION TRANSFORMERS
SANS 1029	-	MINIATURE SUBSTATIONS FOR RATED AC VOLTAGES UP TO 24KV
SANS 1037	-	STANDARD TRANSFORMER BUSHINGS
SANS 1091	-	NATIONAL COLOUR STANDARD
SANS 9001	-	QUALITY MANAGEMENT SYSTEM, REQUIREMENTS
SANS 10198	-	THE SELECTION, HANDLING AND INSTALLATION OF ELECTRIC POWER CABLES OF RATING NOT EXCEEDING 33KV
SANS 097	-	ELECTRIC CABLES – IMPREGNATED PAPER-INSULATED METAL-SHEATHED CABLES FOR RATED VOLTAGES 3,3/3,3 KV TO 19/33 KV
SANS 1507	-	LOW VOLTAGE POWER CABLES
SANS 182	-	CONDUCTORS FOR OVERHEAD ELECTRICAL TRANSMISSION LINES
SANS 1339	-	ELECTRIC CABLES – CROSS LINKED POLYETHYLENE (XLPE) INSULATED CABLES FOR RATED VOLTAGES 3,8/6,6 KV TO 19/33 KV
SANS 1507	-	LOW VOLTAGE POWER CABLES
SANS 10142-1	-	THE WIRING OF PREMISES PART 1
SANS 1619	-	SMALL POWER DISTRIBUTION UNITS (READY BOARDS) FOR SINGLE PHASE 330V SERVICE CONNECTIONS
SANS 1091	-	VOLTAGE TRANSFORMERS
SANS 1652	-	BATTERY CHARGERS – INDUSTRIAL TYPE
SANS 10199	-	THE DESIGN AND INSTALLATION OF AN EARTH ELECTRODE

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SANS 10292	-	EARTHING OF LOW-VOLTAGE (LV) DISTRIBUTION SYSTEMS
SANS 1063	-	EARTH RODS, COUPLERS AND CONNECTIONS
SANS 1213	-	MECHANICAL CABLE GLANDS
SANS 1195	-	BUSBARS
SANS 10098	-	PUBLIC LIGHTING
SANS 1277	-	STREET LIGHTING LUMINAIRES
SANS 10114-1	-	ARTIFICIAL LIGHTING OF INTERIORS
SANS 10313	-	PROTECTION AGAINST LIGHTNING - PHYSICAL DAMAGE TO STRUCTURES AND LIFE HAZARD
SANS 60044-1	-	INSTRUMENTATION TRANSFORMERS PART 1: CURRENT TRANSFORMERS
SANS 60044-2	-	INSTRUMENTATION TRANSFORMERS PART 2: INDUCTIVE VOLTAGE TRANSFORMERS
SANS 60060-1	-	HIGH VOLTAGE TEST TECHNIQUES
SANS 60255-151	-	PROTECTION RELAYS
SANS 60056	-	HIGH VOLTAGE ALTERNATING CURRENT CIRCUIT BREAKERS
SANS 60265-1	-	HIGH VOLTAGE SWITCHES PART 1 : SWITCHES RATED FOR VOLTAGES 1KV AND LESS YHAN 52KV
SANS 62271-102	-	HIGH VOLTAGE SWITCHGEAR AND CONTROL GEAR PART 102 : ALTERNATING CURRENT DISCONNECTORS AND EARTHING SWITCHES
SANS 62271-100	-	HIGH VOLTAGE SWITCHGEAR AND CONTROL GEAR PART 1 : COMMON SPECIFICATIONS FOR ALTERNATING CURRENT SWITCHGEAR AND CONTROL GEAR
SANS 60168	-	TESTS ON INDOOR AND OUTDOOR POST INSULATORS OF CERAMIC MATERIAL OR GLASS FOR SYSTEMS WITH NOMINAL VOLTGES ABOVE 1000V
SANS 60273	-	CHARACTERISTICS OF INDOOR AND OUTDOOR POST INSULATORS FOR SYSTEMS WITH NOMINAL VOLTGES ABOVE 1000V
SANS 60529	-	DEGREES OF PROTECTION PROVIDED BY ENCLOSURES (IP CODE)
SANS 60305	-	INSULATORS FOR OVERHEAD LINES WITH NOMINAL VOLTAGE ABOVE 1000V – CERAMIC OR GLASS INSULATOR UNIT FOR AC SYSTEMS – CHARACTERISTICS OF INSULATOR UNITS OF THE CAP AND PIN TYPE
SANS 60383	-	INSULATORS FOR OVERHEAD LINES WITH NOMINAL VOLTAGE ABOVE 1000V
SANS 60720	-	CHARACTERISTICS OF LINE POST INSULATORS
SANS 60815	-	GUIDE TO THE SELECTION OF INSULATORS IN RESPECT OF POLLUTED CONDITIONS
SANS 60815-2	-	SELECTION AND DIMENSIONING OF HIGH-VOLTAGE INSULATORS INTENDED FOR USE IN POLUTED CONDITIONS PART 2 : CERAMIC AND GLASS INSULATIRS FOR A.C. SYSTEMS
SANS 61109	-	COMPOSITE INSULATORS FOR AC OVERHEAD LINES WITH A NOMINAL VOLTAGE GREATER THAN 1000V

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SANS 61850	-	COMMUNICATION NETWORKS AND SYSTEMS FOR POWER UTILITY AUTOMATION

