


TENDER DOCUMENT GOODS AND SERVICES		 CITY OF CAPE TOWN ISIXEKO SASEKAPA STAD KAAPSTAD
SUPPLY CHAIN MANAGEMENT		
SCM - 542	Approved by Branch Manager: February 2024	Version: 10

TENDER NO: 206G/2025/26
TENDER DESCRIPTION: SUPPLY, INSTALLATION, AND COMMISSIONING OF 12 KV INDOOR SWITCHGEAR AND ANCILLARY EQUIPMENT FOR EXTENSION OF EXISTING TYPE LMX AND NEW INSTALLATIONS
CONTRACT PERIOD: NOT EXCEEDING THIRTY-SIX (36) MONTHS FROM DATE OF COMMENCEMENT OF CONTRACT

CLOSING DATE	14 May 2026
CLOSING TIME	10:00 am
TENDER BOX NUMBER	233
TENDER FEE	R200.00

Non – refundable tender fee payable to the City of Cape Town (CCT) for a hard copy of the tender document. This fee is not applicable to website downloads of the tender document.

TENDERER	
NAME of Company/Close Corporation or Partnership / Joint Venture/ Consortium or Sole Proprietor /Individual (hereinafter the "Tenderer")	
TRADING AS (if different from above)	
Registration number of Tenderer	
Physical address and chosen domicilium citandi et executandi of Tenderer	

NATURE OF TENDER OFFER (please indicate below)	
Main Offer (see clause 2.2.11.1)	
Alternative Offer (see clause 2.2.11.1)	

TENDER SERIAL NO.:
SIGNATURES OF CCT OFFICIALS AT TENDER OPENING
1
2
3

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THE TENDER

T.1 GENERAL TENDER INFORMATION

- TENDER ADVERTISED** : 10 April 2026
- CLARIFICATION MEETING** : Time: 10h00 on Date: 21 April 2026
(Not compulsory, but strongly recommended)
- VENUE FOR CLARIFICATION MEETING** : MS Teams
<https://teams.microsoft.com/meet/366069697994570?p=hVBMRhrtorLjWnBSmfU>
- TENDER BOX & ADDRESS** : **Tender Box as per front cover** at the **Tender & Quotation Boxes Office**, 2nd Floor (Concourse Level), Civic Centre, 12 Hertzog Boulevard, Cape Town.
- : The Tender Document (which includes the Form of Offer and Acceptance) completed and signed in all respects, plus any additional supporting documents required, must be submitted in a sealed envelope with the name and address of the tenderer, the endorsement "**TENDER NO: 206G/2025/26: TENDER DESCRIPTION: SUPPLY, INSTALLATION, AND COMMISSIONING OF 12 KV INDOOR SWITCHGEAR AND ANCILLARY EQUIPMENT FOR EXTENSION OF EXISTING TYPE LMX AND NEW INSTALLATIONS**", the tender box number. and the closing date indicated on the envelope. The sealed envelope must be inserted into the appropriate official tender box before closing time.
- If the tender offer is too large to fit into the abovementioned box or the box is full, please enquire at the public counter (Tender Distribution Office) for alternative instructions. It remains the tenderer's responsibility to ensure that the tender is placed in either the original box or as alternatively instructed.
- CCT TENDER REPRESENTATIVE** **SCM** Email: SCM.Tenders12@capetown.gov.za

TENDERERS MUST NOTE THAT WHEREVER THIS DOCUMENT REFERS TO ANY PARTICULAR TRADE MARK, NAME, PATENT, DESIGN, TYPE, SPECIFIC ORIGIN OR PRODUCER, SUCH REFERENCE SHALL BE DEEMED TO BE ACCOMPANIED BY THE WORDS "OR EQUIVALENT"

T.2 CONDITIONS OF TENDER

2.1 General

2.1.1 Actions

2.1.1.1 The City of Cape Town (hereafter referred to as the "CCT" and each tenderer submitting a tender offer (hereinafter referred to as the "tenderer" or the "supplier") shall comply with item T.2 of this Tender Document Goods and Services (hereinafter referred to as these "Conditions of Tender"). The tenderer and the CCT shall collectively hereinafter be referred to as the "Parties" and individually a "Party". In their dealings with each other, the Parties shall discharge their duties and obligations as set out in these Conditions of Tender, timeously and with integrity, and behave equitably, honestly and transparently, and shall comply with all legal obligations imposed on the Parties herein and in accordance with all applicable laws.

The Parties agree that this tender Tender Document Goods and Services (hereinafter referred to as the "Tender" / "Tender Document"), its evaluation and acceptance and any resulting contract shall also be subject to the CCT's Supply Chain Management Policy ("SCM Policy") that was applicable on the date the bid was advertised and as amended from time to time. If the CCT adopts a new SCM Policy which contemplates that any clause therein would apply to the Contract emanating from this tender (hereinafter referred to as the "Contract"), such clause shall also be applicable to that Contract. Please refer to this document contained on the CCT's website.

Abuse of the supply chain management system is not permitted and may result, inter alia, (1) in the tender being rejected; (2) cancellation of the contract; (3) restriction of the supplier, and/or (4) the exercise by the CCT of any other remedies available to it as provided for in the SCM Policy and/or the Contract and/or this tender and/or any applicable laws.

2.1.1.2 The CCT, the tenderer and 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 CCT shall declare any conflict of interest to the CCT 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.

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

2.1.2 Interpretation

2.1.2.1 The additional requirements contained in Annexure F to the contract (hereinafter referred to as the "returnable documents" / "Returnable Schedules") are part of these Conditions of Tender and are specifically hereby incorporated into these Conditions of Tender.

2.1.2.2 These Conditions of Tender and returnable Documents which are required for CCT's tender evaluation purposes herein, shall form part of the Contract arising from the CCT's corresponding invitation to tender.

2.1.3 Communication during tender process

Verbal or any other form of communication, from the CCT, its employees, agents or advisors 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 CCT, unless communicated by the CCT in writing to suppliers / tenderers by its Director: Supply Chain Management or his nominee. Similarly, any communication of the tenderer / supplier that is not reduced to writing by the tenderer / supplier, its employees, agents or advisors, shall not be regarded as binding on the CCT, unless communicated to the CCT in writing by the suppliers / tenderers, or their duly authorised representatives.

2.1.4 The CCT's right to accept or reject any tender offer

2.1.4.1 The CCT may accept or reject any tender offer and may cancel the corresponding tender process or reject all tender offers at any time before the formation of a contract. The CCT 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 services, works or goods requested;
or
- (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; or
- (e) the Parties are unable to negotiate market related pricing.

The CCT shall not accept or incur any liability to a tenderer for such cancellation or rejection, but will give written reasons for such action upon receiving a written request to do so.

2.1.5 Procurement procedures

2.1.5.1 General

Unless otherwise stated in the Conditions of Tender, a contract will be concluded with the tenderer who scores the highest number of tender adjudication points per category.

Tenderers bidding for any category must tender for all items (activity & material) within the respective category. Any item for which no rate is entered, or if anything other than a rate or a nil rate (for example, a zero, a dash or the word "included" or abbreviations thereof) is entered against an item, will be evaluated as a nil rate having been entered against that item, i.e. that there is no charge for that activity or material.

The Categories detailed below will be evaluated as per a typical project and awarded accordingly to the successful tenderer(s). Tenderers may either tender for a single category or both categories:

- **Category A (Items A1.1 - A4.5.3)** - Retrofits and Extensions to Existing Type LMx Switchboards Utilising Circuit Breakers and Switchgear **currently in CCT Stock**,
- **Category B (Items B1.1 - B5.5.3)** - Retrofits, Modifications and Upgrades to existing Type LMx Switchboards and New Installations Utilising **New Equipment Delivered to CCT Stores**.

Additional Spare Items detailed in Part B6 will be awarded to the successful tenderer(s) for Category B, subject to price benchmarking.

The CCT intends to appoint two tenderers per Category (the highest ranked tenderer ("the Winner" (Main Contractor)) and in addition an "Alternative" (Alternative Contractor), where possible offering goods from an alternative manufacturer) for the allocation of work. If insufficient responsive bids are received, the CCT reserves the right to appoint fewer tenderers, or not to appoint any tenderers at all.

Purchase Orders will in the first instance be placed by the CCT with the Winner.

Should the Winner (Main Contractor) not be able to meet the contractual commitments relating to a particular order or orders, either in terms of delivery performance or of compliance with the requirements of the specification, the Contractor shall advise the CCT within 5 working days of receipt of the order(s). The purchase order(s) will thereafter be cancelled and orders placed with the Alternative Contractor.

Should the Winner continually fail to meet the contractual commitments the CCT reserves the right to initiate the Default process, during which the Contractor will be afforded an opportunity to address in consultation with the CCT his contract performance and failure to meet the contractual commitments.

During the course of any such Default process the CCT reserves the right to place with the Alternative Contractor instead of the Winner and shall retain this right until such time as the Winner has either corrected the non-compliance with the contractual commitments or has provided a proposal to correct the non-compliance with the contractual commitments that is to the satisfaction of the CCT.

The contract period shall be for a period **not exceeding 36 (thirty six) months** from the date of commencement which will be no earlier than 17 December 2026.

2.1.5.2 Proposal procedure using the two stage-system

A two-stage system will not be followed.

2.1.5.3 Nomination of Standby Bidder

“Standby Bidder” means a bidder, identified by the CCT at the time of awarding a bid that will be considered for award should the contract be terminated for any reason whatsoever. In the event that a contract is terminated during the execution thereof, the CCT may consider the award of the contract, or non-award, to the Standby Bidder in terms of the procedures included in its SCM Policy, as amended from time to time.

2.1.6 Objections, complaints, queries and disputes/ Appeals in terms of Section 62 of the Systems Act/ Access to court

2.1.6.1 Disputes, objections, complaints and queries

In terms of Regulations 49 and 50 of the Local Government: Municipal Finance Management Act, 56 of 2003 Municipal Supply Chain Management Regulations (Board Notice 868 of 2005):

- a) Persons aggrieved by decisions or actions taken by the CCT in the implementation of its supply chain management system, may lodge within 14 days of the decision or action, a written objection or complaint or query or dispute against the decision or action.

2.1.6.2 Appeals

- a) In terms of Section 62 of the Local Government: Municipal Systems Act, 32 of 2000 a person whose rights are affected by a decision taken by the CCT, may appeal against that decision by giving written notice of the appeal and reasons to the City Manager within 21 days of the date of the notification of the decision.
- b) An appeal must contain the following:
 - i. Must be in writing
 - ii. It must set out the reasons for the appeal
 - iii. It must state in which way the Appellant’s rights were affected by the decision;
 - iv. It must state the remedy sought; and
 - v. It must be accompanied with a copy of the notification advising the person of the decision
- c) The relevant CCT appeal authority must consider the appeal and **may confirm, vary or revoke** the decision that has been appealed, but no such revocation of a decision may detract from any rights that may have accrued as a result of the decision.

2.1.6.3 Right to approach the courts and rights in terms of Promotion of Administrative Justice Act, 3 of 2000 and Promotion of Access to Information Act, 2 of 2000

The sub- clauses above do not influence any affected person’s rights to approach the High Court at any time or its rights in terms of the Promotion of Administrative Justice Act (PAJA) and Promotion of Access to Information Act (PAIA).

- 2.1.6.4 All requests referring to sub clauses 2.1.6.1 and 2.1.6.2 must be submitted in writing to:
The City Manager - C/o the Manager: Legal Compliance Unit, Legal Services Department, Office of the City Manager
Via hand delivery at: 20th Floor, Tower Block, 12 Hertzog Boulevard, Cape Town 8001
Via post at: Private Bag X918, Cape Town, 8000
Via email at: MSA.Appeals@capetown.gov.za

2.1.6.5 All requests referring to clause 2.1.6.3 must be submitted in writing to:

The City Manager - C/o the Manager: Access to Information Unit, Legal Service Department, Office of the City Manager

Via hand delivery at: 20th Floor, Tower Block, 12 Hertzog Boulevard, Cape Town 8001

Via post at: Private Bag X918, Cape Town, 8000

Via email at: Access2info.Act@capetown.gov.za

2.1.6.6 The minimum standards regarding accessing and 'processing' of any personal information belonging to another in terms of Protection of Personal Information Act, 2013 (POPIA).

For purposes of this clause 2.1.6.6, the contract and these Conditions of Tender, the terms "data subject", "Personal Information" and "Processing" shall have the meaning as set out in section 1 of POPIA, and "Process" shall have the corresponding meaning.

The CCT, its employees, representatives and sub-contractors may, from time to time, Process the tenderer's and/or its employees', representatives' and/or sub-contractors' Personal Information, for purposes of, and/or relating to, the tender, the contract and these Conditions of Tender, for research purposes, and/or as otherwise may be envisaged in the CCT's Privacy Notice and/or in relation to the CCT's Supply Chain Management Policy or as may be otherwise permitted by law. This includes the Processing of the latter Personal Information by the CCT's due diligence assurance provider, professional advisors and the Appeal Authority as applicable. The CCT's justification for the processing of such aforesaid Personal Information is based on section 11(1)(b) of POPIA, i.e., in terms of which the CCT's Processing of the said Personal Information is necessary to carry out actions for the conclusion and/or performance of the contract, to which the applicable data subject (envisaged in this clause 2.1.6.6 above) is a party.

All requests relating to data protection must be submitted in writing to:

The City Manager - C/o the Information Officer, Office of the City Manager

Via hand delivery at: 20th Floor, Tower Block, 12 Hertzog Boulevard, Cape Town 8001

Via post at: Private Bag X9181, Cape Town, 8000

Via email at: Popia@capetown.gov.za

2.1.6.7 Compliance to the CCTs Appeals Policy.

In terms of the CCT's Appeals Policy, a fixed upfront administration fee will be charged. In addition, a surcharge may be imposed for vexatious and frivolous or otherwise manifestly inappropriate tender related appeals.

The current approved administration fee is R300.00 and may be paid at any of the Municipal Offices or at the Civic Centre in Cape Town using the GL Data Capture Receipt attached as Schedule F.14: Appeal Application Form. Alternatively, via EFT into the CCT's NEDBANK Account: CITY OF CAPE TOWN and using Reference number: 198158966. You are required to send proof of payment when lodging your appeal.

The current surcharge for vexatious and frivolous or otherwise manifestly inappropriate tender related appeals will be calculated as $\frac{1}{2}$ (Administrative cost of the tender appeal) + 0.25 % (Appellant's tender price).

Should the payment of the administration fee of R300.00 or the surcharge not be received, such fee or surcharge will be added as a Sundry Tariff to the bidder's municipal account.

In the event where the bidder does not have a Municipal account with the CCT, the fee or surcharge may be recovered in terms of the CCT's Credit Control and Debt Collection By-law, 2006 (as amended) and its Credit Control and Debt Collection Policy.

2.1.7 CCT Supplier Database Registration

Tenderers are required to be registered on the CCT Supplier Database as a service provider. Tenderers must register as such upon being requested to do so in writing and within the period contained in such a request, failing which no orders can be raised or payments processed from the resulting contract. In the case of Joint Venture partnerships this requirement will apply individually to each party of the Joint Venture.

Tenderers who wish to register on the CCT's Supplier Database may collect registration forms from the Supplier Management Unit located within the Supplier Management / Registration Office, 2nd Floor (Concourse Level), Civic Centre, 12 Hertzog Boulevard, Cape Town (Tel 021 400 9242/3/4/5). Registration forms and related information are also available on the CCT's website www.capetown.gov.za (follow the Supply Chain Management link to Supplier registration).

It is each tenderer's responsibility to keep all the information on the CCT Supplier Database updated.

2.1.8 National Treasury Web Based Central Supplier Database (CSD) Registration

Tenderers are required to be registered on the National Treasury Web Based Central Supplier Database (CSD) as a service provider. Tenderers must register as such upon being requested to do so in writing and within the period contained in such a request, failing which no orders can be raised or payments processed from the resulting contract. In the case of Joint Venture partnerships this requirement will apply individually to each party of the Joint Venture.

Tenderers who wish to register on the National Treasury Web Based Central Supplier Database (CSD) may do so via the web address <https://secure.csd.gov.za>

It is each tenderer's responsibility to keep all the information on the National Treasury Web Based Central Supplier Database (CSD) updated.

2.2 Tenderer's obligations

2.2.1 Eligibility Criteria

2.2.1.1 Tenderers are obligated to submit a tender offer that complies in all aspects to the conditions as detailed in this tender document and the Conditions of Tender. An 'acceptable tender must "COMPLY IN ALL" aspects with the tender, Conditions of Tender, all Specifications (i.e., item C.5 below, hereinafter the "Specifications"), pricing instructions herein and the Contract including its conditions.

2.2.1.1.1 Submit a tender offer

Only those tender submissions from which it can be established, *inter alia* that a clear, irrevocable and unambiguous offer has been made to CCT, by whom the offer has been made and what the offer constitutes, will be declared responsive.

2.2.1.1.2 Compliance with requirements of CCT SCM Policy and procedures

Only those tenders that are compliant with the requirements below will be declared responsive:

- a) A completed **Details of Tenderer** to be provided (applicable schedule below to be completed);
- b) A completed **Certificate of Authority for Partnerships/ Joint Ventures/ Consortiums** to be provided authorising the tender to be made and the signatory to sign the tender on the partnership /joint venture/consortium's (applicable schedule below to be completed);
- c) A copy of the partnership / joint venture / consortium agreement to be provided, where applicable.
- d) A completed **Declaration of Interest – State Employees** to be provided and which does not indicate any non-compliance with the legal requirements relating to state employees (applicable schedule below to be completed);
- e) A completed **Declaration – Conflict of Interest and Declaration of Bidders' past Supply Chain Management Practices** to be provided and which does not indicate any conflict or past practises that renders the tender non-responsive based on the conditions contained thereon (applicable schedules below to be completed);
- f) A completed **Certificate of Independent Bid Determination** to be provided and which does not indicate any non-compliance with the requirements of the schedule (applicable schedule below to be completed);
- g) The tenderer (including any of its representatives, directors or members), has not been restricted in terms of abuse of the Supply Chain Management Policy,
- h) The tenderer's tax matters with SARS are in order, or the tenderer is a foreign supplier that is not required to be registered for tax compliance with SARS;
- i) The tenderer is not an advisor or consultant contracted with the CCT whose prior or current obligations creates any conflict of interest or unfair advantage;
- j) The tenderer is not a person, advisor, corporate entity or a director of such corporate entity, who is directly or indirectly involved or associated with the bid specification committee;
- k) A completed **Authorisation for the Deduction of Outstanding Amounts Owed to the CCT** to be provided and which does not indicate any details that renders the tender non-responsive based on the conditions contained thereon (applicable schedules below to be completed);
- l) The tenderer (including any of its representatives, directors or members), has not been found guilty of contravening the Competition Act 89 of 1998, as amended from time to time;
- m) The tenderer (including any of its representatives, directors or members), has not been found guilty on any other basis listed in the Supply Chain Management Policy.

2.2.1.1.3 Compulsory clarification meeting

Not Applicable

2.2.1.1.4 Minimum score for functionality

Not Applicable

2.2.1.1.5 Eligibility referring to specification

Compliance with the Specification

In order to be declared responsive at evaluation stage, the tenderer must comply fully with the specifications outlined in the tender document. The tenderer's attention is specifically drawn to the following sections of the specification, specific documentation and completed schedules to be submitted with the tenderer's submission at tender closure:

- Section 37: Technical Documentation, Drawings, Operating and Maintenance Instructions
- Section 38.5: Original Equipment Manufacturers (OEM) and their Authorised Reseller/Distributor
- Section 42: Key Personnel & Competency
 - Complete Schedule F.13 D: Details of Tenderer's Installations History, Track Record of Equipment & Key Personnel Information
- Section 47.2: Type Tests
 - Complete Schedule F.13 G: Schedule of Type Tests, detailing all type tests performed.
- Technical Schedules:
 - Schedule F.13 A: Schedule of Manufacturer Information
 - Schedule F.13 B: Schedule of Technical Data
 - Schedule F.13 C: Schedule of Manufacturer's Experience, Equipment Track Record and Facilities
 - Schedule F.13 E: Departures from the Requirements of the Specification
 - Schedule F.13 F: OEM, Quality and Environmental Certification (Proof to be attached)
 - Schedule F.13 G: Schedule of Type Tests
 - Schedule F.13 H: Details of Switchgear Disposal
 - Schedule F.13 I: Drawing Summary Sheet
 - Schedule F.13 J: Proposed Work Plan
 - Schedule F.13 K: Commencement Date And Dates Of Readiness For Inspection, Testing And Delivery
 - Schedule F.13 L: Schedule of Sub-Contractors
 - Schedule F.13 M: Schedule of Construction Equipment

Any tender submissions that are found to be materially non-compliant to the Specification for one or more of the items tendered in accordance with 2.3.7 of the Conditions of Tender, and following any necessary clarification in accordance with 2.3.9 the Conditions of Tender, shall be declared non-responsive for the respective items.

2.2.1.1.6 Provision of samples

Not Applicable

2.2.2 Cost of tendering

The CCT will not be liable 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.

2.2.3 Check documents

The documents issued by the CCT for the purpose of a tender offer are listed in the index of this tender document.

Before submission of any tender, the tenderer should check the number of pages, and if any are found to be missing or duplicated, or the figures or writing is indistinct, or if the Price Schedule contains any obvious errors, the tenderer must apply to the CCT at once to have the same rectified.

2.2.4 Confidentiality and copyright of documents

The tenderer shall treat as strictly confidential all matters arising in connection with the tender. Use and copy the documents issued by the CCT only for the purpose of preparing and submitting a tender offer in response to the invitation.

2.2.5 Reference documents

The tenderer shall 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 document(s) by reference.

2.2.6 Acknowledge and comply with notices

The tenderer shall acknowledge receipt of notices to the tender documents, which the CCT may issue, and shall fully comply with all instructions issued in the said notices, and if necessary, apply for an extension of the closing time stated on the front page of the tender document, in order to take the notices into account. Notwithstanding any requests for confirmation of receipt of the said notices issued, the tenderer shall be deemed to have received such notices if the CCT can show proof of transmission thereof via electronic mail, facsimile, or registered post or other lawful means.

2.2.7 Clarification meeting

The tenderer shall attend, where required, a clarification meeting at which tenderers may familiarise themselves with aspects of the proposed work, services or supply and pose questions. Details of the meeting(s) are stated in the General Tender Information (i.e., in item T.1 above).

Tenderers should be represented at the site visit/clarification meeting by a duly authorised person who is suitably qualified and experienced to comprehend the implications of the work involved.

2.2.8 Seek clarification

The tenderer shall request clarification of the tender documents, if necessary, by notifying the CCT at least one week before the closing time stated in the General Tender Information (i.e., in item T.1 above), where possible.

2.2.9 Pricing the tender offer

2.2.9.1 The tenderer shall comply with all pricing instructions as stated on the Price Schedule.

2.2.10 Alterations to documents

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

2.2.11 Alternative tender offers

2.2.11.1 Unless otherwise stated in the Conditions of Tender, the tenderers may submit alternative tender offers only if a main tender offer, strictly in accordance with all the requirements of the tender documents, is also submitted.

If a tenderer wishes to submit an alternative tender offer, he/she/it shall do so as a separate offer on a complete set of tender documents. The alternative tender offer shall be submitted in a separate sealed envelope clearly marked "Alternative Tender" in order to distinguish it from the main tender offer.

Only the alternative of the highest ranked acceptable main tender offer (that is, submitted by the same tenderer) will be considered, and if appropriate, recommended for award.

Alternative tender offers of any but the highest ranked main tender offer will not be considered.

An alternative tender offer to the highest ranked acceptable main tender offer that is priced higher than the main tender offer may be recommended for award, provided that the ranking of the alternative tender offer is higher than the ranking of the next ranked acceptable main tender offer.

The CCT will not be bound to consider alternative tenders and shall have sole discretion in this regard.

In the event that the alternative is accepted, the tenderer warrants that the alternative offer complies in all respects with the CCT's standards and requirements as set out in the tender document.

2.2.11.2 Acceptance of an alternative tender offer by the CCT may be based only on the criteria stated in the Conditions of Tender or applicable criteria otherwise acceptable to the CCT.

2.2.12 Submitting a tender offer

2.2.12.1 The tenderer is required to submit one tender offer only on the original tender documents as issued by the CCT, either as a single tendering entity or as a member in a joint venture to provide the whole of the works, services or supply identified in the Conditions of Contract and described in the Specifications. Only those tenders submitted on the tender documents as issued by the CCT together with all Tender Returnable Documents duly completed and signed will be declared responsive.

2.2.12.2 The tenderer shall return the entire tender document to the CCT after completing it in its entirety, either electronically (if they were issued in electronic format) or by writing legibly in non-erasable ink.

2.2.12.3 The tenderer shall sign the original tender offer where required in terms of the Conditions of Tender. The tender shall be signed by a person duly authorised by the tenderer to do so. Tenders submitted by joint ventures of two or more firms shall be accompanied by the document of formation / founding document of the joint venture or any other document signed by all Parties, in which is defined precisely the conditions under which the joint venture will function, its period of duration, the persons authorised to represent and obligate it, the participation of the several firms forming the joint venture, and any other information necessary to permit a full appraisal of its functioning. Signatories for tenderers proposing to contract as joint ventures shall state which of the signatories is the lead partner.

2.2.12.4 Where a two-envelope system is required in terms of the Conditions of Tender, place and seal the returnable documents listed in the Conditions of Tender 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 CCT's address and identification details stated in the General Tender Information (i.e., item T.1 above), as well as the tenderer's name and contact address.

2.2.12.5 The tenderer shall seal the original tender offer and copy packages together in an outer package that states on the outside only the CCT's address and identification details as stated in the General Tender

Information. . If it is not possible to submit the original tender and the required copies (see 2.2.12.3) in a single envelope, then the tenderer must seal the original and each copy of the tender offer as separate packages marking the packages as "ORIGINAL" and "COPY" in addition to the aforementioned tender submission details.

2.2.12.6 The CCT shall not assume any responsibility for the misplacement or premature opening of the tender offer if the outer package is not sealed and marked as stated.

2.2.12.7 Tender offers submitted by facsimile or e-mail will be rejected by the CCT, unless stated otherwise in the Conditions of Tender.

2.2.12.8 By signing the offer part of the Form of Offer (**Section C.2, hereto**) the tenderer warrants and agrees that all information provided in the tender submission is true and correct.

2.2.12.9 Tenderers shall properly deposit its bid in the designated tender box (as detailed on the front page of this tender document) on or before the closing date and before the closing time, in the relevant tender box at the Tender & Quotation Boxes Office situated on the 2nd floor, Concourse Level, Civic Centre, 12 Hertzog Boulevard, Cape Town. If the tender submission is too large to fit in the allocated box, please enquire at the public counter for assistance.

2.2.12.10 The tenderer must record and reference all information submitted contained in other documents for example cover letters, brochures, catalogues, etc. in the Returnable Schedule titled **List of Other Documents Attached by Tenderer**.

2.2.13 Information and data to be completed in all respects

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

2.2.14 Closing time

2.2.14.1 The tenderer shall ensure that the CCT receives the tender offer, together with all applicable documents specified herein, at the address specified in the General Tender Information herein prior to the closing time stated on the front page of the tender document.

2.2.14.2 If the CCT extends the closing time stated on the front page of the tender document for any reason, the requirements of these Conditions of Tender apply equally to the extended deadline.

2.2.14.3 The CCT shall not consider tenders that are received after the closing date and time for such a tender (late tenders).

2.2.15 Tender offer validity and withdrawal of tenders

2.2.15.1 The tenderer shall warrant that the tender offer(s) remains valid, irrevocable and open for acceptance by the CCT at any time for a period of 120 days after the closing date stated on the front page of the tender document.

2.2.15.2 Notwithstanding the period stated in clause 2.2.15.1 above, bids shall remain valid for acceptance for a period of twelve (12) months after the expiry of the original validity period, unless the CCT is notified in writing of anything to the contrary by the bidder. The validity of bids may be further extended by a period of not more than six months subject to mutual agreement by the parties, administrative processes and upon approval by the City Manager, unless the required extension is as a result of an appeal process or court ruling.

In circumstances where the validity period of a tender has expired, and the tender has not been awarded, the tender process is considered "completed", despite there being no decision (award or cancellation) made. This anomaly does not fall under any of the listed grounds of cancellation and should be treated as a "non-award". A "non award" is supported as a recommendation to the CCT's Bid Adjudication Committee ("BAC") for noting.

2.2.15.3 A tenderer may request in writing, after the closing date, that its tender offer be withdrawn. Such

withdrawal will be permitted or refused at the sole discretion of the CCT after consideration of the reasons for the withdrawal, which shall be fully set out by the tenderer in such written request for withdrawal. Should the tender offer be withdrawn in contravention hereof, the tenderer agrees that:

- a) it shall be liable to the CCT for any additional expense incurred or losses suffered by the CCT in having either to accept another tender or, if new tenders have to be invited, the additional expenses incurred or losses suffered by the invitation of new tenders and the subsequent acceptance of any other tender;
- b) the CCT shall also have the right to recover such additional expenses or losses by set-off against monies which may be due or become due to the tenderer under this or any other tender or contract or against any guarantee or deposit that may have been furnished by the tenderer or on its behalf for the due fulfilment of this or any other tender or contract. Pending the ascertainment of the amount of such additional expenses or losses, the CCT shall be entitled to retain such monies, guarantee or deposit as security for any such expenses or loss, without prejudice to the CCT's other rights and/or remedies available to it in accordance with any applicable laws.

2.2.16 Clarification of tender offer, or additional information, after submission

Tenderer's shall promptly provide clarification of its tender offer, or additional information, in response to a written request to do so from the CCT during the evaluation of tender offers within the time period stated in such request. No change in the competitive position of tenderers or substance of the tender offer is sought, offered, or permitted.

Note: This clause does not preclude the negotiation of the final terms of the contract with a preferred tenderer following a competitive selection process, should the CCT elect to do so.

Failure, or refusal, to provide such clarification or additional information within the time for submission stated in the CCT's written request may render the tender non-responsive.

2.2.17 Provide other material

2.2.17.1 Tenderer's shall promptly provide, upon request by the CCT, any other material that has a bearing on the tender offer, the tenderer's commercial position (including joint venture agreements), preferencing arrangements, or samples of materials, considered necessary by the CCT for the purpose of the evaluation of the tender. 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 CCT's request, the CCT may regard the tender offer as non-responsive.

2.2.17.2 The tenderer shall provide, on written request by the CCT, where the transaction value inclusive of VAT **exceeds R 10 million**:

- a) audited annual financial statement for the past 3 years, or for the period since establishment if established during the past 3 years, if required by law to prepare annual financial statements for auditing;
- b) a certificate signed by the tenderer certifying that the tenderer 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;
- c) particulars of any contracts awarded to the tenderer 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;
- d) a statement indicating whether any portion of the goods or services are expected to be sourced from outside the Republic, and, if so, what portion and whether any portion of payment from the municipality or municipal entity is expected to be transferred out of the Republic.

Each entity to a Consortium/Joint Venture bid shall submit separate certificates/statements in the above regard.

2.2.17.3 Tenderers shall be required to undertake to fully cooperate with the CCT's external service provider appointed to perform a due diligence review and risk assessment upon receipt of such written instruction from the CCT.

2.2.18 Samples, Inspections, tests and analysis

Tenderers shall provide access during working hours to premises for inspections, tests and analysis as provided for in the Conditions of Tender or Specifications.

If the Specifications requires the tenderer to provide samples, these shall be provided strictly in accordance with the instructions set out in the Specification.

If such samples are not submitted as required in the bid documents or within any further time stipulated by the CCT in writing, then the bid concerned may be declared non-responsive.

The samples provided by all successful bidders will be retained by the CCT for the duration of any subsequent contract. Bidders are to note that samples are requested for testing purposes therefore samples submitted to the CCT may not in all instances be returned in the same state of supply and in other instances may not be returned at all. Unsuccessful bidders will be advised by the Project Manager or dedicated CCT Official to collect their samples, save in the aforementioned instances where the samples would not be returned.

2.2.19 Certificates

The tenderer must provide the CCT with all certificates as stated below:

2.2.19.1. Preference Points for Specific Goals

In order to qualify for preference points for HDI and/or Specific Goals, it is the responsibility of the tenderer to submit documentary proof (Company registration certification, Central Supplier Database report, BBBEE certificate, Proof of Disability, Financial Statements, commissioned sworn affidavits, etc.) in support of tenderer claims for such preference for that specific goal.

Tenderers are further referred to the content of the Preference Schedule for the full terms and conditions applicable to the awarding of preference points.

2.2.19.2 Evidence of tax compliance

Tenderers shall be registered with the South African Revenue Service (SARS) and their tax affairs must be in order and they must be tax compliant subject to the requirements of clause 2.2.1.1.2.h. In this regard, it is the responsibility of the Tenderer to submit evidence in the form of a valid Tax Compliance Status PIN issued by SARS to the CCT at the Supplier Management Unit located within the Supplier Management / Registration Office, 2nd Floor (Concourse Level), Civic Centre, 12 Hertzog Boulevard, Cape Town (Tel 021 400 9242/3/4/5), or included with this tender. The tenderer must record its Tax Compliance Status PIN number on the **Details of Tenderer** pages of the tender submission.

Each party to a Consortium/Joint Venture shall submit a separate Tax Compliance Status Pin.

Before making an award the CCT must verify the bidder's tax compliance status. Where the recommended bidder is not tax compliant, the bidder should be notified of the non-compliant status and be requested to submit to the CCT, within 7 working days, written proof from SARS that they have made arrangement to meet their outstanding tax obligations. The proof of tax compliance submitted by the bidder must be verified by the CCT via CSD or e-Filing. The CCT should reject a bid submitted by the bidder if such bidder fails to provide proof of tax compliance within the timeframe stated herein.

Only foreign suppliers who have answered "NO" to all the questions contained in the Questionnaire to Bidding Foreign Suppliers section on the **Details of Tenderer** pages of the tender submission, are not required to register for a tax compliance status with SARS.

2.2.20 Compliance with Occupational Health and Safety Act, 85 of 1993

Tenderers are to note the requirements of the Occupational Health and Safety Act, 85 of 1993. The Tenderer shall be deemed to have read and fully understood the requirements of the above Act and Regulations and to have allowed for all costs in compliance therewith.

In this regard the Tenderer shall submit **upon written request to do so by the CCT**, a Health and Safety Plan in sufficient detail to demonstrate the necessary competencies and resources to deliver the goods or services all in accordance with the Act, Regulations and Health and Safety Specification.

2.2.21 Claims arising from submission of tender

By responding to the tender herein, the tenderer warrants that it has:

- a) Inspected the Specifications and read and fully understood the Conditions of Contract.
- b) Read and fully understood the whole text of the Specifications and Price Schedule and thoroughly acquainted himself with the nature of the goods or services proposed and generally of all matters which may influence the Contract.
- c) visited the site(s) where delivery of the proposed goods will take place, carefully examined existing conditions, the means of access to the site(s), the conditions under which the delivery is to be made, and acquainted himself with any limitations or restrictions that may be imposed by the Municipal or other Authorities in regard to access and transport of materials, plant and equipment to and from the site(s) and made the necessary provisions for any additional costs involved thereby.
- d) requested the CCT to clarify the actual requirements of anything in the Specifications and Price Schedule, the exact meaning or interpretation of which is not clearly intelligible to the Tenderer.
- e) Received any notices to the tender documents which have been issued in accordance with the CCT's Supply Chain Management Policy.

The CCT will therefore not be liable for the payment of any extra costs or claims arising from the submission of the tender.

2.3 The CCT's undertakings

2.3.1 Respond to requests from the tenderer

2.3.1.1 Unless otherwise stated in the Conditions of Tender, the CCT shall respond to a request for clarification received up to one week (where possible) before the tender closing time stated on the front page of the tender document.

2.3.1.2 The CCT's duly authorised representative for the purpose of this tender is stated on the General Tender Information page above.

2.3.2 Issue Notices

If necessary, the CCT may issue addenda in writing that may amend or amplify the tender documents to each tenderer during the period from the date the tender documents are available until one week before the tender closing time stated in the Tender Data. The CCT reserves its rights to issue addenda less than one week before the tender closing time in exceptional circumstances. If, as a result a tenderer applies for an extension to the closing time stated on the front page of the tender document, the CCT may grant such extension and, shall then notify all tenderers who drew documents.

Notwithstanding any requests for confirmation of receipt of notices issued, the tenderer shall be deemed to have received such notices if the CCT can show proof of transmission thereof via electronic mail, facsimile or registered post.

2.3.3 Opening of tender submissions

2.3.3.1 Unless the two-envelope system is to be followed, CCT shall open tender submissions in the presence of tenderers' agents who choose to attend at the time and place stated in the Conditions of Tender.

Tenders will be opened immediately after the closing time for receipt of tenders as stated on the front page of the tender document, or as stated in any Notice extending the closing date and at the closing venue as stated in the General Tender Information.

2.3.3.2 Announce at the meeting held immediately after the opening of tender submissions, at the closing venue as stated in the General Tender Information, the name of each tenderer whose tender offer is opened and, where possible, the prices indicated.

2.3.3.3 Make available a record of the details announced at the tender opening meeting on the CCT's website (<http://www.capetown.gov.za/en/SupplyChainManagement/Pages/default.aspx>.)

2.3.4 Two-envelope system

2.3.4.1 Where stated in the Conditions of Tender that a two-envelope system is to be followed, the CCT shall open only the technical proposal of tenders in the presence of tenderers' agents who choose to attend at the time and place stated in the Conditions of Tender and announce the name of each tenderer whose technical proposal is opened.

2.3.4.2 The CCT shall evaluate the quality of the technical proposals offered by tenderers, then advise tenderers who have submitted responsive technical proposals of the time and place when the financial proposals will be opened. The CCT shall open only the financial proposals of tenderers, who have submitted responsive technical proposals in accordance with the requirements as stated in the Conditions of Tender, and announce the total price and any preference claimed. Return unopened financial proposals to tenderers whose technical proposals were non responsive.

2.3.5 Non-disclosure

The CCT shall 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 and recommendations for the award of a contract, until after the award of the contract to the successful tenderer.

2.3.6 Grounds for rejection and disqualification

The CCT shall 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.

2.3.7 Test for responsiveness

2.3.7.1 Appoint a Bid Evaluation Committee and determine after opening 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.

2.3.7.2 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 CCT's opinion, would:

- a) Detrimentially affect the scope, quality, or performance of the goods, services or supply identified in the Specifications,
- b) Significantly change the CCT'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 any material deviation or qualification.

The CCT reserves the right to accept a tender offer which does not, in the CCT's opinion, materially and/or substantially deviate from the terms, conditions, and specifications of the tender documents.

2.3.8 Arithmetical errors, omissions and discrepancies

2.3.8.1 Check the responsive tenders for:

- a) The gross misplacement of the decimal point in any unit rate;
- b) Omissions made in completing the Price Schedule; or
- c) Arithmetic errors in:
 - i) line item totals resulting from the product of a unit rate and a quantity in the Price Schedule; or
 - ii) The summation of the prices; or
 - iii) Calculation of individual rates.

2.3.8.2 The CCT must correct the arithmetical errors in the following manner:

- a) Where there is a discrepancy between the amounts in words and amounts in figures, the amount in words shall govern.
- b) If 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 tendered shall govern, and the unit rate shall be corrected.
- c) Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the tenderer's addition of prices, the total of the prices shall govern and the tenderer will be asked to revise selected item prices (and their rates if Price Schedules apply) to achieve the tendered total of the prices.

Consider the rejection of a tender offer if the tenderer does not correct or accept the correction of the arithmetical error in the manner described above.