IEC

IEC 60076 / SANS 60076	-	POWER TRANSFORMERS
IEC 60085	-	THERMAL EVALUATION AND CLASSIFICATION OF ELECTRICAL INSULATION
IEC 60099-4	-	SURGE ARRESTERS PART 4: METAL-OXIDE SURGE ARRESTERS WITHOUT GAPS FOR A.C. SYSTEMS
IEC 60137 / SANS 60137	-	INSULATED BUSHINGS FOR ALTERNATING VOLTGES ABOVE 1000V
IEC 60367	-	SPECIFICTION OF TECHNICAL GRADE SULPHUR HEXAFLOURIDE (SF6) FOR USE IN ELECTRICAL EQUIPMENT
IEC 60815	-	GUIDE FOR THE SELECTION OF INSULATORS IN RESPECT OF POLLUTED CONDITIONS
IEC 61869	-	CURRENT TRANSFORMERS
IEC 60214	-	ON-LOAD TAP-CHANGER
IEC 61140	-	PROTECTION AGAINST ELECTRIC SHOCK – COMMON ASPECTS FOR INSTALLATION AND EQUIPMENT
IEC 61850	-	COMMUNICATION STANDARD PROTOCOLS FOR INTELEGENT ELECTRONIC DEVICES AT ELECTRICAL SUBSTATIONS
IEC 60255	-	MEASURING RELAYS AND PROTECTION EQUIPMENT
IEC 60076-7	-	POWER TRANSFORMERS – PART 7: LOADING GUIDE FOR OIL IMMERSED POWER TRANSFORMERS
IEC 60870-5-103	-	TRANSMISSION PROTOCOLS – COMPANION STANDARDS FOR THE INFORMATIVE INTERFACE OF PROTECTION EQUIPMENT
IEC 60870-5-104	-	TRANSMISSION PROTOCOLS – NETWORK ACCESS FOR IEC 60870-5-101 USING STANDARD TRANSPORT PROFILES
IEC 62351	-	POWER SYSTEM MANAGEMENT AND ASSOCIATED INFORMATION EXCHANGE – DATA AND COMMUNICATIONS SECURITY
IEC 17025	-	GENERAL REQUIREMENTS FOR THE COMPETENCE OF TESTING AND CALIBRATION LABORATORIES
IEC 62262	-	DEGREES OF PROTECTION PROVIDED BY ENCLOSURES FOR ELECTRICAL EQUIPMENT AGAINST EXTERNAL MECHANICAL IMPACTS (IK CODE)
IEC 62305	-	PROTECTION AGAINST LIGHTNING – ALL PARTS

NRS

NRS 012	-	CABLE TERMINATIONS AND LIVE CONDUCTORS WITHIN AIR-INSULATED ENCLOSURES

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NRS 029	-	CURRENT TRANSFORMERS FOR RATED AC VOLTAGES FROM 3,6KV UP TO AND INCLUDING 420KV
NRS 030	-	INDUCTIVE TRANSFORMERS FOR RATED AC VOLTAGES FROM 3.3KV UP TO AND INCLUDING 765KV, FOR USE WITH ELECTRICAL MEASURING INSTRUMENTS OR ELECTRICAL PROTECTIVE DEVICES.
NRS 039	-	GUIDE FOR THE APPLICATION OF GAPLESS METAL-OXIDE SURGE ARRESTERS IN DISTRIBUTION SYSTEMS
NRS 032	-	SERVICE DISTRIBUTION BOXES – POLE MOUNTED TYPES FOR OVERHEAD SINGLE-PHASE AC SERVICE CONNECTIONS AT 230V
NRS 048	-	ELECTRICITY SUPPLY: QUALITY OF SUPPLY
NRS 053	-	ACCESSORIES FOR MEDIUM VOLTAGE POWER CABLES
NRS 056	-	SERVICE DISTRIBUTION BOXES – METER KIOSKS AND DISTRIBUTION KIOSKS
NRS 066	-	MEDIUM VOLTAGE INSULATORS
NRS 018	-	FITTINGS AND CONNECTORS FOR LOW VOLTAGE OVERHEAD POWER LINES USING AERIAL BUNDLED CONDUCTORS
NRS 033	-	ELECTRICITY DISTRIBUTION – GUIDELINES FOR THE APPLICATION DESIGN, PLANNING AND CONSTRUCTION OF MEDIUM VOLTAGE OVERHEAD LINES UP TO AND INCLUDING 33 KV, USING WOODEN POLE STRUCTURES AND BARE CONDUCTORS
NRS 054	-	THE DESIGN OF LARGE POWER TRANSFORMERS UP TO 132KV, IN THE RATING RANGE OF 1.25MVA TO 160MVA
NRS 057	-	CODE OF PRACTISE FOR ELECTRICITY METERING
NRS 074-1	-	LOW-VOLTAGE (600/1 000 V) CABLE SYSTEMS FOR UNDERGROUND ELECTRICAL DISTRIBUTION PART 1: CABLES
NRS 074-2	-	LOW-VOLTAGE (600/1 000 V) CABLE SYSTEMS FOR UNDERGROUND ELECTRICAL DISTRIBUTION PART 2: ACCESSORIES
NRS 088-1	-	DUCT AND DIRECT-BURIED UNDERGROUND FIBRE-OPTIC CABLE PART 1: PRODUCT SPECIFICATION
NRS 088-2	-	(DUCT AND DIRECT-BURIED UNDERGROUND FIBRE-OPTIC CABLE PART 2: INSTALLATION GUIDELINES)
NRS 089-1	-	MAINTENANCE OF ELECTRICITY NETWORKS – PART 1: UNDERGROUND DISTRIBUTION NETWORKS
NRS 089-3-3	-	MAINTENANCE OF ELECTRICITY NETWORKS PART 3: SUBSTATIONS SECTION 3: MINIATURE SUBSTATIONS, DISTRIBUTION TRANSFORMERS AND ELECTRICAL ENCLOSURES

Note: **The latest edition at the time of tender of the above specifications shall apply**.

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SECTION 4 : TENDER DRAWINGS

1. GENERAL

The following drawings shall form part of the specification. Any discrepancy between specifications and drawing shall be referred to the Engineer for resolution at tender stage.

2. LIST OF PROJECT DRAWINGS

Drawing No	Description
Electrical Drawings:	
25149-E-100-01-01	Existing Site Layout
25149-E-100-01-02	New Site Layout
25149-E-100-02-01	Substation Floor Plan
25149-E-100-02-04	Substation Power and Lighting Layout
25149-E-100-02-05	Substation DB and Inverter Schematic
25149-E-100-02-06	Substation Cable Trench Details
25149-E-100-02-10	Substation Fire Protection Plan
25149-E-100-03-01	11kV Single Line Diagram
25149-E-100-06	Preliminary Earth Mat Layout
25149-E-100-08-06	Typical Substation SCADA Architecture
25149-E-100-12	Typical Single Sliding Gate Detail
Civil Drawings:	
25149-C-000-01	Combined Services Layout Plan
25149-C-002-100	Typical Kerb Details
25149-C-005-100	Sub-soil Rodding Eye Detail
25149-C-005-101	Sub-soil Detail
25149-C-005-102	Precast Concrete Ring Manhole Detail
Structural Drawings:	
25149-S-100	General Construction Notes
25149-S-101	Structural Layouts and Details Sheet 1 of 3
25149-S-102	Structural Layouts and Details Sheet 2 of 3
25149-S-103	Structural Layouts and Details Sheet 3 of 3
25149-S-104	Elevations
25149-S-9000	All Reinforcement Details

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APPENDIX A

HEALTH AND SAFETY SPECIFICATION

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HEALTH AND SAFETY SPECIFICATION

CONSTRUCTION OF NEW KAYAMANDI 11KV SUBSTATION

February 28, 2026

STELLENBOSCH
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HEALTH AND SAFETY SPECIFICATION-

Client	STELLENBOSCH MUNICIPALITY
Brief description of work	CONSTRUCTION OF NEW KAYAMANDI 11KV SUBSTATION. INSTALLATION AND COMMISSIONING OF NEW 11KV INDOOR SWITCHGEAR
Contract reference	NEW KAYAMANDI 11KV SUBSTATION.
Project manager	LYNERS CONSULTING ENGINEERS
Safety appointee for Client	BH VENTURES
Electrical Engineers	LYNERS CONSULTING ENGINEERS
Address	KAYAMANDI TAXI RANK ALONG MASITANDANE ROAD IN KAYAMANDI, STELLENBOSCH.

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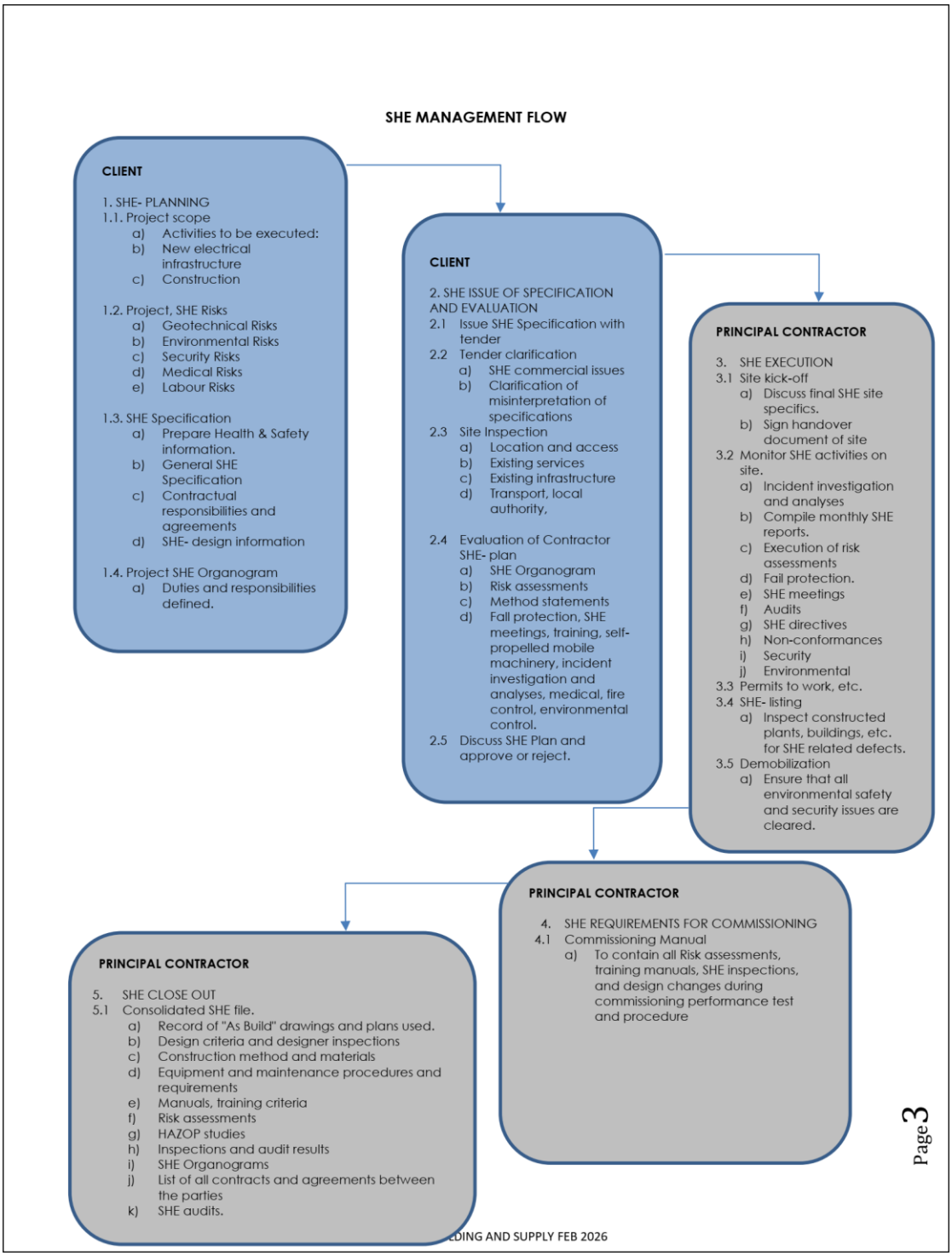