2.3.8.3 In the event of tendered rates or lump sums being declared by the CCT to be unacceptable to it because they are not priced, either excessively low or high, or not in proper balance with other rates

or lump sums, the tenderer may be required to produce evidence and advance arguments in support of the tendered rates or lump sums objected to. If, after submission of such evidence and any further evidence requested, the CCT is still not satisfied with the tendered rates or lump sums objected to, it may request the tenderer to amend these rates and lump sums along the lines indicated by it.

The tenderer will then have the option to alter and/or amend the rates and lump sums objected to and such other related amounts as are agreed on by the CCT, but this shall be done without altering the tender offer in accordance with this clause.

Should the tenderer fail to amend his tender in a manner acceptable to and within the time stated by the CCT, the CCT may declare the tender as non-responsive.

2.3.9 Clarification of a tender offer

The CCT may, after the closing date, request additional information or clarification from tenderers, in writing on any matter affecting the evaluation of the tender offer or that could give rise to ambiguity in a contract arising from the tender offer, which written request and related response shall not change or affect their competitive position or the substance of their offer. Such request may only be made in writing by the Director: Supply Chain Management using any means as appropriate.

2.3.10 Evaluation of tender offers

2.3.10.1 General

2.3.10.1.1 The CCT may reduce each responsive tender offer to a comparative price and evaluate them using the tender evaluation methods and associated evaluation criteria and weightings that are specified in the Conditions of Tender.

2.3.10.1.2 Not Applicable

2.3.10.1.3 Where the scoring of functionality forms part of a bid process, each member of the Bid Evaluation Committee must individually score functionality. The individual scores must then be interrogated and calibrated if required where there are significant discrepancies. The individual scores must then be added together and averaged to determine the final score.

2.3.10.2 Decimal places

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

2.3.10.3 Scoring of tenders (price and preference)

2.3.10.3.1 Points for price will be allocated in accordance with the formula set out in this clause based on the price per item / rates as set out in the **Price Schedule (Section C.4)**:

- Based on the sum of the prices/rates in relation to a typical project/job for Item A and Item B, respectively.

2.3.10.3.2 Points for preference will be allocated in accordance with the provisions of **Preference Schedule** and the table in this clause.

2.3.10.3.3 The terms and conditions of **Preference Schedule** as it relates to preference shall apply in all respects to the tender evaluation process and any subsequent contract.

2.3.10.3.4 Applicable formula:

The 90/10 price/preference points system will be applied to the evaluation of responsive tenders above a Rand value of R50'000'000 (all applicable taxes included), whereby the order(s) will be placed with the tenderer(s) scoring the highest total number of adjudication points.

Price shall be scored as follows:

$$P_s = 90 \times \left(1 - \frac{(P_t - P_{min})}{P_{min}} \right)$$

Where: Ps is the number of points scored for price;
Pt is the price of the tender under consideration;
Pmin is the price of the lowest responsive tender.

Preference points shall be based on the Specific Goal as per below:

Table B2: Awards above R50 mil (VAT Inclusive)

#	Specific goals allocated points	Preference Points (90/10) <i>Above R50 mil</i>	Evidence	Additional Guidance
<i>Persons, or categories of persons, historically disadvantaged- (HDI) by unfair discrimination on the basis of</i>				
1	Gender are women (ownership)* >75% - 100% women ownership: 3 points >50% - 75% women ownership: 2 points >25% - 50% women ownership: 1 point >0% - 25% women ownership: 0.5 point 0% women ownership = 0 points	3	<ul style="list-style-type: none"> Company Registration Certification Central Supplier Database report 	<ul style="list-style-type: none"> Issued by the Companies and Intellectual Property Commission Report name: CSD Registration report
2	Race are black persons (ownership)* >75% - 100% black ownership: 3 points >50% - 75% black ownership: 2 points >25% - 50% black ownership: 1 point >0% - 25% black ownership: 0.5 point 0% black ownership = 0 points	3	<ul style="list-style-type: none"> B-BBEE certificate; Company Registration Certification Central Supplier Database report 	<ul style="list-style-type: none"> South African National Accreditation System approved certificate or commissioned sworn affidavit Issued by the Companies and Intellectual Property Commission Report name: CSD Registration report
3	Disability are disabled persons (ownership)* WHO disability guideline >2% ownership: 1 points >0% - 2% ownership: 0.5 point 0% ownership = 0 point	1	<ul style="list-style-type: none"> Proof of disability Company Registration Certification 	<ul style="list-style-type: none"> Medical certificate/ South African Revenue Services disability registration Issued by the Companies and Intellectual Property Commission
<i>Reconstruction and Development Programme (RDP) as published in Government Gazette</i>				
4	Promotion of Micro and Small Enterprises <i>Micro with a turnover up to R20million and Small with a turnover up to R80 million as per National Small Enterprise Act, 1996 (Act No.102 of 1996)</i> <i>SME partnership, sub-contracting, joint venture or consortiums</i>	3	<ul style="list-style-type: none"> B-BBEE status level of contributor; South African owned enterprises; Financial Statement to determine annual turnover 	<ul style="list-style-type: none"> Specifically in line with the respective sector codes which the company operates, South African National Accreditation System approved certificate or commissioned sworn affidavit Certificate of incorporation or commissioned sworn affidavit Latest financial statements (1 Year)
	Total points	10		

*Ownership: main tendering entity

2.3.10.5 Risk Analysis

Notwithstanding compliance with regard to any requirements of the tender, the CCT will perform a risk analysis in respect of the following:

- a) reasonableness of the financial offer
- b) reasonableness of unit rates and prices
- c) the tenderer's ability to fulfil its obligations in terms of the tender document, that is, that the tenderer can demonstrate that he/she possesses the necessary professional and technical qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, capacity, experience, reputation, personnel to perform the contract, etc.; the CCT reserves the right to consider a tenderer's existing contracts with the CCT in this regard
- d) any other matter relating to the submitted bid, the tendering entity, matters of compliance, verification of submitted information and documents, etc.

The conclusions drawn from this risk analysis will be used by the CCT in determining the acceptability of the tender offer.

No tenderer will be recommended for an award unless the tenderer has demonstrated to the satisfaction of the CCT that he/she has the resources and skills required.

2.3.11 Negotiations with preferred tenderers

The CCT may negotiate the final terms of a contract with tenderers identified through a competitive tendering process as preferred tenderers provided that such negotiation:

- a) Does not allow any preferred tenderer a second or unfair opportunity;
- b) Is not to the detriment of any other tenderer; and
- c) Does not lead to a higher price than the tender as submitted.

If negotiations fail to result in acceptable contract terms, the City Manager (or his delegated authority) may terminate the negotiations and cancel the tender, or invite the next ranked tenderer for negotiations. The original preferred tenderer should be informed of the reasons for termination of the negotiations. If the decision is to invite the next highest ranked tenderer for negotiations, the failed earlier negotiations may not be reopened by the CCT.

Minutes of any such negotiations shall be kept for record purposes.

The provisions of this clause will be equally applicable to any invitation to negotiate with any other tenderers.

In terms of the CCT's SCM Policy, tenders must be cancelled in the event that negotiations fail to achieve a market related price with any of the three highest scoring tenderers.

2.3.12 Acceptance of tender offer

Notwithstanding any other provisions contained in the tender document, the CCT reserves the right to:

2.3.12.1 Accept a tender offer(s) which does not, in the CCT's opinion, materially and/or substantially deviate from the terms, conditions, and specifications of the tender document.

2.3.12.2 Accept the whole tender or part of a tender or any item or part of any item or items from multiple manufacturers, or to accept more than one tender (in the event of a number of items being offered), and the CCT is not obliged to accept the lowest or any tender.

2.3.12.3 Accept the tender offer(s), if in the opinion of the CCT, it does not present any material risk and only if the tenderer(s):

- a) is not under restrictions, has any principals who are under restrictions, or is not currently a supplier to whom notice has been served for abuse of the supply chain management system, preventing participation in the CCT'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, 2008, bankrupt or being wound up, has his affairs administered by a court or a judicial officer, has suspended his business activities, or is subject to legal proceedings in respect of any of the foregoing, complies with the legal requirements, if any, stated in the tender data, and
- e) is able, in the opinion of the CCT, to perform the contract free of conflicts of interest.

If an award cannot be made in terms of anything contained herein, the CCT reserves the right to consider the next ranked tenderer(s).

2.3.12.4 The CCT reserves the right not to make an award, or revoke an award already made, where the implementation of the contract may result in reputational risk or harm to the CCT as a result of (inter alia):

- a) reports of poor governance or unethical behaviour, or both;
- b) association with known notorious individuals and family of notorious individuals;
- c) poor performance issues, known to the CCT;
- d) negative media reports, including negative social media reports;
- e) adverse assurance (e.g. due diligence) report outcomes; and
- f) circumstances where the relevant vendor has employed, or is directed by, anyone who was previously employed in the service of the state (as defined in clause 1.53 of the SCM Policy), where the person is or was negatively implicated in any SCM irregularity.

2.3.12.5 The CCT reserves the right to nominate a Standby bidder at the time when an award is made and in the event that a contract is terminated during the execution thereof, the CCT may consider the award of the contract, or non-award, to the Standby Bidder in terms of the procedures included in its SCM Policy.

2.3.13 Prepare contract documents

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

- a) Notices issued during the tender period,
- b) Inclusion of some of the returnable documents, and
- c) Other revisions agreed between the CCT and the successful tenderer.

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


2.3.14 Notice to successful and unsuccessful tenderers

2.3.14.1 Before accepting the tender of the successful tenderer the CCT shall notify the successful tenderer in writing of the decision of the CCT's Bid Adjudication Committee to award the tender to the successful tenderer. No rights shall accrue to the successful tenderer in terms of this notice

2.3.14.2 The CCT shall, at the same time as notifying the successful tenderer of the Bid Adjudication Committee's decision to award the tender to the successful tenderer, also give written notice to the other tenderers informing them that they have been unsuccessful.

2.3.15 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.

TENDER DOCUMENT GOODS AND SERVICES		 CITY OF CAPE TOWN ISIXEKO SASEKAPA STAD KAAPSTAD
SUPPLY CHAIN MANAGEMENT		
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TENDER NO: 206G/2025/26
TENDER DESCRIPTION: TENDER DESCRIPTION: SUPPLY, INSTALLATION, AND COMMISSIONING OF 12 KV INDOOR SWITCHGEAR AND ANCILLARY EQUIPMENT FOR EXTENSION OF EXISTING TYPE LMX AND NEW INSTALLATIONS
CONTRACT PERIOD: NOT EXCEEDING THIRTY-SIX (36) MONTHS FROM DATE OF COMMENCEMENT OF CONTRACT

THE CONTRACT

THE CITY OF CAPE TOWN	
A metropolitan municipality, established in terms of the Local Government: Municipal Structures Act, 117 of 1998 read with the Province of the Western Cape: Provincial Gazette 5588 dated 22 September 2000, as amended ("the Purchaser") herein represented by	
AUTHORISED REPRESENTATIVE	

AND

SUPPLIER	
NAME of Company/Close Corporation or Partnership / Joint Venture/ Consortium or Sole Proprietor /Individual (The "Supplier" / "tenderer")	
TRADING AS (if different from above)	
REGISTRATION NUMBER	
PHYSICAL ADDRESS / CHOSEN DOMICILIUM CITANI ET EXECTUANDI OF THE SUPPLIER	
AUTHORISED REPRESENTATIVE	
CAPACITY OF AUTHORISED REPRESENTATIVE	

(HEREINAFTER COLLECTIVELY REFERRED TO AS "THE PARTIES" AND INDIVIDUALLY A "PARTY")

NATURE OF TENDER OFFER (please indicate below)	
Main Offer (see clause 2.2.11.1)	
Alternative Offer (see clause 2.2.11.1)	

C.1 DETAILS OF TENDERER/SUPPLIER

1.1 Type of Entity (Please tick one box)

- Individual / Sole Proprietor
 Close Corporation
 Company
- Partnership or Joint Venture or Consortium
 Trust
 Other:

1.2 Required Details (Please provide applicable details in full):

Name of Company / Close Corporation or Partnership / Joint Venture / Consortium or Individual /Sole Proprietor	
Trading as (if different from above)	
Company / Close Corporation registration number (if applicable)	
Postal address	Postal Code _____
Physical address (Chosen Domicilium Citandi Et Executandi)	Postal Code _____
Contact details of the person duly authorised to represent the tenderer	Name: Mr/Ms _____ (Name & Surname) Telephone : (____) _____ Fax :(____) _____ Cellular Telephone: _____ E-mail address: _____
Income tax number	
VAT registration number	
SARS Tax Compliance Status PIN	
CCT Supplier Database Registration Number (See Conditions of Tender)	
National Treasury Central Supplier Database registration number (See Conditions of Tender)	
Is tenderer the accredited representative in South Africa for the Goods / Services / Works offered?	<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, enclose proof
Is tenderer a foreign based supplier for the Goods / Services / Works offered?	<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, answer the Questionnaire to Bidding Foreign Suppliers (below)
Questionnaire to Bidding Foreign Suppliers	a) Is the tenderer a resident of the Republic of South Africa or an entity registered in South Africa? <input type="checkbox"/> Yes <input type="checkbox"/> No
	b) Does the tenderer have a permanent establishment in the Republic of South Africa? <input type="checkbox"/> Yes <input type="checkbox"/> No
	c) Does the tenderer have any source of income in the Republic of South Africa? <input type="checkbox"/> Yes <input type="checkbox"/> No
	d) Is the tenderer liable in the Republic of South Africa for any form of taxation? <input type="checkbox"/> Yes <input type="checkbox"/> No
Other Required registration numbers	

C.2 FORM OF OFFER AND ACCEPTANCE

**TENDER NO: 206G/2025/26 : TENDER DESCRIPTION: SUPPLY,
INSTALLATION, AND COMMISSIONING OF 12 KV INDOOR
SWITCHGEAR AND ANCILLARY EQUIPMENT FOR EXTENSION OF
EXISTING TYPE LMX AND NEW INSTALLATIONS**

**Category A: Retrofits and Extensions to Existing Type Lmx Switchboards utilising
Circuit Breakers and Switchgear currently in CCT Stock**

C.2.1 Offer (To Be Completed by the Tenderer as Part of Tender Submission)

The tenderer, identified in the offer signature table below,

HEREBY AGREES THAT by signing the *Form of Offer and Acceptance*, the tenderer:

1. confirms that it has examined the documents listed in the Index (including Schedules and Annexures) and has accepted all the Conditions of Tender;
2. confirms that it has received and incorporated any and all notices issued to tenderers issued by the CCT;
3. confirms that it has satisfied itself as to the correctness and validity of the tender offer; that the price(s) and rate(s) offered cover all the goods and/or services specified in the tender documents; that the price(s) and rate(s) cover all its obligations and accepts that any mistakes regarding price(s), rate(s) and calculations will be at its own risk;
4. offers to supply all or any of the goods and/or render all or any of the services described in the tender document to the CCT in accordance with the:
 - 4.1 terms and conditions stipulated in this tender document;
 - 4.2 specifications stipulated in this tender document; and
 - 4.3 at the prices as set out in the **Price Schedule**.
5. accepts full responsibility for the proper execution and fulfilment of all obligations and conditions devolving on it in terms of the Contract.

SIGNED AT _____ (PLACE) ON THE _____ (DAY) OF _____ (MONTH AND YEAR)

For and on behalf of the Supplier
(Duly Authorised)
Name and Surname:

Witness 1 Signature
Name and Surname:

Witness 2 Signature
Name and Surname:

INITIALS OF CCT OFFICIALS		
1	2	3

FORM OF OFFER AND ACCEPTANCE (continued)

**TENDER NO: 206G/2025/26 : TENDER DESCRIPTION: SUPPLY,
INSTALLATION, AND COMMISSIONING OF 12 KV INDOOR
SWITCHGEAR AND ANCILLARY EQUIPMENT FOR EXTENSION OF
EXISTING TYPE LMX AND NEW INSTALLATIONS**

**Category A: Retrofits and Extensions to Existing Type Lmx Switchboards utilising
Circuit Breakers and Switchgear currently in CCT Stock**

C.2.2 Acceptance (To Be Completed by the CCT)

By signing this part of this *Form of Offer and Acceptance*, the CCT accepts the tenderer's (if awarded the Supplier's) offer. In consideration thereof, the CCT shall pay the Supplier the amount due in accordance with the conditions of contract. Acceptance of the Supplier's offer shall form an agreement between the CCT and the Supplier upon the terms and conditions contained in this document.

The terms of the agreement are contained in the Contract (as defined) including drawings and documents or parts thereof, which may be incorporated by reference.

Deviations from and amendments to the documents listed in the tender data and any addenda thereto as listed in the *Tender Returnable Documents* as well as any changes to the terms of the offer agreed by the tenderer and the CCT 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 the *Schedule of Deviations*.

The Supplier shall within 2 (two) weeks after receiving a complete, copy of the Contract, including the *Schedule of Deviations* (if any), contact the CCT to arrange the delivery of any securities, bonds, guarantees, proof of insurance and any other documents to be provided in terms the *Special Conditions of Contract*. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation / breach of the agreement.

Notwithstanding anything contained herein, this agreement comes into effect on the Commencement Date, and the contract period shall be for a maximum period of 36 months.

For and on behalf of the City of Cape Town
(Duly Authorised)
Name and Surname:

Witness 1 Signature
Name and Surname:

Witness 2 Signature
Name and Surname:

FORM OF OFFER AND ACCEPTANCE (continued)

**TENDER NO: 206G/2025/26 : SUPPLY, INSTALLATION, AND
COMMISSIONING OF 12 KV INDOOR SWITCHGEAR AND ANCILLARY
EQUIPMENT FOR EXTENSION OF EXISTING TYPE LMX AND NEW
INSTALLATIONS**

**Category A: Retrofits and Extensions to Existing Type Lmx Switchboards utilising
Circuit Breakers and Switchgear currently in CCT Stock**

C.2.3 Schedule of Deviations (To be Completed by the CCT upon Acceptance)

Notes:

1. The extent of deviations from the tender documents issued by the CCT 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, become 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 to become an obligation of the Contract, shall be recorded here.
4. Any change or addition to the tender documents arising from the above agreements and recorded here, shall form part of the Contract.

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2 Subject

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4 Subject

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By the duly authorised representatives signing this agreement, the CCT and the tenderer agree to and accept the foregoing schedule of deviations as the only deviations from and amendments to this tender document and addenda thereto as listed in the *Tender Returnable Documents*, as well as any confirmation, clarification or changes to the terms of the offer agreed by the tenderer and the CCT 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 Commencement Date, shall have any meaning or effect between the Parties arising from the agreement.

FORM OF OFFER AND ACCEPTANCE (continued)

**TENDER NO: 206G/2025/26 : SUPPLY, INSTALLATION, AND
COMMISSIONING OF 12 KV INDOOR SWITCHGEAR AND ANCILLARY
EQUIPMENT FOR EXTENSION OF EXISTING TYPE LMX AND NEW
INSTALLATIONS**

**Category A: Retrofits and Extensions to Existing Type Lmx Switchboards utilising
Circuit Breakers and Switchgear currently in CCT Stock**

C.2.4 Confirmation of Receipt (To be Completed by Supplier upon Acceptance)

The Supplier identified in the offer part of the Contract hereby confirms receipt from the CCT of 1 (one) complete, signed copy of the Contract, including the *Schedule of Deviations* (if any) on:

The..... (Day)
Of..... (Month)
20..... (year)
At..... (Place)

Contract Commencement date - Notwithstanding clause 1.1A of the Special Conditions of Contract, the commencement date shall be no earlier than 31 December 2026.

For the Supplier: Signature(s)
Name(s)
Capacity
Signature and name of witness:

Signature Name

ONLY TO BE
COMPLETED AT
ACCEPTANCE STAGE

C.2 FORM OF OFFER AND ACCEPTANCE

TENDER NO: 206G/2025/26 : SUPPLY, INSTALLATION, AND COMMISSIONING OF 12 KV INDOOR SWITCHGEAR AND ANCILLARY EQUIPMENT FOR EXTENSION OF EXISTING TYPE LMX AND NEW INSTALLATIONS

Category B: Retrofits, Modifications and Upgrades to existing Type LMX Switchboards and New Installations Utilising New Equipment Delivered to CCT Stores

C.2.1 Offer (To Be Completed by the Tenderer as Part of Tender Submission)

The tenderer, identified in the offer signature table below,

HEREBY AGREES THAT by signing the *Form of Offer and Acceptance*, the tenderer:

1. confirms that it has examined the documents listed in the Index (including Schedules and Annexures) and has accepted all the Conditions of Tender;
2. confirms that it has received and incorporated any and all notices issued to tenderers issued by the CCT;
3. confirms that it has satisfied itself as to the correctness and validity of the tender offer; that the price(s) and rate(s) offered cover all the goods and/or services specified in the tender documents; that the price(s) and rate(s) cover all its obligations and accepts that any mistakes regarding price(s), rate(s) and calculations will be at its own risk;
4. offers to supply all or any of the goods and/or render all or any of the services described in the tender document to the CCT in accordance with the:
4.1 terms and conditions stipulated in this tender document;
4.2 specifications stipulated in this tender document; and
4.3 at the prices as set out in the **Price Schedule**.
5. accepts full responsibility for the proper execution and fulfilment of all obligations and conditions devolving on it in terms of the Contract.

SIGNED AT _____ (PLACE) ON THE _____ (DAY) OF _____ (MONTH AND YEAR)

For and on behalf of the Supplier
(Duly Authorised)
Name and Surname:

Witness 1 Signature
Name and Surname:

Witness 2 Signature
Name and Surname:

INITIALS OF CCT OFFICIALS		
1	2	3

FORM OF OFFER AND ACCEPTANCE (continued)

TENDER NO: 206G/2025/26 : SUPPLY, INSTALLATION, AND COMMISSIONING OF 12 KV INDOOR SWITCHGEAR AND ANCILLARY EQUIPMENT FOR EXTENSION OF EXISTING TYPE LMX AND NEW INSTALLATIONS

Category B: Retrofits, Modifications and Upgrades to existing Type LMX Switchboards and New Installations Utilising New Equipment Delivered to CCT Stores

C.2.2 Acceptance (To Be Completed by the CCT)

By signing this part of this *Form of Offer and Acceptance*, the CCT accepts the tenderer's (if awarded the Supplier's) offer. In consideration thereof, the CCT shall pay the Supplier the amount due in accordance with the conditions of contract. Acceptance of the Supplier's offer shall form an agreement between the CCT and the Supplier upon the terms and conditions contained in this document.

The terms of the agreement are contained in the Contract (as defined) including drawings and documents or parts thereof, which may be incorporated by reference.

Deviations from and amendments to the documents listed in the tender data and any addenda thereto as listed in the *Tender Returnable Documents* as well as any changes to the terms of the offer agreed by the tenderer and the CCT 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 the *Schedule of Deviations*.

The Supplier shall within 2 (two) weeks after receiving a complete, copy of the Contract, including the *Schedule of Deviations* (if any), contact the CCT to arrange the delivery of any securities, bonds, guarantees, proof of insurance and any other documents to be provided in terms the *Special Conditions of Contract*. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation / breach of the agreement.

Notwithstanding anything contained herein, this agreement comes into effect on the Commencement Date, and the contract period shall be for a maximum period of 36 months.

For and on behalf of the City of Cape Town
(Duly Authorised)
Name and Surname:

Witness 1 Signature
Name and Surname:

Witness 2 Signature
Name and Surname:

FORM OF OFFER AND ACCEPTANCE (continued)

TENDER NO: 206G/2025/26 : SUPPLY, INSTALLATION, AND COMMISSIONING OF 12 KV INDOOR SWITCHGEAR AND ANCILLARY EQUIPMENT FOR EXTENSION OF EXISTING TYPE LMX AND NEW INSTALLATIONS

Category B: Retrofits, Modifications and Upgrades to existing Type Lmx Switchboards and New Installations Utilising New Equipment Delivered to CCT Stores

C.2.3 Schedule of Deviations (To be Completed by the CCT upon Acceptance)

Notes:

1. The extent of deviations from the tender documents issued by the CCT 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, become 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 to become an obligation of the Contract, shall be recorded here.
4. Any change or addition to the tender documents arising from the above agreements and recorded here, shall form part of the Contract.

1 Subject

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By the duly authorised representatives signing this agreement, the CCT and the tenderer agree to and accept the foregoing schedule of deviations as the only deviations from and amendments to this tender document and addenda thereto as listed in the *Tender Returnable Documents*, as well as any confirmation, clarification or changes to the terms of the offer agreed by the tenderer and the CCT 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 Commencement Date, shall have any meaning or effect between the Parties arising from the agreement.

FORM OF OFFER AND ACCEPTANCE (continued)

TENDER NO: 206G/2025/26 : SUPPLY, INSTALLATION, AND COMMISSIONING OF 12 KV INDOOR SWITCHGEAR AND ANCILLARY EQUIPMENT FOR EXTENSION OF EXISTING TYPE LMX AND NEW INSTALLATIONS

Category B: Retrofits, Modifications and Upgrades to existing Type LMX Switchboards and New Installations Utilising New Equipment Delivered to CCT Stores

C.2.4 Confirmation of Receipt (To be Completed by Supplier upon Acceptance)

The Supplier identified in the offer part of the Contract hereby confirms receipt from the CCT of 1 (one) complete, signed copy of the Contract, including the *Schedule of Deviations* (if any) on:

The..... (Day)

Of..... (Month)

20..... (year)

At..... (Place)

Contract Commencement date - Notwithstanding clause 1.1A of the Special Conditions of Contract, the commencement date shall be no earlier than 31 December 2026.

For the Supplier: Signature(s)

Name(s)

Capacity

Signature and name of witness:

Signature Name

ONLY TO BE COMPLETED AT ACCEPTANCE STAGE

C.3 OCCUPATIONAL HEALTH AND SAFETY AGREEMENT

**AGREEMENT MADE AND ENTERED INTO BETWEEN THE CCT (HEREINAFTER CALLED THE "CCT")
AND**

..... ,
(Supplier/Mandatar y/Company/CC Name)

**IN TERMS OF SECTION 37(2) OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, 85 OF 1993 AS
AMENDED.**

I,, representing
..... , as an employer
in its own right 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 (hereafter "OHS A") and the Regulations promulgated
thereunder.

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
OHS A and the Regulations and to charge him/them with the duty of ensuring that the provisions of OHS A 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 Occupational Health and Safety Specifications contained
in this tender and undertake to comply therewith at all times.

I hereby also undertake to comply with the Occupational Health and Safety Specification and Plan submitted
and approved in terms thereof.

Signed aton the.....day of.....20....

Witness

Mandatar y

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

Witness

for and on behalf of
CCT

C.4 PRICE SCHEDULE

Bid specifications may not make any reference to any particular trade mark, name, patent, design, type, specific origin or producer, unless there is no other sufficiently precise or intelligible way of describing the characteristics of the work, in which case such reference must be accompanied by the words “or equivalent”.

TENDERERS MUST NOTE THAT WHEREVER THIS DOCUMENT REFERS TO ANY PARTICULAR TRADE MARK, NAME, PATENT, DESIGN, TYPE, SPECIFIC ORIGIN OR PRODUCER, SUCH REFERENCE MUST BE DEEMED TO BE ACCOMPANIED BY THE WORDS ‘OR EQUIVALENT’

Pricing Instructions:

- 5.1 State the rates and prices in Rand unless instructed otherwise in the Conditions of Tender.
- 5.2 Include in the rates, prices, and the tendered total of the prices (if any) all duties, taxes (except Value Added Tax (VAT), and other levies payable by the successful tenderer, such duties, taxes and levies being those applicable 14 days before the closing time stated in the General Tender Information.
- 5.3 All prices tendered must include all expenses, disbursements and costs (e.g. transport, accommodation etc.) that may be required for the execution of the tenderer’s obligations in terms of the Contract, and must cover the cost of all general risks, liabilities and obligations set forth or implied in the Contract as well as overhead charges and profit (in the event that the tender is successful). All prices tendered will be final and binding.
- 5.4 All prices must be tendered in accordance with the units specified in this schedule.
- 5.5 Where a value is given in the Quantity column, a Rate and Price (the product of the Quantity and Rate) is required to be inserted in the relevant columns.
- 5.6 The successful tenderer is required to perform all tasks listed against each item. The tenderer must therefore tender prices/rates on all items as per the section in the Price Schedule. **An item against which no rate is/are entered, or if anything other than a rate or a nil rate (for example, a zero, a dash or the word “included” or abbreviations thereof) is entered against an item, it will also be regarded as a nil rate having been entered against that item, i.e. that there is no charge for that item. The Tenderer may be requested to clarify nil rates, or items regarded as having nil rates; and the CCT may also perform a risk analysis with regard to the reasonableness of such rates.**
 - 5.6.1 Tenderers bidding for any category must tender for all items (activity & material) within the respective category. Any item for which no rate is entered, or if anything other than a rate or a nil rate (for example, a zero, a dash or the word “included” or abbreviations thereof) is entered against an item, will be evaluated as a nil rate having been entered against that item, i.e. that there is no charge for that activity or material.

The Categories detailed below will be evaluated as per a typical project and awarded accordingly to the successful tenderer(s). Tenderers may either tender for a single category or both categories:

- **Category A (Items A1.1 - A4.5.3)** - Retrofits and Extensions to Existing Type LMx Switchboards Utilising Circuit Breakers and Switchgear **currently in CCT Stock.**
- **Category B (Items B1.1 - B5.5.3)** - Retrofits, Modifications and Upgrades to existing Type LMx Switchboards and New Installations Utilising **New Equipment Delivered to CCT Stores.**

Additional Spare Items detailed in Part B6 will be awarded to the successful tenderer(s) for Category B, subject to price benchmarking.

- 5.7 Provide fixed rates and prices for the duration of the contract that are not subject to adjustment except as otherwise provided for in clause 17 of the Conditions of Contract and as amplified in the Special Conditions of Contract.

- 5.8 The CCT intends to appoint two tenderers per category (the highest ranked tenderer (“the Winner” (Main Contractor)) and in addition an “Alternative” (Alternative Contractor), where possible offering goods from an alternative manufacturer) for the allocation of work. If insufficient responsive bids are received, the CCT reserves the right to appoint fewer tenderers, or not to appoint any tenderers at all Refer to Clause 2.1.5.1 of the Conditions of Tender for full details.

INITIALS OF CITY OFFICIALS		
1	2	3

SCHEDULE

(To be completed by Tenderer)

SCHEDULE OF RATES: Category A

Category A: Retrofits and Extensions to Existing Type LMx Switchboards utilising Circuit Breakers and Switchgear currently in CCT Stock

Item No.	PART A1: INSTALLATION, TESTING AND COMMISSIONING OF EQUIPMENT	Unit of Measurement	Unit price delivered and Off-loaded (Excluding value-added tax)
	<u>Circuit Breaker Retrofits and Switchpanel Installations:</u>		
A1.1	Upgrade of LMT Mk1 switch panel from secondary side wipe to plug and socket connection and retrofit with free-issue ABB VD4-LMT plug and socket 630 A CB, complete as specified.	each	R
A1.2	Upgrade of LMT Mk2 switch panel from secondary side wipe to plug and socket connection and retrofit with free-issue ABB VD4-LMT plug and socket 630 A CB, complete as specified.	each	R
A1.3	Upgrade of LMS or LMR switch panel from secondary side wipe to plug and socket connection and retrofit with free-issue ABB VD4-LMT plug and socket 630 A CB, complete as specified.	each	R
A1.4	Upgrade of Type LMS or LMR Main substation Feeder switch panel from secondary side wipe to plug and socket connection and retrofit with free-issue ABB VD4-LMT plug and socket 800 A CB, complete as specified.	each	R
A1.5	Upgrade of 2000 A LMS or LMR switch panel from secondary side wipe to plug and socket connection and retrofit with free-issue ABB VD4-LMT plug and socket 2000 A CB, complete as specified.	each	R
A1.6	Busbar extension of existing switchboard through installation of free-issue ABB VD4-LMT 12 kV, 25 kA, 400/300/5 Distribution Feeder panel, complete as specified.	each	R
A1.7	Busbar extension of existing switchboard through installation of free-issue ABB VD4-LMT 12 kV, 25 kA, 400/200/5 Distribution Feeder metering panels, complete as specified.	each	R
A1.8	Busbar extension of existing switchboard through installation of free-issue ABB VD4-LMT 12 kV, 1250 A, 25 kA, 30 V dc, 1200/5 Distribution Bus-section panels including riser, complete as specified.	each	R

INITIALS OF CITY OFFICIALS		
1	2	3

Item No.	PART A1: INSTALLATION, TESTING AND COMMISSIONING OF EQUIPMENT	Unit of Measurement	Unit price delivered and Off-loaded (Excluding value-added tax)
Switch Panel Internal Arc Upgrades:			
A1.9	Supply, installation and testing of internal arc rated doors and frames for "racking-behind-closed-doors" operation on switch panel equipped with ABB LMS or LMR or RPS LMVP 630A / 800A / 1250A CB, per switch panel, complete	each	R
A1.10	Supply, installation and testing of internal arc rated doors and frames for "racking-behind-closed-doors" operation on switch panel equipped with ABB HD4-LMT or VD4-LMT 630A / 800A / 1250A CB, per switch panel, complete	each	R
A1.11	Supply, installation and testing of internal arc rated doors and frames for "racking-behind-closed-doors" operation on switch panel equipped with ABB LMS or LMR or RPS LMVP 2000A / 2500A CB, per switch panel, complete	each	R
A1.12	Supply, installation and testing of internal arc rated doors and frames for "racking-behind-closed-doors" operation on switch panel equipped with ABB HD4-LMT or VD4-LMT 2000A / 2500A switch panel, per switch panel, complete	each	R
A1.13	Supply and installation of arc vented circuit breaker compartment rear covers to existing LMx 630A / 800A / 1250A switch panel, per switch panel, complete	each	R
A1.14	Supply and installation of arc vented circuit breaker compartment rear covers to existing LMx 2000A main substation incomer switch panel, per switch panel, complete	each	R
A1.15	Supply and installation of arc vented circuit breaker compartment rear covers to existing LMx 2000A main substation bus-section switch panel, per switch panel, complete	each	R
A1.16	Supply and installation of arc vented top covers to busbar chamber and CT chamber on existing LMx 630A / 800A / 1250A switch panel, per switch panel, complete	each	R
A1.17	Supply and installation of arc vented top covers to busbar chamber and CT chamber on existing LMx 2000A main substation incomer switch panel, per switch panel, complete	each	R
A1.18	Supply and installation of arc vented top covers to busbar chamber and CT chamber on existing LMx 2000A main substation bus-section switch panel, per switch panel, complete	each	R

INITIALS OF CITY OFFICIALS		
1	2	3

Item No.	PART A1: INSTALLATION, TESTING AND COMMISSIONING OF EQUIPMENT	Unit of Measurement	Unit price delivered and Off-loaded (Excluding value-added tax)
A1.19	Supply and installation of arc vented top covers to busbar chamber and CT chamber on existing LMx 630A / 800A / 1250A switch panel with circuit connected VT, per switch panel, complete	each	R
A1.20	Supply and installation of arc vented top covers to busbar chamber and CT chamber on existing LMx 2000A main substation incomer switch panel with circuit connected VT, per switch panel, complete	each	R
A1.21	Supply and installation of arc vented top covers to busbar chamber and CT chamber on existing LMx 2000A main substation bus-section switch panel with circuit connected VT, per switch panel, complete	each	R
A1.22	Supply and Installation of end blast covers, frameworks and fittings for upgrading of switchboard to arc vented standard, per switchboard, both ends, complete as specified	each	R
<u>Other Work:</u>			
A1.23	Preliminary condition assessment and report for existing Type LMx switchgear, as specified, per substation switchboard	each	R
A1.24	Detailed condition assessment and report for existing Type LMx circuit breakers, as specified, per circuit breaker	each	R
A1.25	Supply, installation, testing and commissioning of Canon socket and remote trip/close facilities into existing switch panel, per switch panel	each	R
A1.26	Supply, installation, testing and commissioning of anti-condensation heater into existing switch panel, per switch panel	each	R
A1.27	Supply, installation, testing and commissioning of electrical trip test button into existing switch panel, per switch panel	each	R
A1.28	Supply, installation, testing and commissioning of integrated SCADA facilities into existing Distribution Feeder, Transformer or Bus-section switch panel, as specified, per switch panel	each	R
A1.29	Supply, installation, testing and commissioning of integrated SCADA facilities into existing Distribution Feeder Metering or Transformer Metering switch panel, as specified, per switch panel	each	R

INITIALS OF CITY OFFICIALS		
1	2	3

Item No.	PART A1: INSTALLATION, TESTING AND COMMISSIONING OF EQUIPMENT	Unit of Measurement	Unit price delivered and Off-loaded (Excluding value-added tax)
A1.30	Installation, testing and commissioning of free-issue retrofit current transformers into existing ABB / Reyrolle Type LMx switch panel, per switch panel	each	R
A1.31	Supply, installation, testing and commissioning of spring charge motor into existing ABB HD4-LMT 630 A CB, and associated panel wiring modifications	each	R
A1.32	Installation, testing and commissioning of free-issue spring charge motor into existing ABB HD4-LMT or VD4-LMT 630 A CB, and associated panel wiring modifications	each	R
A1.33	Supply, installation, testing and commissioning of 30Vdc or 110Vdc closing coils into existing ABB HD4-LMT 630A / 800A / 1250A CBs	each	R
A1.34	Installation, testing and commissioning of free-issue DCD Argus 311A or equivalent OC/EF protection relay into existing ABB / Reyrolle Type LMx switch panel, per switch panel	each	R
A1.35	Installation, testing and commissioning of free issue SEL 751A or equivalent OC/EF protection relay into existing ABB / Reyrolle Type LMx switch panel, per switch panel	each	R
A1.36	Installation, testing and commissioning of free issue Solkor Rf feeder protection relay into existing ABB / Reyrolle Type LMx switch panel, per switch panel	each	R
A1.37	Modification of existing LMx LV Compartment door to provide cut-out for installation of DCD Argus 311A OC/EF, Solkor Rf feeder protection relay or equivalent.	each	R
A1.38	Modification of existing LMx LV Compartment door to provide cut-out for installation of SEL 751A or equivalent OC/EF protection relay	each	R
A1.39	Installation and testing of free issue 30/110 V DC battery tripping / power supply units, per Works Project	each	R
A1.40	Installation, connection to switch-board and testing of free issue Supervisory Marshalling Kiosk, per Works Project	each	R
A1.41	Supply of black jacketed arc detection fibre, made-up complete with arc detection point sensor and V-pin connectors, one metre length	each	R
A1.42	Supply of black jacketed arc detection fibre (without fittings), per metre	metre	R

INITIALS OF CITY OFFICIALS		
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Item No.	PART A1: INSTALLATION, TESTING AND COMMISSIONING OF EQUIPMENT	Unit of Measurement	Unit price delivered and Off-loaded (Excluding value-added tax)
A1.43	Installation, testing and commissioning of made-up arc flash detection point fibres for retrofit on existing switch-panels, per fibre	each	R
A1.44	Supply of clear jacketed fibre arc flash detection sensor for busbar loop detectors, made-up complete with 2x V-pin connectors, one metre length	each	R
A1.45	Supply of clear jacketed fibre arc flash detection sensor (without fittings) for busbar loop detector, per metre	metre	R
A1.46	Installation, testing and commissioning of made-up arc flash detection loop sensors, per loop, complete	each	R
<u>Circuit Breaker Recovery and Scrapping, SF6 Gas Handling</u>			
A1.47	Detection, repair and topping up on site of SF ₆ gas leaks on existing Reyrolle Type LMS or LMR SF ₆ circuit breakers, per circuit breaker, excluding SF ₆ gas	each	R
A1.48	SF ₆ gas for equipment topping up on site, per kg	kg	R
A1.49	Removal of Reyrolle Type LMT Mk 1 or LMT Mk 2 oil circuit breaker from site, removal of all insulating oil, cleaning, return of circuit breaker to the City's reclamation yard with formal certification declaring circuit breaker free of oil and pollutants and suitable for scrapping.	each	R
A1.50	Removal of Reyrolle Type LMS or LMR SF ₆ circuit breaker from site, safe purging and disposal of all SF ₆ gas in accordance with best practice, cleaning, return of circuit breaker to the City's reclamation yard with formal certification declaring circuit breaker free of SF ₆ gas, residues and pollutants and suitable for scrapping, and provision of gas scrapping certificate.	each	R
<u>General Rates</u>			
A1.51	Collection, transport and delivery of equipment and personnel to Works Site for circuit breaker retrofits and other equipment installation work (per Works Project, standard distance of 20 km, 8 panel switch board, incl up to two panel busbar extension)	each	R
A1.52	Health and Safety compliance per Works Project	each	R

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Item No.	Part A2: REPAIR, TESTING AND COMMISSIONING OF EQUIPMENT	Unit of Measurement	Total Price per unit
A2.1	Site visit and assessment of scope of repairs required following fault or vandalism of the switchgear type covered by Category A, per substation	each	R
A2.2	Decarbonisation and Cleaning of repaired switchgear panel, Testing and Commissioning of Protection systems of repaired switchgear panels to specified standard, per switchgear panel	each	R
A2.3	Pressure testing of the main busbars per repaired switchboard	each	R
A2.4	Administration costs for switchgear repair, including Health and Safety Compliance and As-Built drawings, per substation	each	R
A2.5	Handling charge on outsourced Parts and Components, percentage on cost price of parts and components	%	%
	NOTE: All other switchgear and equipment repair / replacement costs to be based upon relevant tendered rates for installation and / or Rates for Measured Quantities, as per Detailed Specification.		