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1. Scope and Purpose

1.1PREAMBLE

This Health and Safety Specifications document is governed by the "Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), hereinafter referred to as 'The Act'. Notwithstanding this, cognisance should be taken of the fact that no single Act or its set of Regulations can be read in isolation. Furthermore, although the definition of Health and Safety Specifications stipulates 'a documented specification of all health and safety requirements pertaining to associated works on a construction site, so as to ensure the health and safety of persons', it is required that the entire scope of the Health & Safety Act, its associated regulations, the Labour legislation, including the Basic Conditions of Employment Act be considered as part of the legal compliance system. With reference to this specification document the requirements as laid out below are focused on all health, safety and environmental issues pertaining to all sites for its projects awarded to contractors. It is of vital importance that the principal contractor awarded the project, understands that this document is applicable in its entirety to all principal Contractors, and all their appointed sub-contractors. Despite the foregoing it is reiterated that environmental management shall receive due attention.

Due to the wide scope and definition of construction work, every construction activity and site will be different, and circumstances and conditions may change daily. Therefore, due caution and careful consideration is to be taken by the Principal Contractor when drafting the Health and Safety Plan based on these Health and Safety Specifications and site-specific risks. Prior to drafting the Health and Safety Plan, and in consideration of the information contained here-in, the contractor shall set up a Risk Assessment Program to identify and determine the scope and details of any risk associated with any hazard at the construction site, to correctly identify the steps needed to be taken to eliminate, minimize or mitigate such hazard and its associated risks. This Risk Assessment and the steps identified will be the basis or point of departure for the Health and Safety Plan. The Health and Safety Plan shall include documented 'Methods of Statement' detailing the key activities to be performed to reduce as far as practicable, the hazards identified in the Risk Assessment.

Every effort has been made to ensure that this specification document is accurate an adequate in all respects. Should it, however, contain any errors or omissions be contained in this document, they may not be considered as grounds for claims under the contract for additional reimbursement or extension of time, or relieve the Principal Contractor from his responsibilities and accountability in respect of the project to which this specification document pertains. Any such inaccuracies, inconsistencies and/or inadequacies must immediately be brought to the attention of the Municipality. Where such inaccuracies,

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inconsistencies and/or inadequacies exist, the South African legislation, as indicated above, supersedes the Municipality's Health and Safety Specifications.

1.2 Purpose

The Client is obligated to implement measures to ensure the health and safety of all people and properties affected under its custodianship or contractual commitments and are further obligated to monitor that these measures are structured and applied according to the requirements of these Health and Safety Specifications. (*All references to the singular shall also be regarded as references to the plural*)

The purpose of this specification document is to provide the relevant Principal Contractor (and his /her contractor) with any information other than the standard conditions pertaining to construction sites which might affect the health and safety of persons at work and the health and safety of persons in connection with all operations on the site, including the use of plant and machinery; and to protect persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work during the carrying out of construction work. The Principal Contractor (and his /her contractor) is herein briefed on the significant health and safety aspects of the project and provided with information and requirements on inter alia, but not limited to:

a) Hazards, risks, and safety considerations affecting the site of the project and its environment.
b) health and safety aspects of the associated operations, machinery, and equipment.
c) documented submissions on health and safety matters required from the Principal Contractor (and his /her contractor).
d) the principal contractor's site file, induction and toolbox talk requirements.
e) the principal contractor's responsibility to the employees and public's safety and
f) the Principal Contractor's (and his /her contractor) health & safety plan.

This document serves to inform the Principal Contractor that the Occupational Health and Safety Act, 1993 (Act 85 of 1993) in its entirety, and its associated regulations, shall apply to the contract to which this specification document applies. The Construction Regulations promulgated in February 2014 and incorporated into the above Act shall apply to any person involved in construction work pertaining to all projects, as will the above stipulated Act.

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1.3 Practical guidelines for the implementation of the Client's Health and Safety Specification

The successful contractor must submit a Health and Safety Plan.

1.3.1 These guidelines will not exempt the successful tenderer from his/her legal obligations as contemplated in the Occupational Health and Safety Act, 85 of 1993 (The Act) and regulations of the Act with special reference to the Construction Regulations (CR).

1.3.2 All legal requirements are **self-regulatory,** and the onus is on the Contractor to ensure legal compliance.

1.3.3 The management team of the project must ensure that they are well versed with the specific legal requirements. A copy of the Act and all Regulations must be available on site (General Administrative Regulation 4).

1.3.4 The Contract Manager and the Construction Manager, to be appointed in terms of CR 8, must know, understand and be able to implement CR 7, CR 8, and CR 9

1.3.5 Important documents to be completed by the Contractor:

1.3.5.1 Health and Safety plan CR 7(1) (a)
1.3.5.2 Health and Safety file CR 7(1) (b)

The plan must be site specific and must address site activities.

Recommended methodology to do site specific risk assessments.

1.3. 6.1 Identification of the major tasks to be dealt with in the contract.
1.3.6.2 Tasks to be sub-divided in activities and then follow the methods prescribed in CR 9(1) to (4)
1.3.6.3 Provide a method statement for each task/activity.
1.3.6.4 Provide risk assessment and safe work procedure for each activity.
1.3 6.5 Provide proof of training in the relevant safe working procedure for all employees involved in performing the task.

1.3.7 Once the tender is awarded, the successful tenderer must immediately contact the Health & Safety Agent of the Client to discuss the Health & Safety Management Plan for the contract. The health and safety plan must be compiled well in advance of the starting date of the project. **Work may not commence prior to the approval of the Health and Safety plan.**

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1.2.8 Health and Safety file:
1.2.8.1 Defined in CR 1.
1.2.8.2 Study all the relevant Construction Regulations as well as other applicable regulations and sections of the Act and include copies (or original) of the required documentation including agreements, appointments, registers, training records, etc.
1.2.8.3 All documentation must be contract (site) specific. No generic information is to be included in the file.
1.2.8.4 All documentation must be properly signed and completed. No unsigned or blank forms must be included in the Health and Safety file. Such uncompleted documents are to be kept separately.
1.2.9 Enquiries about the Health and Safety plan and the Health and Safety file for this contract must be directed at the Client's Health and Safety agent.

1.2.10 *as the method of construction to be used are generally determined by the contractor, detailed safety applicable to all operations to be carried out on site are not provided in this specification.*
The contractor shall apply all the health and safety regulations and requirements relevant to the materials used and work methods.

2. Legal reference

2.1. This specification is provided in terms of regulation 5(1) (b) of the Construction regulations 2014 of the Occupational Health and Safety Act, Act 85 of 1993 (the Act).
The OSHACT, Act 85 of 1993 and all Regulations.

The Contractor shall fully comply with the OSHACT, Act 85 of 1993 and all regulations.

3. Scope of work and Risk Profile

3.1.1 LOCATION OF THE SITE

The site, Kayamandi substation, is located next to the Kayamandi Taxi Rank along Masitandane Road in Kayamandi, Stellenbosch.

The site co-ordinates of Kayamandi substation are Latitude 33? 55' 6.56" South and Longitude 18 51' 4.77" East.

3.1.2 SCOPE OF WORK

This tender comprises the replacement of the 11kV switchgear and substation building at Kayamandi substation due to the age of the equipment and the building.

The scope of work for this tender mainly involves the demolishing of the existing Kayamandi 11kV substation building and construction of a new substation building complete with new 11kV GIS indoor switchgear and includes the following works:

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a) Temporary works to facilitate the removal of the existing Reyrolle type LMS 11kV indoor switchgear, LV board and secondary equipment (refer to item C3.1.2 below for the detail of the temporary works).
b) Demolishing of the existing switching station building complete including disposal of building rubble at recognised dumpsite.
c) Construction of a new 11kV switching station building.
d) Construction of internal substation road and installation of new 5m wide sliding gate.
e) Supply and installation of 11kV GIS indoor switchgear with onboard protection.
f) Supply and installation of all secondary equipment (110V battery charger, telemetry/SCADA system, substation security).
g) Supply and installation of a new 630kVA miniature substation (MS Local).
h) Disconnection and reconnection of 11kV underground cables, LV feeder cables and LV control cables.
i) Supply and installation of 11kV and LV underground cables.
j) Testing and commissioning of the complete works.
k) Placement of yard stone.
l) Guarantee of equipment and installation against all defects for a period of 12 months after handover.

TEMPORARY WORKS

This section aims to address the necessary works needed to provide a temporary network solution to adequately provide the affected areas with electricity supply while SS Kayamandi is being upgraded.

The Contractor will be required to supply two (2) temporary outdoor ring main units (5-way type CCVVV or equivalent approved) complete with weatherproof cubicles and plinths for the duration of the temporary network solution. Once the 11kV cables are connected to the new 11kV indoor switchgear the Contractor must remove the RMUs and plinths and level the substation yard.
The following pre outage and outage works will apply to the temporary scope of works.

i) Pre Outage Works:

- Apply for and obtain all necessary wayleaves & permits.
- Cross trench to accurately identify positions of existing MV cables.
- Determine if existing MV cables have enough slack to reach new RMU positions.
- Should slack not be enough, contractor to inform Consulting Engineer so the necessary arrangements can be made for additional cables and joints to be available on day of outage.
- Installation of concrete plinths for RMUs (KAYA 1 & KAYA 2).
- Installation of two temporary RMUs (KAYA 1 & KAYA 2) as detailed.
- On day before outage open trenches of existing cables. Armed security to be appointed to guard exposed cables for the duration that they are exposed.

ii) Outage Works

- Confirm that SS Kayamandi is completely shut down before commencing with any works. (Note that Stellenbosch Municipality will be rresponsible for switching off all the

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network feeders supplying SS Kayamandi and for isolating and earthing the existing 11kV switchgear and all the 11kV feeders that must be rerouted to the temporary RMUs).

- Disconnect the following cables from the existing 11kV breaker panels:
  - SS CLOETESVILLE 1 (Incomer)
  - SS CLOETESVILLE 2 (Incomer)
  - SS WATERGANG (Incomer)
  - LOCAL TRANSFORMER 500KVA (Feeder)
  - MS BASSI (Feeder)
  - MS 6TH AVENUE (Feeder)
  - MS CORRIDOR (Feeder)
  - MS MONDE CRESCENT (Feeder)
- After disconnection of the above cables, all cables to be pulled out of substation trenches and extended & jointed if necessary.
- Cables to be reinstalled into new trenches leading to the two newly installed temporary RMUs, KAYA 1 & KAYA 2.
- Cables are to be terminated onto KAYA 1 & KAYA 2 as follows:
  1. KAYA 1 (CCVVV):
     - V - LOCAL TRANSFORMER 500KVA
     - V - MS BASSI
     - V - MS 6TH AVENUE
     - C – SS CLOETESVILLE 1
     - C – KAYA 2
  2. KAYA 2 (CCVVV):
     - V – MS CORRIDOR
     - V – MS MONDE CRESCENT
     - V – KAYA 1
     - C – SS CLOETESVILLE 2
     - C – SS WATERGANG

See Annexure A for Baseline Risk Profile

Risk concerns

- Site establishment
- Traffic, and safety of the public.
- Demolition work
- Disconnecting of electricity and removal of cables
- Stacking and storage of materials
- Excavations for manholes and foundations
- Using plant machinery
- Working at heights
- Casting of concrete foundations and plinths
- Plant machinery.
- Building of substation
- Brickwork
- Manual work: steel fixing, hand tools, electrical tools, noise, dust

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- People: Personal Protection Equipment, Medical fitness, training, inductions, sanitary facilities, water, first aid, fire, supervision, access to the site, safety warning signage, barricading of site, housekeeping
- Laying of earth mat.
- Electrical equipment installation
- Working with life electrical equipment
- Commissioning

The Contractor shall not require any employee to work under conditions that are unsanitary, hazardous, or dangerous to the employee's health or safety.