Item No.	Part A3: GENERAL	Unit of Measurement	Total Price per unit
A3.1	Hardware, Operator and Maintenance training (Full training intervention comprising 5x 1 day classes over a week, 20 persons per class)	each	R

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PART A4: RATES FOR MEASURED QUANTITIES			
NHLSFR / ZEROTOX Multicore and Auxiliary Cables		Unit of Measurement	Price Per Unit
A4.1.1 S	2-core 2,5 mm ² (Supply)	meter	R
A4.1.1 I	2-core 2,5 mm ² (Installation)	meter	R
A4.1.1 TTC	2-core 2,5 mm ² (Terminate, Test and Commission)	meter	R
A4.1.2 S	2-core 1,5 mm ² (Supply)	meter	R
A4.1.2 I	2-core 1,5 mm ² (Installation)	meter	R
A4.1.2 TTC	2-core 1,5 mm ² (Terminate, Test and Commission)	meter	R
A4.1.3 S	4-core 2,5 mm ² (Supply)	meter	R
A4.1.3 I	4-core 2,5 mm ² (Installation)	meter	R
A4.1.3 TTC	4-core 2,5 mm ² (Terminate, Test and Commission	meter	R
A4.1.4 S	4-core 1,5 mm ² (Supply)	meter	R
A4.1.4 I	4-core 1,5 mm ² (Installation)	meter	R
A4.1.4 TTC	4-core 1,5 mm ² (Terminate, Test and Commission	meter	R

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NHLSFR / ZEROTOX Multicore and Auxiliary Cables		Unit of Measurement	Price Per Unit
A4.1.5 S	7-core 2,5 mm ² (Supply)	meter	R
A4.1.5 I	7-core 2,5 mm ² (Installation)	meter	R
A4.1.5 TTC	7-core 2,5 mm ² (Terminate, Test and Commission)	meter	R
A4.1.6 S	7-core 1,5 mm ² (Supply)	meter	R
A4.1.6 I	7-core 1,5 mm ² (Installation)	meter	R
A4.1.6 TTC	7-core 1,5 mm ² (Terminate, Test and Commission)	meter	R
A4.1.7 S	12-core 2,5 mm ² (Supply)	meter	R
A4.1.7 I	12-core 2,5 mm ² (Installation)	meter	R
A4.1.7 TTC	12-core 2,5 mm ² (Terminate, Test and Commission)	meter	R
A4.1.8 S	12-core 1,5 mm ² (Supply)	meter	R
A4.1.8 I	12-core 1,5 mm ² (Installation)	meter	R
A4.1.8 TTC	12-core 1,5 mm ² (Terminate, Test and Commission)	meter	R
A4.1.9 S	19-core 2,5 mm ² (Supply)	meter	R
A4.1.9 I	19-core 2,5 mm ² (Installation)	meter	R
A4.1.9 TTC	19-core 2,5 mm ² (Terminate, Test and Commission)	meter	R

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NHLSFR / ZEROTOX Multicore and Auxiliary Cables		Unit of Measurement	Price Per Unit
A4.1.10 S	19-core 1,5 mm ² (Supply)	meter	R
A4.1.10 I	19-core 1,5 mm ² (Installation)	meter	R
A4.1.10 TTC	19-core 1,5 mm ² (Terminate, Test and Commission)	meter	R
A4.1.11 S	4-core 16 mm ² (Supply)	meter	R
A4.1.11 I	4-core 16 mm ² (Installation)	meter	R
A4.1.11 TTC	4-core 16 mm ² (Terminate, Test and Commission)	meter	R
A4.1.12 S	2-Twisted pair, individually screened, armoured 1,5 mm ² (Supply)	meter	R
A4.1.12 I	2-Twisted pair, individually screened, armoured 1,5 mm ² (Installation)	meter	R
A4.1.12 TTC	2-Twisted pair, individually screened, armoured 1,5 mm ² (Terminate, Test and Commission)	meter	R
A4.1.13 S	12-Twisted pair, Aluminium /Polyester tape screened, 0,22mm ² "Mylar" Data Cable (Supply)	meter	R
A4.1.13 I	12-Twisted pair, Aluminium /Polyester tape screened, 0,22mm ² "Mylar" Data Cable (Installation)	meter	R
A4.1.13 TTC	12-Twisted pair, Aluminium /Polyester tape screened, 0,22mm ² "Mylar" Data Cable (Terminate, Test and Commission)	meter	R

INITIALS OF CITY OFFICIALS		
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Earthing Bars, Bare Earth conductors and NHL SFR / ZEROTOX covered Earth Conductors		Unit of Measurement	Price Per Unit
A4.2.1 S	50 mm x 6 mm Flat earth bar (Supply)	meter	R
A4.2.1 I	50 mm x 6 mm Flat earth bar (Installation)	meter	R
A4.2.1 TTC	50 mm x 6 mm Flat earth bar (Terminate, Test and Commission)	meter	R
A4.2.2 S	50 mm x 3 mm Flat earth bar (Supply)	meter	R
A4.2.2 I	50 mm x 3 mm Flat earth bar (Installation)	meter	R
A4.2.2 TTC	50 mm x 3 mm Flat earth bar (Terminate, Test and Commission)	meter	R
A4.2.3 S	70 mm ² Bare conductor (Supply)	meter	R
A4.2.3 I	70 mm ² Bare conductor (Installation)	meter	R
A4.2.3 TTC	70 mm ² Bare conductor (Terminate, Test and Commission)	meter	R
A4.2.4 S	70 mm ² Covered conductor (Supply)	meter	R
A4.2.4 I	70 mm ² Covered conductor (Installation)	meter	R
A4.2.4 TTC	70 mm ² Covered conductor (Terminate, Test and Commission)	meter	R

INITIALS OF CITY OFFICIALS		
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Earthing Bars, Bare Earth conductors and NHLSFR / ZEROTOX covered Earth Conductors		Unit of Measurement	Price Per Unit
A4.2.5 S	95 mm ² Bare conductor (Supply)	meter	R
A4.2.5 I	95 mm ² Bare conductor (Installation)	meter	R
A4.2.5 TTC	95 mm ² Bare conductor (Terminate, Test and Commission)	meter	R
A4.2.6 S	95 mm ² Covered conductor (Supply)	meter	R
A4.2.6 I	95 mm ² Covered conductor (Installation)	meter	R
A4.2.6 TTC	95 mm ² Covered conductor (Terminate, Test and Commission)	meter	R
A4.2.7 S	120 mm ² Bare conductor (Supply)	meter	R
A4.2.7 I	120 mm ² Bare conductor (Installation)	meter	R
A4.2.7 TTC	120 mm ² Bare conductor (Terminate, Test and Commission)	meter	R
A4.2.8 S	120 mm ² Covered conductor (Supply)	meter	R
A4.2.8 I	120 mm ² Covered conductor (Installation)	meter	R
A4.2.8 TTC	120 mm ² Covered conductor (Terminate, Test and Commission)	meter	R

INITIALS OF CITY OFFICIALS		
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Earthing Bars, Bare Earth conductors and NHLSFR / ZEROTOX covered Earth Conductors		Unit of Measurement	Price Per Unit
A4.2.9 S	Copperweld Bare conductor (70 mm ² Equivalent) (Supply)	meter	R
A4.2.9 I	Copperweld Bare conductor (70 mm ² Equivalent) (Installation)	meter	R
A4.2.9 TTC	Copperweld Bare conductor (70 mm ² Equivalent) (Terminate, Test and Installation)	meter	R
A4.2.10 S	Copperweld Covered conductor (70 mm ² Equivalent) (Supply)	meter	R
A4.2.10 I	Copperweld Covered conductor (70 mm ² Equivalent) Installation	meter	R
A4.2.10 TTC	Copperweld Covered conductor (70 mm ² Equivalent) (Terminate, Test and Commission)	meter	R
A4.2.11 S	Copperweld Bare conductor (120 mm ² Equivalent) Supply	meter	R
A4.2.11 I	Copperweld Bare conductor (120 mm ² Equivalent) Installation	meter	R
A4.2.11 TTC	Copperweld Bare conductor (120 mm ² Equivalent) Terminate, Test and Commission	meter	R
A4.2.12 S	Copperweld Covered conductor (120 mm ² Equivalent) Supply	meter	R
A4.2.12 I	Copperweld Covered conductor (120 mm ² Equivalent) Installation	meter	R
A4.2.12TTC	Copperweld Covered conductor (120 mm ² Equivalent) Terminate, Test and Commission	meter	R

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Item No	Cable Racks and Cable Ladders	Unit of Measurement	Price Per Unit
A4.3.1 S	Overhead suspended 300mm wide Cable Tray (Supply)	meter	R
A4.3.1 I	Overhead suspended 300mm wide Cable Tray (Installation)	meter	R
A4.3.2 S	Wall mounted 300 mm wide Cable Ladder (Supply)	meter	R
A4.3.2 I	Wall mounted 300 mm wide Cable Ladder (Installation)	meter	R
A4.3.3 S	Overhead suspended 300 mm wide Cable Tray preformed section with bend of up to 90° (Supply)	each	R
A4.3.3 I	Overhead suspended 300 mm wide Cable Tray preformed section with bend of up to 90° (Installation)	each	R
A4.3.4 S	Wall mounted 300 mm wide Cable Ladder preformed section with bend of up to 90° (Supply)	each	R
A4.3.4 I	Wall mounted 300 mm wide Cable Ladder preformed section with bend of up to 90° (Installation)	each	R

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Transport (In excess of standard 20 km from Ndabeni Stores)		Unit of Measurement	Price Per Unit
A4.4.1	Skilled staff - vehicle: Sedan	Per km	R
A4.4.2	Unskilled staff vehicle: 1 ton Pick-up	Per km	R
A4.4.3	Equipment transport: 2 ton Truck	Per km	R
A4.4.4	Equipment transport: 5 ton Truck	Per km	R

Labour Cost Basis Claims (Labour cost to include the use of tools and equipment to carry out the work as specified)		Unit of Measurement	Price Per Unit
A4.5.1	Skilled (ie.Commissioning Engineer, Responsible person, Supervisor, Technician)	Per hour	R
A4.5.2	Unskilled (ie.Labourer, Artisan Assistant, Engineering assistant, Artisan)	Per hour	R

Private Armed Security		Unit of Measurement	Price Per Unit
A4.5.3	Onsite Private Armed Security (Grade D) for High Risk Areas	Per hour	R

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TENDERER NAME _____

SIGNED ON BEHALF OF TENDERER _____

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(To be completed by Tenderer)

SCHEDULE OF RATES: Category B

Category B: Retrofits, Modifications and Upgrades to existing Type LMx Switchboards and New Installations Utilising New Equipment Delivered to CCT Stores

Item No.	Part B1: MANUFACTURE, TESTING, SUPPLY AND DELIVERY OF EQUIPMENT	Unit of Measurement	Unit price delivered and Off-loaded (Excluding value-added tax)
B1.1	12 kV, 630A, 25 kA, 30 V dc, 400/300/5 Distribution Feeder panels, as specified	each	R
B1.2	12 kV, 630 A, 25 kA, 30 V dc, 400/200/5 Distribution Feeder metering panels, as specified	each	R
B1.3	12 kV, 1250 A, 25 kA, 30 V dc, 1200/5 Distribution Bus-section panels including riser, as specified	each	R
B1.4	12 kV, 630 A, 25 kA, 110 V dc, 2000 A Busbar, 400/300/5 Main substation Feeder panels (Internal Arc Vented), as specified	each	R
B1.5	12 kV, 1250 A, 25 kA, 110 V dc, 2000 A Busbar, 400/300/5 Main substation Feeder panels (Internal Arc Vented), as specified	each	R
B1.6	12 kV, 2000 A, 25 kA, 110 V dc, 2000/1 Main substation incoming transformer panels (Internal Arc Vented), as specified	each	R
B1.7	12 kV, 2000 A, 25 kA, 110 V dc, 2000 A Main substation Bus-section panels including riser (Internal Arc Vented), as specified	each	R
B1.8	12kV, 630 A 30 V dc circuit breaker as specified, fitted with secondary plug and socket contacts	each	R
B1.9	12kV, 630 A, 110 V dc circuit breaker as specified, fitted with secondary plug and socket contacts	each	R
B1.10	12kV, 1250 A, 110 V dc circuit breaker as specified, fitted with secondary plug and socket contacts	each	R
B1.11	12kV, 2000 A, 110 V dc circuit breaker as specified, fitted with secondary plug and socket contacts	each	R
B1.12	11kV/110V, 15 VA, Class 0,5 voltage transformers as specified	each	R

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Item No.	Part B1: MANUFACTURE, TESTING, SUPPLY AND DELIVERY OF EQUIPMENT	Unit of Measurement	Unit price delivered and Off-loaded (Excluding value-added tax)
B1.13	11kV/110V, 15 VA, Class 0,2 voltage transformers as specified	each	R
B1.14	Dual core 400/300/5 Class X // 400/5 10 VA Class 5P10 current transformers for LMx type switchgear, as specified	each	R
B1.15	Dual core 400/200/5 10 VA Class 0.5S (ISF 10) // 400/5 10 VA Class 5P10 current transformers for LMx type switchgear, as specified	each	R
B1.16	Dual core 400/200/1 10 VA Class 0.5S (ISF 10) // 400/5 10 VA Class 5P10 current transformers for LMx type switchgear, as specified	each	R
B1.17	Dual core 100/50/5 10 VA Class 0.5S (ISF 10) // 100/5 10 VA Class 5P10 current transformers for LMx type switchgear, as specified	each	R
B1.18	Single core 1600/5 10 VA Class 5P10 current transformers for LMx type switchgear, as specified	each	R
B1.19	Multi core 1200/800/1, Class X // 1200/800/1 10 VA Class 5P10 // 1200/800/1 10 VA Class 0,2 current transformers for LMx type switchgear, as specified	each	R
B1.20	Multi core 2000/1, Class X // 2000/1 10 VA Class 5P10 // 2000/1 10 VA Class 0,2 current transformers for LMx type switchgear, as specified	each	R
B1.21	230Vac Spring Charge Motor for 630A CB	each	R
B1.22	230Vac Spring Charge Motor for 1250 A CB	each	R
B1.23	230Vac Spring Charge Motor for 2000 A CB	each	R
B1.24	30Vdc closing coils for 630A CB	each	R
B1.25	110Vdc closing coils for 1250A CB	each	R
B1.26	110Vdc closing coils for 630A CB	each	R
B1.27	110Vdc closing coils for 2000A CB	each	R

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Item No.	Part B1: MANUFACTURE, TESTING, SUPPLY AND DELIVERY OF EQUIPMENT	Unit of Measurement	Unit price delivered and Off-loaded (Excluding value-added tax)
B1.28	Manual racking handle for switchgear operation	each	R
B1.29	Wall mounted cubicle for associated operating handles and accessories for switchgear	each	R
B1.30	Hand-held remote switching device with open/close functions and 30m lead	each	R
B1.31	Circuit breaker primary cluster 1250A	each	R
B1.32	Shutter operating arms for 630/1250/2000A panels	each	R
B1.33	Shutter box complete with shutters for 630/1250A panels	each	R
B1.34	Shutter box complete with shutters for 2000A panels	each	R
B1.35	230Vac, 100W Heater	each	R

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Item No.	Part B2: INSTALLATION, TESTING AND COMMISSIONING OF EQUIPMENT	Unit of Measurement	Total Price per unit Installed, tested and Commissioned
	<u>Switch Panel Installation:</u>		
B2.1	12 kV, 25 kA, 400/300/5 Distribution Feeder panels	each	R
B2.2	12 kV, 25 kA, 400/200/5 Distribution Feeder metering panels	each	R
B2.3	12 kV, 25 kA 1200/5 Distribution Bus-section panels	each	R
B2.4	12 kV, 25 kA, 2000 A Busbar, 400/300/5 Main substation Feeder panels (Arc Vented)	each	R
B2.5	12 kV, 25 kA, 2000/1 Main substation incoming transformer panels (Arc Vented)	each	R
B2.6	12 kV, 25 kA, 2000 A Main substation Bus-section panels (Arc Vented), as specified	each	R
	<u>Circuit Breaker Retrofits:</u>		
B2.7	Upgrade of LMT Mk1 distribution substation switch panel from secondary side wipe to plug and socket connection and retrofit with free-issue plug and socket 630 A CB, complete.	each	R
B2.8	Upgrade of LMT Mk2 distribution substation switch panel from secondary side wipe to plug and socket connection and retrofit with free-issue plug and socket 630 A CB, complete.	each	R
B2.9	Upgrade of LMS or LMR distribution substation switch panel from secondary side wipe to plug and socket connection and retrofit with free-issue plug and socket 630 A CB, complete.	each	R
B2.10	Upgrade of LMS or LMR main substation switch panel from secondary side wipe to plug and socket connection and retrofit with free-issue plug and socket 630 A CB, complete.	each	R
B2.11	Upgrade of 2000 A LMS or LMR switch panel from secondary side wipe to plug and socket connection and retrofit with free-issue plug and socket 2000 A CB, complete.	each	R

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Item No.	Part B2: INSTALLATION, TESTING AND COMMISSIONING OF EQUIPMENT	Unit of Measurement	Total Price per unit Installed, tested and Commissioned
<u>Switch Panel Internal Arc Upgrades:</u>			
B2.12	Supply, installation and testing of internal arc rated doors and frames for "racking-behind-closed-doors" operation on switch panel equipped with either ABB HD4-LMT, LMS, LMR or RPS LMVP 630A / 800A / 1250A CB, per switch panel, complete	each	R
B2.13	Supply, installation and testing of internal arc rated doors and frames for "racking-behind-closed-doors" operation on switch panel equipped with 630A / 800A / 1250A CB, per switch panel, complete	each	R
B2.14	Supply, installation and testing of internal arc rated doors and frames for "racking-behind-closed-doors" operation on switch panel equipped with either ABB HD4-LMT, LMS, LMR or RPS LMVP 2000A / 2500A CB, per switch panel, complete	each	R
B2.15	Supply, installation and testing of internal arc rated doors and frames for "racking-behind-closed-doors" operation on switch panel equipped with 2000A / 2500A CB, per switch panel, complete	each	R
B2.16	Supply and installation of arc vented circuit breaker compartment rear covers to existing LMx 630A / 800A / 1250A switch panel, per switch panel, complete	each	R
B2.17	Supply and installation of arc vented circuit breaker compartment rear covers to existing LMx 2000A main substation incomer switch panel, per switch panel, complete	each	R
B2.18	Supply and installation of arc vented circuit breaker compartment rear covers to existing LMx 2000A main substation bus-section switch panel, per switch panel, complete	each	R
B2.19	Supply and installation of arc vented top covers to busbar chamber and CT chamber on existing LMx 630A / 800A / 1250A switch panel, per switch panel, complete	each	R
B2.20	Supply and installation of arc vented top covers to busbar chamber and CT chamber on existing LMx 2000A main substation incomer switch panel, per switch panel, complete	each	R
B2.21	Supply and installation of arc vented top covers to busbar chamber and CT chamber on existing LMx 2000A main substation bus-section switch panel, per switch panel, complete	each	R
B2.22	Supply and installation of arc vented top covers to busbar chamber and CT chamber on existing LMx 630A / 800A / 1250A switch panel with circuit connected VT, per switch panel, complete	each	R
B2.23	Supply and installation of arc vented top covers to busbar chamber and CT chamber on existing LMx 2000A main substation incomer switch panel with circuit connected VT, per switch panel, complete	each	R

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Item No.	Part B2: INSTALLATION, TESTING AND COMMISSIONING OF EQUIPMENT	Unit of Measurement	Total Price per unit Installed, tested and Commissioned
<u>Switch Panel Internal Arc Upgrades (Cont'd):</u>			
B2.24	Supply and installation of arc vented top covers to busbar chamber and CT chamber on existing LMx 2000A main substation bus-section switch panel with circuit connected VT, per switch panel, complete	each	R
B2.25	Installation of free-issue end blast covers, frameworks and fittings for upgrading of switchboard to arc vented standard, per switchboard, both ends	each	R
B2.26	Supply and Installation of end blast covers, frameworks and fittings for upgrading of switchboard to arc vented standard, per switchboard, both ends, complete as specified	each	R
<u>Other Work:</u>			
B2.27	Preliminary condition assessment and report for existing Type LMx switchgear, as specified, per substation switch-board	each	R
B2.28	Detailed condition assessment and report for existing Type LMx circuit breakers, as specified, per circuit breaker	each	R
B2.29	Supply, installation, testing and commissioning of Canon socket and remote trip/close facilities into existing switch panel, per switch panel	each	R
B2.30	Supply, installation, testing and commissioning of anti-condensation heaters into existing switch panel, per switch panel	each	R
B2.31	Supply, installation, testing and commissioning of electrical trip test buttons into existing switch panel, per switch panel	each	R
B2.32	Supply, installation, testing and commissioning of integrated SCADA facilities as specified into existing Distribution Feeder, Transformer or Bus-section switch panel, per switch panel	each	R
B2.33	Supply, installation, testing and commissioning of integrated SCADA facilities as specified into existing Distribution Feeder Metering or Transformer Metering switch panel, per switch panel	each	R
B2.34	Installation, testing and commissioning of free-issue retrofit current transformers into existing LMx type switch panel, per switch panel	each	R
B2.35	Installation, testing and commissioning of free-issue spring charge motor into 630A / 1250A CB, and associated panel wiring modifications	each	R

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Item No.	Part B2: INSTALLATION, TESTING AND COMMISSIONING OF EQUIPMENT	Unit of Measurement	Total Price per unit Installed, tested and Commissioned
<u>Other Work (Cont'd):</u>			
B2.36	Installation, testing and commissioning of free-issue spring charge motor into 2000 A CB, and associated panel wiring modifications	each	R
B2.37	Installation, testing and commissioning of free-issue 30Vdc or 110Vdc closing coils into 630A / 1250A / 2000A CBs	each	R
B2.38	Installation, testing and commissioning of free issue DCD Argus 311A or equivalent OC/EF protection relay into existing ABB / Reyrolle Type LMx switch panel, per switch panel	each	R
B2.39	Installation, testing and commissioning of free issue SEL 751A or equivalent OC/EF protection relay into existing ABB / Reyrolle Type LMx switch panel, per switch panel	each	R
B2.40	Installation, testing and commissioning of free issue Solkor Rf feeder protection relay into existing ABB / Reyrolle Type LMx switch panel, per switch panel	each	R
B2.41	Modification of existing LMx LV Compartment Door to provide cut-out for installation of DCD Argus 311A OC/EF, Solkor Rf feeder protection relay or equivalent.	each	R
B2.42	Modification of existing LMx LV Compartment Door to provide cut-out for installation of SEL 751A or equivalent OC/EF protection relay	each	R
B2.43	Supply, installation, testing and commissioning of circuit connected voltage transformer housing onto existing switch panel, per switch panel	each	R
B2.44	Upgrade, testing and commissioning of existing 630 A or 800 A Main substation feeder panel from 30 V _{dc} to 110 V _{dc} auxiliary voltage.	each	R
B2.45	Upgrade, testing and commissioning of existing 2000 A Main substation Incoming Transformer or Bus-section panel from 30 V _{dc} to 110 V _{dc} auxiliary voltage.	each	R
B2.46	Installation and testing of free issue 30/110 V DC battery tripping / power supply units, per Works Project	each	R
B2.47	Installation, connection to switch-board and testing of free issue Supervisory Marshalling Kiosk, per Works Project	each	R
B2.48	Installation of wall mounted cubicle fitted with manual racking and spring charge handles and accessories required for switchgear operation, per Works Project	each	R
B2.49	Supply of black jacketed arc detection fibre, made-up complete with arc detection point sensor and V-pin connectors, one metre length	each	R

INITIALS OF CITY OFFICIALS		
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Item No.	Part B2: INSTALLATION, TESTING AND COMMISSIONING OF EQUIPMENT	Unit of Measurement	Total Price per unit Installed, tested and Commissioned
<u>Other Work (Cont'd):</u>			
B2.50	Supply of black jacketed arc detection fibre (without fittings), per metre	metre	R
B2.51	Installation, testing and commissioning of made-up arc flash detection point fibres for retrofit on existing switch-panels, per fibre	each	R
B2.52	Supply of clear jacketed fibre arc flash detection sensor for busbar loop detectors, made-up complete with 2x V-pin connectors, one metre length	each	R
B2.53	Supply of clear jacketed fibre arc flash detection sensor (without fittings) for busbar loop detector, per metre	metre	R
B2.54	Installation, testing and commissioning of made-up arc flash detection loop sensors, per loop, complete	each	R
<u>Circuit Breaker Recovery and Scrapping</u>			
B2.55	Removal of Reyrolle Type LMT Mk 1 or LMT Mk 2 oil circuit breaker from site, removal of all insulating oil, cleaning, return of circuit breaker to the City's reclamation yard with formal certification declaring circuit breaker free of oil and pollutants and suitable for scrapping.	each	R
B2.56	Removal of Reyrolle Type LMS or LMR SF ₆ circuit breaker from site, safe purging and disposal of all SF ₆ gas in accordance with best practice, cleaning, return of circuit breaker to the City's reclamation yard with formal certification declaring circuit breaker free of SF ₆ gas and pollutants and suitable for scrapping, and provision of gas scrapping certificate.	each	R
<u>General Rates</u>			
B2.57	Collection, transport and delivery of equipment and personnel to Works Site for switch board busbar extension (per Works Project, standard distance of 20 km, up to four panel busbar extension)	each	R
B2.58	Collection, transport and delivery of equipment and personnel to Works Site for circuit breaker retrofits and other equipment installation work (per Works Project, standard distance of 20 km, 8 panel switch board)	each	R
B2.59	Health and Safety compliance per Works Project	each	R

INITIALS OF CITY OFFICIALS		
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Item No.	Part B3: REPAIR, TESTING AND COMMISSIONING OF EQUIPMENT	Unit of Measurement	Total Price per unit
B3.1	Site visit and assessment of scope of repairs required following fault or vandalism of the switchgear type covered by Category B, per substation	each	R
B3.2	Decarbonisation and Cleaning of repaired switchgear panel, Testing and Commissioning of Protection systems of repaired switchgear panels to specified standard, per switchgear panel	each	R
B3.3	Pressure testing of the main busbars per repaired switchboard	each	R
B3.4	Administration costs for switchgear repair, including Health and Safety Compliance and As-Built drawings, per substation	each	R
B3.5	Handling charge on outsourced Parts and Components, percentage on cost price of parts and components	%	%
	NOTE: All other switchgear and equipment repair / replacement costs to be based upon relevant tendered rates for installation and / or Rates for Measured Quantities, as per Detailed Specification.		
Item No.	Part B4: GENERAL	Unit of Measurement	Total Price per unit
B4.1	Hardware, Operator and Maintenance training (Full training intervention comprising 5x 1 day classes over a week, 20 persons per class)	each	R

INITIALS OF CITY OFFICIALS		
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PART B5: RATES FOR MEASURED QUANTITIES			
NHLSFR / ZEROTOX Multicore and Auxiliary Cables		Unit of Measurement	Price Per Unit
B5.1.1 S	2-core 2,5 mm ² (Supply)	meter	R
B5.1.1 I	2-core 2,5 mm ² (Installation)	meter	R
B5.1.1 TTC	2-core 2,5 mm ² (Terminate, Test and Commission)	meter	R
B5.1.2 S	2-core 1,5 mm ² (Supply)	meter	R
B5.1.2 I	2-core 1,5 mm ² (Installation)	meter	R
B5.1.2 TTC	2-core 1,5 mm ² (Terminate, Test and Commission)	meter	R
B5.1.3 S	4-core 2,5 mm ² (Supply)	meter	R
B5.1.3 I	4-core 2,5 mm ² (Installation)	meter	R
B5.1.3 TTC	4-core 2,5 mm ² (Terminate, Test and Commission)	meter	R
B5.1.4 S	4-core 1,5 mm ² (Supply)	meter	R
B5.1.4 I	4-core 1,5 mm ² (Installation)	meter	R
B5.1.4 TTC	4-core 1,5 mm ² (Terminate, Test and Commission)	meter	R

INITIALS OF CITY OFFICIALS		
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NHL SFR / ZEROTOX Multicore and Auxiliary Cables		Unit of Measurement	Price Per Unit
B5.1.5 S	7-core 2,5 mm ² (Supply)	meter	R
B5.1.5 I	7-core 2,5 mm ² (Installation)	meter	R
B5.1.5 TTC	7-core 2,5 mm ² (Terminate, Test and Commission)	meter	R
B5.1.6 S	7-core 1,5 mm ² (Supply)	meter	R
B5.1.6 I	7-core 1,5 mm ² (Installation)	meter	R
B5.1.6 TTC	7-core 1,5 mm ² (Terminate, Test and Commission)	meter	R
B5.1.7 S	12-core 2,5 mm ² (Supply)	meter	R
B5.1.7 I	12-core 2,5 mm ² (Installation)	meter	R
B5.1.7 TTC	12-core 2,5 mm ² (Terminate, Test and Commission)	meter	R
B5.1.8 S	12-core 1,5 mm ² (Supply)	meter	R
B5.1.8 I	12-core 1,5 mm ² (Installation)	meter	R
B5.1.8 TTC	12-core 1,5 mm ² (Terminate, Test and Commission)	meter	R
B5.1.9 S	19-core 2,5 mm ² (Supply)	meter	R
B5.1.9 I	19-core 2,5 mm ² (Installation)	meter	R
B5.1.9 TTC	19-core 2,5 mm ² (Terminate, Test and Commission)	meter	R

INITIALS OF CITY OFFICIALS		
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NHLSFR / ZEROTOX Multicore and Auxiliary Cables		Unit of Measurement	Price Per Unit
B5.1.10 S	19-core 1,5 mm ² (Supply)	meter	R
B5.1.10 I	19-core 1,5 mm ² (Installation)	meter	R
B5.1.10 TTC	19-core 1,5 mm ² (Terminate, Test and Commission)	meter	R
B5.1.11 S	4-core 16 mm ² (Supply)	meter	R
B5.1.11 I	4-core 16 mm ² (Installation)	meter	R
B5.1.11 TTC	4-core 16 mm ² (Terminate, Test and Commission)	meter	R
B5.1.12 S	2-Twisted pair, individually screened, armoured 1,5 mm ² (Supply)	meter	R
B5.1.12 I	2-Twisted pair, individually screened, armoured 1,5 mm ² (Installation)	meter	R
B5.1.12 TTC	2-Twisted pair, individually screened, armoured 1,5 mm ² (Terminate, Test and Commission)	meter	R
B5.1.13 S	12-Twisted pair, Aluminium /Polyester tape screened, 0,22mm ² "Mylar" Data Cable (Supply)	meter	R
B5.1.13 I	12-Twisted pair, Aluminium /Polyester tape screened, 0,22mm ² "Mylar" Data Cable (Installation)	meter	R
B5.1.13 TTC	12-Twisted pair, Aluminium /Polyester tape screened, 0,22mm ² "Mylar" Data Cable (Terminate, Test and Commission)	meter	R

INITIALS OF CITY OFFICIALS		
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Earthing Bars, Bare Earth conductors and NHL SFR / ZEROTOX covered Earth Conductors		Unit of Measurement	Price Per Unit
B5.2.1 S	50 mm x 6 mm Flat earth bar (Supply)	meter	R
B5.2.1 I	50 mm x 6 mm Flat earth bar (Installation)	meter	R
B5.2.1 TTC	50 mm x 6 mm Flat earth bar (Terminate, Test and Commission)	meter	R
B5.2.2 S	50 mm x 3 mm Flat earth bar (Supply)	meter	R
B5.2.2 I	50 mm x 3 mm Flat earth bar (Installation)	meter	R
B5.2.2 TTC	50 mm x 3 mm Flat earth bar (Terminate, Test and Commission)	meter	R
B5.2.3 S	70 mm ² Bare conductor (Supply)	meter	R
B5.2.3 I	70 mm ² Bare conductor (Installation)	meter	R
B5.2.3 TTC	70 mm ² Bare conductor (Terminate, Test and Commission)	meter	R
B5.2.4 S	70 mm ² Covered conductor (Supply)	meter	R
B5.2.4 I	70 mm ² Covered conductor (Installation)	meter	R
B5.2.4 TTC	70 mm ² Covered conductor (Terminate, Test and Commission)	meter	R

INITIALS OF CITY OFFICIALS		
1	2	3

Earthing Bars, Bare Earth conductors and NHL SFR / ZEROTOX covered Earth Conductors		Unit of Measurement	Price Per Unit
B5.2.5 S	95 mm ² Bare conductor (Supply)	meter	R
B5.2.5 I	95 mm ² Bare conductor (Installation)	meter	R
B5.2.5 TTC	95 mm ² Bare conductor (Terminate, Test and Commission)	meter	R
B5.2.6 S	95 mm ² Covered conductor (Supply)	meter	R
B5.2.6 I	95 mm ² Covered conductor (Installation)	meter	R
B5.2.6 TTC	95 mm ² Covered conductor (Terminate, Test and Commission)	meter	R
B5.2.7 S	120 mm ² Bare conductor (Supply)	meter	R
B5.2.7 I	120 mm ² Bare conductor (Installation)	meter	R
B5.2.7 TTC	120 mm ² Bare conductor (Terminate, Test and Commission)	meter	R
B5.2.8 S	120 mm ² Covered conductor (Supply)	meter	R
B5.2.8 I	120 mm ² Covered conductor (Installation)	meter	R
B5.2.8 TTC	120 mm ² Covered conductor (Terminate, Test and Commission)	meter	R

INITIALS OF CITY OFFICIALS		
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Earthing Bars, Bare Earth conductors and NHL SFR / ZEROTOX covered Earth Conductors		Unit of Measurement	Price Per Unit
B5.2.9 S	Copperweld Bare conductor (70 mm ² Equivalent) (Supply)	meter	R
B5.2.9 I	Copperweld Bare conductor (70 mm ² Equivalent) (Installation)	meter	R
B5.2.9 TTC	Copperweld Bare conductor (70 mm ² Equivalent) (Terminate, Test and Installation)	meter	R
B5.2.10 S	Copperweld Covered conductor (70 mm ² Equivalent) (Supply)	meter	R
B5.2.10 I	Copperweld Covered conductor (70 mm ² Equivalent) Installation	meter	R
B5.2.10 TTC	Copperweld Covered conductor (70 mm ² Equivalent) (Terminate, Test and Commission)	meter	R
B5.2.11 S	Copperweld Bare conductor (120 mm ² Equivalent) Supply	meter	R
B5.2.11 I	Copperweld Bare conductor (120 mm ² Equivalent) Installation	meter	R
B5.2.11 TTC	Copperweld Bare conductor (120 mm ² Equivalent) Terminate, Test and Commission	meter	R
B5.2.12 S	Copperweld Covered conductor (120 mm ² Equivalent) Supply	meter	R
B5.2.12 I	Copperweld Covered conductor (120 mm ² Equivalent) Installation	meter	R
B5.2.12 TTC	Copperweld Covered conductor (120 mm ² Equivalent) Terminate, Test and Commission	meter	R

INITIALS OF CITY OFFICIALS		
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Item No	Cable Racks and Cable Ladders	Unit of Measurement	Price Per Unit
B5.3.1 S	Overhead suspended 300mm wide Cable Tray (Supply)	meter	R
B5.3.1 I	Overhead suspended 300mm wide Cable Tray (Installation)	meter	R
B5.3.2 S	Wall mounted 300 mm wide Cable Ladder (Supply)	meter	R
B5.3.2 I	Wall mounted 300 mm wide Cable Ladder (Installation)	meter	R
B5.3.3 S	Overhead suspended 300 mm wide Cable Tray preformed section with bend of up to 90° (Supply)	each	R
B5.3.3 I	Overhead suspended 300 mm wide Cable Tray preformed section with bend of up to 90° (Installation)	each	R
B5.3.4 S	Wall mounted 300 mm wide Cable Ladder preformed section with bend of up to 90° (Supply)	each	R
B5.3.4 I	Wall mounted 300 mm wide Cable Ladder preformed section with bend of up to 90° (Installation)	each	R

INITIALS OF CITY OFFICIALS		
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Transport (In excess of standard 20 km from Ndabeni Stores)		Unit of Measurement	Price Per Unit
B5.4.1	Skilled staff - vehicle: Sedan	Per km	R
B5.4.2	Unskilled staff vehicle: 1 ton Pick-up	Per km	R
B5.4.3	Equipment transport: 2 ton Truck	Per km	R
B5.4.4	Equipment transport: 5 ton Truck	Per km	R

Labour Cost Basis (Labour cost to include the use of tools and equipment to carry out the work as specified)		Unit of Measurement	Price Per Unit
B5.5.1	Skilled (ie.Commissioning Engineer, Responsible person, Supervisor, Technician)	Per hour	R
B5.5.2	Unskilled (ie.Labourer, Artisan Assistant, Engineering assistant, Artisan)	Per hour	R

Private Armed Security		Unit of Measurement	Price Per Unit
B5.5.3	Onsite Private Armed Security (Grade D) for High Risk Areas	Per hour	R

INITIALS OF CITY OFFICIALS		
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Item No.	Part B6: Additional Spares	Unit of Measurement	Unit price delivered and Off-loaded (Excluding value-added tax)
B6.1		each	R
B6.2		each	R
B6.3		each	R
B6.4		each	R
B6.5		each	R
B6.6		each	R
B6.7		each	R
B6.8		each	R
B6.9		each	R
B6.10		each	R
B6.11		each	R
B6.12		each	R
B6.13		each	R
B6.14		each	R
B6.15		each	R

TENDERER NAME _____ SIGNED ON BEHALF OF TENDERER _____

INITIALS OF CITY OFFICIALS		
1	2	3

C.5 SPECIFICATION(S)

CEE 34

SPECIFICATION

FOR

SUPPLY, INSTALLATION, AND COMMISSIONING OF 12 KV INDOOR SWITCHGEAR AND ANCILLARY EQUIPMENT FOR EXTENSION OF EXISTING TYPE LMx AND NEW INSTALLATIONS

1 SCOPE OF SPECIFICATION

- 1.1 This Specification provides for the design, manufacture, testing at the Manufacturer's Works, supply, delivery and off-loading at the City of Cape Town's Stores of indoor switchgear and ancillary equipment for extension of existing Reyrolle Type LMx indoor switchgear installations and of circuit breakers, current transformers and ancillary equipment for retrofitting into existing Reyrolle type LMx switchgear at rates tendered by the Contractor in the Schedules of Rates for a period of 3 (three) years.
- 1.2 The specification further provides for the loading, delivery, erection on site, repair and / or replacement, site testing and commissioning of such switchgear and circuit breakers as extensions or repairs to existing Reyrolle Type LMx switch boards and for specific retrofits, modifications and upgrades to existing Reyrolle Type LMx switchgear for various Works Projects within the boundaries of the City of Cape Town metropolitan area at rates tendered by the Contractor in the Schedules of Rates for a period of 3 (three) years.
- 1.3 The specification further provides for the loading, delivery, erection on site, site testing and commissioning of ABB VD4-LMT circuit breakers and switchgear procured on the previous contract, 23Q/2022/23 and held in stock at the City of Cape Town Stores as extensions or repairs to existing Reyrolle Type LMx switch boards and for specific retrofits, modifications, upgrades, repair and / or replacement to existing Reyrolle Type LMx switchgear for various Works Projects within the boundaries of the City of Cape Town metropolitan area at rates tendered by the Contractor in the Schedules of Rates for a period of 3 (three) years or while such stock lasts.
- 1.4 The Works to be supplied must include all work incidental thereto whether specified in detail or not and in general is to be carried out by the Contractor in accordance with the Conditions of Contract and the requirements of this specification.
- 1.5 Key personnel will be expected to operate out of the local office which must be established within one month of contract award, the office must be located within the metropolitan area of the City of Cape Town.
- 1.5.1 **Definite Work**
- 1.5.1.1 Work at fixed schedule prices

The design, manufacture, supply, testing, delivery to site or stores and off-loading in accordance with the Conditions of Contract and this Specification at the prices stated in the Schedules of the switchgear and equipment of which the numbers, quantities and details are specified in Purchase Orders placed from time to time during the validity period of the Contract, the types, voltages and ratings are described, and of which particulars of the detailed equipment are given, such equipment including all accessories, wiring and other work required to complete the equipment, whether specified herein or not.