3.4 The principal contractor must provide a health and safety plan and must address these and other hazards in the plan. Please note that the hazards are not limited to the hazards indicated by the client. **The contractor must do their own risk assessments.**

3.5 **Signage**: The necessary safety warning signage must be displayed at strategic places.

3.6 **Housekeeping:** You must ensure that the housekeeping is of an extremely high standard (CR27).

I. Sanitary Facilities: Provide and maintain required temporary sanitary facilities at time of project mobilization. Maintain in clean and sanitary condition. Upon completion of construction remove temporary sanitary facilities.

II. Progress Cleaning and Waste Removal:
Maintain areas free of waste materials, debris, and rubbish. Maintain site and access areas in a clean and orderly condition. Remove debris and rubbish from the site. Do not bury debris or rubbish. Stockpile excavated materials to be disposed of and remove waste materials, debris, and rubbish from site at least weekly at an legally dispose off-site.

3.7 **Barricading**:

- Inside the perimeter the barricading must be done as per the construction regulations i.e., Excavations and trenches must be barricaded- NO DANGER TAPE allowed.
- The site must be fenced off.

3.8. **Electrical Installations**

All electrical installations must be done as per the Electrical Installations Regulations of March 2009 and Construction Regulations 24.

THE CONTRACTOR MUST IMPLEMENT LOCK- OUT SYSTEMS WHEN ANY WORK IS DONE ON "LIFE" ELECTRICAL INSTALLATIONS.

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4 Health and safety plan

The appointed principal contractor must provide a properly documented Health and safety plan. All contractors must submit the following Plans, for approval, before the relevant work commences:

a. Health and Safety Plan, as per CR 7.1.a
b. Fall Protection Plan
c. Electrical Installation Plan
d. Emergency Management Plan
e. Waste Management Plan
f. Environmental Management Plan.
g. Traffic accommodation Plan
h. Lock out system procedures.

The Health & Safety Plan shall address at least all the following items:

- Abbreviated scope of works
- Health & safety policy
- List of health and safety procedures
- Responsibilities and supervision
- Communication channels
- Induction
- Toolbox talks
- Training
- Housekeeping
- Machine and Equipment Safety
- Hand and Power Tools Safety
- Safe work instructions for all high-risk activities e.g., Working at heights, electrical, excavation work, demolition.
- Site safety management – staff, suppliers & visitors
- Site monitoring, inspections, and audits schedules
- Checklists, Registers, and Inspections
- PPE Management
- Medicals – For all on site
- Non-conformances and corrective actions Management
- Working at heights, Fall protection and Rescue plan.
- Electrical work Management
- Underground services detection
- Excavation and trenching
- Handling of Hazardous materials, substitutes.

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5 Health and safety specifications for other contractors (sub-contractors) Refer CR5 (2) to 5 (14).

5.1 The Principal Contractor is responsible for a list of other contractors as contemplated. in CR7
5.2 The Principal Contractor must ensure that all other contractors are formally appointed.
5.3 The safety plans and safety files of the other contractors must be kept on site, and a consolidated file shall be handed over to the client after completion of project CR7.
5.4 **Sub-contractors may not commence work until their health & safety plans are approved by the principal contractor.**

6 Health and Safety file

6.1 The principal contractor must provide a health & safety file as contemplated in CR7.

6.2 Consolidated health and safety files, which shall in addition to all documentation referred to in CR7., include a record of all drawings, designs and materials used on this project (CR7) to be handed over to the Client's Health & Safety Agent at completion of the project.

6.3 Refer CR 7(8) All employees of a contractor must have a valid medical certificate of fitness.

6.4 **There must be a SACPCMP registered safety officer appointed for this project. (Part time at least 3 visits per month.**

6.5 Contents of the health & safety files

a) Emergency plan and emergency phone numbers. (Numbers to be displayed)
b) Health and safety specification
c) Health and safety plan including completed risk assessments, method statements and safe work procedures.
d) Letter of Good standing (WCA or FEM)
e) Notification of construction work to Department of Labour (Annexure 2)
f) Mandatory agreements / list of sub-contractors
g) Appointments
h) Registers as required by the Regulations.
i) Proof of training in safe work procedures and induction training
j) Test certificates, if required when using equipment
k) Proof of competency for appointments where it is mentioned in the Construction Regulations and Electrical installations Regulations that proof of competency is required.
l) Lock out systems.
m) Medicals for all persons working on a construction site.
n) Reports/audits
o) General

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NB: The contents of the Health and Safety file may be adjusted or differ from the above after discussions and negotiations between the client's safety agent and Principal Contactor or his/her Safety Advisor as contemplated in CR5.

7 Agreements

The principal contractor must agree to work according to the approved health and safety plan. Deviations, omissions and or non- compliance may have serious negative implications for the principal contractor.

8 Annexure

Annexure A: Baseline risk assessment
Annexure B: All documents marked 'Y' must be included in the health and safety file.

9 Returnable

The attached document marked "Returnable" must be signed and included in the completed tender document.

10.Budget

Guideline for health and safety cost

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RETURNABLE

Legal Compliance: Mandatory 37(2)

Occupational Health and Safety Act, Act 85 of 1993 (The Act) and all regulations of the Act with special reference to the Construction Regulations 2014

Before this tender can be considered the client is legally obliged to ensure that the bidder complies with the legal requirements as mentioned below.

I the undersigned hereby verify that:

1. A copy of the Act and all regulations of the Act will be available on the construction site (Gen. Adm. Reg. 4) always.

2. A copy of the letter of good standing from the compensation insurer is attached herewith CR5.

3. The Notification of intention to commence construction work will be forwarded to the Department of Labour prior to commencement CR4 and proof thereof will be on file.