The collection and loading at stores, delivery to site, erection, site testing, completion and commissioning in accordance with the Conditions of Contract and this Specification at the prices stated in the Schedules of switchgear and equipment of which the numbers, quantities

and details are specified in Purchase Orders of the Works Projects placed from time to time during the validity period of the Contract, and such work must include all accessories, wiring and other work required to complete the equipment, whether specified herein or not.

The collection and loading at stores, delivery to site, erection, site testing, completion and commissioning in accordance with the Conditions of Contract and this Specification at the prices stated in the Schedules of ABB VD4-LMT circuit breakers and switchgear of which the numbers, quantities and details are specified in Purchase Orders of the Works Projects placed from time to time during the validity period of the Contract, and such work must include all accessories, wiring and other work required to complete the equipment, whether specified herein or not.

The recovery and removal of existing Reyrolle Type LMT Mk 1 and LMT Mk 2 Oil circuit breakers or Reyrolle Type LMS and LMR SF6 circuit breakers from site, the removal of all oil / SF6 gas from the circuit breaker and the return of the circuit breaker to the City with certification declaring the circuit breaker free of oil / SF6 gas and in suitable condition for scrapping.

The inspection and assessment of causes of SF6 gas leaks in existing SF6 circuit breakers and the repair thereof and topping up of SF6 gas.

The repair and / or replacement of faulted or vandalised switchgear and equipment, including where applicable the collection and loading at stores, delivery to site and erection, and the site testing, completion and commissioning in accordance with the Conditions of Contract and this Specification at the prices stated in the Schedules of which the numbers, quantities and details are specified in Purchase Orders and the Works Projects Documents placed from time to time during the validity period of the Contract, and such work must include all accessories, wiring and other work required to complete the equipment, whether specified herein or not.

1.5.1.2 Measured work at schedule rates

The supply, delivery, installation and testing in excess of the standard quantities detailed in the specification of the LV power and control cables and earthing material to make all electrical connections to apparatus installed at the various Works Projects under this Contract at the prices stated in the Schedules.

The supply, delivery and installation of the cable ladders, cable racks and other equipment and material installed at the various Works Projects under this Contract at the prices stated in the Schedules.

The transport in excess of the standard quantities detailed in the specification of installation and supervisory staff, switchgear and equipment to and from the sites of the various Works Projects under this Contract at the prices stated in the Schedules.

The cost of labour in excess of the standard quantities detailed in the specification incurred as a result of approved overtime work at the various Works Projects under this Contract at the prices stated in the Schedules.

1.5.1.3 Training

The provision of installation, operation, erection and maintenance training of the Employer's staff and all associated literature and manuals as detailed in this Specification and in the Schedules.

1.5.2 **Work at the Option of the Employer**

1.5.2.1 Work at time and material rates

If and when the Contractor is required to carry out work at time and material rates by the written instructions of the Engineer, this will comprise any work which is not covered by work at fixed schedule prices or measured work at schedule rates.

If the Contractor is required to do so the Engineer will furnish the Contractor with such particulars as are necessary to enable the Contractor to prepare detailed drawings and schedules of all such work.

All work at time and material rates must be paid in accordance with rates stated in the schedules.

No work must be carried out on a time and material basis without the consent of the Engineer in writing. When the work is in progress the Contractor must render day-work sheets in duplicate to the Engineer, showing the number of men so employed with the number of hours worked and the details of materials used. The Contractor must obtain the Engineer's certification of the day-work sheets at the time such work is carried out and failure to do so must render the Contractor liable to forfeit payment.

2 NORMATIVE REFERENCES

2.1 The following documents contain provisions that, whether referenced in the text or not, constitute requirements of this specification. At the time of publication, the editions indicated were valid. All standards and specifications are subject to revision, and parties to agreements based on this specification are encouraged to investigate the possibility of applying the most recent editions of the documents listed below.

SANS 032	Internal and/or external protective coatings for steel tubes – Specification for dip galvanized coatings applied in automatic plants
SANS 064	The preparation of steel surfaces for coating
SANS 097	Electric cables - Impregnated paper-insulated metal-sheathed cables for rated voltages 3,3/3,3 kV to 19/33 kV (excluding pressure assisted cables)
SANS 121	Hot-dipped galvanised coatings on fabricated iron and steel articles
SANS 679	Zinc chromate primers for steel
SANS 876	Cable terminations and live conductors within air-insulated enclosures (insulation co-ordination) for rated a.c. voltages of 7,2 kV and up to and including 36 kV.
SANS 935	Hot dip (galvanized) zinc coatings on steel wire
SANS 1019	Standard voltages, currents and insulation levels for electricity supply
SANS 1091	National colour standard
SANS 1186	Symbolic safety signs Part 1: Standard signs and general requirements
SANS 1213	Mechanical cable glands
SANS 1332	Accessories for medium-voltage XLPE and impregnated-paper insulated power cables (3,8/6,6 kV to 19/33 kV)
SANS 1391-1	Thermally sprayed metal coatings Part 1: Zinc and aluminium coatings for the protection of iron and steel against atmospheric corrosion.
SANS 1507-2	Electric cables with extruded solid dielectric insulation for fixed installations. Part 2 Wiring cables
SANS 1507-3	Electrical cables with extruded solid dielectric insulation for fixed installation (300/500 V to 1900/3300 V) Part 3: PVC distribution cables.
SANS 1885	Metal-clad switchgear for rated a.c. voltages above 1 kV and up to and including 36 kV – General requirements and methods of test
SANS 2808	Paints and varnishes. Determination of film thickness
SANS 3575	Hot dipped (galvanised) zinc coatings on steel sheet and strip
SANS 4998	Continuous hot-dipped zinc-coated carbon steel sheet of structural quality
SANS 9000	Quality management systems – Fundamentals and vocabulary
SANS 9001	Quality management system – Requirements
SANS 9002	Quality systems – model for quality assurance in production, installation and servicing
SANS 10064	The preparation of steel surfaces for coating
SANS 60034	Rotating electrical machines

SANS 60060-1	High-voltage test techniques Part 1: Switchgear, control gear and fuses
SANS 60060-2	High-voltage test techniques Part 2: Measuring systems
SANS 60072	Dimensions and output series for rotating electrical machines
SANS 60137	Insulated bushings for alternating voltages above 1 000 V
SANS 60186	Voltage transformers
SANS 60269-1	Low voltage fuses – Part 1: General Requirements
SANS 60270	High-voltage test techniques - Partial discharge measurements
SANS 60529	Degrees of protection provided by enclosures (IP code)
SANS 60947-2	Low voltage switchgear and control gear Part 2: Circuit-breakers
SANS 61000	Electromagnetic compatibility (EMC)
SANS 61238-1	Compression and mechanical connectors for power cables for rated voltages up to 30 kV ($U_m = 36$ kV) Part 1: Test methods and requirements
SANS 61243-5	Live working – Voltage detectors Part 5: Voltage detecting systems (VDS)
SANS 62271-213	High-voltage switchgear and control-gear - Voltage detecting and indicating system
SANS 61850-1	Communication Networks and systems for power utility automation – Part 1: Introduction and overview
SANS 61850-3	Communication Networks and systems in substations – Part 3: General requirements
SANS 61869-1	Instrument transformers Part 1: General requirements
SANS 61869-2	Instrument transformers Part 2: Additional requirements for current transformers
SANS 61869-3	Instrument transformers Part 3: Additional requirements for Inductive voltage transformers
SANS 62271-1	High-voltage switchgear and control gear Part 1: Common specifications
SANS 62271-100	High-voltage switchgear and control gear Part 100 : High voltage alternating current circuit breakers
SANS 62271-102	High-voltage switchgear and control gear Part 102 : High voltage alternating current disconnectors and earthing switches
SANS 62271-103	High-voltage switchgear and control gear Part 103: Switches for rated voltages, above 1 kV and less than 52 kV
SANS 62271-110	High-voltage switchgear and control gear Part 110 : Inductive load switching
SANS 62271-200	High-voltage switchgear and control gear Part 200: AC metal-enclosed switchgear and control gear for rated voltages above 1 kV and up to and including 52 kV
SANS 62271-201	High-voltage switchgear and control gear Part 201: AC insulation-enclosed switchgear and control gear for rated voltages above 1 kV and up to and including 52 kV
SANS 62271-301	High-voltage switchgear and control gear Part 301 : Dimensional standardisation of terminals
IEC 60051	Direct acting indicating analogue electrical measuring instruments

IEC 60068-2	Environmental Testing
IEC 60071	Insulation co-ordination
IEC 60085	Thermal evaluation and classification of electrical installations
IEC 60112	Method for determining the comparative and the proof tracking indices of solid insulating materials under moist conditions
IEC 60255	Electrical relays
IEC 60376	Specification and acceptance of new sulphur hexafluoride gas
IEC 60455	Resin based reactive compounds used for electrical insulation
IEC 60687	Alternating Current Static Watt-Hour Meters for Active Energy (Classes 0,2 S and 0,5 S)
IEC 61187	Electrical and electronic measuring equipment, documentation
ISO 9003	Quality system-model for quality in final inspection and test
ISO 8501-1	Preparation of steel substrates before application of paints and related products - visual assessment of surface cleanliness – Part 1: rust grades and preparation grades of uncoated steel substrates after overall removal of previous coatings
EN 50181	Plug-in type bushings above 1 kV up to 36 kV and from 250 A to 1,25 kA for equipment other than liquid filled transformers.
NRS 029	Current transformers for rated a.c. voltages from 3,6 kV up to and including 420 kV (maximum voltage for equipment)
NRS 030	Inductive voltage transformers for rated a.c. voltages from 3,6 kV up to and including 145 kV for indoor and outdoor application
NRS 060	Code of practice for clearances for electrical systems with rated voltages up to and including 12 kV, for the safety of persons
NRS 087	Guidelines for the management of SF6 (sulfur hexafluoride) for use in electrical equipment
2.2	City of Cape Town Electricity Services Department Occupation Health and Safety Specification for Construction Work on LV and MV Distribution Networks
2.3	Reference to a particular standard or recommendation in this Specification does not relieve the Manufacturer of the necessity of complying with other relevant standards or recommendations.
2.4	The design features of all equipment must be based on the SI system of units.
2.5	All equipment must in respect of electromagnetic compatibility comply with the requirements of SANS 61000 or IEC 61000 where a SANS approved equivalent has yet to be published.

3 OPERATING CONDITIONS

- 3.1 Electrical energy is generated at interconnected power stations as a three phase current at a frequency of 50 Hz and transmitted by means of overhead lines and underground cable to a number of switching stations at voltages of 132 kV, 66 kV and 33 kV between phases and the working voltage of any part of the transmission system will normally not exceed 10% above these levels. The system may, however, operate continuously at this upper limit and all equipment must be designed accordingly.
- 3.2 The neutral points of the 132 kV and the 66 kV systems are directly earthed at each point of transformation.
- 3.3 The equipment will be connected to the medium voltage distribution system having a maximum fault level of 25 kA and a nominal voltage of 11,5 kV or 11,66 kV, the neutral point of which is earthed either directly or through an 800 A or 1 600 A resistor.
- 3.4 The highest ambient temperature commonly experienced is 40°C and the lowest -5°C. Relative humidity varies between 20% and 90%..
- 3.5 The equipment must be suitable in all respects for continuous operation at its rated capacity under the climatic conditions on Site as detailed in this Specification

4 TERMS AND DEFINITIONS

- 4.1 Type LMx Indoor Switchgear: For the purposes of this specification, Reyrolle type LMT Mk1, LMT Mk2, LMS or LMR or ABB type LMR, HD4-LMT and VD4-LMT switchgear with the Reyrolle LMT 1 busbar configuration.
- 4.2 Distribution Feeder Panel: a switch panel with a withdrawable circuit breaker, unit and/or overcurrent protection and instrumentation for controlling a circuit the other end of which is connected to a similar switch panel forming part of a switchboard supplied by others.
- 4.3 Distribution Feeder Metering Panel: a switch panel with a withdrawable circuit breaker, overcurrent and earth fault protection, instrumentation and with the addition of instrument transformers for the two-wattmeter system of metering.
- 4.4 Distribution Transformer Panel: a switch panel with a withdrawable circuit breaker, protection and instrumentation which is directly connected to a distribution transformer.
- 4.5 Distribution Transformer Metering Panel: a switch panel with a withdrawable circuit breaker, earth fault and back-up protection and instrumentation with the addition of instrument transformers for the two-wattmeter system of metering.
- 4.6 Distribution Bus Section Panel: a switch panel with a withdrawable circuit breaker, overcurrent/earth fault protection and instrumentation inserted into the length of a busbar by means of which the two portions of the busbar may be electrically separated, and with the busbar riser function integrated within the switch-panel.
- 4.7 Main Substation Feeder Panel: a switch panel with a withdrawable circuit breaker, unit and back-up protection and instrumentation for controlling a circuit the other end of which is connected to a similar switch panel forming part of a switchboard supplied under another contract, and which is suitably rated and equipped for installation on Main (or Stepdown) Substation MV switchboards.
- 4.8 Main Substation Incoming Transformer Panel: a switch panel with a withdrawable circuit breaker, unit and back-up protection and instrumentation which is connected on an incoming circuit on a Main (or Stepdown) Substation MV switchboard, and which is suitably rated and equipped for such duty.
- 4.9 Main Substation Bus Section Panel: a switch panel with a withdrawable circuit breaker,

overcurrent/earth fault protection and instrumentation inserted into the length of a busbar by means of which the two sections of the busbar may be electrically separated, and with the busbar riser function integrated within the switch-panel, and which is suitably rated and equipped for installation on Main (or Stepdown) Substation MV switchboards.

- 4.10 Joggle chamber: a busbar adapter panel to enable the electrical interconnection of busbars of Reyrolle type LMT/LMS/LMR/AMK and ABB type HD4-LMT switch panels to the busbars of panels supplied against this specification
- 4.11 Substation: Brick built dwelling with a switchboard comprising of four or more, 11KV distribution feeder panels.
- 4.12 Works Project Document/Template: Document that outlines the scope, plans, bill of quantities, OHS and environmental aspects of a project.
- 4.13 Taking-Over Certificate (TOC): Signed document that indicates the completion of a project, allowing the employer to take possession and begin using the completed works. It marks the transfer of responsibility for the works from the contractor to the employer and initiates the defect liability period.
- 4.14 Engineer: The name of the Employer's Agent (Contracts Manager) will be stated in the Works Project contract document(s) and who may be an employee of the Employer.
- 4.15 Works Project: means a part of the Works to be performed (task) by a Contractor under the Contract, the specific terms, conditions and scope of the Works Project contract being specified in a Works Project contract document and issued in accordance with the Procedure for Allocation of Works Projects

5 **QUALITY, DESIGN AND EXECUTION**

- 5.1 All apparatus should comply with this Specification. Any departures from the requirements of this Specification must be stated in the schedules and may be accepted at the Engineer's discretion.
- 5.2 No departure must be implemented without the prior approval of the Engineer.
- 5.3 The Equipment Manufacturer's quality assurance system must be approved in terms of SANS 9001. A copy of the registration certificate must be attached to the Form of Tender and the number entered in the schedules.
- 5.4 All materials used in the Works must be new materials and of the best quality. The material of which each part is made must be one of those recognised as suitable for the purpose in conservative modern practice and of a class suitable for working under the conditions specified. The variations of temperature and atmospheric conditions arising under working conditions must not cause distortion, deterioration or the setting up of undue stresses in any part nor affect the strength and suitability of the various parts for the work which they have to perform. No welding, filling or plugging of defective parts will be permitted without the sanction in writing of the Engineer.
- 5.5 The design and execution of the Works must incorporate every practicable precaution and provision for:-
 - 5.5.1 the safety of those who will operate and maintain the equipment
 - 5.5.2 the satisfactory operation of the equipment under all conditions liable to be met in service, and
 - 5.5.3 to facilitate inspection, maintenance and repairs.
- 5.6 Features likely to require excessive maintenance must be carefully avoided.

- 5.7 Kiosks, cubicles and similar enclosed compartments must be adequately ventilated to restrict condensation.
- 5.8 Tenderers must offer equipment of the highest possible quality to ensure highly reliable service and only proven designs with proven in-service history in conditions equal or worse than those experienced in this region will be accepted.
- 5.9 All apparatus and materials supplied must comply with the current requirements of the Occupational Health and Safety Act (Act No 85 of 1993), as amended, and the Regulations issued thereunder and any regulations issued in modification or substitution thereof. In addition, they must comply with any other requirements having the force of law to which this Undertaking is subject to.

6 SWITCHGEAR DESIGN

6.1 Engineering Approval

- 6.1.1 The equipment tendered must comply fully with the requirements of the specification, and the Tenderer must demonstrate such compliance through the completion of all Returnable Schedules and the provision of full particulars of the equipment offered including detailed technical documentation, drawings, operating and maintenance instructions as specified.
- 6.1.2 Drawings provided at the tender stage must include those detailed in Clause 46.2 of Section 46 of this specification.
- 6.1.3 Following contract award Contractors must provide full switchgear design details within the timeframes detailed in Schedule F.13 K and these must be scrutinised and comments provided and amendments requested by the employer during the engineering approval phase in order to ensure full compliance with the requirements of the specification and contract.
- 6.1.4 During the engineering approval phase the Employer in addition reserves the right to request such additional amendments and changes to the fine detail of the design as may be necessary in order to satisfactorily meet detailed engineering requirements not specifically or adequately addressed in the tender specification. Such detailed engineering amendments to the design submission must not constitute material changes to the scope and specification of the contract.

6.2 Design Principles and Parameters

- 6.2.1 The switchgear must be of the fully metal-clad factory assembled type and must comply with SANS 62271-200 and SANS 1885 as specified.
- 6.2.2 The switchgear will be used to extend existing switch boards comprising Reyrolle type LMT, LMS, LMR, and / or AMK and ABB type LMR, HD4-LMT and VD4-LMT switch panels with the Reyrolle LMT 1 busbar configuration. Accordingly only identical switchgear or equivalent switchgear, to approval, with this specific busbar configuration must be acceptable.
- 6.2.3 The retrofit circuit breakers will be used to replace existing circuit breakers in Reyrolle type LMT, LMS, and ABB type LMR and HD4-LMT switch panels and must be proven by extensive service history for service as a retrofit circuit breaker in such switch panels. Retrofit circuit breakers must be fully type tested for service in this switchgear.
- 6.2.4 Switchgear requiring a joggle chamber or busbar adapter of any sort to extend such existing busbars must be acceptable. The joggle chamber must be fully type tested with the existing switchgear.
- 6.2.5 Switchgear must be designed so that normal service and maintenance operations can be

carried out in safety including the checking of phase sequence, earthing of connected cables, location of cable faults and voltage tests on connected cables.

- 6.2.6 All components of the same rating and construction which may need to be replaced during service must be interchangeable.
- 6.2.7 Components within the metal enclosures must be subject to individual International Electrotechnical Commission (IEC) standards which are relevant except where modified by this Specification.
- 6.2.8 The equipment offered must comprise the Manufacturer's standard equipment, the reliability of which has been thoroughly proven in service.
- 6.2.9 All components and accessories must have passed the type tests laid down in the appropriate specifications. The type tests must have been conducted or, where in-house tests cannot be avoided, must have been fully witnessed and certified by an accredited independent test laboratory and approved by the Engineer. The testing laboratory must be accredited by a national accreditation body that is a member of the International Laboratory Accreditation Cooperation.
- 6.2.10 The equipment offered must be identical to the equipment covered by the type tests and the panel offered must be assembled in the same factory as the type tested panel. In the event that equipment is manufactured in a factory different from the equipment subjected to type testing, but the Tenderer believes that the type test certification is nevertheless applicable, the Tenderer must submit a full and detailed motivation for the acceptance by the Employer of the type test certification as applicable to the equipment tendered. Acceptance of such type test certification must be at the Engineer's discretion.
- 6.2.11 Each switch panel must be a self-contained factory assembled unit consisting of a fixed portion which must include busbars, instrument transformers, cable termination compartment, supporting framework, instruments and relays, and a withdrawable portion comprising the circuit breaker with its operating mechanism and supporting truck.
- 6.2.12 The fixed portion of the panel must be complete including all framework, locking-off doors, multi-core cable glands, wiring trunking and wiring, erection materials and all necessary fittings. All wiring and trunking must be mechanically secured. The use of adhesive securing methods will not be accepted.
- 6.2.13 The connections between the fixed and withdrawable portions must be by means of vertical isolating plug and socket contacts so that the circuit breaker can be withdrawn from the fixed portion. The design of the plug connections must be such as to prevent the accumulation or ingress of gas.
- 6.2.14 Secondary auxiliary connections between the fixed and withdrawable portions must be by means of plug and socket contacts.
- 6.2.15 The switch panels must have separate compartments for circuit breakers, busbars, current transformers and cable terminations, and a separate control / relay compartment, each individually screened by means of enclosing with sheet metal. The cable termination enclosure and current transformer enclosure must not be shared / common.
- 6.2.16 The switch panels will be used to extend existing switch boards and must be supplied complete with the necessary accessories including busbars, busbar shrouds and seals, bus-wiring bushes and cover plates, busbar end cover plate (one only), all other materials and any special tools or components required to extend the switch board.
- 6.2.17 The switchgear tendered for use in distribution substations must be suitable for installation in a substation of ceiling height 2,7 m without reduction of rating, and that tendered for use in Main Substations must be suitable for installation in a main substation of ceiling height 3,5 m without reduction of rating.

- 6.2.18 The switchgear must be suitable for installation in substations with a cable trench at the rear of the switchgear, with the cable termination compartment overhanging the cable trench. Termination of the MV cable and completion of the cable wiping gland must be from the rear of the switchgear. Cable basements will not be available in the substation.
- 6.2.19 The operation of all circuit breakers, earth switches and devices must be from the front of the panel only.
- 6.2.20 Access to all multicore and pilot terminals must be from the front of the panel only.
- 6.2.21 All switch panels must be constructed in such a way that they are rigid even when stood alone.
- 6.2.22 Where panel fronts do not align precisely with the existing Reyrolle type LMT, LMS and / or AMK and ABB type LMR and HD4-LMT switch panels, it must nevertheless be possible to arrange switch panels in any order without reducing the ability to operate the equipment fully as intended.
- 6.2.23 Provision must be made for the lifting of each panel.
- 6.2.24 Switch panels must be constructed so that they can be easily and readily adapted on site including the fitting of voltage transformers.
- 6.2.25 Panel doors must be fitted with stops to prevent them from over swinging when opened.
- 6.2.26 The circuit breaker compartment door must be provided with 3 point locking mechanism securing the door at the top, bottom and centre of the non-pivoting side.
- 6.3 **Ratings**
- 6.3.1 The switchgear and associated equipment must comply with the ratings specified in the Schedules.
- 6.3.2 Every current carrying part of the switchgear equipment including circuit breakers, busbars, current transformers, connections and joints must be capable of carrying under the atmospheric and climatic conditions existing at Site, its specified rated current continuously and in no part must the temperature rise exceed the values specified in SANS 62271 and other relevant standards.
- 6.3.3 Every part of the switchgear equipment must also withstand without mechanical or thermal damage, the specified instantaneous peak current and rated short time current for the specified duration.
- 6.3.4 A rating plate complying with the requirements of SANS 62271-200 must be fixed to the front of the switchgear and must include current and voltage transformer serial numbers, accuracies and ratings, the specification number and the drawing references.
- 6.3.4.1 Rating plates complying with the requirements of SANS 61869-2 and 61869-3 for current and voltage transformers, respectively, must be affixed to each current and voltage transformer in a position that is visible without the need to remove the transformer when the relevant compartment door or cover is in the open position. In addition, duplicate rating plates for the current and voltage transformers must be affixed in a clearly visible position in the inside of the low voltage control / relay compartment.
- 6.3.4.2 A further rating plate must be affixed in the low voltage compartment of all switch-panels containing metering current transformers that details the design burden of the metering current transformer secondary wiring and the resulting adjusted (reduced) rated burden of the current transformers at the point of connection in the low voltage compartment. This is for the purpose of field accuracy testing of metering current transformers, as such tests are

conducted from the low voltage compartment.

6.4 **Insulation of Live Conductors**

6.4.1 The busbars, components and circuit connections must be air-insulated but must in addition be completely covered with solid insulation capable of withstanding the full service voltage. Taped busbars mounted on horizontal stand-off insulators must not be acceptable.

6.4.2 There must be no bare, uninsulated live primary conductors or components.

6.4.3 Busbar and current transformer joints must be insulated by means of pre-formed shrouds filled with an approved solid setting insulating compound.

6.4.4 The circuit breaker must be solidly insulated to full service voltage, with the exception of the primary isolating contacts.

6.5 **Degrees of Protection**

6.5.1 The HV compartments of the switch panels must have a minimum degree of protection of IP 4X in accordance with SANS 60529.

6.6 **Internal Arc Withstand and Pressure Relief Facilities**

6.6.1 The switchgear specified for distribution substations is intended for extensions to existing switch boards comprising non-internal arc rated switchgear. The switchgear specified for main substations is intended for extensions to existing main substation switch boards comprising either non-internal arc rated switchgear or arc vented switchgear having a rating of 25 kA 200 ms in accordance with SANS 60298.

6.6.2 The switchgear tendered for extension of existing switchboards must have been internal arc tested to a minimum standard of 25 kA 200ms in accordance with SANS 60298. Panels tested to the current SANS 62271-200 IAC AFL standard will also be acceptable.

6.6.3 The Tenderer must quote as detailed in the pricing schedule for the upgrade of existing switch panels to an internal arc vented standard through the fitment of arc rated circuit breaker compartment doors, vented busbar chamber and CT chamber top covers, vented circuit breaker compartment rear covers and switch board end blast covers.

6.6.4 The internal arc venting retrofit facilities for existing Type LMx switchgear must have been type tested to a minimum standard of 25 kA 200ms in accordance with SANS 60298.

6.6.5 The retrofit arc rated circuit breaker compartment doors must be suitable for racking of the circuit breaker with the door closed. The door locking mechanism must be designed and tested to operate reliably and to maintain the door's internal arc rating for the service life of the switchgear, without the need for routine maintenance.

6.7 **Extension Facilities**

6.7.1 The switch panels must be designed in such a way that they can be used to extend readily and safely at either the left or right hand side end of switchboards currently in service containing Reyrolle type LMT, LMS and / or AMK and ABB type LMR and HD4-LMT switch panels.

6.7.2 The extension of the existing switch board using the same panels as offered must not require the fitment of specially modified equipment e.g. VT's, cable boxes etc.

6.7.3 During extensions of existing switch boards it must be possible to complete the installation of one or more extension switch panels and the extension of the existing busbars within a single shut-down of a maximum duration of 4 hours.

6.8 Earthing Facilities

- 6.8.1 Each switch panel must be equipped with an integral earthing arrangement whereby the circuit or the busbar can be positively earthed. This must be achieved through the circuit breaker after transfer of the circuit breaker to an appropriate position for circuit or busbar earthing.
- 6.8.2 The circuit breaker must be selected to the appropriate service or earth positions using a locator gate which must be suitably interlocked to prevent inadvertent selection of incorrect positions. The locator gate must be clearly labelled.
- 6.8.3 The circuit breaker position locator gate must be padlockable.
- 6.8.4 The switch panel must be fitted with circuit breaker locating indents on the floor rail at the service position and each earth position to permit easy and precise positioning of the circuit breaker.
- 6.8.5 The switch panel must be fitted with position indication clearly visible from the front of the panel providing clear and unambiguous indication of the busbar earth position, service position and circuit earth position of the circuit breaker.

6.9 Phasing-out Facilities

- 6.9.1 Permanent facilities must be provided on each panel to enable the primary circuit connection on any one panel to be electrically phased out with any other. This facility must take the form of electrostatic bands fitted in the outgoing circuit bushings of each panel and wired to a set of test plugs or terminals that are directly accessible from the front of the switch panel by an operator standing at floor level in front of the switch-panel. The phasing out facilities must be directly visible from the front of the switchgear such that the possibility of incorrect phase selection with the test plug is minimised. Test plugs must be the 6 mm diameter jack plug type.
- 6.9.2 The test plugs or terminals will be used in conjunction with a suitable portable electrostatic voltmeter for measuring:
- 6.9.2.1 the voltage of each electrostatic band to earth.
- 6.9.2.2 the voltage between electrostatic bands of corresponding phase bushings of two or more feeder panels.
- 6.9.3 Capacitive-divider based facilities will be considered as an alternative if they comply with SANS 61243-5, have been type tested and have proven in-service performance history in harsh coastal environments. All capacitive dividers must be individually tested for partial discharge in accordance with the requirements of SANS 60270, and the partial discharge level of each capacitive divider must not exceed 5 pC.

6.10 Circuit Breaker Racking

- 6.10.1 The circuit breakers must be racked in and out behind IAC closed doors, preferably manually but motorised racking will also be considered. Circuit breakers with motorised racking must have back-up facilities for manual racking.
- 6.10.2 Where motorised racking is provided, the electrical actuation must be supplied from the 230 V ac station supply. The control circuit for the motor must be such that in the event of a failure to complete the racking cycle, the supply to the motor must be interrupted after a fixed time delay and an alarm contact must be activated. The control circuit must be to approval.
- 6.10.3 Tenderers must include rates for the manual racking and spring charge handles where provided for in the Schedule of Rates.

6.11 **Safety Shutter Devices**

6.11.1 A set of automatically opening and closing metal shutters in accordance with SANS 62271-200 must be provided to cover each three-phase group of fixed isolating contacts. It must be possible to operate each set individually and to padlock each set in the closed position.

6.11.2 Shutters must be positively driven in both the opening and closing directions and must not rely on springs or gravity for their operation.

6.12 **Interlocks**

6.12.1 Interlocks in accordance with SANS 1885 and SANS 62271-200 must be provided on all switch panels and circuit breakers together with any further interlocks the Engineer may deem necessary.

6.12.2 Where specified, switch panels must be interlocked to prevent closing while the bus sections are open. The scheme must be to approval.

6.13 **Padlocking**

6.13.1 Locking facilities suitable for a 35 mm padlock with a 5 mm diameter shackle must be provided on each switch panel for locking the following:

6.13.1.1 the busbar and circuit safety shutter devices, independently, in the closed position.

6.13.2 Locking facilities suitable for a 50 mm padlock with an 8 mm diameter shackle must be provided on each switch panel for locking the following:

6.13.2.1 each circuit breaker local manual operating handle in the "neutral" position.

6.13.2.2 each local/supervisory selector switch in either position.

6.13.2.3 the trip, trip test and close controls or button cover.

6.13.2.4 all access doors and protection/control panel doors in the "closed" position.

6.13.2.5 for any other purposes that the Engineer may deem necessary.

6.13.3 The locking facilities must be to approval.

6.13.4 The locking facilities must be designed so that, when a motor-driven device is locked in the specified position, both the mechanical drive mechanism and the electrical supply to the motor must be disabled.

6.13.5 Padlocks will be provided by others.

6.14 **Anti-Condensation**

6.14.1 The circuit breaker compartment must be ventilated to prevent condensation of atmospheric moisture but must meet the IP rating required. Non-perishable vermin shields must be fitted to all ventilation openings and all components.

6.14.2 The switch panels must be fitted with suitably rated 230 V ac panel heaters as required to prevent condensation in the circuit breaker compartment.

6.15 **Cable Termination Compartment**

6.15.1 The cable termination compartment for the main cables on all panels must comply with the requirements of SANS 876.

- 6.15.2 The cable termination compartment must be suitable for termination of three core impregnated paper insulated 11 kV cables of up to 300 mm² with air-insulated dry type cable terminations complying with SANS 1332 / SANS 876 (95 kV BIL). All 11 kV cables will be provided, installed and terminated by others.
- 6.15.3 All type test certification for the switchgear must be applicable to switch panels fitted with this cable termination compartment. All breathing vents must be suitably vermin proofed.
- 6.15.4 The cable termination compartment must comprise a separate metal-clad chamber and must be suitable for terminating the number of cables specified in the Schedules. All necessary flexible connections, earth bars, cable lugs and associated nuts, bolts and washers must be included.
- 6.15.5 The cable termination compartment must be separate from the current transformer compartment and must be designed and positioned so that it does not in any way impede the removal or replacement of current transformers in the current transformer chamber. It must not be necessary to break down cable terminations for removal or replacement of current transformers.
- 6.15.6 The cable termination compartment must be designed for rear cable entry from a cable trench of typically have a depth 1000 mm. The cable termination compartment must overhang the cable trench at the rear of the switchgear and must not span the full width of the trench.
Note: the width of trenches are typically 1300mm and overhang should not be more than 700mm.
- 6.15.7 The cable termination compartment must be fitted with cable bushings for the purpose of terminating the incoming main cables.
- 6.15.8 The minimum height of cable termination compartments must be 600mm.
- 6.15.9 The cable termination compartment for main substation feeder panels and for all distribution substations switch panels must be provided with gland plates and universal tapered brass glands and clamps and island layer gland insulators suitable for termination of three core PILCDSTA cable of maximum cross section as specified in the Annexures. The glands must be supplied with tapped inserts for the installation of earthing bars. Unistrut and K clamps to secure the cables must not be acceptable.
- 6.15.10 The cable dividing boxes for Main Substation Incoming Transformer Panels must be provided with gland plates and universal tapered brass glands and clamps and island layer gland insulators suitable for termination of a maximum of four single core PILCDSTA cables per phase of maximum cross section as specified in the Annexures.
- 6.15.11 Drawings of the cable termination compartments, glands and lugs must be submitted for approval before manufacture commences.
- 6.16 **Bushings and Support Insulators**
- 6.16.1 The MV cable bushings must be suitable for air insulated terminations and must comply with the requirements of SANS 60137.
- 6.16.2 MV Cable bushings must have a rated current of not less than 120% of the maximum current rating of the circuit breaker.
- 6.16.3 All MV bushings must be partial discharge tested in accordance with SANS 60270, and the partial discharge level of each bushing must not exceed 5 pC.
- 6.16.4 The surface of bushings and support insulators must be smooth all over and free from blemishes and patches or fillings.

- 6.16.5 Under no circumstances must dough moulded compound be accepted for cable termination bushings, circuit breaker bushings, switch panel primary isolating contact orifices or any other MV circuit bushings.
- 6.16.6 Dough moulded compound will only be accepted for use for support insulators and other components subject to the submission by the tenderer of type test certification detailing full compliance with accepted international standards for DMC insulators for MV use, and subject to the submission of full details of an acceptable factory quality assurance program to SANS 9001 for these products.
- 6.17 **Cable Test and Isolating Facilities**
- 6.17.1 Cable testing must be achieved without the need to access the cable termination compartment, either by the provision of integral test facilities or other facilities to the approval of the Engineer.
- 6.17.2 The insulation level of all equipment from the cable termination up to and including the cable circuit primary isolating contact must be capable of withstanding without failure or reduction of general insulation levels, the power cable routine test voltage applied for 15 minutes between the conductor and earth. The test voltage must be as detailed in SANS 97 for PILC cable.
- 6.17.3 Where provided, integral test facilities must be in accordance with the requirements of SANS 1885.
- 7 **CIRCUIT BREAKERS**
- 7.1 **Design Principles and Parameters**
- 7.1.1 Circuit breakers must comply with the requirements of SANS 62271-100 and SANS 1885.
- 7.1.2 Circuit breakers must be encapsulated or enclosed to the IP rating detailed in the schedules and must not have exposed un-insulated live conductors other than the primary isolating contacts. Any primary circuit components in the circuit breaker that are not insulated to full service voltage must be entirely enclosed and suitably protected against the ingress of vermin and the accumulation of surface pollutants.
- 7.1.3 The circuit breakers tendered as separate items are required for retrofitting to Reyrolle type LMT, LMS and LMR, and ABB type LMR and HD4-LMT switch panels currently in service, and must be of identical design to those included within the tendered switch panels of equivalent rating. The circuit breakers must be suitable for such retrofits without the necessity for any modification to the existing switch panels other than the conversion and rewiring from side wipe to plug and socket secondary connection.
- 7.2 **Interrupters**
- 7.2.1 The interrupting medium of the circuit breaker must be vacuum.
- 7.2.2 The circuit breakers must be supplied complete with the interrupting medium ready for service and sealed.
- 7.2.3 Interrupters must be of Class C2, with a very low probability of restrike during capacitive current breaking. Arc extinction must be soft and current chopping under the maximum capacitive switching rating must be limited to a maximum of 5 A. Certification of the current chopping characteristics of the circuit breakers Must be included with the tender.
- 7.2.4 Only interrupters from reputable manufacturers with a proven service history must be accepted.
- 7.2.5 Interrupters must be type tested and the type test certificates for the complete panel must be for the specific interrupter offered.

- 7.2.6 Vacuum interrupters must be rated and tested for a minimum normal service life of 20 000 operations at full service rating,
- 7.2.7 The rated transient recovery voltage (TRV) of vacuum interrupters at rated short circuit breaking current must comply with the requirements of SANS 62271-100, and must not reduce below the requirements of SANS 62271-100 during the rated normal service life of the interrupter for operations at rated load.
- 7.2.8 Vacuum interrupters must be capable of fulfilling the number of operating sequences at rated short circuit breaking current specified in SANS 62271-100, and this must be without reduction of the rated TRV below the requirements of SANS 62271-100.
- 7.3 **Operating Mechanism**
- 7.3.1 Each circuit breaker must be provided with a spring operated mechanism for performing the opening and closing operations.
- 7.3.2 The circuit breaker operating mechanism must be an integral part of the circuit breaker itself. Circuit breakers having an operating mechanism divorced from the circuit breaker will not be considered.
- 7.3.3 Circuit breaker mechanisms and all parts requiring lubrication must be housed in vermin and dust free enclosures.
- 7.3.4 The energy available in the operating mechanism must be sufficient to provide for the operating duty cycle specified.
- 7.3.5 It must be possible to operate the circuit breaker both locally and from a remote location. All ancillary equipment necessary for remote operation must be mounted in the low voltage compartment.
- 7.3.6 The spring mechanism charging must be motorised. In addition it must be possible to charge the mechanism manually. Where the manual spring charging handle is not integral to the circuit breaker the tenderer must include the cost for the provision of manual spring charge handles where provided for in the Schedule of Rates.
- 7.3.7 Tenderers for Category A (Retrofits and Extensions to Existing Type LMx Switchboards utilising Circuit Breakers and Switchgear currently in CCT Stock) must price for supply, installation, testing and commissioning of spring charge motors into ABB VD4-LMT CBs and also for installation, testing and commissioning of spring charge motors into ABB VD4-LMT CBs (using free-issued spring charge motors) where indicated in the Schedules of Rates.
- 7.3.8 Tenderers for Category B (Retrofits, Modifications and Upgrades to existing Type LMx Switchboards and New Installations Utilising New Equipment Delivered to CCT Stores) must price for supply of spring charge motors for retrofit into various existing CBs as detailed in the Schedules of Rates, and also for the installation, testing and commissioning of these spring charge motors on CBs in the field and the required panel wiring modifications associated therewith.
- 7.3.9 The motorised spring mechanism charging must be actuated from the 230 V ac station supply. The control circuit for the motor must be such that in the event of a failure to charge the spring, the supply to the motor must be interrupted after a fixed time delay and an alarm contact must be activated. The control circuit must be to approval.
- 7.3.10 The motor rewind circuits must be to the Engineer's approval.
- 7.3.11 The spare normally open spring drive limit switch must operate coincidentally with the contactor coil and motor limit switches.

- 7.3.12 Circuit breaker closure whilst a spring charging operation is in progress must be prevented, and release of the springs must not be possible until they are fully charged.
- 7.3.13 The state of charge of the operating springs must be indicated by a mechanical device which shows 'SPRING CHARGED' when operation is permissible and 'SPRING FREE' when operation is not possible. A local manual spring release device must be provided and arranged to prevent inadvertent operations.
- 7.3.14 Provision should be made for remote indication of 'spring charged' and 'spring charge fail' conditions, and remote indication for 'spring discharged' is a preferred requirement.
- 7.3.15 Circuit breakers must open with normal speed and with full travel under all operating conditions including the conditions of failure to latch or a trip impulse being given during the closing stroke.
- 7.3.16 Circuit breaker closing must be actuated by an electrical release, and a manual release must also be provided on the circuit breaker.
- 7.3.17 The circuit breakers must be provided with trip and close relays for remote operation and a spring uncharged/charge fail indication to approval.
- 7.3.18 The complete circuit breaker including the activating mechanisms must have an extended mechanical endurance Class M2, and an electrical endurance Class E2 in accordance with SANS 62271-100, and must not require maintenance inspections more frequently than 4 yearly intervals under normal operating conditions.
- 7.3.19 The mechanical operation must be by means of padlockable trip and close facilities in accordance with SANS 1885 and must be operated from the front of the switch panel.
- 7.3.20 The circuit breakers must be fitted with lockout facilities which must be padlockable in all positions.
- 7.3.21 A non-resettable operation counter, to record the number of closing strokes, must be provided for each circuit breaker mechanism.
- 7.3.22 A local mechanical indicator must be provided on each operating mechanism to show whether the circuit breaker is in the open or closed position. This should be driven as directly as possible from that portion of the moving contact drive rod located at earth potential and must be mounted in a position where it is clearly visible to a person stood in front of the switchgear. Indication from one pole only is not acceptable. The method of providing external indication of contact positions must be stated.
- 7.3.23 The circuit breakers must be provided with means to prevent contact pumping while the closing circuit remains energised should the circuit breaker either fail to latch or be tripped during closing due to the operation of the protective relays. Any relays to accomplish this must be continuously rated and must be mounted in the circuit breaker mechanism box. This arrangement must not involve paralleling of the trip and close circuits.
- 7.3.24 The power supply for controlling circuit breaker operation must be as stated in the Schedules. The electrical devices must operate satisfactorily between the voltage limits specified by IEC with the coils at a temperature of 40°C.
- 7.4 **Circuit Breaker Trucks**
- 7.4.1 Each circuit breaker must be mounted on an integral truck capable of carrying and racking the circuit breaker into service, isolated and earth positions. The positions must be clearly identified to approval

7.5 **Circuit Breaker Location Selection**

- 7.5.1 The correct selection of the circuit breaker location must be assisted through the provision of location indents for each of the positions 'circuit earth', 'service' and 'busbar earth', so as to position the circuit breaker correctly prior to operation of the circuit breaker locator bolt.
- 7.5.2 A selector gate must be provided to prevent the selection of the circuit breaker to the incorrect position, must be padlockable in each of the positions 'circuit earth', 'service' and 'busbar earth', and must provide clear and unambiguous indication of the position selected.
- 7.5.3 When a particular circuit breaker position is selected on the selector gate the other positions on the selector gate must be mechanically closed and blanked in such a way that it is not possible to move the locator bolt lever from the 'free' to the 'locked' position if the circuit breaker is incorrectly positioned.
- 7.6 Remote indication of the circuit breaker position must be provided that is directly and positively driven from the circuit breaker position selection handle and that precludes any possibility of incorrect or indeterminate remote indication of circuit breaker position through inherent free-play or wear and tear in the related mechanical linkages.

7.7 **Auxiliary Contacts**

- 7.7.1 In addition to the auxiliary contacts fitted to suit the circuit served, sufficient contacts must be provided on each circuit breaker together with associated wiring and isolating contacts to fully integrate the indication, protection, control, interlocking and supervisory facilities specified.
- 7.7.2 Auxiliary contacts must also be provided to indicate whether the circuit breaker is in the racked in or racked out position.
- 7.7.3 All auxiliary contacts must be wired to a suitable terminal board in the LV control / relay compartment of the switch panel, whether they are in use or not, and must be arranged in the same sequence on all equipment.
- 7.7.4 A minimum of 4 spare normally-open and 4 spare normally-closed auxiliary contacts must be provided on each circuit breaker for SCADA / Automation purposes, together with the associated wiring and isolating contacts.
- 7.7.5 All such contacts and mechanisms must be mounted in approved accessible positions clear of the operating mechanism, and must be adequately protected.
- 7.7.6 The contacts of all auxiliary switches must be strong, must have a positive wiping action when closing and be capable of adjustment in relation to the movement of the circuit breaker or other item of equipment.
- 7.7.7 Switches must be provided to interrupt the supply of current to the tripping mechanism of the circuit breakers directly after the operation of the latter has been completed.
- 7.7.8 Discharge resistances must be provided when required to prevent undue arcing during the operation of contactors.

7.8 **Trip and Release Coils**

- 7.8.1 Each circuit breaker must be fitted with a trip and release coil as detailed in the Schedules.
- 7.8.2 The auxiliary voltage for circuit breakers must be 30 V dc or 110 V dc, as detailed in the Schedules.
- 7.8.3 The coils must be suitable for operation at any voltage between 80% and 115% of the nominal supply voltage specified.

7.9 **Secondary Connections to Circuit Breaker**

7.9.1 Secondary connections to the circuit breakers in all switch panels must be made via plug and socket contacts that are integral to the design of the circuit breaker.

7.9.2 The umbilical lead for the circuit breaker secondary connections must be of sufficient length that the circuit breaker can be withdrawn fully from the circuit breaker compartment and racked and trip tested directly in front of the switch-panel without placing the umbilical under tension, but must be sufficiently short that it does reach to the ground in any service or earth position and is prevented from fouling circuit breaker carriage wheels or protuberances when the circuit breaker is being moved between the envisaged positions.

7.9.3 The umbilical lead for the circuit breaker secondary connections and its plug, socket and glands must be sufficiently robust that they can withstand occasional tugs and knocks as may reasonably be expected when withdrawing and inspecting / trip testing the circuit breaker without damage or loss of continuity or serviceability in the umbilical and its secondary connections.

8 **LV CONTROL / RELAY COMPARTMENT**

8.1 **General**

8.1.1 Each switch panel must be fitted with a low voltage control / relay compartment.

8.1.2 All local control, protection, alarm and instrumentation facilities must be located on the control / relay compartment of the switchgear except where specified.

8.1.3 Each LV control / relay compartment must be fully wired and equipped with all necessary equipment including all local control, protection, instrumentation, indication, test, isolating and alarm facilities, as specified in the schedules.

8.1.4 All circuits, equipment and control switches in the LV control / relay compartment must be clearly labelled as to their purpose and function.

8.1.5 Protective relays, Genwest PK-2 (or equivalent) test blocks, LOCAL/SUPERVISORY selector switch, TRIP/ NEUTRAL/CLOSE operating handle, MDI ammeter, trip test push button, remote pendant operation Canon socket and indication lamps must be flush mounted on the LV control / relay compartment door.

8.2 **Control Facilities**

8.2.1 The closing circuit, signalling circuits and each tripping circuit must be separately fused.

8.2.2 All control circuits must be provided with suitable means of isolation.

8.2.3 Alarm and indication equipment as specified in the Schedules must be provided to indicate the operation of the main and back-up system protections, operation of the equipment alarms and all other alarms which are required for the satisfactory operation of the complete installation.

8.3 **Control and Selector Switches**

8.3.1 Switches must comply with the requirements of IEC 60337, the particular duty and utilisation category required being selected from the range stated, according to the duty imposed by the particular application.

- 8.3.2 Switches must be designed to prevent inadvertent operation. Means must be provided for locking the control switches when they are in the "neutral" position. Means must be provided for locking selector switches in the "remote" position. Where selector switches are required to have a "neutral" position means for locking in this position must be provided. Control switches of the discrepancy type must require two independent movements to effect operation. The control switch must be so designed that when released by the operator it must return automatically to the "neutral" position after having been turned to the "closed" position and must at the same time interrupt the supply current.
- 8.4 **Local / Supervisory Selector**
- 8.4.1 Each switch panel must be provided with a local/supervisory selector switch which must preclude the possibility of the equipment being operated both locally and via supervisory control simultaneously.
- 8.4.2 The selection of 'LOCAL' operation must inhibit the operation from any remote source excluding the protection scheme. Selection of the Local / Supervisory Selector Switch to "Local" must permit the operation of the circuit breaker using either the Trip / Neutral / Close operating handle or a hand held pendant control device connected via the Canon Socket.
- 8.4.3 The selection to 'SUPERVISORY' must inhibit local operation excluding the protection scheme. Selection of the Local / Supervisory Selector Switch to "Supervisory" must permit the operation of the circuit breaker using Supervisory Control.
- 8.4.4 The Local / Supervisory Selector Switch must be lockable in both positions.
- 8.4.5 The Local / Supervisory Selector Switch must be provided with a NO / NC pair of auxiliary contacts for SCADA purposes which must be wired to the External Wiring Terminal Strip of the switch-panel.
- 8.5 **Remote Trip/Close Facilities**
- 8.5.1 The switch panels must each be provided with a padlockable Canon type (or equivalent) plug socket suitable for connecting a hand-held remote control unit for remote tripping and closing of the circuit breaker. All plugs and sockets must be of a military specification standard to approval and must be compatible with existing remote switching devices. Canon type plug sockets must be ITT Canon CA3102F14S-2SB sockets or equivalent.
- 8.5.2 The pin connections for the Canon socket (and the hand held remote switching device) must be in accordance with SANS 1885, as follows:
- 8.5.2.1 Pins 1 and 2 (or A and B) for close
- 8.5.2.2 Pins 3 and 4 (or C and D) for trip
- 8.5.3 Where switchgear with motorised racking is offered, facilities must be provided for the remote activation of the motorised racking. These facilities, including the plug socket type and configuration and additional pin connections must be to the approval of the Engineer.
- 8.6 **Trip Test Facility**
- The switch panels must be provided with a trip test button, to approval, which must initiate a local trip and an intertrip where applicable. The trip test button must be fitted with a padlockable metal flap.
- 8.7 **Pilot Cable Termination**
- 8.7.1 The multi-core cables as detailed in the Schedules must be terminated directly in the relay compartment.

8.7.2 The relay compartment must be provided with terminal blocks, glands and all associated fittings necessary for terminating the multicore cables.

8.7.3 The pilot cable terminations must be accessible from the front of the switch panel only. Cable entry must be from the top of the relay compartment, from suspended cable trays. Access to all multicore and pilot terminals must be from the front.

8.8 Indication Lamps

8.8.1 The switch panels must be provided with indication lamps for the following:

8.8.1.1 Circuit breaker closed - Red

8.8.1.2 Circuit breaker open - Green

8.8.1.3 Anti-condensation heaters on - White

8.8.1.4 Circuit breaker spring charged (where applicable) - White

8.8.2 Indicating lamps and lamp-holders must be so arranged that replacement of lamps and the cleaning of glasses and reflectors employed can be readily effected. Indicating lamps must be high intensity light emitting diodes.

8.8.3 The switch panels must utilise the LED's on the overcurrent and earth fault protection relay as indication lamps for additional alarms to the approval of the Engineer. The following inputs to the relay must be provided for this purpose:

8.8.3.1 Circuit breaker open and closed

8.8.3.2 Circuit breaker racked in or out

8.8.3.3 Circuit breaker selected to Service, Circuit Earth or Busbar Earth position

8.8.3.4 Circuit breaker spring discharged

8.8.3.5 Solkor Differential relay trip

8.8.3.6 Trip circuit supervision

9 PROTECTIVE AND METERING EQUIPMENT

9.1 General

9.1.1 The protective and metering equipment to be supplied on this contract must comprise all current transformers, voltage transformers, protective and metering circuitry and such auxiliary equipment necessary for a complete and fully operational scheme of protection and metering as detailed in the Schedules. This must include full provision for the installation of protective relays as detailed, but the protective relays must be provided by others.

9.1.2 The protective equipment (other than current and voltage transformers) must be mounted on the low voltage control / relay compartment of the panel.

9.1.3 The protection circuits must be designed to disconnect faulty circuits with speed and certainty without interference to healthy circuits. The equipment must also be designed to prevent incorrect operation of the circuit breakers as a result of transient phenomena not arising from a faulty condition of the section of line or equipment associated with each set of relays but which may occur during fault periods due to disturbances on the system.

9.1.4 All proprietary and embedded software as well as any licencing must be included.

- 9.2 **Current Transformers**
- 9.2.1 Current transformers must comply with SANS 61869-1, SANS 61869-2, this specification and the values stated in the Schedules.
- 9.2.2 The current transformers must have the accuracies and, where applicable, the instrument security factors stipulated in the Schedules.
- 9.2.3 The secondary windings of the current transformers must be wired to GENWEST type PK-2 (or equivalent) test blocks with integral shorting facilities.
- 9.2.4 Each current transformer secondary winding circuit must be earthed in an approved manner at only one point. Wherever possible the connection to earth must be on the side of the S2 (or S3 for multi-ratio CTs) terminals.
- 9.2.5 The current transformer connection terminals in the LV control / relay compartment must be provided with test sockets suitable for 4mm test plugs, to be used with jumpers for the purpose of shorting of the CT secondary side during ratio selection.
- 9.2.6 Where adequate earth screens are fitted between the primary and secondary windings earthing of the secondary winding must be via a link mounted in the related protection or instrument cubicle. Where such earth screens are not fitted a separate earth system may be necessary.
- 9.2.7 For dual ratio current transformers, a facility must be provided to enable the changing of the current transformer ratios without the necessity to de-energise the associated circuit.
- 9.2.8 Current transformers must be mounted in a separate metal-clad chamber and be connected on the side of the circuit breaker remote from the busbars. The current transformer compartment must be designed to facilitate the easy removal and replacement of the CT's. The replacement of a CT must not require adjacent chambers of the same panel to be disturbed.
- 9.2.9 The current transformers are required to work in conjunction with other equipment and must accordingly have characteristics suitable for accommodating the feeder protection or transformer protection as specified in the Schedules.
- 9.2.10 Current transformers must be routine partial discharge tested in accordance with the requirements of SANS 61869-1.
- 9.2.11 The following information for each current transformer must be submitted for approval:
- 9.2.11.1 Magnetisation curve
- 9.2.11.2 Exact turns ratio
- 9.2.11.3 Secondary winding resistance
- 9.2.11.4 Construction
- 9.2.12 Class X current transformers must have the following additional markings:
- 9.2.12.1 nominal turns ratio e.g. 1/500,
- 9.2.12.2 rated knee point voltage at maximum secondary turns,
- 9.2.12.3 maximum exciting current at rated knee point e.m.f.,
- 9.2.12.4 rated primary current,
- 9.2.12.5 secondary winding resistance at 75°C.
- 9.2.13 All Class X transformers must be subjected to the routine tests specified in Part C3.10 in addition to those tests called for in SANS 61869-2. These routine tests must follow the inter-turn insulation tests specified.

- 9.3 Voltage Transformers**
- 9.3.1 Voltage transformers must comply with the requirements of SANS 61869-1 and SANS 61869-3.
- 9.3.2 Voltage transformers must be discharge free and of the resin encapsulated type and must be mounted in a metal-clad chamber and connected on the side of the circuit breaker panel remote from the busbars.
- 9.3.3 The voltage transformers must be connected to the fixed portion of the switch panels by plug and socket isolating contacts and must be so arranged that they can readily be withdrawn from the fixed portion in a horizontal or vertical direction.
- 9.3.4 The voltage transformers must be three phase unearthed voltage transformers (UVTs).
- 9.3.5 Alternative voltage transformer designs, such as single phase VTs assembled and suitably connected on a common withdrawable carriage, will be considered provided that they are of identical dimensions and are fully backward compatible with the type LMx switchgear VTs in service, and that full technical particulars are provided with the tender to enable the merits of such equipment to be assessed. Alternative voltage transformer designs must be to the approval of the Engineer.
- 9.3.6 In the case of alternative voltage transformer designs, particular attention must 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 must be provided and connected as an open delta winding with suitable protective circuitry. Such circuitry must also make provision for VT earth fault conditions.
- 9.3.7 The voltage transformers ratio, output (rated burden) and accuracy over the full range must be as specified in the Schedules.
- 9.3.8 In the event that the voltage transformers offered have a rated burden greater than that specified, they must in addition to meeting the SANS 61869-3 requirements for their rating have an accuracy that also complies with the specified accuracy over the range of 25% to 100% of the specified rated burden.
- 9.3.9 Accuracy curves for all voltage transformers offered depicting the output vs accuracy must be provided.
- 9.3.10 The voltage transformers must be equipped with approved fuses on both the high and the low voltage sides.
- 9.3.11 The secondary fuses must be provided on or adjacent to each voltage transformer, located such that they are accessible while the primary is alive and must be provided with labels indicating their function and their phase colour.
- 9.3.12 The voltage transformer secondary circuits must be complete and must be neutral earthed at one point only. A separate earth link must be provided for each secondary winding and must be situated at the transformer.
- 9.3.13 The secondary windings of the voltage transformers for Main Substation Incoming Transformer Panels must be brought out to SecuControl (or equivalent) test blocks without integral shorting facilities.
- 9.3.14 Where voltage transformers are supplied which are, or may be, connected to different sections of the busbar, it must not be possible for the voltage transformer secondary circuits to be connected in parallel.
- 9.3.15 Voltage transformers must be routine partial discharge tested in accordance with the requirements of SANS 61869-3.

- 9.3.16 Voltage transformers must be guaranteed for a period of no less than 5 years.
- 9.4 **Protection Relays**
- 9.4.1 Unless otherwise specified, protection relays must be supplied by others. Relays will be in withdrawable flush-mounted cases.
- 9.4.2 Suitable cut outs and blanking plates must be provided on the switch panel LV control / relay compartment door for the later mounting and installation of the relays specified.
- 9.4.3 Relay wiring looms must be pre-wired, cut to length, ferruled and made off onto dummy backing boards configured identically to the specified relays. Such dummy mounting boards must be installed on stand-off supports in the LV control / relay compartment such that the relay wiring connections are positioned correctly for the actual relay terminal positions.
- 9.4.4 Provision must be made on each switch-panel for a Reyrolle type Solkor R/Rf feeder differential protection relay and / or a Schweitzer type SEL 751A protection relay, as specified for the particular switch-panel type in the Detailed Particulars of Items of Equipment (Section 44).
- 9.4.5 The relay auxiliary supply voltage must be 30 V dc or 110 V dc, as specified in the Schedules and the Detailed Particulars of Items of Equipment.
- 9.4.6 Circuit diagrams for approval must include full integration of the above relays into the switch panels, as specified.
- 9.5 **Arc Detection Protection**
- 9.5.1 Switch-panels must have arc detection protection as detailed below and in the Detailed Particulars. This must include the provision of the fibres and sensors to achieve the required arc detection.
- 9.5.2 Arc detection protection for main substation switch-panels will use a dedicated arc protection relay to detect arc flash in combination with an overcurrent detection. The arc detection scheme currently in use, and to be taken into consideration for the purpose of the protection design, is the ABB REA.
- 9.5.3 Arc detection protection for main substation switch-panels must include the design provisions for and pre-wiring for the specific REA arc detection relays as detailed in the Detailed Particulars. The REA arc detection relays will be provided by others.
- 9.5.4 Arc detection protection for distribution switch-panels will use the OCEF relay / IED fitted with four-channel arc-flash detection to detect arc flash in combination with an overcurrent detection. The relay currently in use, and to be taken into consideration for the purpose of the protection design, is the SEL 751A. (The SEL relay will be provided by others).
- 9.5.5 The protection zones for switch-panels must include the cable compartment, busbar compartment, circuit breaker compartment and current transformer compartment. A fault in any compartment must result in the isolation of the affected busbar and associated bus section (if applicable). Selective tripping Must be provided. The scheme and design must be to approval.
- 9.5.6 Arc detection protection for busbar compartments must be achieved through the use of looped clear-jacketed fibre arc flash detection (AFD) sensors.
- 9.5.7 The looped AFD sensors must be routed through the full length of the busbar chamber (or busbar section in the case of switchboards with Bus Sections) in a closed loop from a double input of the OCEF relay / IED (currently the SEL751A) on the switchboard incomer panel. A Busbar looped AFD sensor must be provided for each incomer panel on the switchboard, as identified for the particular Works Project by the Employer.

- 9.5.8 Tenderers must provide rates for the supply of clear jacketed fibre AFD sensors and for the installation, testing and commissioning per switchboard incomer panel, as provided for in the Schedule of Rates.
- 9.5.9 Tenderers must in addition provide rates for making-up, supply, installation, testing and commissioning of fibre point sensors and related fibres (Black jacketed arc detection fibres) for retrofit to existing switchboards, as provided for in the Schedule of Rates.
- 9.5.10 Fibres and sensors in the cable termination compartment must be installed and positioned in such a way that they are protected from damage during cable installation and termination.
- 9.5.11 The faulted chamber must be identified by an indication on the relay.
- 9.5.12 Arc detection protection for all switch-panels must include the provision and installation by the OEM of arc detection fibres, V-Pin connectors and sensors in the required compartments, and must be included within the tendered cost per switch-panel.

9.6 **Busbar Blocking**

- 9.6.1 The busbar blocking scheme (for Main Substation panels only) must be a simple overcurrent and earth fault scheme generally in accordance to the attached drawing SK 5010. The scheme must use the high set protection of the IDMTL relays for starting and blocking of the scheme.
- 9.6.2 The scheme must take into account that the bus sections may be closed.

10 **METERING AND INSTRUMENTS**

10.1 **Test Blocks**

- 10.1.1 For tariff metering the metering voltages, currents, and pulse circuits must be brought out to a 20-way SEL SecuControl ITS 4620BSB16H (or equivalent) test block without integral shorting facilities.
- 10.1.2 The test blocks must be vertically flush mounted and fitted with dust covers.
- 10.1.3 Each SecuControl (or equivalent) test block must be supplied with a test plug code A14-INT (or equivalent) and four test probes.
- 10.1.4 Protection and customer metering current transformer cores must be wired to PK-2 type (or equivalent) 4-way or 6-way test blocks with integral shorting facilities.

10.2 **Instruments**

- 10.2.1 All indicating instruments must be flush mounting and arranged for back connection. Instrument cases must be finished in an approved colour.
- 10.2.2 The indicating instrument scales and pointers must be in accordance with DIN 43802.
- 10.2.3 Ammeter dials must be clearly marked with the current transformer ratio in use and must have a 20 % overscale.
- 10.2.4 The ammeters for the feeder panels must be of the moving iron type with a separate resettable pointer. The ammeters for the local transformer must be of the thermal type fitted with a separate resettable pointer to indicate the maximum current reached.
- 10.2.5 The ammeters must have a 100 mm x 100 mm dial. Voltmeters must have a 150 mm x 150 mm dial. They must be sealed as detailed in the Schedules.

10.2.6 The voltmeters must have a suppressed zero point and be calibrated 7 to 13,5 kV with a red marker at 12 kV.

10.3 **Watt-hour Meters**

10.3.1 Where specified, provision must be made for mounting SEL-734 integrating polyphase watt-hour meters. The meters will be supplied by others.

10.3.2 The meters will be flush mounted and arranged for back connection.

10.3.3 Metering pulses, kWh and kVArh, must be routed via spare voltage test block terminals to terminals in the switchgear as part of this Contract.

10.3.4 Test terminals must be provided on panels equipped with watt-hour meters to permit calibration checks to be made when required.

10.3.5 Suitable cut outs and blanking plates must be provided on the switch panel LV control / relay compartment door for the later mounting and installation of the relays specified.

10.3.6 Relay wiring looms must be pre-wired, cut to length, ferruled and made off onto dummy backing boards configured identically to the specified relays. Such dummy mounting boards must be installed on stand-off supports in the LV control / relay compartment such that the relay wiring connections are positioned correctly for the actual relay terminal positions.

11 **SCADA / SUPERVISORY EQUIPMENT**

11.1 **General**

11.1.1 The SCADA / supervisory equipment will be required to give remote indication of circuit breaker service position, earth positions, open/close position, spring uncharged, Solkor protection trip, overcurrent trip, earth fault trip, circuit breaker fail, start-up signal, protection fail and current as well as supervisory open and close commands and must be suitably hard-wired accordingly.

11.2 **Telemetry Equipment**

11.2.1 Each switch panel must be provided with suitable transducers, relays and auxiliary contacts to provide information to the SCADA System. The equipment must be wired in accordance with Drawing Nos PRP 1 Sheets 1, 2 and 3, and will be needed to give remote indication of circuit breaker service position, earth positions, open/close position, spring uncharged, Solkor protection trip, overcurrent trip, earth fault trip, circuit breaker fail, start-up signal, protection fail and current as well as supervisory open and close commands.

11.2.2 Supervisory control relays for remote operation must be Omron (or equivalent to approval) 11 pin removable relays mounted on a fixed base, and must be rated at 24 V dc.

11.2.3 Latching relays for O/C Trip, E/F Trip and Solkor Trip supervisory indication must be provided with a single common push button reset and supervisory reset. Supervisory reset must be via an interposing supervisory reset relay.

11.2.4 Supervisory reset relay must be an Omron (or equivalent to approval) 11 pin removable relay mounted on a fixed base, and must be rated at 24 V dc.

11.2.5 Supervisory control and reset relay bases must be 11 pin bases suitably rated for use with either 12 V, 24 V dc or 48 V dc relays, as necessary to meet specific project requirements.

11.2.6 Supervisory control and reset relay bases must be provided with a steering (free-wheeling) diode across the operating coil contacts.

11.3 **Transducers**

- 11.3.1 Where specified, transducers must be installed and wired into the panels as shown on Drawing PRP 1 Sheet 1. Provision must be made to accommodate transducers of dimensions up to 70 mm wide by 115 mm deep by 125 mm high.
- 11.3.2 Transducer auxiliary supply must be derived from the substation DC supply.
- 11.3.3 The transducers must be surface mounted in the control / relay compartment in a socket base to allow easy removal. A test link block must be provided on the incoming side of each transducer.
- 11.3.4 The transducers must be capable of operating into a resistive burden of 2 k Ω and must comply with BS 5149, accuracy class 0,5, and must be to approval.
- 11.3.5 The transducers must be rated as specified in the Schedules.

11.4 **Supervisory Control and Indication Facilities**

- 11.4.1 The equipment and facilities must be provided to permit the following supervisory control and indication telemetry to and from the Supervisory Control Centre:
- 11.4.1.1 Circuit breaker open / close control
- 11.4.1.2 Circuit breaker status indication, including:
 CB closed indication
 CB open indication
 CB racked up indication
 CB spring charged indication
- 11.4.1.3 Circuit breaker service, circuit earth and busbar earth position indication.
- 11.4.1.4 Local / Supervisory selector status indication.
- 11.4.1.5 Switch panel MCB status indication.
- 11.4.2 A normal (healthy) condition must be represented by normally open contacts.
- 11.4.3 The equipment and facilities must be provided to permit the following load flow and system voltage telemetry to and from the Supervisory Control Centre:
- 11.4.3.1 Current on all switch panels.
- 11.4.3.2 Feeder voltage on panels equipped with voltage transformers.
- 11.5 **Alarms Facilities**
- 11.5.1 The equipment and facilities must be provided to permit the following Alarm telemetry to and from the Supervisory Control Centre:
- 11.5.1.1 Protection alarms, circuit breaker operation and equipment defects.
- 11.5.1.2 Switching device mechanism alarms.
- 11.5.1.3 Auxiliary supply alarms.
- 11.5.1.4 VT supply fail.
- 11.5.2 A normal (healthy) condition must be represented by normally open contacts.

- 11.5.3 The Contractor must submit recommendations regarding the alarms appropriate to his equipment that should be announced locally within the station and those that should be relayed to the Supervisory Control Centre.
- 11.5.4 Where specified, the switch panels must be provided with the necessary wiring and auxiliary contacts to provide a switchboard common alarm system which would enable a remote alarm indication to be given when any circuit breaker forming part of the switchboard has tripped. Auxiliary contacts fitted on circuit breakers for this purpose must maintain the alarm for at least 20 ms and must be open when the circuit breaker is closed or open in the normal service position.
- 11.5.5 Each switch panel must be provided with the necessary wiring and auxiliary contacts to enable a remote alarm indication to be given whenever the spring closing mechanism is not charged.
- 11.5.6 Each Main substation switch panel must be provided with a common alarm system, as shown on drawing DR 2732 Sheet 1, to enable a remote alarm indication to be given whenever “main” or “back up” protection devices have operated.
- 11.5.7 Each Main substation Bus-section panel must have “supply off” relays provided per busbar section as shown on drawing DR 2732 Sheet 2. The scheme must be adapted where two bus-section panels are supplied.

12 SPARES AND ADDITIONAL EQUIPMENT

12.1 Loose Parts Required for Routine Switchgear Operation and Maintenance

- 12.1.1 Equipment design must avoid the requirement for loose, non-integral parts or accessories for routine operation and maintenance of the equipment, with the exception of manual racking and spring charge handles.
- 12.1.2 Where other essential but non-integral accessories are required as a part of the equipment design for routine operation and maintenance the requirement must be clearly disclosed in the tender submission and its acceptance must be at the discretion of the Engineer. This must include, for example, requirements such as loose proprietary keys for VT primary fuse removal, and similar.

12.2 Handles and Operating Accessories and Wall Mounted Cubicle

- 12.2.1 Tenderers must include pricing where indicated in the Schedules of Rates for manual racking and spring charge handles and additional accessories required for switchgear operation, and for a wall mounted cubicle for housing of such loose accessories.
- 12.2.2 Tenderers must also include pricing where indicated in the Schedule of Rates for a 3CR12 corrosion resistant steel wall mounted cubicle suitable sized and fitted with the required clips and fasteners for the housing of one set of manual racking and spring charge handles and additional accessories required for switchgear operation.
- 12.2.3 The wall mounted cubicle must be provided with a secure door fitted with facilities for padlocking. The padlocks will be supplied by others.

12.3 Spares

- 12.3.1 Tenderers must list in the schedules the details of recommended spare parts together with the recommended quantities and their individual prices. The price quoted for spares must be at the same rate as quoted for Optional Work and must include the cost of packing, delivery and off-loading.

- 12.3.2 The spares must include consumable items sufficient for a plant operational period of 5 years after commissioning, as well as essential replacement parts to cover the event of a break-down which would affect the availability or safety of the Plant. Moreover the Tenderer must guarantee that spare components of all types must be available for at least a period of 10 years following Contract Award.
- 12.3.3 The Contractor will be required to give at least twelve months' notice of his or any subcontractor's intention to cease manufacture of any components in the Works.
- 12.3.4 Any spare apparatus, parts and tools must be subject to the same specification, tests and conditions as similar material supplied under the Definite Work section of the Contract. They must be strictly interchangeable and suitable for use in place of the corresponding parts supplied with the Plant and must be suitably marked and numbered for identification and must be prepared for storage by greasing or painting to prevent deterioration.
- 12.3.5 All spare equipment containing electrical insulation must be packed and delivered in cases suitable for storing such equipment over a period of years without deterioration. Such cases must have affixed to both the underside and topside of the lid a list detailing its contents, including the description, part number and quantity for each part and reference to the relevant drawing and installation instruction. The case will remain the property of the Council.
- 12.3.6 The insulating compound for completion of busbars must be provided on an "as required" basis directly from the supplier in order to eliminate the use of such material after the recommended shelf-life.

13 KEY PERSONNEL

- 13.1 An organogram indicating all key personnel (Project, installation, commissioning teams, etc.) and their relevant roles is to be provided. The organogram must highlight the individual(s) that are the certified Responsible Persons as per NRS 040. The organogram must be provided within 30 days after contract award
- 13.2 At tender closing, the tenderer must have the key personnel as specified in schedule F.13 C either in its permanent employment or contracted with a signed undertaking from a specialist company. The signed undertaking must clearly state that the specialist company will undertake the necessary work on behalf of the tenderer in terms of a sub-contractor agreement. Such undertaking must be attached to Schedule F.13 C Returnable Schedules. Within 30 days of contract commencement, all of the above contractor undertakings must be confirmed.
- 13.3 Specifics relating to key personnel skills, qualifications and experience and team numbers must be as laid out in Section 42 of this specification.
- 13.4 An NRS 040 Responsible Person is required for each Works Project site and must receive permits for site work and be responsible for the supervision and compliance of the Works Projects assigned to him. This individual must be a Competent Person in terms of the OHS Act.

14 NRS 040 CERTIFIED RESPONSIBLE PERSONS

- 14.1 It is a mandatory contract requirement that at least one NRS 040 certified Responsible Person with valid and current certification be present on site at all times during the execution of Works Projects in accordance with this tender specification.
- 14.2 Immediately after contract award the Contractor(s) must identify the NRS 040 certified Responsible Persons and provide copies of the valid and current certification identifying them as NRS 040 Responsible Persons.

- 14.3 In the event that the Contractor does not have any, or sufficient, NRS 040 certified Responsible Persons at contract commencement the Contractor must within 30 days arrange and ensure the completion of the required NRS 040 Responsible Person training for the necessary Key Personnel identified for this role, and provide the City with the relevant certification.
- 14.4 Should the Contractor fail to provide the details and current and valid certification for the required NRS 040 Responsible Persons within the 30 days mentioned above this must be a material breach of the contract and the City must be entitled to terminate the contract forthwith and without further notice to the supplier.
- 14.5 The NRS 040 Responsible Person(s) must in addition be certificated in the following skills / competencies, and tenderers must provide proof of compliance prior to commencement of contract:
- 14.5.1 First Aid Level 1
- 14.5.2 Safety, Health and Environmental Awareness.
- 14.5.3 Basic Firefighting
- 14.6 Provided that the Contractor has submitted an acceptable Responsible Person and an acceptable health and safety plan, the Works Project sites will be handed over to the Contractor. Thereafter, the Contractor will be entirely responsible for the safety of his staff and any other person on the site, and the public in the area in close proximity to the site.
- 14.7 Should the Responsible Person leave the Site, all work will cease and all Contractor's Staff will be removed from the Site unless a suitable replacement Responsible Person is provided by the Contractor.
- 15 LOCAL OFFICE, TECHNICAL SUPPORT AND REPAIR FACILITIES**
- 15.1 As detailed in section 43 of this specification, the Manufacturer or Tenderer must have established technical support and repair facilities situated within South Africa that are suitably equipped and resourced for contract and post-contract support, including major repair and / or modification of equipment delivered in accordance with this specification, where required. It is envisaged that these facilities will in most cases coincide with the manufacturing facilities required in terms of the DTI local content designation for AIS switchgear.
- 15.2 The Contractor's key personnel for the execution of the various Works Projects envisaged in accordance with this tender specification (including the repair and / or replacement, erection on site, site testing and commissioning of switchgear and circuit breakers as extensions, repairs, retrofits, modifications and / or upgrades to existing ABB / Reyrolle Type LMx switchgear) must operate out of a local office.
- 15.3 The local office must be situated within the boundaries of the City of Cape Town metropolitan area and must be fully established and operational within 30 days of the commencement of contract.
- 15.4 The local office must be suitable for use as the contract office for the Contractor's Key Personnel (other than the Contractor Representative, who need not be Cape Town based) and must also have workshop and storage facilities suitable for basic fitment, modification and repair tasks (on the equipment delivered in accordance with this specification) that do not necessitate transportation to the OEM or the Contractor's major manufacturing and repair facility elsewhere in South Africa.
- 15.5 The local office must also provide appropriate and secure storage for equipment delivered in accordance with this specification that is temporarily stored in preparation for transportation to Works Project sites or that is under modification or repair.

15.6 Should the Contractor fail to establish and commence operations from a local office which complies with the aforementioned requirements within the 30 days mentioned above this must be a material breach of the contract and the City must be entitled to terminate the contract forthwith and without further notice to the supplier.

16 WORKS PROJECTS SITE MEETING

16.1 The Contractor must attend a site meeting with the CCT District Staff and Project Manager for each Works Project during which the scope of work for the Works Project will be finalised.

16.2 The Contractor must familiarise himself fully with the layout, wiring and SCADA and Protection facilities present on the switch-panels at the Works Project Site at the time of the Works Project Site Inspection, and must not commence site work if he is not fully acquainted with the detailed requirements of the work.

16.3 To this end the Contractor must identify any outstanding requirements for schematic drawings and other information relating to the existing switchgear installation at the Site Meeting, and must request panel schematics, SCADA schematics and / or the presence of the Employer's appropriate SCADA and / or Protection specialists at the Site Inspection if necessary in order to prepare himself adequately for the Works Project.

16.4 The Works Project Document for the particular Works Project must be signed by the Contractor and returned to the CCT Project Manager concerned after completion of the Site Meeting. The Works Project Document must detail the full scope of the works and the required commencement and completion dates. The Contractor must detail in the signed Works Project Document any outstanding issues prerequisite for commencement of the works.

17 TRANSPORT TO THE WORKS PROJECTS SITES

17.1 The Works Projects will be at substation sites throughout the area of supply of the Employer, but specific Works Projects substation sites have not been determined at the time of going to tender.

17.2 The cost of collection of equipment at Ndabeni Stores and transport and delivery of the equipment to the Works Projects substation sites, and the cost of all other personnel and equipment transport to the Works Projects substation sites for the duration of the Works Project must be tendered separately as a single item per installation, as indicated in the schedules.

17.3 Tendered prices for switch board busbar extensions must be based upon a standard distance of 20 km from the Ndabeni Stores to the Works Projects substation site, and upon an extension of up to four switch panels per Works Project. Additional costs incurred due to specific project requirements that exceed these standard figures must be measured and claimed at Tendered Rates for Measured Quantities, and must be to the approval of the Engineer.