4. Member of the site management and supervisory staff to be allocated to the project will have the necessary competencies including a good working knowledge of the applicable sections of the Act and applicable regulations, with special reference to the Construction Regulations, as well as access to the necessary resources to do the work safely CR7

5. Adequate provision for the costs of health and safety measures during the construction process has been included in the tender price CR7

6. Should this tender be accepted, the Contractor will present a Health and Safety Plan [CR 7(1)(a) and a Health and Safety file CR7 (1) (b) and negotiate the contents thereof with the Health & Safety agent of the Client.

…… …… ……
Signature Name in Print Date

CHIEF EXECUTIVE OFFICER

MUNICIPALITY……

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CONSTRUCTION OF NEW KAYAMANDI 11KV SUBSTATION BUILDING AND SUPPLY FEB 2026

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ANNEXURE A

As contemplated in Construction Regulation 9, every contractor has a legal obligation to carry out a risk. assessment prior to undertaking work.

CR9. (1) A contractor must, before the commencement of any construction work and during such construction work, have risk assessments performed by a competent person appointed in writing, which risk assessments form part of the health and safety plan to be applied on the site, and must include—

(a) the identification of the risks and hazards to which persons may be exposed to; (b) an analysis and evaluation of the risks and hazards identified based on a documented method.
(c) a documented plan and applicable safe work procedures to mitigate, reduce or control the risks and hazards that have been identified.
(d) a monitoring plan; (e) a review plan.

Furthermore, the following are fundamental to a safe management system: 1.

1. Effective barricading of work areas
2. Competent supervision
3. Continuous risk assessments (e.g., Planned Task Observations; Daily Safe Task Instruction; Job Safety Analysis; etc.)
4. Training of all personnel
5. Inspection of all tools and equipment – record of inspections must be maintained
6. Correct PPE must be issued in terms of GSR2 and worn by personnel, as assessed by the contractors' competent person
7. Housekeeping must be maintained

The following hazards and minimum safe working procedures have been identified by the Client H&S Agent (although not limited to):

ANNEXURE A - BASELINE RISK ASSESSMENTS

ACTIVITY AND RISK PROFILE	MINIMUM REQUIREMENTS	Likelihood	Consequence	Risk	Rating
1) Site establishment: CR 27; CR 28; CR 29; CR 30 a) Supervision b) Offloading of equipment and material c) Provide site facilities (toilets, water, offices, electricity, etc.) d) Unsafe work areas e) Provide construction safety signage. f) Traffic management g) Public safety h) Existing services	• The supervision structure must be in place. • All equipment must be tested and examined with certificates available on file. • Every worker should receive induction training and be informed about site safety, site rules, welfare facilities and emergency procedures. • Drinking water and washing facilities must be available CR 30 • First aid equipment needs to be provided. • Personal protective equipment must be provided should it be deemed to be necessary after risk assessments.	3	3	13	S

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	• Determine the position of all existing services- overhead and underground. • Public- it is essential that the public must be informed about the work-safety signage. • You must have a visitors book available.				
2) Excavation work CR 13 **a)** Supervisor not competent **b)** Open trenches **c)** Open excavations **d)** No barricading **e)** Work next to R304 and in existing roads	• Ensure that work is done under the supervision of a competent person. • Complete registers for trenches and excavations daily • Barricade all trenches and excavations. • • **RED TAPE IS NOT A BARRICADE**	3	3	13	S
3) Working close to the public a) Injuries to members of the public b) Traffic accidents c) Areas not fenced off. d) Construction debris in public areas can cause tripping hazards, etc. e) Dust and noise f) Open trenches in existing roads. g) Existing services	• Security measures must be in place to only allow authorized people to work in areas. • Fence off working areas. • Mark existing services before starting with trenches. • Put road signage and flaggers in position, • Submit traffic management plan.	3	3	13	S
4) Hand Tools, electrical tools, and other equipment a) Unsafe equipment b) Using the wrong tools for work to be done c) The operators are not competent to use equipment. d) Dust e) Noise	• Carry out method statements and risk assessments before commencement of any work. • Inspect equipment. • Train people in using the equipment. • Check all equipment before using it. • Provide correct PPE.	3	2	8	M
5) Hazardous substances and hazardous materials: CR 25; HCSR a) Paint b) Cement c) Other chemicals	• Based on the identification of hazardous materials a full risk assessment must be carried out in writing • Provide safety data sheets. • Provide storage facilities.	3	2	8	M

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d) Diesel	• Label all dangerous substances. • Provide clean water for washing hands. • Provide dust masks. • Waste management of hazardous substances				
6) Construction vehicle and mobile plant **CR 23** Working on the roads. Traffic Pedestrians	• Please refer to CR 23 • Ensure that all vehicles and plant are complying. • Ensure that all operators are trained. • Ensure that Diesel/ Petrol supply is done under controlled measures.	3	3	13	S
7) General a) Members of public on the site b) Workers are not aware of risks and safety rules. c) Workers do not know their task. d) Workers not fit for work e) Risks associated with construction of a building, civil work and electrical installations.	• The public must be protected. • Safety warning signs to be displayed. • Good housekeeping is essential. • Toilets to be supplied. • An emergency plan must be provided. • First aid must be in place as well as trained first aid personnel. • Fire extinguishers are to be provided. • Storage to be provided- hazardous materials to be separated. • Method statements and risk assessments must be in place and communicated to the workers before commencement of any work (daily basis) – proof. • in safety file • Review risk assessments on a regular basis or when work methods have changed, or site conditions have changed. • Competent people to be appointed- see CR 1 for definition of competency. • Induction training for all new workers before commencement of work on site • All workers on site will have a medical certificate of fitness issued by an Occupational Health Practitioner on the Annexure 3 form as per the Construction Regulations • Smoking is only allowed in smoking areas. • No fires are allowed on the site.	3	3	13	S

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Summary:

The risk rating on this project is high to significant. It is important that the successful contractor work according to the Health and Safety Act and Regulations (ACT 85 of 1993).
Although the Client has indicated possible risks on the site, the contractor must still compile his own risk assessments as per Construction Regulations 9