17.4 Tendered prices for circuit breaker retrofits and other equipment installation work must be based upon a standard distance of 20 km from the Ndabeni Stores to the Works Projects substation site, and upon a standard switch board of eight switch panels per Works Project. Additional costs incurred due to specific project requirements must be measured and claimed at Tendered Rates for Measured Quantities, and must be to the approval of the Engineer.

18 WORKS PROJECTS SITE WORKS

18.1 Substation building construction and / or floor modifications at the Works Project sites will be carried out by others.

18.2 The site layout and switch room for each installation will be detailed on specific drawings prepared at the time for each substation.

18.3 The Contractor must be responsible for site inspection and floor level measurements at the Works Project site prior to commencement of the installation work in order to confirm that the substation site and floor levels are suitable for the installation of the switchgear tendered, and must not commence site work if the site and floor levels are not suitable. The Contractor must provide reasonable notice of shortcomings in the site and / or floor so as to allow measures to be put in place by the Employer prior to the schedules commencement date.

18.4 In the event that floor frames are required for installation and levelling of the switchgear tendered the Contractor must be responsible for providing and installing these to the required standard, and the cost therefor must be included in the relevant rates for panel installation detailed in the Schedule of Rates

19 SWITCHGEAR CONDITION ASSESSMENT

19.1 Where specified in the Works Project Document, the existing Type LMx Indoor Switchgear at the Works Project Site must be subjected to a thorough preliminary condition assessment, at the tendered rate, prior to the commencement of any other work detailed in the Scope of Work.

19.2 Such preliminary condition assessment must include the following work per switch-board and per switch-panel, using appropriate hand-held test equipment:

19.2.1 Ultrasonic scanning of the CB compartments, CT compartments and cable termination compartments per switch-panel, and of the busbar compartment per switch-board, to detect any indication of surface discharge activity. Scanning must be conducted non-invasively using ventilation vents or panel joints in the relevant compartments, and through the open compartment door in the case of the CB compartment.

19.2.2 Transient Earth Voltage scanning of the switch-board for indication of internal partial discharge activity.

19.2.3 Switch-panel and switch-board external inspection and assessment of overall condition.

19.3 The tendered rate must be per switchboard and must cover all switch-panels installed at the relevant Works Project Site. An average for distribution substations of approximately 7 to 8 panels per switch-board can be assumed in assessing the approximate duration of such preliminary condition assessment work.

19.4 Personnel carrying out the preliminary condition assessment must be clothed in appropriate arc rated personal protective work-wear.

19.5 A formal and detailed report of the preliminary condition assessment at the Works Project Site must be submitted to the Employer prior to commencement of any other work specified in the Works Project Document. Such report must detail and tabulate all results of the above assessment and testing per switch panel, must include an assessment of the results in comparison with the expected norms for such testing, must highlight any abnormalities or exceptions, and must include the Contractor's recommendations for any remedial work required.

19.6 The Scope of Work of the Works Project will be re-assessed by the Engineer on receipt of the condition assessment report and will be confirmed prior to the commencement of further work.

19.7 Furthermore, the Contractor must carry out detailed inspection of the cast resin orifice bushings on the switchgear at the Works Project Site during the retrofit work, must photograph and record the condition of each bushing, must notify the Employer of any bushing damage or abnormalities prior to re-commissioning of the switch-panel, and must include the photographs and bushing condition report in the Works Project Handover documentation. Such orifice bushing inspection and reporting must form part of the circuit

breaker retrofit work and must be included in the tendered rate for that work.

- 19.8 Furthermore, where specified in the Scope of Work of the Works Project Document, the Contractor must carry out detailed condition assessment of existing LMx circuit breakers that are to be retained in service, at the tendered rates. Such circuit breaker condition assessment work must include external inspection of the overall circuit breaker condition, assessment of primary cluster contacts, condenser bushings and cast resin epoxy bushings, assessment and testing of the circuit breaker mechanism, main contact ductor testing and circuit breaker speed curve testing, and must include a formal report on the circuit breaker condition to be included in the Works Project Handover documentation

20 **INSTALLATION AND COMMISSIONING OF SWITCHGEAR AND EQUIPMENT**

- 20.1 The switchgear panels, circuit breakers, voltage transformers and / or current transformers are to be installed in existing live substations at the Works Projects sites, as extensions to the existing switch boards or as retrofits to the existing switch panels, as specified in the Scope of Work of the Works Project Document. The Contractor must implement and maintain adequate safety precautions to avoid damage to the existing switchgear and installation and nuisance tripping of circuits.
- 20.2 Switchgear panels supplied in accordance with this specification must be supplied complete with busbars, busbar shrouds and seals, bus-wiring bushes and cover plates, busbar compartment end covers (one side only), and the frameworks and fasteners necessary for installation of the switchgear panels.
- 20.3 Contractors tendering for the retrofits and extensions to existing Type LMx switchboards utilising existing ABB VD4-LMT circuit breakers and switchgear on stock in the Employer's Stores (Pricing Schedule Category A) must at the time of tendering and for the duration of the contract be officially accredited for such retrofit work by ABB South Africa (Pty) Ltd, and must include proof of such accreditation with their tender.
- 20.4 The switchgear panels, circuit breakers, voltage transformers and / or current transformers and other loose parts and / or accessories that were supplied and delivered to the Employer's Stores in accordance with this Contract, or that were previously on-hand as stock in the Employer's Stores, will be free-issued by the Employer for each Works Project, and must be collected by the Contractor at Ndabeni Stores at the commencement of the Works Project together with any other equipment that is to be free-issued to the project by the Employer for installation by the Contractor.
- 20.5 All other equipment, including but not limited to cables, busbar and current transformer joint compound, current transformer shrouds, earthing, fasteners, and loose parts and accessories, required by the Contractor to complete the Works Project as tendered must be supplied by the Contractor.
- 20.6 The Contractor must be responsible for the collection of equipment from Ndabeni Stores, the provision of other equipment, cable, busbars, earthing, compound, shrouds, fasteners, loose parts and accessories as required, and the delivery to site and the installation, testing and cold-commissioning of the switchgear, circuit breakers, current transformers, voltage transformers and ancillary equipment and other equipment covered by this contract as specified in the Scope of Work of the specific Works Project Document. This must include the collection and delivery, installation, cabling, secondary and primary injection testing and cold-commissioning of free-issued protection relays (including arc detection protection, where specified), battery charger equipment and supervisory marshalling kiosks (SMKs) where specified in the Works Project Document.
- 20.7 Primary injection testing of circuits to prove protection scheme functionality (ie. end to end tests) must be carried out by others.
- 20.8 The installation and cold-commissioning of the switchgear panels and equipment covered by the Works Project Document must include panel and equipment integrity inspections on

collection at Ndabeni and on delivery to site, equipment installation integrity and completion inspections, on-site mechanical operations checks and control wiring inspections, testing and proving of phasing out facilities per switch-panel, ductor testing of all busbar and other primary circuit connections made in accordance with the Scope of Works, and all further tests and inspections necessary to verify and certify the functionality and serviceability of the equipment installed.

- 20.9 Allowance must be made for interruptions in the Site work required during the changeovers.
- 20.10 All inspections and tests must be documented and certified in a Handover Document to be provided to the Employer by the Contractor and accepted by the Engineer at the time of handover of the completed installation. Performance Certificate will not be issued until the Contractor has as a minimum provided marked-up "Redline" as-built drawings and all required commissioning checklists and test certification.
- 20.11 The Contractor must be responsible for the provision of a detailed Works Project Manual complete with all as-built drawings, test and handover certification and other necessary documentation within two weeks of completion of the Site Work. Provision of such documentation must be a prerequisite for issuing of Performance Certificate and release of Retentions held at such time that these are due.
- 20.12 Where a suitable auxiliary supply as required by the Contractor to conduct the Works is not available at site the Contractor must be responsible for providing a suitable temporary supply.

21 REPAIR OF FAULTED OR VANDALISED SWITCHGEAR AND EQUIPMENT

- 21.1 Tenderers must also tender for the site repair and / or replacement of faulted or vandalised switchgear and equipment of the types tendered, to repair the switchgear and equipment to the standards specified in this Specification.
- 21.2 Tenderers must provide rates where indicated in the Schedules of Rates for Category A & B for the inspection, assessment and scoping of repair work to faulted or vandalised switchgear and equipment.
- 21.3 Contractors must have OEM accredited technical personnel available on a working hours call-out basis for the site inspection, damage assessment and finalisation of the scope of work, and must make teams available on short notice and as required for the cleaning, stripping, repair, replacement, testing and commissioning of repaired or replaced switchgear panels.
- 21.4 Initial site inspection and assessment of the nature and extent of the damage caused by equipment failure or vandalism must be carried out by the Contractor's technical personnel trained and formally accredited by the switchgear original equipment manufacturer, and identified as such in the schedules of key personnel detailed in the tender submission.
- 21.5 Following site inspection the Contractor must provide a detailed scope of work covering the repairs and replacements required to restore the faulted or vandalised switchgear and equipment to service condition, and detailing the estimated durations and quantities in accordance with the rates tendered in the Schedule of Rates and specific quotation, where applicable, for consideration and approval by the Employer.
- 21.6 Repair and / or replacement of faulted or vandalised switchgear must take priority and commence immediately after finalisation of the scope of work between the Contractor and the Employer and preparation, acceptance and signature of the related Works Project Document. Commencement on site must be subject to provision of the project specific health and safety file and to the relevant operational procedures having been completed and the equipment having been handed out for such repairs. The repair of faulted or vandalised switchgear takes priority and must be completed as per timelines agreed to between the contractor and Employer.

- 21.7 Repair and replacement of faulted or vandalised switchgear and equipment must be undertaken only by contractor's staff who are officially accredited for such installation and repair work by the Original Equipment Manufacturer.
- 21.8 Teams involved in the repair and replacement of faulted or vandalised switchgear panels must be available to continue work until completed, during and outside normal working hours, or must be replaced on site by equivalent, suitably accredited teams if necessitated by the duration of the repair work.
- 21.9 Switchgear panels and other equipment that are required to be replaced (rather than repaired in-situ) and that were purchased to stock in accordance with this specification will be free-issued from the Employer's Stores and must be collected and transported to the site by the Contractor.
- 21.10 Protective relays and other equipment purchased separately to stock by the Employer and required in order to effect the repairs of faulted or vandalised switchgear and equipment will be free-issued from the Employer's Stores and must be collected and transported to the site by the Contractor, together with any other equipment free-issued for the purpose of the repairs.
- 21.11 Installation of such replaced switchgear panels and other equipment must be priced at the rates detailed for panel installation in the tender submission for Installation, Testing and Commissioning of Equipment (which includes all related costs, including labour and commissioning engineer costs)
- 21.12 Where required, the Contractor must be responsible for dismantling the existing faulted or vandalised switchgear panels and other equipment at the rates for Labour Cost Basis detailed in the Schedule of Rates: Rates for Measured Quantities, based upon actual durations, and the returning of the dismantled and replaced equipment to the Employer's Stores or Depot.
- 21.13 Cleaning of the faulted switchgear and switchboard on site must be conducted by the Contractor at the rates for labour cost basis detailed in the Schedule of Rates: Rates for Measured Quantities, based upon actual durations.
- 21.14 Electrical cleaning fluids and solvents, and cleaning rags will be free-issued from the Employers Stores.
- 21.15 Replacement or repair of wiring and earthing must be conducted by the Contractor at the rates for Multicore and Auxiliary Cables, Earthing Bars and Earth Conductors and the Labour Cost Basis, as detailed in the Schedule of Rates: Rates for Measured Quantities, based upon actual quantities and durations.
- 21.16 Transport costs necessary to transport Contractor personnel to site, to collect free-issued switchgear and equipment at the Employer's Stores and to return removed equipment to the Employers Stores or Depots must be conducted by the Contractor at the rates for transport detailed in the Schedule of Rates: Rates for Measured Quantities, based on actual quantities.
- 21.17 Switchgear parts and components that are required to be replaced in order to repair faulted or vandalised switchgear but that are not available in the Employer's Stores and that are not covered by rates tendered elsewhere to this specification must be quoted for and provided by the Contractor.
- 21.18 Parts and components that are held in stock by the Contractor must be priced on a Contractor's cost price basis.
- 21.19 Parts and components that are to be outsourced by the Contractor must be priced on a Contractor's "Cost price plus Percentage Handling Charge" basis, as provided for in the Schedule of Rates.
- 21.20 Tenderers must detail the proposed Percentage Handling Charge where indicated in the

Schedule of Rates. An excessive Percentage Handling Charge that cannot be considered by the Bid Evaluation Committee to be fair and reasonable will be challenged through a Preferred Bidder process if the tender is in line for an award.

- 21.21 All such costs for parts and components are required to be demonstrably fair and market related. Contractors must provide detailed source quotations for all such parts and components, and approval of such pricing by the Employer must be subject to thorough assessment to verify fair and market related costing.
- 21.22 The Contractor must estimate and / or quote the above quantities during determination of the scope of the work required, which must form the basis of the Works Project Scope of Work. The Contractor must keep a detailed and precise inventory of all measured quantities during the execution of the work which must be signed off by the Employer's Representative on a daily basis and must form the basis for the final cost.
- 21.23 Tenderers must provide rates where indicated in the Schedule of Rates for the costs of testing and commissioning of the repaired switchgear panels to the specified standard. (Note that this excludes those switchgear panels free-issued from the Employer's Stores and installed complete, for which rates for testing and commissioning are included in the installation rates detailed elsewhere in the Schedule of Rates).
- 21.24 Installation, testing and commissioning of the replaced or repaired switchgear and equipment must be to the specified standards and in accordance with the requirements of this specification for installation, testing and commissioning of new equipment of the same type.
- 21.25 Tenderers must provide rates where indicated in the Schedule of Rates for the costs of pressure testing of the decarbonised and cleaned switchboard (busbar chamber and implicated switch panels) to the specified standard.
- 21.26 The site work in repair and / or replacement of the faulted or vandalised switchgear and equipment must include the required health and safety compliance and site specific risk assessments, and provision of project specific safety file.
- 21.27 Tenderers must provide rates where indicated in the Schedules of Rates for the administrative costs associated with the repair and / or replacement of the faulted or vandalised equipment, namely the health and safety compliance and as-built drawings.
- 21.28 The repairs and rewiring of the faulted or vandalised switchgear and equipment must be conducted to the standard and detail approved by the Employer in accordance with the specific approved drawings.
- 21.29 On completion and commissioning of the repairs the Contractor must provide as-built drawings detailing in full the work conducted as well as test and commissioning sheets confirming compliance to the specified standard. Updated final drawings must be provided as soon as possible after handover and commencement of the defects liability period.

22 CIRCUIT BREAKER RETROFITS

- 22.1 The circuit breakers for retrofits are to be installed in existing live substations at the Works Projects sites as retrofits to existing Type LMx Indoor Switchgear, as specified in the Works Project Document. The Contractor must implement and maintain adequate safety precautions to avoid damage to the existing switchgear and installation and nuisance tripping of circuits.
- 22.2 The Contractor must be responsible for the collection of equipment from Ndabeni Stores, the provision of other equipment, cable, busbars, earthing, loose parts and accessories as required, the delivery to site, the modification of the existing switch panel as required including modifications to the fixed secondary isolating contacts, housings and wiring and any other modifications required to fully integrate the retrofit circuit breaker into the existing switch panel, the installation and testing of the circuit breaker, and the testing and commissioning of the completed switch panel and retrofitted circuit breaker.

- 22.3 The existing Type LMx switchgear is in general fitted with side wipe secondary isolating contacts, and must be modified to the plug and socket secondary isolating contact type.
- 22.4 Circuit breaker retrofit work must include the wiring of all circuit breaker plug and socket connections and all retrofitted circuit breaker position micro-switches and other indication to a standard terminal strip in the LV control / relay compartment, from where the interface with existing panel wiring and equipment is to be connected by the Contractor. Such standard terminal strip, circuit breaker facilities, plug and socket facilities and wiring between the circuit breaker and terminal strip must make provision, and be wired from the circuit breaker, for all functionality envisaged by this specification for the relevant panel type, including SCADA facilities, irrespective of whether or not such facilities are provided on the switch-panel at the time of the retrofit work.
- 22.5 The circuit breaker retrofit work must include the detailed cast resin orifice bushing condition assessment as specified, and must also include maintenance and cleaning of the cast resin orifice bushings.
- 22.6 Tenderers must provide full particulars with their tender documentation of the modifications required to existing Reyrolle type LMT Mk1, LMT Mk2, LMS and LMR, and ABB type LMR and HD4-LMT switch panels in order to accommodate the circuit breakers tendered for retrofitting. Particulars of existing secondary wiring connections will be made available on request. Tenderers must detail the full costs of the necessary modifications, as specified.
- 22.7 Where existing switch panels detailed in the Works Project document for installation of retrofit circuit breakers are equipped to a standard less than that specified in this tender, namely, do not have integrated SCADA facilities, panel anti-condensation heaters, trip test facilities and / or remote Trip/Close (i.e. Canon Socket) facilities, enhancement of the switch panel to provide such facilities must be included in the work conducted for that Works Project only if specifically provided for in the Scope of Work detailed in the Works Project Document.

23 SWITCH PANEL INTERNAL ARC UPGRADES

- 23.1 The Contractor must carry out retrofits and modifications to the existing Type LMx Indoor Switchgear as and where specified in the Scope of Work of the Works Project in order to upgrade the existing switchgear at the Works Project Site to the specified Internal Arc Withstand standard.
- 23.2 Such upgrades of existing Type LMx switch-panels must include the following:
- 23.2.1 The supply, installation and testing at the tendered rates of internal arc rated circuit breaker compartment doors, frames and other accessories necessary for “racking-behind-closed-doors” operation of the circuit breaker. The internal arc rated circuit breaker compartment doors for “racking-behind-closed-doors” operation of the circuit breaker must be designed for switch panels equipped with existing Reyrolle LMS/LMR, RPS LMVP, ABB HD4-LMT, VD4-LMT or new retrofit circuit breakers, as provided for in the Schedules of Rates.
- 23.2.2 The supply and installation at the tendered rates of arc vented rear covers for the 630 A / 800 A / 1250 A and the 2000 A circuit breaker compartments.
- 23.2.3 The supply and installation at the tendered rates of arc vented top covers for the busbar compartment and current transformer compartment.
- 23.2.4 The supply and installation at the tendered rates of arc vented top covers for the busbar compartment and current transformer compartment for switch-panels fitted with circuit connected voltage transformers.
- 23.2.5 The installation or supply and installation at the tendered rates of end blast covers, frameworks and fittings at either end of the existing switch-board, as necessary to meet the specified Internal Arc Withstand standard.

- 23.3 The Contractor must be responsible for the collection of equipment from Ndabeni Stores (where applicable), the provision of internal arc retrofit equipment, kits and accessories as required, the delivery to site, the installation of the retrofit equipment and modification of the existing switch panel, and the inspection and verification of compliance of the modifications to the specified standard.
- 23.4 The Tenderer must provide full details and dimensioned drawings in the tender submission detailing the Internal Arc Withstand retrofit equipment and process, as well as copies of the type test certification of such retrofit.

24 OTHER EQUIPMENT INSTALLATION WORK

- 24.1 In addition to circuit breaker retrofits and internal arc upgrades, other equipment installation work on existing switch-panels may comprise one or more of the following requirements, and must be as detailed in the Scope of Work of the Works Project Document:
- 24.1.1 Supply, installation, testing and commissioning of Canon socket and remote trip/close facilities, as specified.
- 24.1.2 Supply, installation, testing and commissioning of anti-condensation heaters, as specified.
- 24.1.3 Supply, installation, testing and commissioning of electrical trip test buttons, as specified.
- 24.1.4 Supply, installation, testing and commissioning of integrated SCADA facilities, as specified.
- 24.1.5 Installation, testing and commissioning of retrofit current transformers into existing switch panel, as specified.
- 24.1.6 Installation, testing and commissioning of spring charge motor into circuit breaker, as specified.
- 24.1.7 Installation, testing and commissioning of closing coil into circuit breaker, as specified.
- 24.1.8 Installation, testing and commissioning of retrofit protective relays into existing switch-panel LV compartments, and door modifications where required, as specified.
- 24.1.9 Supply, installation, testing and commissioning of arc detection point sensor and loop sensor facilities where required, as specified.
- 24.1.10 Supply, installation, testing and commissioning of circuit connected voltage transformer housing.
- 24.1.11 Upgrade, testing and commissioning of existing Main substation Feeder, Bus-section or Incoming transformer panels from 30 Vdc to 110 Vdc auxiliary voltage, as specified.
- 24.2 The Contractor must be responsible for the collection of equipment from Ndabeni Stores, the provision of other equipment, cable, busbars, earthing, loose parts and accessories as required, the delivery to site, the modification of the existing switch panel as required, the installation and testing of any additional equipment, and the testing and commissioning of the completed switch panel as specified.

25 RETROFIT OF SCADA FACILITIES

- 25.1 Where the retrofit of SCADA facilities is specified in the Works Project Document, such retrofits must include the supply, installation, testing and commissioning, to the standard laid out in the relevant sections of Section 11 of this specification, of the following:
- 25.1.1 Local / Supervisory Selector, as specified.
- 25.1.2 Supervisory Control, Indication and Alarm facilities, as specified.
- 25.1.3 Telemetry Equipment, as specified.
- 25.1.4 Transducers, as specified.

- 25.2 Retrofits must include the internal wiring, circuit breakers, fuses and other hardware and accessories within the switch-panel as required for the SCADA facilities.
- 25.3 Where specified in the Scope of Work of the Works Project Document the Contractor must be responsible for the collection from Ndabeni Stores, delivery to Works Project site and the installation, connection, testing and cold-commissioning, at the tendered rates, of a free-issue Supervisory Marshalling Kiosk (SMK). SMKs must be 10-way, 14-way or 25-way, as specified in the Scope of Works of the particular Works Project Document.
- 25.4 SMKs must be floor mounted over the trench provided in the position indicated by the Engineer or detailed on the Employer's specific PRA drawing for the Works Project.
- 25.5 The Contractor must supply, install and terminate the 12 twisted-pair, Aluminium/Polyester tape screened, stranded 0,22 mm² data cable required between each switch-panel and the SMK at the approved Tendered Rates for Additional Measured Quantities. Termination of the data cable must utilise boot-lace ferrules to the Engineer's approval.
- 25.6 Data cable between the Switch-panels and the SMK must be installed on Cable Racks and Cable Ladder which, where specified in the Scope of Work of the Works Project Document, must be supplied and installed by the Contractor at the Tendered Rates for Additional Measured Quantities.
- 25.7 Retrofit of SCADA facilities must be applicable to Distribution Switch-panels only.
- 25.8 Rates for retrofit of SCADA facilities are applicable only to full SCADA installation in accordance with the specification, and are not applicable to switch-panels already having partial SCADA installation.
- 25.9 The Contractor must be responsible for providing redline drawings of the SCADA facilities as installed on handover, and detailed as-built drawings of the SCADA facilities as installed in the Works Project Manual within two weeks of the Handover of the Works Project.

26 CABLE WORK

- 26.1 All main power cables and pilot cables will be provided, laid, made off and terminated by others.
- 26.2 All multi-core and power cables for auxiliary power, control, tripping and alarm circuits, as detailed in the Schedules, must be provided, installed and terminated by the Contractor directly into the relay compartment or into a pilot cable terminating box, and must enter and be glanded at the top-front of the switch board.
- 26.3 The tendered installation price per switch panel must include all bus-wiring for auxiliary power, control, tripping, alarm and other circuits required for the installation of that switch panel.
- 26.4 Where the Works Project necessitates the Contractor supplying, installing and terminating additional multi-core and power cabling external to the extension panel and to the existing switch board, the additional costs incurred due to the specific project requirements must be measured and claimed at Tendered Rates for Additional Measured Quantities, and must be to the approval of the Engineer.
- 26.5 Terminating boxes must be provided with such terminal blocks, glands, labels and all associated fittings as are required.
- 26.6 Multi-core and power cables must be installed on 300 mm wide overhead cable trays and wall mounted cable ladders which must be installed by the Contractor at the Tendered Rates for Additional Measured Quantities where provided for in the Scope of Works of the specific Works Project Document.

26.7 Where required and instructed by the Engineer existing multicore cable must be cut away and recovered from the substation for scrapping. The scrap cable must be returned to the Employer's Stores by the Contractor.

27 **EARTHING**

27.1 **Substation Earth**

27.1.1 The station main earthing system will be installed by others and will be brought out from both ends of the switchboard to the substation main earth bar in the cable trench of the substation.

27.1.2 The Contractor must supply and install all earthing required to connect the extension switch panels and ancillary equipment to the earthing system of the existing switch board.

27.1.3 The tendered price per switch panel must include all internal earthing required for the installation of that switch panel.

27.1.4 Where the Works Project necessitates the Contractor supplying, installing and terminating additional earthing external to the extension panel and to the existing switch board, the additional costs incurred due to the specific project requirements must be measured and claimed at Tendered Rates for Additional Measured Quantities, and must be to the approval of the Engineer.

27.1.5 The earthing connections from the metalclad enclosures to the substation main earth must be arranged to obtain the minimum inductance and thereby restricting the magnitude of high frequency voltages coupled from the voltages generated by the interruption of capacitive current.

27.1.6 Drawings detailing the earthing system proposed for the standard installation to be provided under this Contract must be submitted for approval.

27.1.7 All main members of structural steelwork must be earthed by copper connections bonded to the steelwork. Structures must not be relied upon to form a continuous earth for electrical equipment.

27.1.8 Connections to apparatus and structures must be made clear of ground level, preferably to a vertical face and protected against electrolytic corrosion.

27.1.9 The earth bars and earth conductors must be of copper. Joints in earth bars must be brazed. Where bolted joints are used in copper connections they must have the joint faces tinned.

27.1.10 All external bare earthing copper must be painted green.

27.2 **Earthing of Ancillary Equipment**

27.2.1 All metal parts of ancillary equipment installed under this contract, other than those metal parts forming part of an electrical circuit, must be earthed by connection to the earth bar in an approved manner. All earthing terminals and connections must be of adequate dimensions.

27.2.2 All ancillary equipment panels installed under this contract must have a continuous earth bar of cross-sectional area not less than 95 mm² run along the bottom of the panels. One end of each panel earth bar must be connected to the station earth bar. Earth bars must be located internally where possible.

27.2.3 Metal cases of instruments and metal bases of relays on the panels must be connected directly to the panel earth bar by braided conductors having a cross-sectional area not less than 2,5 mm². The earthing may not comprise conductors looped from panel to panel or relay to relay with a common conductor to the station earth bar. Any such arrangement will be rejected.

- 27.2.4 When apparatus or instruments are accommodated on panel or cubicle doors or swinging frames, flexible cable or braid must be used for earthing items. The door hinges will not be accepted as a means of earthing this part of the equipment.
- 27.2.5 Except when otherwise approved a stud type terminal of diameter not less than 12 mm or a tapped boss of equivalent size must be provided on the outside of each cabinet or structure for the purpose of making the connection to the switching station main earth bar.
- 27.2.6 The maximum permissible current density must be 2,0 A/mm². All earthing must be located internally as far as possible and must be painted the same colour as that of the switch panels.
- 27.2.7 The Works must include the connection of all apparatus to the switching station main earth bar which will be installed as part of this Contract.
- 27.2.8 The Contractor must be responsible for providing, fixing and connecting all earth bars between all metal structures and the main earth bar.

28 INSTALLATION OF BATTERY TRIPPING UNITS AND POWER SUPPLY UNITS

- 28.1 Where specified in the Works Project Document the Contractor must be responsible for the collection from Ndabeni Stores, delivery to Works Project site and the installation, testing and commissioning of the battery tripping units and / or power supply units.
- 28.2 Battery tripping units and power supply units will be supplied by others.
- 28.3 Battery tripping units will be 30 V 10 A, 30 V 20 A or 110 V 10 A dc units fitted with 29 Ah or 39 Ah NiCd cells.
- 28.4 Battery tripping units and power supply units must be floor mounted over the trench provided on the interior side or front wall, as required for the specific project. Specific details must be provided on the Employer's PRA drawing for that project.
- 28.5 The existing auxiliary power multi-core cables must be used. Where replacement auxiliary power multi-core cables are required to supply an existing switch board and extension panel from a replacement battery tripping unit, such multi-core cables must be provided, installed and terminated by the Contractor. Additional costs incurred due to such specific project requirements must be measured and claimed at Tendered Rates for Additional Measured Quantities, and must be to the approval of the Engineer.

29 CIRCUIT BREAKER RECOVERY AND SCRAPPING

- 29.1 Where required in the Scope of Work of Works Projects that include circuit breaker retrofit the Contractor must be responsible for the removal of each replaced oil circuit breaker from site, the removal and safe disposal of the insulating oil, the thorough cleaning of the circuit breaker and tank to remove all oil residues, and the rendering of the circuit breaker environmentally suitable for scrapping. On completion the Contractor must return the circuit breaker to the Employer together with a formal certificate identifying and certifying the circuit breaker to be clear of oil and suitable for scrapping. The Tenderer must provide rates for this work where indicated in the Schedule of Prices.
- 29.2 Where required in the Scope of Work of Works Projects that include circuit breaker retrofit the Contractor must be responsible for the removal of each replaced SF₆ circuit breaker from site, the complete purging and the safe disposal and destruction of the SF₆ gas in accordance with established best practice, the thorough cleaning of the circuit breaker and tank to remove any other environmentally hazardous residues, and the rendering of the circuit breaker environmentally suitable for scrapping with respect to the SF₆ gas and any related byproducts or residues. On completion the Contractor must return the circuit breaker to the Employer together with a formal certificate identifying and certifying the circuit breaker to be clear of SF₆ gas and any related byproducts or residues and suitable for scrapping. The Contractor must in addition provide a certificate of disposal certifying that the volume of SF₆ gas recovered from the circuit breaker has been destroyed in accordance with

established best practice. Certificates of bulk SF6 gas disposal will be accepted provided that there is a clear inventory detailing the contribution of each circuit breaker and all other sources to the total volume destroyed, and that all sources are clearly identified by serial number or other unique identifier. The Tenderer must provide rates for this work where indicated in the Schedule of Prices.

29.3 Contractor facilities, staff and equipment for handling, recovery and disposal of SF6 gas must carry out and be certified for such work in accordance with the requirements laid out in NRS 087.

30 SF6 GAS REPLENISHMENT AND GAS LEAK REPAIR

30.1 It is a mandatory requirement of Category A of this specification and the resulting contract that the Contractor must provide the following service with respect to existing ABB / Reyrolle Type LMS or LMR SF6 circuit breakers in service on the Employer's electricity distribution network, utilising personnel fully trained and accredited for these duties:

30.1.1 The assessment of the cause of gas leaks on existing ABB / Reyrolle Type LMS or LMR SF6 circuit breakers in City stores or in service, using calibrated SF6 gas sniffing equipment or other appropriate test equipment in accordance with established best practice. Units in service will be located at substations within the City's municipal area;

30.1.2 The repair and topping up in stores, on site or at the Contractor's workshops of such leaks, at the rates detailed in the Schedule of Rates. Such rates should include for transport of Contractor's staff to the substation site, situated within the City's municipal area and in the overwhelming majority of cases within one hour's drive from the City's Ndabeni Stores Complex.

30.1.3 The safe recovery of the SF6 gas from the existing ABB / Reyrolle Type LMS or LMR SF6 circuit breakers located at the City's Ndabeni or Bloemhof Stores after recovery from service for scrapping, at the rates detailed in the Schedule of Rates: C.4.

30.2 Where existing ABB / Reyrolle Type LMS or LMR SF6 circuit breakers that have leaked are not repairable on site the equipment will be removed from service and transported to and from the Contractor's workshops by the City's staff. Repairs and gas replenishment and any parts required on such equipment will be subject to the provisions of Section 21 of this Specification with respect to any insourced and outsourced parts costs and Percentage Handling Charge related to the latter.

30.3 Contractor facilities, staff and equipment for handling, recovery and disposal of SF6 gas must carry out such work in accordance with the requirements laid out in NRS 087 and be certified accordingly.

30.4 The Tenderer must provide full details with their tender of the SF6 gas recovery programme and detailed quality processes for site repair and topping up and for gas purging, disposal and certification for scrapping.

31 AFTER-HOURS WORK

31.1 After-hours work necessary as a consequence of specific requirements of the particular Works Project must be identified and approved at the time of acceptance of the Work Project Document, and only the nett additional cost of the after-hours work over and above the rate for normal working hours must be covered, at the approved rates.

31.2 All labour costs for the installation work during normal working hours must be included in the tendered installation rates per equipment item.

31.3 In order to provide the basis for determination of the personnel costs for after-hours work the hourly labour rates for normal-time work must be detailed in the Pricing Schedule.

31.4 The additional costs for after-hours work (over and above the normal-hours rates already

included in the tendered installation rates per equipment item) must be calculated from these rates on the basis of the nature and expected duration of the actual after-hours work planned for the specific Works Project.

- 31.5 Overtime costs for Saturdays and after-hours work on Weekdays must be at 50% of the normal time rate and overtime costs for Sundays and Public Holidays must be at 100% of the normal time rate.

32 CONTRACTOR'S SUPERINTENDENCE

- 32.1 The Contractor must until the end of the defects notification period make such arrangements as to ensure the attendance on the Site within 24 h of being called upon by the Engineer of a competent Supervising Engineer for the purpose of carrying out any work of maintenance for which the Contractor must be liable and during such part or parts of the said period as the Engineer must deem it necessary the said representative must be continuously available on the Site.
- 32.2 Any work which may be necessary for the Contractor to carry out in pursuance of his obligations under the Conditions of Contract must be carried out with the minimum of interference to the normal operation of the switching station. Work on the Site must be carried out at such time and during such hours as the Engineer may require.
- 32.3 Other requirements regarding the availability of staff during the maintenance period of any portion of the plant are stated in the Conditions of Contract.

33 MAINTENANCE AND CLEARING OF SITE

- 33.1 The placing of materials and plant near the erection site prior to their being erected and installed must be done in a neat, tidy and safe manner. The Contractor must at his own expense keep the site area allocated to him and also the erection area of the Works reasonably clean and must remove all waste materials as it accumulates and as directed by the Engineer from time to time.
- 33.2 To ensure efficient cleaning of the substation works and any other areas where work may be carried out simultaneously under this and other contracts the Contractor must, if required by the Engineer, co-operate in the setting up and operation of a joint cleaning squad, the costs of which must be borne by each Contractor in proportion to the cleaning required under this Works as determined by the Engineer.
- 33.3 Other requirements in respect of the maintenance and clearance of the Site are stated in the Conditions of Contract.

34 GENERAL REQUIREMENTS

34.1 Multicore Cables and Conduit Wiring

- 34.1.1 Multicore cabling between switchgear marshalling kiosks and relay panels and the ancillary equipment must consist of 600/1 000 V Ethylene Vinyl Chloride (white stripe) "Zerotox" type insulated and sheathed steel wire armoured cable with an overall sheath to SANS 1507-3 strapped to cable trays.
- 34.1.2 All copper conductors must consist of multi-stranded annealed copper wires.
- 34.1.3 All cores must be numbered throughout their length in such a manner as to render them easily identifiable. The spare cores of all multicore cables must be numbered and terminated at a terminal block in the cubicle. All cores must be coloured grey.
- 34.1.4 All multicore cables must be terminated at a terminal block. Direct connection into auxiliary switches or relays must not be acceptable.

- 34.1.5 Multicore cable tails must be so bound that each wire may be traced to its cable without difficulty. Where cables are terminated in a junction box and the connections to a relay or control cubicle are continued in conduit, the spare cores must be taken through the conduit and terminated in a cubicle.
- 34.1.6 The screens of screened pairs of multicore cables must be earthed at one end of the cable only. The position of the earthing connections must be shown clearly on the diagram.
- 34.1.7 The Contractor must ensure that tails of sufficient length are left at each end of the multicore cables to connect up to the terminal boards. The Contractor must strip, insulate, ring through and tag the tails, and seal the cable boxes and must be responsible for rechecking the individual cores and for the final connecting up and fitting of ferrules.
- 34.1.8 PVC sheathed cables must be terminated by compression glands complying with BS 6121 (or equivalent).
- 34.1.9 The drilling of gland plates, supply and fitting of compression glands must be carried out under this contract.
- 34.1.10 All multicore cables must be identified at each end with identifying tags just below the cable glands and have the same tag applied every 3 m along its length.
- 34.1.11 The Contractor must provide, in accordance with an agreed programme, adequate information regarding external power and control cabling which is associated with the equipment included in the Contract.
- 34.1.12 The information must be shown on connection diagrams or in equivalent schedule form and must include the following information:
- 34.1.12.1 Terminating facilities for each item of equipment.
- 34.1.12.2 The function and destination of all external connections from the terminal block.
- 34.1.12.3 The function and destination of all internal wiring within the equipment.
- 34.1.12.4 The wire and terminal number for each destination.
- 34.1.12.5 The spare terminals in the equipment.
- 34.1.12.6 The voltage of each circuit and minimum wire size required.
- 34.1.12.7 Any special requirements for the external connections e.g. screened cores.
- 34.1.12.8 It should not be necessary for the Engineer to refer to the schematic diagram for the purpose of establishing external cabling requirements and the connection diagrams or equipment schedules must give the complete information
- 34.2 **Cubicle Wiring**
- 34.2.1 All wiring must be coloured according to phase colours [red, white, blue and black (star point)] for current transformer and voltage transformer circuits, green for earth and grey for all other circuits. Alternative, subject to approval by the Engineer, ferrules must be colour identified as above.
- 34.2.2 All cubicle internal wiring and small wiring must be of PVC insulated multi-strand flexible wire to SANS 1507-3. Control circuits must be wired using multi-strand 1,5 mm² wire, and current carrying circuits with 2,5 mm² wire. Crimping lugs of an approved type must be provided for all terminations. The insulation must have a glossy finish and must be incapable of supporting combustion.
- 34.2.3 All incoming and outgoing cubicle wiring connections must be terminated at a terminal block. Direct connections into auxiliary switches, relays or other equipment are not acceptable.

- 34.2.4 Wires must not be jointed or teed between terminal points. Bus wires must be fully insulated and run separately from one another along the top or bottom of the cubicle. Fuses and links must be provided to enable all circuits in a cubicle, except a lighting circuit, to be isolated from the bus wires.
- 34.2.5 The dc trip and ac voltage supplies and wiring to main protective gear must be segregated from those for back-up protection and also from protective apparatus for special purposes. Each such group must be fed through separate fuses from the bus wires. There must not be more than one set of supplies to the apparatus comprising each group.
- 34.2.6 All cubicle wiring must be brought to screw type spring loaded terminal blocks and must be neatly run and securely fixed in cleats or PVC trunking in such a manner that, wherever practicable, wiring can be checked without removing cleats.
- 34.2.7 Cleats must be of an approved moulded insulating material and preferably of the limited compression type. All wiring passing out of the fixed portion of the circuit breaker panels must be run in corrosion resistant flexible tubes or galvanised steel tubes. There must be no possibility of oil entering connection boxes used for cable or wiring.
- 34.2.8 Covers over individual sections of small wiring trunking must be readily removable. Pilot box covers must be removable with the circuit breaker in the normal service position.
- 34.2.9 All wiring diagrams for control panels must be drawn as if viewed from the back and must show the terminal boards arranged as in service.
- 34.2.10 When connections rated at 230 V and above are taken through LV compartments or junction boxes they must be adequately screened and "DANGER" notices must be affixed to the outsides of the compartment or junction boxes.
- 34.2.11 Where circuits working at different voltages are present in the same compartment, connections rated at 230 V and above must be adequately screened and "DANGER" notices must be affixed on the connection blocks.
- 34.2.12 Circuits working at different voltages must be adequately segregated and labelled.
- 34.2.13 All switch panels must be supplied with small wiring and dummy terminal board necessary to secure all wiring where relays are not required
- 34.3 **Ferrules**
- 34.3.1 All small wiring must have ferrules which bear the same number at both ends. At those points of interconnection between wiring where a change of number cannot be avoided double ferrules must be provided on each wire. The change of numbering must be shown on the appropriate diagram of the equipment. The same ferrule must not be used on wires in different circuits on the same panel. Numbering of ferrules must comply with SANS 1885 Annex D unless otherwise approved.
- 34.3.2 Ferrules must be of insulating material and must be provided with a glossy finish to prevent the adhesion of dirt. They must be clearly and durably marked and must not be affected by dampness or oil. In addition all wires associated with the tripping circuits must be provided with red ferrules marked "Trip" or "T" in white. For current transformer circuits the ferrules must be coloured red, white or blue according to the phase, or black for the star point.
- 34.3.3 The Contractor must submit for approval a list of the proposed ferrule numbers. The Employer will furnish the Contractor with a list of the ferrule numbers to be used in supervisory circuits.
- 34.3.4 Patch leads and pigtailed must be fitted with approved ferrule numbers.

34.4 **Terminal Boards and Terminal Blocks**

- 34.4.1 Terminal boards must be mounted vertically and set not less than 100 mm apart with a minimum distance of 200 mm between the top or bottom and the gland plate. For relay panels, they must be mounted at the sides of the cubicle.
- 34.4.2 Terminal boards must be of good quality non-flammable insulating material with a comparative tracking index (CTI) of not less than 500, to IEC 60112.
- 34.4.3 Studs of stud type terminal boards must be locked in the base to prevent turning and all connections must be made on the front of the terminal board using lock nuts or lock washers. Where crimped type terminations are provided at least two sets of crimping tools must be supplied for each installation. In control and measuring circuits brass terminal bolts or studs must be to approval.
- 34.4.4 Terminals must be of the spring loaded insertion clamp type incorporating captive pressure screws which do not bear directly on the wire but on a serrated clamping plate. The pressure screws must have an inherent locking feature.
- 34.4.5 Terminations must be grouped according to function and labels must be provided on the fixed portion of the terminal boards showing the function of the group.
- 34.4.6 The use of terminal boards as junction points for wires which are not required in the associated cubicle must be avoided wherever practicable.
- 34.4.7 Covers of transparent insulating materials must be provided on terminal boards on which connections for circuits at 125 V or higher are terminated.
- 34.4.8 All terminal boards must have a minimum of 20 % spare terminals.
- 34.4.9 Terminal boards and blocks must be positioned such that uninhibited access is provided to the pressure screws and terminals for the purpose of connecting or disconnecting wires.

34.5 **Fuses and Links**

- 34.5.1 Carriers and bases for fuses and links must be in accordance with SANS 60269 and colour coded with fuses black and links white.
- 34.5.2 The Genwest type PK-2 (or equivalent) test blocks on current transformer secondary circuits must be mounted on the front of the panel. Other links and fuses must be accommodated within the cubicle or above the cubicle doors. Fuses and links must be grouped and spaced according to their function in order to facilitate identification.
- 34.5.3 All incoming circuits in which the voltage exceeds 125 V must be fed through insulated fuses and/or links, the supplies being connected to the bottom terminal. The contacts on the fixed portion of the fuse or link must be shrouded so that accidental contact with live metal cannot be made when the moving portion is withdrawn.
- 34.5.4 Main supply fuse links must be of the high rupturing capacity cartridge type.
- 34.5.5 Where fuse carriers are mounted vertically the incoming (supply) side must be the bottom terminal.
- 34.5.6 Where either fuses or circuit breakers are used it should be ensured that they must be of suitable rating and that proper discrimination between main and sub-circuits is maintained.

34.6 **Moulded Case Circuit Breakers**

- 34.6.1 Moulded case circuit breakers must be designed and tested in accordance with SANS 60947-2. They must be suitable for use over the full range of expected voltage

variation as specified in the Schedules.

- 34.6.2 They must be suitably rated for both the continuous and short circuit loadings of the circuits they are protecting under all service and atmospheric conditions stated in the specification and ensure that correct discrimination is maintained between main and sub-circuits.
- 34.6.3 For three phase circuits, the miniature circuit breakers must be of the three pole type; for single phase circuits they Must be of the single pole type and for dc circuits they Must be of the double pole type.
- 34.6.4 Where miniature circuit breakers are used in circuits containing inductive loads e.g. operating coils, it is essential that they are suitable for satisfactory operation in the circuit in which they are used, i.e. take account at the circuit time constant.
- 34.6.5 All miniature circuit breakers must be provided with an auxiliary contact(s) for remote indication of circuit breaker operation.
- 34.6.6 Means must be provided to prevent the miniature circuit breakers being inadvertently switched to the 'OFF' position.
- 34.6.7 Miniature circuit breakers must be mounted in such a manner so as to give easily visible indication of breaker position and must be grouped and spaced according to their function in order to facilitate identification and easy replacement.
- 34.7 **Interchangeability**
- 34.7.1 Corresponding parts must be made to gauge and must be inter-changeable wherever possible throughout the Works. When required by the Engineer, the Contractor must prove this quality by actually interchanging the various parts.
- 34.7.2 All circuit breakers must be fully interchangeable with circuit breakers from the switch panels of similar type without realignment, modifications or operator safety risk.
- 34.8 **Stainless Steel**
- 34.8.1 Any stainless steel used in the Works must be of a type that is easily repaired by electric arc welding. Those stainless steels of which the composition or properties are adversely affected by welding or the associated heat treatment must not be used.
- 34.8.2 Where required by the Engineers, mechanisms must be constructed of stainless steel, brass or gunmetal to prevent sticking due to rust or corrosion.
- 34.9 **Galvanizing**
- 34.9.1 All galvanizing must be applied by the hot dip process and must comply with SANS 121, SANS 4998, SANS 935 or SANS 32 as applicable.
- 34.9.2 All welds must be de-scaled, all machining carried out and all parts must be adequately cleaned prior to galvanizing. The preparation for galvanizing and the galvanizing itself must not adversely affect the mechanical properties of the coated material.
- 34.9.3 The threads of all galvanized bolts and screwed rods must be cleared of spelter by spinning or brushing. A die must not be used for cleaning the threads unless specially approved by the Engineer. All nuts Must be galvanized with the exception of the threads which must be oiled.
- 34.9.4 Galvanizing of wires must be applied by the hot dip process and must meet the requirements of SANS 935 or SANS ISO 1461.
- 34.9.5 Surfaces which are in contact with oil must not be galvanized or cadmium plated.
- 34.9.6 Partial immersion of the work during the galvanizing process will not be permitted and the

galvanizing tank must therefore be sufficiently large to permit galvanizing to be carried out by one immersion.

34.10 **Welding**

34.10.1 The Contractor must submit to the Engineer full details of weld procedures, including preheat electrodes to be used, stress relief, method of temperature measurement and weld profiles.

34.10.2 The Contractor must submit for approval documentary evidence regarding the competence of all welders to be employed on the Works. Those welders failing to satisfy the foregoing conditions will be required to complete qualification tests, witnessed by the Engineer, in accordance with the requirements of the appropriate Code or to requirements specified by the Engineer.

34.10.3 The Contractor must submit for approval full details of any proposed repair by welding.

34.10.4 Preheat for welding may be required on all fabrications of alloy steel and also for mild steel where the thickness is 25 mm or more and stress relieving is to be carried out to the approval of the Engineer.

34.10.5 All strength welds are to be non-destructively tested by an approved method to the satisfaction of the Engineer.

34.10.6 Any welding at Site is to be carried out under the supervision of a competent welding engineer.

34.10.7 Castings requiring repair must be submitted to the Engineer's inspecting authority before commencement of rectification work. No repairs will be permitted until the proposed repair weld procedure has been submitted to and approved by the Engineer's inspecting authority. All areas in respect of which approval has been given for weld repair must be chipped or ground back to sound metal followed by crack detection or radiographic examination is to be carried out - all of the foregoing non-destructive testing in the presence of the Engineer's inspecting authority.

34.10.8 Weld repair of forgings is not permitted.

34.10.9 Weld repair of cast iron details is not permitted but alternative methods of repair may be submitted to the Engineer's inspecting authority for consideration.

34.11 **Rubber Seals**

Where rubber to metal water seals are employed the composition of the contacting surfaces must be such that sticking or seizure does not occur.

34.12 **Bolts and Nuts**

34.12.1 All bolts, studs, screw threads, pipe threads, bolt heads and nuts must comply with ISO standards for metric threads.

34.12.2 Except for small wiring, current carrying terminal bolt or studs, for mechanical reasons, must not be less than 16 mm in diameter.

34.12.3 All nuts and pins must be locked in position. All lock nuts or lock washers must be of approved type.

34.12.4 Wherever possible bolts must be fitted in such a manner that in the event of failure of locking resulting in the nuts working loose and falling off, the bolt will remain in position.

34.12.5 Each bolt or stud must project at least one thread but not more than three threads through its nut, except when otherwise approved for terminal board studs or relay stems. If bolts and nuts are placed so that they are inaccessible by means of ordinary spanners, special spanners must be provided.

- 34.12.6 The length of the screwed portion of the bolts must be such that no screw thread may form part of a shear plane between members.
- 34.12.7 Taper washers must be provided where necessary.
- 34.12.8 On exposed or outdoor equipment bolts, nuts and washers in contact with non-ferrous metallic parts must be of phosphor-bronze or cadmium plated unless otherwise approved.
- 34.13 **Oils and Greases**
- 34.13.1 The Contractor must provide the first filling of oil for all transformers, one complete change of oil for all auxiliary equipment and grease for all bearings etc.
- 34.13.2 The Employer will nominate the supplier of oil and grease whom it prefers, and the Contractor must, as far as possible, select types of oil and grease readily obtainable from this source. The Contractor must endeavour to keep the number of types to a minimum.
- 34.13.3 In the event of difficulty, the Contractor may use special oils and greases, subject to the approval of the Engineer, provided that he can properly justify their use.
- 34.14 **Cleaning and Painting**
- 34.14.1 All paints must be of a type and make to the approval of the Engineer and must be applied in strict accordance with the paint manufacturer's instructions.
- 34.14.2 All painting must be carried out on dry and clean surfaces and under suitable atmospheric and other conditions in accordance with the paint manufacturer's recommendations for coastal conditions.
- 34.14.3 Rust and millscale on plates and sections comprising the equipment must be removed prior to fabrication by means of shot-blasting, and tubular sections must be cleaned by acid pickling. All sharp edges must be rounded in the manufacturing process prior to coating.
- 34.14.4 Post fabrication treatment must embrace grinding, deburring and polishing, followed by a high pressure degreasing iron phosphate wash.
- 34.14.5 The complete equipment and all mechanical accessories must be given one primer coat of zinc chromate etch-primer followed by intermediate and finishing coats of polyurethane acrylic enamel applied in alternate coats of contrasting colours until a paint thickness of 125 μm is obtained.
- 34.14.6 If epoxy powder coating is used, the final thickness must not be less than 50 μm .
- 34.14.7 Unless otherwise approved the colour of the final coat of paint must be to SANS 1091, G29 Light Grey. The interior surfaces must be White.
- 34.14.8 All nuts, bolts, washers, etc which are fitted after fabrication or during erection must be painted as described above.
- 34.14.9 After erection on site the interior and exterior surfaces must be thoroughly examined and all damaged paintwork must be rubbed down and made good to the full original paint specification.
- 34.14.10 Any nuts, bolts, washers, etc, which have been removed during site erection, or which may be required to be removed for maintenance purposes must be restored to their original condition.
- 34.14.11 All paintwork must be left clean and perfect on completion of the works.
- 34.14.12 All external bare copper earth conductors must be finished with one coat of polyurethane

acrylic enamel. The colour must be D10 Brilliant Green to SANS 1091.

34.15 Labels and Marking

- 34.15.1 Before leaving the Manufacturer's Works all apparatus and fittings must be painted or stamped in two places with a distinguishing number and/or letter corresponding to the distinguishing number and/or letter on an approved drawing and material list.
- 34.15.2 The erection marks on galvanized material must be stamped before galvanising and must be clearly legible after galvanising
- 34.15.3 All markings must be legible.
- 34.15.4 Weatherproofed tags, where used, must be durable, securely attached and duplicated.
- 34.15.5 All apparatus must be clearly labelled indicating, where necessary, its purpose and service positions. Each phase of alternating current and each pole of direct current equipment and connections must be coloured in an approved manner to distinguish phase or polarity.
- 34.15.6 The material of all labels and the dimensions, legend, and method of printing must be to approval. Solvent or heat activated dry film adhesive labels may be used for certain functions subject to approval. The surface of indoor labels must have a matt or satin finish to avoid dazzle from reflected light.
- 34.15.7 Each switch panel must be provided with a blank circuit label on the front, on the rear and on the circuit breaker or circuit breaker truck. Unless otherwise approved, these labels must be of the sandwich-board type with black lettering on a white background. The method of fixing these labels must be to approval, but adhesive is not acceptable.
- 34.15.8 Labels to identify the equipment function must be provided on the front and rear doors of all cubicles. Labels must be provided inside cubicles for circuits and apparatus which otherwise could only be identified from the front of the cubicle.
- 34.15.9 External relay and components labels and internal labels for fuse holders, phasing sockets etc Must be trafolite (or equivalent) with black lettering on white background.
- 34.15.10 Colours must be permanent and free from fading. Labels mounted on black surfaces must have white lettering. 'Danger' plates must be in accordance with SANS 1186 type WW 7.

34.16 Fire Precautions

All apparatus, connections and cabling must be designed and arranged to minimise the risk of fire and any damage which might be caused in the event of fire. The Employer will be responsible for sealing all holes in floors, walls, roofs etc through which the cabling may pass.

35 PACKING, SHIPPING AND TRANSPORT

- 35.1 The Contractor must make his own arrangements for the delivery of the plant to the Employer's Electricity Stores or to site and must provide all labour, plant and material necessary for the unloading.
- 35.2 The Contractor must be responsible for the packing, loading, transport and off-loading of the plant from the place of manufacture, whether this is at his own works or those of any supplier, to the Employer's Electricity Stores or to site.
- 35.3 All apparatus must be carefully packed for transport by sea, rail and road as necessary and in such a manner that it is protected against climatic conditions.
- 35.4 The method of packing must provide adequate protection to the equipment contained within

and attached without, for transportation. The method of packing and precautions to be taken during transport must be clearly marked on the appropriate drawings.

- 35.5 Precautions must be taken to protect the equipment insulation against the ingress of moisture.
- 35.6 All bright parts liable to rust must receive a coat of anti-rusting composition and must be suitably protected. The machined face of all flanges must be protected by means of a blank disc bolted to each face.
- 35.7 Where appropriate all parts must be boxed in substantial crates or containers to facilitate handling in a safe and secure manner. Each crate or container must be marked clearly on the outside of the case to show where the mass is bearing and the correct position for the slings. Each crate or container must also be marked with the notation of the part or parts contained therein, contract number and port of destination, and must become the property of the Employer after delivery.
- 35.8 Loose parts and accessories forming part of each switch panel or necessary for the assembly of each switchboard must be dispatched and delivered with such switch panels. Payment will not be authorised per switch panel until all relevant loose parts and accessories have been delivered. Such loose parts must be crated or packaged such that all parts and fasteners necessary for each assembly are contained in a single container. The container must be marked with a complete bill of materials and components contained there-in, together with the relevant part numbers and reference to the drawing number detailing assembly of such parts.
- 35.9 Any damage due to defective or insufficient packing must be made good by the Contractor at his own expense and within reasonable time when called upon by the Employer to do so. Two copies of complete packing lists showing the number, size, marks, mass and contents of each package must be posted to the Council and four copies to the Engineer immediately after the material is despatched.
- 35.10 The Contractor must inform himself fully as to all relevant transport facilities and requirements and loading gauges and ensure that the equipment as packed for transport complies with the South African highway regulations and/or conforms to the limitations of the transport facilities of Transnet Ltd. The Contractor must also be responsible for verifying the adequacy of any cranes required for off-loading at the port of entry, at the Council's Stores and Site.
- 35.11 The Contractor must take reasonable steps to prevent damage to any highways or bridges by his traffic and must select routes, choose and use vehicles and restrict and distribute loads so that the risk of damage must be limited as far as is reasonably possible. The Contractor must immediately report to the Engineer any claims made against him arising out of alleged damage to a highway or bridge.
- 35.12 Access to the Stores is by road only.

36 DELIVERY PERIOD

- 36.1 The specified delivery period per item is detailed in Schedule F.13.
- 36.2 Tenderers must detail in the space provided in Schedule F.13 the tendered delivery period per item. Tendered delivery periods that exceed the specified delivery period will be to the approval of the Engineer.
- 36.3 Tendered delivery periods that are considered by the Engineer to be excessive and that would have an adverse effect on the Employer's material stock planning and project execution may result in the Tender being deemed non-responsive.
- 36.4 The contracted delivery period must be the specified delivery period or an alternative tendered delivery period that has been considered and formally approved by the Engineer

at the time of tender award.

- 36.5 The Contractor must deliver Goods ordered from time to time in accordance with this tender within the contracted delivery period unless specifically approved to the contrary by the Engineer.
- 36.6 The Contractor must on placement of new purchase orders by the Employer prepare a detailed delivery schedule that accords with the contracted delivery period and submit this to the Engineer within 5 working days of the placement of the orders.
- 36.7 In cases where large quantities of Goods are ordered simultaneously staggered deliveries that extend beyond the contracted delivery period will be considered provided that the delivery schedule has been formally approved by the Engineer.
- 36.8 Contract deliveries that exceed the contracted delivery period and for which the extended delivery period has not been formally approved by the Engineer will be subject to penalties in accordance with Contract Data.

37 TECHNICAL DOCUMENTATION, DRAWINGS, OPERATING AND MAINTENANCE INSTRUCTIONS

- 37.1 Tenderers must submit with their tenders, full particulars of the equipment offered and must complete Schedules attached hereto.
- 37.2 No tender will be considered unless sufficient technical data, diagrams, drawings and relevant information are submitted to enable the characteristics and merits of the equipment offered to be ascertained.
- 37.3 Tenderers must also submit information regarding the manufacturing facilities that will be utilized for the construction of the tendered items and the location thereof, as well as full details of the location and capabilities of their service / repair facility situated closest to the City of Cape Town.
- 37.4 The Tenderers must submit the drawings detailed in Clause 46.2 of Section 46 of this specification with the Tender.
- 37.5 The Contractor must submit the drawings detailed in Clause 46.3 of Section 46 of this specification for approval prior to commencement of Works.
- 37.6 Details of the drawings forming part of this specification are included in Section 46 of this specification.

38 GENERAL PARTICULARS AND GUARANTEES

- 38.1 The equipment must comply with the particulars and guarantees stated in the Schedules.

38.2 Places of Manufacture

The manufacturers and places of manufacture, testing and inspection of the various portions of the Works must be stated in the Schedules. Any changes must be made with the written agreement of the Engineer and the Contractor must ensure that the manufacturers and places of manufacture are acceptable to the Engineer.

38.3 Variance with Conditions of Contract

- 38.3.1 In the event of there being any inconsistency between the technical provisions of this Specification and the Conditions of Contract, the technical provisions of the Specification must prevail and must be considered as incorporated in the Contract.
- 38.3.2 Neither the items nor the clauses nor the detailed description therein nor anything contained

in this Specification or the schedules must limit the obligations and liabilities of the Contractor under the Conditions of Contract.

38.4 Compliance with Specification

38.4.1 All apparatus should comply with this Specification. Any departures from the requirements of this Specification must be stated in the schedules and may be accepted at the Engineer's discretion.

38.4.2 No departure must be implemented without the prior approval of the Engineer.

38.4.3 The Contractor must be responsible for any discrepancies, errors or omissions in the particulars and guarantees, whether or not such particulars and guarantees have been approved by the Engineer.

38.4.4 All details given in this Specification and the drawings forming part of it have been carefully compiled but the onus is on the Tenderer to satisfy himself truly as to the accuracy thereof.

38.4.5 Tenderers must submit with their tenders a completed copy of the relevant schedule listing clause by clause the specific technical details indicating compliance or non-compliance with the requirements of the specification.

38.5 Original Equipment Manufacturers (OEM) and Their Authorised Reseller/Distributor

38.5.1 Tenderers who are not the OEMs of the equipment offered (Category B), ie. the tenderer receives a quotation from an OEM or a supplier/distributor, must provide a Letter of Authorisation from the OEM verifying that they are an authorised reseller or distributor of the equipment.

38.5.2 The letter from the OEM must state that the tenderer is an authorized reseller or distributor for the duration of the contract and confirming the extension of the guarantees and warranties to the City of Cape Town.

38.5.3 Tenderers who received a quotation from a supplier/distributor who is not the manufacturer of the equipment offered, must also provide the required Letter of Authorisation from the relevant manufacturer to that supplier/distributor to the tenderer, demonstrating the full supply chain of the equipment offered. This is a contract condition and may be requested at any time before contract start, to confirm the supply chain.

38.5.4 The letter(s) is to be provided within 7 days from the date of contract or request. Failure to provide the letter(s), the City of Cape Town will have the right to use the alternative contractor until that letter(s) is provided. Failure to provide by the set date the City of Cape Town will proceed with breach of contract and termination

39 STAFF TRAINING

39.1 Training must be provided in Cape Town to enable the Employer's staff to install and maintain the equipment offered.

39.2 The Hardware, Operator and Maintenance Training course for the switchgear must include, but not be limited to, the following:

- 39.2.1 Detailed overview of equipment
- 39.2.2 Theory of operation
- 39.2.3 Interlocks and Safety Features
- 39.2.4 Installation and commissioning
- 39.2.5 Preventative maintenance
- 39.2.6 Maintenance manual review

- 39.2.7 Testing, troubleshooting and configuration
- 39.2.8 Repairs
- 39.2.9 Practical Demonstration

- 39.3 The training proposal must include a description of the contents and duration of each course and prerequisites, if any, required of course participants. The outlines must be in sufficient detail to evaluate the course material. The proposal must be submitted with the tender.

- 39.4 The training instructors must be South African based staff members of the OEM or their Agent and must have been certified by the OEM as training instructors in the particular equipment offered.

- 39.5 The instructors must have a complete and thorough knowledge of the equipment and course materials and must have prior experience in conducting the specified training.

- 39.6 As the training may need to be conducted on more than one occasion during the contract period the training interventions must neither require nor be priced to be conducted by overseas equipment specialists. Training interventions that are excessively priced will not be awarded without full justification and detailed breakdown of costing by the Tenderer.

- 39.7 Each course participant must receive a copy of the training manuals and other pertinent materials with all changes and revisions to manuals and other documentation used during the training courses.

- 39.8 All training will be undertaken at Employer's premises.

- 39.9 The courses must be given to classes of maximum size of 20 individuals and the training course per class must be conducted and completed over a single, full day.

- 39.10 Full training interventions must cover five separate classes and be completed in a single week of five working days (Monday to Friday), with a maximum expected attendance of 100 individuals.

- 39.11 On completion of the training each candidate must be provided with certification of attendance of the course, with copies of the certification being provided to the Employer.

- 39.12 The price for each training intervention must cover the complete training and include all preparation, travelling, accommodations and incidental costs including all course materials. The price tendered in the Schedule of Rates must be for the full training intervention (ie. One week (five working days) encompassing five repeats in succession of the single day course). The training price is not a price per person nor a price per day.

- 40 INSPECTION AND TESTS**

- 40.1 The switchgear must be subject to type tests, routine tests, sample tests and inspections in accordance with SANS 60298, 62271-100, 62271-200, 61869-1, 61869-2, 61869-3, as applicable, and other applicable specifications.

- 40.2 During manufacture and prior to despatch the equipment will be inspected by the Engineer who will call for such tests as he may consider necessary to prove compliance with this specification and to ensure safe and reliable operation in service. Before the despatch of any equipment, an acceptance certificate will be issued by the Engineer.

- 40.3 Detailed requirements for testing and inspections are included in Section 47: Quality Control, Inspection and Testing.

- 41 HEALTH, SAFETY & ENVIRONMENTAL COMPLIANCE**

- 41.1 The contractor will comply with the Occupational Health and Safety Act, 85 of 1993 and

ensure that all work is executed while being compliant with Environmental Management Systems Standard ISO 14001 and Occupational Health and Safety Management System ISO 45001. A project specific SHE file will be required for work being executed on site, which should be kept on site for the duration of the project. The file is not limited minimum requirements listed below:

- 41.1.1 Site-Specific Risk Assessment:
A detailed assessment of potential hazards and risks associated with the specific project and its activities.
- 41.1.2 Health and Safety Plan:
A plan outlining the company's approach to managing and mitigating health and safety risks, including incident management and emergency procedures.
- 41.1.3 Site Specific Emergency Telephone Numbers:
A list of contact numbers for relevant emergency services.
- 41.1.4 Site HSE Organogram:
A diagram outlining the responsibilities of individuals involved in health and safety on the site. (Clearly Indicating Responsible Person and First Aider etc)
- 41.1.5 Site Scope of Work:
A clear definition of the project's scope, including the tasks that will be undertaken.
- 41.1.6 Letter of Good Standing:
Proof of compliance with the Workmen's Compensation Commission or other relevant bodies.
- 41.1.7 Proof of Competency:
Evidence that staff involved have the necessary training and experience. (ORHVS)
- 41.1.8 Mandatory Agreements:
Agreements between the client and contractor, as required by the Occupational Health and Safety Act.
- 41.1.9 Risk Assessments and Safe Work Procedures:
Detailed risk assessments and safe work method statements (SWMS) for specific tasks.
- 41.1.10 Inspection Reports:
Records of regular inspections to identify and address safety hazards.
- 41.1.11 Material Safety Data Sheets (MSDS):
Information about hazardous materials used on the site.
- 41.1.12 Training Records:
Documentation of health and safety training provided to employees.
- 41.1.13 Toolbox Talks:
Records of safety discussions held with employees.
- 41.1.14 Incident and Accident Reports:
Detailed reports of any incidents or accidents that occur.
- 41.1.15 Personal Protective Equipment (PPE) Records:
Documentation of the use and maintenance of PPE.
- 41.1.16 General Information:
Company Supporting Documentation: Information about the company's structure, policies, and organizational chart.

- 41.1.17 Insurance Documents:
Proof of insurance coverage.
- 41.1.18 Emergency Contact Details:
A list of emergency contacts for various situations.
- 41.1.19 Fall Protection Plan:
A plan outlining measures to prevent falls, especially for work at heights. (If Applicable)

42 KEY PERSONNEL & COMPETENCY

- 42.1 The tenderer must provide all necessary details of all key personnel in Schedule F.13 C.
- 42.2 An organogram indicating all key personnel (Project, installation, commissioning teams, etc.) and their relevant roles is to be provided. The organogram must highlight the individual(s) that are the certified Responsible Persons as per NRS 040. The organogram must be provided within 30 days after contract award
- 42.3 All key personnel must be OEM certified, accredited and trained for the installation, commissioning and testing of switchgear, protection, SCADA and ancillary equipment as required to complete projects:
 - 42.3.1 Key personnel for Category A must be certified, accredited and trained by ABB, the Original Manufacturer of the ABB type VD4-LMT circuit breakers (currently in CCT stores) to carry out the installation work specified for Category A.
 - 42.3.2 Key personnel for Category B must be certified, accredited and trained by the Original Manufacturer of the equipment offered for Category B to carry out the installation work specified for Category B.
- 42.4 Key Personnel must be certified, accredited and trained to carry out the work as per the method statements provided.
- 42.5 Tenderers must provide proof of valid (not older than 5 years) training, OEM accreditation and certification for key personnel. Proof must be attached to Schedule F.13 C Returnable Schedules.
- 42.6 At tender closing, the tenderer must have the key personnel as specified in schedule F.13 C either in its permanent employment or contracted with a signed undertaking from a specialist company. The signed undertaking must clearly state that the specialist company will undertake the necessary work on behalf of the tenderer in terms of a sub-contractor agreement. Such undertaking must be attached to Schedule F.13 C Returnable Schedules. Within 30 days of contract commencement, all of the above contractor undertakings must be confirmed.
- 42.7 Key personnel must comprise of sufficient staff to carry out four simultaneous circuit breaker retrofits at a substation. Furthermore, number of teams (per Category) comprising of the key personal must be sufficient given the approximate per annum, circuit breaker/panel retrofits, panel extensions/installations quantities outlined below:

	Category A	Category B
CB/Panel Retrofits	28	250
Panel Extensions/Installations	8	25

- 42.8 Any changes to Key Personnel must be communicated immediately to the employer and must be to the approval of the employer. All supporting documentation outlined in this section must be sent to the employer for approval.

- 42.9 Tenderers tendering for both Category A & B may identify key personnel for Category A who are also included in the equivalent categories for Category B. Key Personnel detailed for each of the identified roles must be separate individuals (ie. one person may not fulfil multiple defined Key Personnel roles within a Category).
- 42.10 On request the Tenderer must submit a general CV for each of the key personnel and a statement highlighting any particular fields of specialisation and experience that is relevant to this particular tender.
- 42.11 Key personnel will be expected to operate out of a local office (which must be established within 30 days of contract commencement and operate for the full duration of the contract), as the exigencies of this project require. The experience required must be in the field of expertise required for the scope of the work of this tender.

43 EQUIPMENT TRACK RECORD, TENDERER EXPERIENCE AND TENDERER TRACK RECORD

43.1 The tenderer must meet the following criteria at the close of tender.

1. Track Record of OEM Equipment offered (manufactured, installed and commissioned) (Category B)		
Description	Minimum Requirement	Evidence submitted in
Total quantity manufactured, installed and commissioned to date (worldwide) of the MV AIS switch-panels offered with this tender.	1000 switch-panels	Schedule F.13 C
Total quantity manufactured, installed and commissioned to date (worldwide) of the MV vacuum circuit breakers offered with this tender (including those included in above)	1000 circuit breakers	
Total number of completed retrofit installations (substations & circuit breakers) of the MV circuit breakers offered with this tender into Reyrolle Type LMx switchgear, of equivalent scope / complexity to this contract	50 substation retrofit projects 500 circuit breakers retrofitted	
2. Demonstrated Experience of Tenderer in past ten years		
Description	Minimum Requirement	Evidence submitted in
Number of substation installations of equivalent scope / complexity and of the MV AIS switchgear offered in this tender or of equivalent MV AIS switchgear to that offered in this tender completed by Tenderer or their sub-contractor during the past ten years	25 substations	Schedule F.13 C
Number of circuit breaker retrofit installations of equivalent scope / complexity and of the MV retrofit circuit breaker detailed in this tender completed by Tenderer or their sub-contractor during the past ten years	125 Circuit Breaker	
3. Demonstrated Service Facility		

Description	Minimum Requirement	Evidence submitted in
<p><u>MANUFACTURER / TENDERER MUST HAVE :</u></p> <p>For Contract and Post-Contract Support Technical support in South Africa</p> <p>For Contract and Post-Contract Repairs Repair facilities in South Africa</p>	<p>In South Africa</p> <p>In South Africa</p>	<p>Schedule F.13 D</p>

A more detailed explanation of the criteria is given below:

1. Track record of equipment

The Tenderer must certify the track record of the equipment offered by submitting evidence in the form of details of the total quantities manufactured and delivered worldwide and a reference list of clients as well as details of projects, project location and project value where this equipment has been supplied and commissioned in South Africa by the OEM or their South African agent or representative.

The information Must be appended to **Schedule F.13 C**.

2. Demonstrated Experience of Tenderer

Tenderers must be suitably qualified, trained and experienced to carry out the specified work.

Tenderers must complete Schedule F.13 C, Returnable Schedules, which is a list all projects of equivalent scope / complexity that have been successfully completed in their local South African office in the past ten years or that are underway at present, by the Tenderer or their tendered sub-contractor(s).

Note: Where the entity tendering is a joint venture the responsiveness for track record will be assessed for each party to the joint venture.

A proposed work plan must be provided with the tender submission, attached to **Schedule F.13 J**: Returnable Schedules, which must be of sufficient detail (but preferably not more than 5 pages in length) to indicate that the project brief has been understood. That is, Tenderers must show that they have appreciated the nature of the problem, and indicate the approach and methodology that they intend following in order to reach the required outcome.

Tenderers must submit written evidence with his tender of his qualifications to perform the specified work satisfactorily.

The Tenderer must certify his qualifications by submitting evidence that it:

- is a qualified and well established manufacturer, or the authorised representative of a qualified and well established manufacturer, who regularly manufactures equipment and materials of the type specified and has adequate technical knowledge and practical experience. Where applicable, technical and manufacturing licensing agreements must be identified and described. If the Tenderer is an authorised representative, he must show evidence that he is authorised to represent the qualified manufacturer.
- has undertaken the design, manufacture, delivery, installation and commissioning of projects in the past ten years in compliance with above tables, each of which are of similar magnitude and complexity to the scheme covered by this Specification. Additional evidence must be given in the form of a detailed reference list which should also clearly indicate the extent of responsibility of the Tenderer for each project and indicate achievement of guarantees and delivery dates where appropriate.
- has adequate plant and manufacturing capacity available to do the work properly and

expeditiously within the time period specified. (Details to be completed in Schedules F.13 C & D and thorough supporting evidence appended).

The Employer's Agent must be allowed access, at all reasonable times during the period in which tenders remain open for acceptance, to the works of the Tenderer or the manufacturer represented by the Tenderer, as the case may be, for the purpose of ascertaining his ability to perform satisfactorily the specified work. Refusal of such access must render the tender non-responsive.

3. Service Facilities

The Tenderer must give details with his tender of the service facilities which he or his representatives have available in South Africa in support of the equipment offered with this tender, including:

- the nature of the resident permanent engineering staff,
- the extent of the service facilities available including the number of resident permanent technicians, and
- the extent of spares normally carried in stock which would be suitable for use in connection with the plant included in the tender.

The tenderer must provide details of his service facilities in Schedule F.13 D.