APPLICABLE TO YOUR TRADE

Annexure B

1) **Documentation: Notification and appointments**

	Description	Required Y/N	Where kept
1.1	Notification to Provincial Director, Department of Labour	Y	
1.2	Appointment of Construction Manager	Y	
1.3	Appointment of Safety Officer- **part time**	Y	
1.5	Appointments as required by GSR and CR and Electrical Regulations.	Y	
1.6	Appointment of Formwork Operations Supervisor	y	
1.7	Appointment of Scaffolding Supervisor	Y	
1.8	Appointment of **Registered Asbestos Contractor/Supervisor**	N	
1.9	Appointment of Plant Operators	Y	
1.10	Appointment of Electrical Installations Supervisor	Y	
1.11	Appointment of Stacking and Storage Supervisor	Y	
1.12	Letter of good standing with the Compensation Commissioner	Y	
1.13			

2) Documentation: Training and induction

	DESCRIPTION	REQUIRED	WHERE KEPT
2.1	Register of persons completing safety induction	Y	In file
2.2	Safety induction training outline	Y	
2.3	Copies of completed and signed Site Regulations	Y	
2.4	Register of safety training talks	Y	
2.5	Register of attendance at safety training talks	Y	
2.6	Outlines of safety training talks	Y	
2.7	Register of skills training provided	Y	
2.8	Register of attendance at skills training	Y	
2.9	Copies of Certificates issued for skills training	Y	

3) Documentation: PPE

	DESCRIPTION	REQUIRED	AVAILABLE
3.1	Assessment of PPE required for construction	Y	
3.2	Register of PPE issued on site	Y	
3.3	Weekly inspections of PPE	Y	

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4) Documentation: Public and environmental issues

	DESCRIPTION	REQUIRED	WHERE KEPT
4.1	Asbestos plan	N	
4.2	Emergency Plan	Y	
4.3	Environmental Plan	Y	
4.4	Fire prevention plan	Y	
4.5	Demolition Plan – demolition contactor	N	
4.6	Fall protection plan	Y	
4.7	Traffic Management Plan	Y	
4.8	**Health and Safety Plan**	Y	
4.9	**Lock out system (permit to work)**	Y	

5) Documentation plant and equipment (only demolition contractor/excavation)

	DESCRIPTION	REQUIRED	WHERE KEPT
5.1	Register of Plant and Equipment used	Y	In File
5.2	Register of Approved Operators	Y	
5.3	Copies of Certificates of Training for Operators	Y	
5.4	Copies of Public Driving Permits for use on public roads	Y	
5.5	Records of Daily Inspections for Plant and Equipment	Y	

6) Documentation: another contractor/sub-contractor

	DESCRIPTION	REQUIRED	WHERE KEPT
6.1	Letter to Contractor detailing relevant sections of the Client's Health and Safety Specifications	Y	In File
6.2	Letter of good standing with the Compensation Fund	Y	
6.3	Letter of appointment of contractor	Y	
6.4	Contractor's Health and Safety Plan	Y	
6.5	Letter of appointment of contractor's Construction Supervisor	Y	
6.6	Letter of appointment of contractor's assistant to Construction Supervisor	Y	
6.7	Results of monthly audits of contractor's Health and Safety Plan	Y	

7) **Documentation: Method statement**

	DESCRIPTION	REQUIRED	WHERE KEPT
7.1	Overall method statement for building of structures	Y	
7.2	**All work that will take place on the site**	Y	
7.3	Public safety	Y	
7.4	Chemical substances/hazardous material	Y	
7.5	Casting of concrete	Y	
7.6	Building work	Y	
7.7	Excavations/ trenches	Y	
7.8	Moving of plant machinery – traffic control	Y	
7.9	Working with electricity	Y	
7.10	Commissioning	Y	
7.11	Laying of cables	Y	
7.12	Switchgear installation	Y	

8) Documentation: Risk assessments

	DESCRIPTION	REQUIRED	WHERE KEPT
8.1	Register of Risk Assessments	Y	
8.2	Copies of Risk Assessments	Y	

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9) Documentation: First aid and incidents

	DESCRIPTION	REQUIRED	WHERE KEPT
9.1	Appointment of First Aid practitioner and Accident Investigator (>10)	Y	
9.2	Register of incidents and injuries	Y	
9.3	Copies of incident investigation reports	Y	
9.4	Register of First Aid Injuries	Y	
9.5	Register of Reportable Injuries	Y	
9.6	Copies of reports to Provincial Director for Reportable Injuries	Y	
9.7	Register of fortnightly safety reports	Y	
9.8	Register of warnings issued for unsafe working practices (PPE, negligence, drunkenness).	Y	

10) Documentation: general

	DESCRIPTION	REQUIRED	WHERE KEPT
10.1	Appointment of Safety Officer- part time	Y	
10.2	Appointment of internal auditor	Y	
10.3	Appointment of external auditor	N	
10.4	Medical certificate of fitness for all employees- Annexure 3	Y	
10.5	Copies of daily safety reports	Y	
10.6	Register of safety audits	N	
10.7	Copies of safety audits	Y	

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11 HEALTH AND SAFETY BUDGET IN TERMS OF CONSTRUCTION REGULATION: recommendation not complete list
1) Personal Protective Equipment
2) General safety obligations: (facilities i.e., barricading, service of toilets, eating facilities)
++ can form part of establishment)
3) First Aid box.
Fire Extinguishers
Signage
Health and Safety Act
4) Health and safety plan
5) Health and safety file
6) Construction Safety Officer
7) Training **
7.1) Induction training & training in safe work procedures
7.2) First aid training
7.3) Specialist training (i.e., crane drivers, plant operators).
7.4) Fire- fighting training
7.5) Safety talks
8) Medical examinations for all workers
9) Inspections and audits
Cost of own inspections and audits
Cost of inspections and audits of sub-contractors (Reg. 7
Incident investigations
10) Access control to site