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DETAILED PARTICULARS OF ITEMS OF EQUIPMENT – DEFINITE WORK

Item No	Description	Number required per bay
1.	DISTRIBUTION FEEDER PANEL (B1.1; SAP Material 200001712)	
1.1	The fixed portion of each Feeder Panel must include:	
1.1.1	Sheet metal circuit breaker chamber with positively driven safety shutter devices.	1
1.1.2	Sheet metal busbar chamber containing three 1 250 A busbars with approved insulation supported in air by means of approved insulators, with three 630 A isolating contacts and associated bushings, complete with busbars, cover plate, shrouds and seals and other specified accessories.	1
1.1.3	Sheet metal current transformer chamber with three 630 A isolating contacts and associated bushings, three cable-side bushings fitted with electrostatic bands for phasing out purposes, and containing current transformers as follows:	1
1.1.3.1	Current transformers, ratio 400/300/5 Class X for Solkor Rf feeder protection as specified and with the secondary windings brought out to Genwest type PK-2 4way test blocks (or equivalent to approval).	3; R, W & B ø
1.1.3.2	Current transformers, ratio 400/5, 10 VA output per phase, Class 5P10 for overcurrent and earth fault protection and operation of the ammeter as specified and with the secondary windings brought out to Genwest type PK-2 4way test blocks (or equivalent to approval).	3; R, W & B ø
1.1.4	Cable termination compartment fitted with tapered brass gland and clamp suitable for making off a 3-core PILC cable of cross-section up to 300 mm ² by means of dry type cable terminations and one circuit label left blank.	1
1.1.5	Sheet metal control/relay panel fitted with:	1
1.1.5.1	Circuit label, left blank.	1
1.1.5.2	Housing including all associated wiring terminated onto a fixed dummy terminal board, spaced and drilled, including relay cut-out blanking plates, suitable for retrofitting of a flush mounted Solkor Rf relay insulated for 5 kV as specified EXCLUDING the relay.	1
1.1.5.3	Housing including all associated wiring terminated on a fixed dummy terminal board, spaced and drilled, including relay cut-out blanking plates, suitable for retrofitting of a flush mounted SEL 751A 2-pole overcurrent and 1 pole earth fault relay as specified EXCLUDING the relay.	1
1.1.5.4	Electrical phasing facilities providing cable phasing-out sockets	1
1.1.5.5	MDI ammeter scaled 0-600 A.	1
1.1.5.6	Current Transducer as specified on drawing PRP 1 sheet 1.	1
1.1.5.7	Supervisory trip, close and indication relays as specified.	1 set
1.1.5.8	Lockable Trip / Off / Close Operating handle for electrical closing and tripping of the circuit breaker.	1
1.1.5.9	Lockable Local/ Remote selector switch	1
1.1.5.10	Lockable push button for trip testing via the protection circuit	1
1.1.5.11	Indication lamps (LED).	4
1.1.5.12	Lockable Milspec type Canon (or equivalent) plug socket for interface with hand held remote close and trip device	1
1.1.5.13	Genwest type PK-2 4way test blocks (or equivalent)	2
1.1.5.14	Facilities on control / relay compartment suitable for terminating the specified multicore cables	1 set
1.1.6	Arc detection fibres and sensors in Cable, Circuit Breaker and Current Transformer compartments	1 Set per compt
1.1.7	Anti-condensation panel heaters.	1 set

Item No	Description	Number required per bay
1.1.8	The fixed portion of each panel must be complete including all frameworks, locking-off doors, multicore cable glands, trunking and wiring, erection material and all necessary fittings.	
1.2	The removable portion of each feeder panel must include:	
1.2.1	Three phase 630 A circuit breaker.	1
	DC trip coil.	1
	DC close coil	1
1.2.2	Sets of auxiliary contacts for indicating and operating circuits plus auxiliary contacts for supervisory indication including a minimum of 20% spare.	1
1.2.3	Motorised spring recharging facilities as specified.	1
1.2.4	Manual, behind IAC closed doors, circuit breaker racking facilities as specified	1
1.2.5	All necessary auxiliary fittings and interlocks.	1 set
1.2.6	Circuit label, left blank.	1
1.2.7	Non-resettable circuit breaker operations counter.	1
2.	DISTRIBUTION FEEDER METERING PANEL (B1.2; SAP Material 200002059)	
2.1	The fixed portion of each Feeder Metering Panel must include:	
2.1.1	Sheet metal circuit breaker chamber with positively driven safety shutter devices.	1
2.1.2	Sheet metal busbar chamber containing three 1 250 A busbars with approved insulation supported in air by means of approved insulators, with three 630 A isolating contacts and associated bushings, complete with busbars, cover plate, shrouds and seals and other specified accessories.	1
2.1.3	Sheet metal current transformer chamber with three 630 A isolating contacts and associated bushings, three cable-side bushings fitted with electrostatic bands for phasing out purposes, and containing current transformers as follows:	1
2.1.3.1	Current transformers, ratio 400/200/1, 10 VA output per phase, Class 0,5S for metering as specified and with the secondary windings brought out to Genwest type PK-2 4way test blocks (or equivalent to approval).	3; R, W & B ø
2.1.3.2	Current transformers, ratio 400/5, 10 VA output per phase, Class 5P10 for overcurrent and earth fault protection and operation of the ammeter as specified and with the secondary windings brought out to Genwest type PK-2 4way test blocks (or equivalent).	3; R, W & B ø
2.1.4	Sheet metal voltage transformer chamber for a circuit connected removable voltage transformer including all necessary auxiliary fittings, interlocks, shutters and VT fuse protection EXCLUDING the voltage transformer.	1
2.1.5	Cable termination compartment fitted with tapered brass gland and clamp suitable for making off a 3-core PILC cable of cross-section up to 300 mm ² by means of dry type cable terminations and one circuit label left blank.	1
2.1.6	Sheet metal control/relay panel fitted with:	1
2.1.6.1	Circuit label, left blank.	1
2.1.6.2	Housing including all associated wiring terminated on a fixed dummy terminal board, spaced and drilled, including relay cut-out blanking plates, suitable for retrofitting of a flush mounted SEL 751A 2 pole overcurrent and 1 pole earth fault relay as specified EXCLUDING the relay.	1
2.1.6.3	Electrical phasing facilities providing cable phasing-out sockets	1
2.1.6.4	MDI ammeter scaled 0-600 A.	1
2.1.6.5	Current and Voltage Transducers as specified on drawing PRP 1 sheet 1.	1 each
2.1.6.6	Supervisory trip, close and indication relays as specified.	1 set

Item No	Description	Number required per bay
2.1.6.7	Lockable Trip / Off / Close Operating handle for electrical closing and tripping of the circuit breaker.	1
2.1.6.8	Lockable Local/ Remote selector switch	1
2.1.6.9	Lockable push button for trip testing via the protection circuit	1
2.1.6.10	Indication lamps (LED).	4
2.1.6.11	Lockable Milspec type Canon plug socket for interface with hand held remote close and trip device	1
2.1.6.12	Genwest type PK-2 4way test blocks (or equivalent to approval)	2
2.1.6.13	Facilities on control / relay compartment suitable for terminating the specified multicore cables	1 set
2.1.7	Arc detection fibres and sensors in Cable, Circuit Breaker and Current Transformer compartments.	1 Set per compt
2.1.8	Anti-condensation panel heaters.	1 set
2.1.9	The fixed portion of each panel must be complete including all frameworks, locking-off doors, multicore cable glands, trunking and wiring, erection material and all necessary fittings.	1 set
2.2	The removable portion of each feeder panel must include:	
2.2.1	Three phase 630 A circuit breaker.	1
	DC trip coil.	1
	DC close coil	1
2.2.2	Sets of auxiliary contacts for indicating and operating circuits plus auxiliary contacts for supervisory indication including a minimum of 20% spare.	1
2.2.3	Motorised spring recharging facilities as specified.	1
2.2.4	Manual, behind closed IAC doors, circuit breaker racking facilities as specified	1
2.2.5	All necessary auxiliary fittings and interlocks.	1 set
2.2.6	Circuit label, left blank.	1
2.2.7	Non-resettable circuit breaker operations counter.	1
3.	DISTRIBUTION BUS-SECTION PANEL (B1.3; SAP Material 200010681)	
3.1	The fixed portion of each Bus-section Panel must include:	
3.1.1	Sheet metal circuit breaker chamber with positively driven safety shutter devices.	1
3.1.2	Sheet metal busbar chamber containing three 1 250 A busbars with approved insulation supported in air by means of approved insulators, with three 1250 A isolating contacts and associated bushings, complete with busbars, cover plate, shrouds and seals and other specified accessories.	1
3.1.3	Sheet metal busbar "riser" chamber containing three 1 250 A busbars with approved insulation supported in air by means of approved insulators.	1
3.1.4	Sheet metal current transformer chamber with three 1250 A isolating contacts and associated bushings, and containing current transformers as follows:	1
3.1.4.1	Current transformers, ratio 1200/5, 10 VA output per phase, Class 5P10 for overcurrent and earthfault protection and operation of the ammeter as specified and with the secondary windings brought out to Genwest type PK-2 4way test blocks (or equivalent to approval).	3; R, W & B ø
3.1.5	Sheet metal control/relay panel fitted with:	1
3.1.5.1	Circuit label, left blank.	1
3.1.5.2	Housing including all associated wiring terminated on a fixed dummy	

Item No	Description	Number required per bay
	terminal board, spaced and drilled, including relay cut-out blanking plates, suitable for retrofitting of a flush mounted SEL 751A or DCD Argus 311A 2 pole overcurrent and 1 pole earth fault relay as specified EXCLUDING the relay.	1
3.1.5.3	MDI ammeter scaled 0-1600 A.	1
3.1.5.4	Current Transducer as specified on drawing PRP 1 sheet 1.	1
3.1.5.5	Supervisory trip, close and indication relays as specified.	1 set
3.1.5.6	Lockable Trip / Off / Close Operating handle for electrical closing and tripping of the circuit breaker.	1
3.1.5.7	Lockable Local/ Remote selector switch	
3.1.5.8	Lockable push button for trip testing via the protection circuit	1
3.1.5.9	Indication lamps (LED).	4
3.1.5.10	Lockable Milspec type Canon plug socket for interface with hand held remote close and trip device	1
3.1.5.11	Genwest type PK-2 4way test blocks (or equivalent to approval)	1
3.1.5.12	Facilities on control / relay compartment suitable for terminating the specified multicore cables	1 set
3.1.6	Arc detection fibres and sensors in Circuit Breaker and Current Transformer compartments.	1 Set per compt
3.1.7	Anti-condensation panel heaters.	1 set
3.1.8	The fixed portion of each panel must be complete including all frameworks, locking-off doors, multicore cable glands, trunking and wiring, erection material and all necessary fittings.	1 set
3.2	The removable portion of each feeder panel must include:	
3.2.1	Three phase 1250 A circuit breaker.	1
	DC trip coil.	1
	DC close coil	1
3.2.2	Sets of auxiliary contacts for indicating and operating circuits plus auxiliary contacts for supervisory indication including a minimum of 20% spare.	1
3.2.3	Motorised spring recharging facilities as specified.	1
3.2.4	Manual, behind closed IAC doors, circuit breaker racking facilities as specified	1
3.2.5	All necessary auxiliary fittings and interlocks.	1 set
3.2.6	Circuit label, left blank.	1
3.2.7	Non-resettable circuit breaker operations counter.	1
4.	MAIN SUBSTATION INCOMING TRANSFORMER PANEL (SAP Material No 200002963)	
4.1	The fixed portions of each main substation incoming transformer panel must include:	
4.1.1	Sheet metal circuit breaker chamber with positively driven safety shutter devices.	1
4.1.2	Sheet metal busbar chamber containing three 2 000 A busbars with approved insulation supported in air by means of approved insulators, with three 2 000 A isolating contacts, complete with busbars, cover plate, shrouds and seals and other specified accessories.	1
4.1.3	Sheet metal current transformer chamber with three 2000 A isolating contacts, three cable-side bushings fitted with electrostatic bands for phasing out purposes and containing cast-resin insulated current transformers as follows:	

Item No	Description	Number required per bay
4.1.3.1	Current transformers, ratio 2 000/1, 10 VA output per phase, Class 5P10 for overcurrent protection and metering and with the secondary windings brought out to Genwest PK-2 4-way test blocks (or equivalent to approval).	1 - 3 \emptyset
4.1.3.2	Current transformers, ratio 2 000/1, Class X for Reyrolle Duobias-M protection and metering and with the secondary windings brought out to Genwest PK-2 4-way test blocks (or equivalent to approval).	1 - 3 \emptyset
4.1.3.3	Current transformer ratio 2 000/1, Class 0,2 for indicating ammeters and telemetering and metering and with the secondary windings brought out to SecuControl test blocks (or equivalent to approval).	1 - 3 \emptyset
4.1.4	Ducting, deflector plates, arc reinforced doors and other components required in accordance with type tested internal arc rating, where specified.	1 set
4.1.5	Sheet metal voltage transformer chamber for a circuit connected removable voltage transformer including all necessary auxiliary fittings, interlocks, shutters and VT fuse protection.	1
4.1.6	Sheet metal cable dividing box for making off single-core PILC cables of cross-section up to 500 mm ² (4 single-core cables per phase), including glands, lugs and connectors.	1
4.1.7	Pilot cable terminating box.	1
4.1.8	Sheet metal control/relay panel fitted with:	1
4.1.8.1	Circuit label, left blank.	2
4.1.8.2	Housing including all associated wiring terminated on a fixed dummy terminal board, spaced and drilled, including relay cut-out blanking plates, suitable for retrofitting of a flush mounted Reyrolle Argus DCD 414B 3 pole overcurrent and single pole earth fault relay. EXCLUDING the relay.	1
4.1.8.3	Electrical phasing facilities providing cable phasing-out sockets	1
4.1.8.4	MDI Ammeter with dial plate scaled 0-2400 kA.	1
4.1.8.5	Voltmeter with dial plate scaled 7 to 13,5 kV.	1
4.1.8.6	Transducers as specified on drawing SK 2732.	4
4.1.8.7	Each, supervisory trip and close relays as specified on drawing DR 2732.	1
4.1.8.8	Housing including all associated wiring terminated on a fixed dummy terminal board, spaced and drilled, including relay cut-out blanking plates, suitable for retrofitting of a flush mounted integrating watthour meter, EXCLUDING the meter.	1
4.1.8.9	Lockable Trip / Off / Close Operating handle for electrical closing and tripping of the circuit breaker.	1
4.1.8.10	Lockable Local/ Remote selector switch	1
4.1.8.11	Lockable push button for trip testing via the protection circuit	1
4.1.8.12	Light emitting diodes for indication.	3
4.1.9	Arc detection fibres and sensors in Cable, Circuit Breaker and Current Transformer compartments	1 Set per compt
4.1.10	Anti-condensation panel heaters.	1 set
4.1.11	The fixed portion of each panel must be complete including all frameworks, locking-off doors, multicore cable glands, trunking and wiring, erection material and all necessary fittings.	1 set
4.2	The removable portions of each main substation incoming transformer panel must include:	
4.2.1	Three phase, 2 000 A circuit breaker.	1
4.2.2	DC trip coil.	1
4.2.3	DC close coil	1
4.2.4	Sets of auxiliary contacts for indicating and operating circuits plus auxiliary	

Item No	Description	Number required per bay
	contacts for supervisory indication.	1
4.2.5	Motorised spring recharging facilities as specified.	1
4.2.6	Manual, behind closed IAC doors, circuit breaker racking facilities as specified	1
4.2.7	All necessary auxiliary fittings and interlocks.	1 set
4.2.8	Three phase voltage transformer.	1
4.2.9	Circuit label, left blank.	1
4.2.10	Non-resettable circuit breaker operations counter.	1
5.	MAIN SUBSTATION BUS-SECTION PANEL (B1.7; SAP Material No 50006084)	
5.1	The fixed portion of bus-section panels must include:	
5.1.1	Sheet metal circuit breaker chamber with positively driven safety shutter devices.	1
5.1.2	Sheet metal busbar chamber containing three 2 000 A busbars with approved insulation supported in air by means of approved insulators, with three 2 000 A isolating contacts and associated bushings, complete with busbars, shrouds and seals and other specified accessories.	1
5.1.3	Sheet metal busbar "riser" chamber containing three 2 000 A busbars with approved insulation supported in air by means of approved insulators.	1
5.1.4	Ducting, deflector plates, arc reinforced doors and other components required in accordance with type tested internal arc rating, where specified.	1 set
5.1.5	Pilot cable terminating box.	1
5.1.6	Sheet metal control/relay panel fitted with:	1
5.1.6.1	Circuit label, left blank.	2
5.1.6.2	Each, supervisory trip and close relays as specified on DR 2732.	1
5.1.6.3	Relays for 'Supply Off' alarm as shown on drawing DR 2732.	2
5.1.6.4	Lockable Trip / Off / Close Operating handle for electrical closing and tripping of the circuit breaker.	1
5.1.6.5	Lockable Local/ Remote selector switch	1
5.1.6.6	Light emitting diodes.	3
5.1.7	Arc detection fibres and sensors in Circuit Breaker and Current Transformer compartments.	1 Set per compt
5.2	The removable portion of each bus-section panel must include:	
5.2.1	Three phase, 2 000 A circuit breaker.	1
5.2.2	DC trip coil.	1
5.2.3	DC close coil	1
5.2.4	Sets of auxiliary contacts for indicating and operating circuits plus auxiliary contacts for supervisory indication.	1
5.2.5	Motorised spring recharging facilities as specified.	1
5.2.6	Manual, behind closed IAC doors, circuit breaker racking facilities as specified	1
5.2.7	All necessary auxiliary fittings and interlocks.	1 set
5.2.8	Circuit label, left blank.	1
5.2.9	Non-resettable circuit breaker operations counter	1
5.3	Busbar blocking scheme, complete for complete switchboard	1

Item No	Description	Number required per bay
6.	MAIN SUBSTATION FEEDER PANEL (SAP Material No 500006082 (Item B1.4) / 500006083 (Item B1.5))	
6.1	The fixed portion of each feeder panel must include:	
6.1.1	Sheet metal circuit breaker chamber with positively driven safety shutter devices.	1
6.1.2	Sheet metal busbar chamber containing three 2 000 A busbars with approved insulation supported in air by means of approved insulators, with three 630 A (Item B1.4) or 1250 A (Item B1.5) isolating contacts and associated bushings, complete with busbars, cover plate, shrouds and seals and other specified accessories.	1
6.1.3	Sheet metal current transformer chamber with three 630 A (Item B1.4) or 1250 A (Item B1.5) isolating contacts, three cable-side bushings fitted with electrostatic bands for phasing out purposes, and containing current transformers as follows:	1
6.1.3.1	Current transformers, ratio 400/300/5 Class X for Solkor Rf feeder protection as specified and with the secondary windings brought out to Genwest type PK-2 4way test blocks (or equivalent to approval).	1 - 3 \emptyset
6.1.3.2	Current transformers, ratio 400/5, 10 VA output per phase, Class 5P10 for OCEF protection and operation of the ammeter and telemetering equipment as specified and with the secondary windings brought out to Genwest type PK-2 4way test blocks (or equivalent to approval).	1 - 3 \emptyset
6.1.3.3	Ducting, deflector plates, arc reinforced doors and other components required in accordance with type tested internal arc rating, where specified.	1 set
6.1.4	Cable dividing box fitted with tapered brass gland and clamp suitable for making off a 3-core PILC cable of cross-section up to 300 mm ² by means of dry type cable terminations and one circuit label left blank.	1
6.1.5	Pilot cable terminating box.	1
6.1.6	Sheet metal control/relay panel fitted with:	1
6.1.6.1	Circuit label, left blank.	1
6.1.6.2	Housing including all associated wiring terminated onto a fixed dummy terminal board, spaced and drilled, including relay cut-out blanking plates, suitable for retrofitting of a flush mounted Solkor Rf relay insulated for 5 kV as specified EXCLUDING the relay.	1
6.1.6.3	Housing including all associated wiring terminated on a fixed dummy terminal board, spaced and drilled, including relay cut-out blanking plates, suitable for retrofitting of a flush mounted SEL 751A or DCD Argus 314A 2 pole overcurrent and 1 pole earth fault relay as specified, EXCLUDING the relay.	1
6.1.6.4	An adaptor plate must be provided to enable the smaller of the OCEF relays to be fitted above.	1
6.1.6.5	Electrical phasing facilities providing cable phasing-out sockets	1
6.1.6.6	MDI Ammeter scaled 0-600 A.	1
6.1.6.7	Transducer as specified on drawing SK 2732.	1
6.1.6.8	Each, supervisory trip and close relays as specified on drawing DR 2732.	1
6.1.6.9	Lockable Trip / Off / Close Operating handle for electrical closing and tripping of the circuit breaker.	1
6.1.6.10	Lockable Local/ Remote selector switch	1
6.1.6.11	Lockable push button for trip testing via the protection circuit	1
6.1.6.12	Light emitting diodes.	4
6.1.6.13	Lockable Milspec type Canon plug socket for interface with hand held remote close and trip device	1

Item No	Description	Number required per bay
6.1.7	Arc detection fibres and sensors in Cable, Circuit Breaker and Current Transformer compartments.	1 Set per compt
6.1.8	Anti-condensation panel heaters.	1 set
6.1.9	The fixed portion of each panel must be complete including all frameworks, locking-off doors, multicore cable glands, trunking and wiring, erection material and all necessary fittings.	1 set
6.2	The removable portion of each feeder panel must include:	
6.2.1	Three phase 630 A circuit breaker (Item B1.4) OR Three phase 1 250 A circuit breaker (Item B1.5), as specified	1
6.2.2	DC trip coil.	1
6.2.3	DC close coil	1
6.2.4	Sets of auxiliary contacts for indicating and operating circuits plus auxiliary contacts for supervisory indication including a minimum of 20% spare.	1
6.2.5	Motorised spring recharging facilities as specified.	1
6.2.6	Manual, behind closed IAC doors, circuit breaker racking facilities as specified	1
6.2.7	All necessary auxiliary fittings and interlocks.	1 set
6.2.8	Circuit label, left blank.	1
6.2.9	Non-resettable circuit breaker operations counter.	1
7.	CIRCUIT BREAKERS	
7.1	12kV, 630 A 30 Vdc circuit breaker as specified, fitted with secondary plug and socket contacts (SAP Material 200013256 / 200018016)	lot
7.2	12kV, 630 A 110 Vdc circuit breaker as specified, fitted with secondary plug and socket contacts (SAP Material 200015751 / 200018017)	lot
7.3	12kV, 1250 A 110 Vdc circuit breaker as specified, fitted with secondary plug and socket contacts (SAP Material No 200018018)	lot
7.4	12kV, 2000 A 110 Vdc circuit breaker as specified, fitted with secondary plug and socket contacts (SAP Material 200014438 / 200018019)	lot
11.	VOLTAGE TRANSFORMERS	
11.1	11kV/110V, 15 VA, Class 0,5 voltage transformers as specified for use with feeder metering, transformer metering and busbar metering panels. (SAP Material 200002070)	1
11.2	11kV/110V, 15 VA, Class 0,2 voltage transformers as specified for use with main substation incoming transformer panels. (SAP Material 500006081)	1
12.	CURRENT TRANSFORMERS	
12.1	Dual core 400/300/5 Class X // 400/5 10 VA Class 5P10 current transformers, as specified, for use in feeder panels and main substation feeder panels. (SAP Material 59508000279579)	1 - 3 ø set
12.2	Dual core 400/200/5 15 VA Class 0.5S (ISF 10) // 400/5 10 VA Class 5P10 current transformers, as specified, for use in feeder metering panels. (SAP Material 61108000488259)	1 - 3 ø set
12.3	Dual core 400/200/1 15 VA Class 0.5S (ISF 10) // 400/5 10 VA Class 5P10 current transformers, as specified, for use in feeder metering panels. (SAP Material No TBA)	1 - 3 ø set
12.4	Dual core 100/50/5 10 VA Class 0.5S (ISF 10) // 100/5 10 VA Class 5P10 current transformers for use in transformer and transformer metering panels. (SAP Material No 200018013)	1 - 3 ø set
12.5	Single core 1600/5 10 VA Class 5P10 current transformers, as specified, for use in bus-section panels. (SAP Material No 500005998)	1 - 3 ø set

Item No	Description	Number required per bay
12.6	Multi core 1200/800/1, Class X // 1200/800/1 10 VA Class 5P10 // 1200/800/1 10 VA Class 0,2 current transformers, as specified, for use in main substation incoming transformer panels. (SAP Material 500005999)	1 - 3 ø set
12.7	Multi core 2000/1 Class X // 2000/1 10 VA Class 5P10 // 2000/1 10 VA Class 0,2 current transformers, as specified, for use in main substation incoming transformer panels. (SAP Material No 500006080)	1 - 3 ø set

44.1 Estimated Annual Quantities

Sub-Item No	Sub-Item Description	SAP Material Number	Annual Usage (Anticipated)
B1.1	12 kV, 630A, 25 kA, 30 V dc, 400/300/5 Distribution Feeder panels, as specified	200001712	9
B1.2	12 kV, 630 A, 25 kA, 30 V dc, 400/200/5 Distribution Feeder metering panels, as specified	200002059	3
B1.3	12 kV, 1250 A, 25 kA, 30 V dc, 1200/5 Distribution Bus-section panels including riser, as specified	200010681	1
B1.4	12 kV, 630 A, 25 kA, 110 V dc, 2000 A Busbar, 400/300/5 Main substation Feeder panels (Internal Arc Vented), as specified	500006082	1
B1.5	12 kV, 1250 A, 25 kA, 110 V dc, 2000 A Busbar, 400/300/5 Main substation Feeder panels (Internal Arc Vented), as specified	500006083	1
B1.6	12 kV, 2000 A, 25 kA, 110 V dc, 2000/1 Main substation incoming transformer panels (Internal Arc Vented), as specified	200002963	1
B1.7	12 kV, 2000 A, 25 kA, 110 V dc, 2000 A Main substation Bus-section panels including riser (Internal Arc Vented), as specified	500006084	1
B1.8	12kV, 630 A 30 V dc circuit breaker as specified, fitted with secondary plug and socket contacts	200018016	60
B1.9	12kV, 630 A, 110 V dc circuit breaker as specified, fitted with secondary plug and socket contacts	200018017	15
B1.10	12kV, 1250 A, 110 V dc circuit breaker as specified, fitted with secondary plug and socket contacts	200018018	80
B1.11	12kV, 2000 A, 110 V dc circuit breaker as specified, fitted with secondary plug and socket contacts	200018019	15
B1.12	11kV/110V, 15 VA, Class 0,5 voltage transformers as specified	200002070	5
B1.13	11kV/110V, 15 VA, Class 0,2 voltage transformers as specified	500006081	1
B1.14	Dual core 400/300/5 Class X // 400/5 10 VA Class 5P10 current transformers for ABB / Reyrolle Type LMx switchgear, as specified	200029162	48
B1.15	Dual core 400/200/5 10 VA Class 0.5S (ISF 10) // 400/5 10 VA Class 5P10 current transformers for ABB / Reyrolle Type LMx switchgear, as specified	200029163	18
B1.16	Dual core 400/200/1 10 VA Class 0.5S (ISF 10) // 400/5 10 VA Class 5P10 current transformers for ABB / Reyrolle Type LMx switchgear, as specified	200029199	1
B1.17	Dual core 100/50/5 10 VA Class 0.5S (ISF 10) // 100/5 10 VA Class 5P10 current transformers for ABB / Reyrolle Type LMx switchgear, as specified	200018013	1
B1.18	Single core 1600/5 10 VA Class 5P10 current transformers for ABB / Reyrolle Type LMx switchgear, as specified	500005998	1
B1.19	Multi core 1200/800/1, Class X // 1200/800/1 10 VA Class 5P10 // 1200/800/1 10 VA Class 0,2 current transformers for ABB / Reyrolle Type LMx switchgear, as specified	500005999	1
B1.20	Multi core 2000/1, Class X // 2000/1 10 VA Class 5P10 // 2000/1 10 VA Class 0,2 current transformers for ABB / Reyrolle Type LMx switchgear, as specified	500006080	1
B1.21	230Vac Spring Charge Motor for 630A CB	200029211	2
B1.22	230Vac Spring Charge Motor for 1250 A CB	200029212	2

B1.23	230Vac Spring Charge Motor for 2000 A CB	200029213	2
B1.24	30Vdc closing coils for 630A CB	200029214	5
B1.25	110Vdc closing coils for 1250A CB	200029215	2
B1.26	110Vdc closing coils for 630A CB	200029216	2
B1.27	110Vdc closing coils for 2000A CB	200029217	2
B1.28	Manual racking handle for switchgear operation	200020561	11
B1.29	Wall mounted cubicle for racking and spring charge handles and accessories for switchgear operation, per switchboard.	200029218	10
B1.30	Hand-held remote switching device with open/close functions and 30m lead	200002048	25
B1.31	Circuit breaker primary cluster 1250A	200029164	10
B1.32	Shutter operating arms for 630/1250/2000A panels	200029219	4
B1.33	Shutter box complete with shutters for 630/1250A panels	200029220	5
B1.34	Shutter box complete with shutters for 2000A panels	200029221	5
B1.35	230Vac, 100W Heater	200012435	16

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DETAILED PARTICULARS OF ITEMS OF EQUIPMENT – OPTIONAL WORK

Item No.	Description	Number required per bay
1.	<p>Recommended Spares for Switchgear</p> <p>A comprehensive list stating descriptions of every different part which could be considered as a possible spare, including, but not limited to, consumable spares, replacement bottles of SF₆ gas and mechanical spares recommended below:</p> <p>The list of spares must be completed by the Tenderer.</p> <p>1.1.1 Each item of the spares in a case must be suitably identified by means of a metal label and a parts list complete with diagrams showing the application of all parts supplied must be provided with the spares.</p>	1 set
2.	<p>Special Tools and Equipment as Offered</p> <p>A comprehensive list stating descriptions of every different part which could be considered as a possible spare, including, but not limited to, consumable spares, replacement bottles of SF₆ gas and mechanical spares recommended below:</p> <p>The list of spares must be completed by the Tenderer.</p> <p>1.1.2 Each item of the spares in a case must be suitably identified by means of a metal label and a parts list complete with diagrams showing the application of all parts supplied must be provided with the spares.</p>	1 set

46 DRAWINGS, OPERATING AND MAINTENANCE INSTRUCTIONS

The following drawings are applicable to the contract and are issued with this tender document and will form part of the Contract Documents:

Drawing No.	Description
PRP1 sheet 1	CB Supervisory alarm indication
PRP1 sheet 2	Supervisory control
PRP1 sheet 3	CB Supervisory alarm indication: breaker status
DR 2732 Sheets 1, 2, 4 & 5	Supervisory facilities
SK 5010	Busbar blocking scheme

46.1 Drawings

- 46.1.1 All drawings must be to scale not less than 1:50 and fully detailed. All important dimensions must be given and the material of which each principal part is to be constructed must be indicated. All dimensions marked on the drawings Must be considered correct although measurement by scale may differ therefrom. Drawings Must not exceed size A0 standard dimensions and must bear approved contract references.
- 46.1.2 Three copies of all documents must be submitted. The Contractor Must supply any further copies required by the Engineer.
- 46.1.3 A register of all the Contractor's documents must be provided with each submission.
- 46.1.4 Drawings must be prepared in accordance with the latest issue of SANS 10111. An equivalent international code of engineering drawing practice will also be acceptable.
- 46.1.5 Drawings must be to scale, with both the scale and the drawing being large enough to clearly show all relevant components of the plant and equipment.
- 46.1.6 In addition to the usual plan and two side elevations, sufficient additional sections must be included to clearly show the arrangement of all plant and equipment.
- 46.1.7 Item lists must be provided on the drawing or on a separate parts list.
- 46.1.8 Drawings for approval must be submitted in duplicate as black line prints on a light background and at least 14 days must be allowed for the approval of each set of drawings. On completion of work on site all drawings must be revised where necessary to show the equipment as installed and two copies submitted for approval. The Contractor must supply for the Employer's own use 5 sets of all erection, operating and maintenance instructions and all the drawings bound in individual files. The general arrangement, section, wiring and schematic diagrams must also be provided on CD-ROM in a format compatible with AutoCAD 2012 as well as on a separate CD-ROM with the drawings in Adobe pdf format. The directory structure must be to approval.
- 46.1.9 General arrangement drawings of equipment must show masses, crane lift necessary and size of lifting lugs or eyes. Parts to be removed for transport must be indicated and their masses stated.
- 46.1.10 Any drawing modified from a previously submitted drawing must bear a new or revised number and must bear a reference to the revision.
- 46.1.11 Schematic and wiring diagrams and equipment arrangement drawings arranged in a hierarchical manner are acceptable.
- 46.1.12 No wiring or connection diagrams must be submitted for approval unless prior approval has been obtained in writing for the schematic diagrams.

46.2 Drawings To Be Submitted With Tender

- 46.2.1 Tenderers must submit with their tenders full particulars of all equipment offered. The following is a list of the drawings to be submitted as a minimum by the Tenderer with his tender:
- 46.2.2 General arrangement of switch board. This drawing must give the principal dimensions of the switch panels and circuit breakers, etc and must include a single line diagram of the main medium voltage connections.
- 46.2.3 Section drawings of each switch panel type showing general details of construction and all principal components and dimensions, including INTERNAL ARC pressure relief ducting.
- 46.2.4 Section drawings of circuit breakers showing general details of construction.
- 46.2.5 Section drawings of INTERNAL ARC pressure relief exhaust ducting showing general details of construction.
- 46.2.6 General arrangement of control / relay compartments.

46.3 Drawings To Be Submitted By Successful Contractor

The Contractor must submit the following drawings for approval within the period stated in the Schedules and must not commence manufacture before obtaining approval of the drawings:

- 46.3.1 General outline and assembly.
- 46.3.2 Sectional drawings showing the construction of the switchgear. Details of the cable boxes must be included.
- 46.3.3 Arrangement drawing of each type of switch panel which must clearly indicate all principal dimensions and the cable box arrangement. Drawings must bear approved contract references as well as the SAP Commodity Codes specific to the item, as detailed in the section 44 (Detailed Particulars of Items of Equipment) of this specification.
- 46.3.4 Wiring and schematic diagrams of each type of switch panel.
- 46.3.5 Wiring and schematic diagrams for the circuit breaker retrofit.
- 46.3.6 Works Progress Chart (submitted monthly).
- 46.3.7 Detailed Sub-Order Chart.
- 46.3.8 Final drawings corresponding to all drawings submitted by the Contractor with his Tender.
- 46.3.9 Details of circuit breakers.
- 46.3.10 Details of current transformers.
- 46.3.11 Details of voltage transformers.
- 46.3.12 Details of switchgear phasing equipment.
- 46.3.13 Details of earthing switches.
- 46.3.14 Details and schematic diagram of interlocking.
- 46.3.15 Details and schematic diagram of busbar earthing panel interlocking.
- 46.3.16 Complete schematic diagrams of:

- (1) Direct current tripping connections.
- (2) Direct current control and indication connections.
- (3) Current transformer connections.
- (4) AC voltage connections for protective equipment and indication.
- (5) Connections of electrical interlocking equipment (if any).
- (6) Voltage selection.
- (7) Meter selection and instrument indications.

46.3.17 Details of protective relays, accessories and current transformers including particulars of wiring and drilling dimensions.

46.3.18 Schematic diagrams and schedule of multicore cables.

46.3.19 Cable schedule of auxiliary, control, alarm and indicator circuits

46.3.20 Other drawings as required by the Engineer.

46.4 **Operating And Maintenance Instructions**

46.4.1 The Contractor must submit in a durable form six copies of the erection, operating and maintenance instructions within the period stated in the Schedules. In addition, the documentation must be provided on CD-ROM in Portable Document Format (pdf) and in a format compatible with AutoCAD 2010.

46.4.2 The erection, operating and maintenance instructions must also be included within each switch panel delivered.

46.4.3 A comprehensive spare parts catalogue must be supplied.

46.4.4 The manuals and configuration files must also be submitted on CD-ROM's with manuals (in Adobe pdf format) on one CD (which may be combined with the drawings) and the configuration files on the other.

47 QUALITY CONTROL, INSPECTION AND TESTING

47.1 General

- 47.1.1 This section outlines the minimum general requirements necessary to ensure that proper attention is given to the materials used, the standard of workmanship, the manufacturing processes and the quality of all component parts and the guaranteed performance of the finished items of plant.
- 47.1.2 The Contractor's attention is drawn to the relevant clauses of the Conditions of Contract regarding testing.
- 47.1.3 The Contractor must carry out the tests specified in this Section in accordance with the conditions thereof and, without extra charge, such additional tests in the manufacturer's works, on the Site, or elsewhere as in the opinion of the Engineer are necessary to determine that the Works comply with this Specification whether under test conditions or in ordinary working. Type tests may be omitted at the discretion of the Engineer if satisfactory evidence is given of such tests already made on identical equipment.
- 47.1.4 All materials used must be subjected to and must withstand satisfactorily such routine tests as are customary in the manufacture of the types of plant included in the Works.
- 47.1.5 The cost of material tests and/or analyses required by the Engineer to be effected elsewhere than at the Works of the Contractor or a subcontractor or on the Site will be borne by the Employer should such material tests or analyses prove satisfactory but the Contractor will be called upon to pay all expenses incurred by the Employer for material tests and/or analyses found to be unsatisfactory in respect of compliance with the terms of the Specification.
- 47.1.6 All tests must be carried out in the presence of, and to the satisfaction of the Engineer and at such reasonable times as he may require.
- 47.1.7 All labour, materials, stores, apparatus, instruments and connections required for the above tests must be provided by the Contractor, save for the purpose of tests and analyses the cost of which is to be borne by the Employer as aforesaid and except that the Employer will when reasonably possible permit the Contractor to use for the tests on Site any instrument and apparatus which may have been provided on the Site under this contract, subject to the operation of the system and the carrying out of the other contracts and conditional upon the Contractor accepting liability for any damage which may be sustained by the Employer's equipment during the test. There will be provided free of charge on the Site electrical energy, fuel and water required to run the plant:
- for the purpose of the Contractor's quality control, and
 - for approved preliminary tests, and
 - for the official tests.
- 47.1.8 The Contractor must be responsible for the proper testing of the Work completed or plant or materials supplied by a sub-contractor to the same extent as if the Work, plant or materials were completed or supplied by the Contractor himself.
- 47.1.9 If further preliminary runs are necessary, or if further official tests are required due to the Works not complying with the terms of this Specification, the Employer may call upon the Contractor to pay for any additional costs incurred by the Employer.

47.2 Type Tests

- 47.2.1 The Tenderer must submit with the tender a Schedule of Type Tests detailing all completed type tests applicable to each item tendered, as specified. The schedule must detail the full description of the item tested, the test authority, the type test certificate numbers, the applicable standard and the specific tests covered by the certificate.
- 47.2.2 Type tests conducted on equivalent equipment to that tendered that are considered by the tenderer to be applicable to the equipment tendered will not be accepted unless evidence is submitted that confirms the equivalence of the equipment and the applicability of the type test. Acceptance will be at the discretion of the Engineer.
- 47.2.3 All type test reports to be submitted on a memory stick with a detailed index aligned to Schedule F.13G, with the tender submission.

47.3 Quality Plan

- 47.3.1 The Contractor must submit for approval within 28 days of the commencement date, an inspection and test plan as per quality certification. The quality plan must define the quality control and inspection activities that will be performed in order to ensure that the plant during manufacture and on completion, complies with the specified requirements. The quality plan may be of any form to suit the Contractor's system, but it must as a minimum:
- 47.3.2 all type, routine, sample special and tests required by the relevant standard and which will be conducted. In the case of the sample tests, each draw must be subjected to the sample tests.
- 47.3.3 indicate each inspection and test point and its relative location in the production cycle including incoming packaging and site inspection;
- 47.3.4 indicate where subcontractor services will be employed;
- 47.3.5 identify the characteristics to be inspected, examined and tested at each point and specify procedures and acceptance criteria to be used;
- 47.3.6 indicate mandatory hold points established by the Engineer which require his verification of selected characteristics of an items or process before the work can proceed;
- 47.3.7 define or refer to sampling plans if proposed and where they will be used;
- 47.3.8 refer to quality plans or checklists governing the work of major sub-contractors;
- 47.3.9 where applicable, specify where lots or batches will be used.
- 47.3.10 make reference, in the case of components manufactured by or services rendered by a sub-contractor to an inspection plan drawn up by the sub-contractor along the lines indicated in this Clause.

47.4 **Inspection**

- 47.4.1 Inspection of the plant will be made by the Engineer and will include the following activities:-
- 47.4.2 witness inspection and testing and/or verification of inspection records at the Engineer's discretion covering:-
- 47.4.3 compliance of manufactured parts, assemblies and final items with specifications, drawings, standards and good engineering practice;
- 47.4.4 periodic inspection of Contractor's design and production and preparation of progress reports;
- 47.4.5 follow up of design work in case of delay in despatch of drawings;
- 47.4.6 witnessing of tests;
- 47.4.7 follow up of compliance with equipment and drawing, delivery schedules and release of equipment for despatch;
- 47.4.8 packing for shipment including check for completeness of shipment, handling requirements, and case markings and identification.
- 47.4.9 Where the Equipment Manufacturer and Contractor's quality assurance system has not been registered in terms of SANS 9001 the Engineer's inspection will include the following:
- 47.4.10 evaluation of the Manufacturer's / Contractor's inspection system and approval of the inspection plan;
- 47.4.11 periodic checks to confirm the effectiveness of, and the Manufacturer's / Contractor's compliance with, the established inspection procedures;
- 47.4.12 Compliance of raw material with specified requirements.
- 47.4.13 All raw materials, components, shop assemblies and products must be subject to inspection and test by the Engineer as required by the Specification and to the extent practicable at all times and places during the period of manufacture.
- 47.4.14 The Manufacturer / Contractor is requested to include in all his orders to subcontractors a note informing that materials and equipment covered are subject to inspection by the Engineer. Three copies of such purchase orders must be forwarded simultaneously to the Engineer.
- 47.4.15 The Manufacturer / Contractor must be responsible for the proper testing of the Work completed or plant or materials supplied by a sub-contractor to the same extent as if the Work, plant or materials were completed or supplied by the Contractor himself.
- 47.4.16 In order to verify compliance with manufacturing, engineering and procurement schedules and programmes, the Engineer must have access at all reasonable times to all places where materials or equipment are being prepared or manufactured, including the Works of the Manufacturers, Contractors, subcontractors, or suppliers of raw material.
- 47.4.17 The Contractor must keep the Engineer informed in advance of the time of starting and of the progress of the work in its various stages so that arrangements can be made for inspection and for tests. He must also provide without additional charge all reasonable facilities and assistance for the safety and convenience of the Engineer in the performance of his duties.
- 47.4.18 All tests must be carried out to the satisfaction of the Engineer and, if required, in his presence, at such reasonable times as he may require.
- 47.4.19 Not less than two weeks' notice of all tests must be given to the Engineer in order that he may be represented if he so desires. As many tests as possible must be arranged together. Three copies of the Manufacturer's / Contractor's record of tests must be supplied to the Engineer.

- 47.4.20 All inspections or tests by the Engineer must be scheduled and performed so as to avoid undue risk of delaying the work. In the event of postponement, by the Manufacturer / Contractor, of tests previously scheduled or of the necessity to make tests due to unsatisfactory results of the original tests, or other reasons attributable to the Contractor, the Contractor will bear all costs for new tests and expenses involved in their witnessing by the Engineer.
- 47.4.21 All apparatus, instruments and connections required for the above tests must be provided by the Contractor but the Council will permit the Contractor to use for the tests on Site any instruments and apparatus which may be provided permanently on Site subject to the operation of the system and the carrying out of the other contracts and conditional upon the Contractor accepting liability for any damage which may be sustained by the Council's equipment during the test
- 47.4.22 Measuring apparatus must be approved by the Engineer and if required must be calibrated at the expense of the Contractor at an approved laboratory.
- 47.4.23 Acceptance or rejection of the equipment and/or components must be made as promptly as practicable after manufacture, but failure to inspect and accept or reject equipment and/or components must neither relieve the Contractor from responsibility for such items which may not be in accordance with the Contract requirements, nor impose liability for them on the Employer.
- 47.4.24 The Contractor must supply suitable test pieces of all materials as required by the Engineer. If required by the Engineer test specimens must be prepared for check testing and forwarded at the expense of the Contractor to an independent testing authority selected by the Engineer.
- 47.4.25 The cost of all tests and/or analyses must be borne by the Contractor, but the costs of check tests and/or analyses effected elsewhere than at the manufacturer's works or on the Site, and the results of which are approved, will be refunded to the Contractor by the Employer by agreement.
- 47.4.26 No materials must be shipped until all tests, analyses and inspections have been made, or certified copies of reports of tests and analysis or Contractor's certificates have been accepted and released by the Engineer or by a waiver in writing. The Contractor must furnish the Engineer two copies of certified reports on all required tests and analysis.
- 47.4.27 Effectiveness and quality of packing for shipment will be verified by the Engineer having regard to protection required and handling, transport arrangements and site storage requirements.
- 47.4.28 The Contractor must inform the Engineer of the name of his representative authorised to make decisions, and/or provide, in respect of equipment, tests and any other data related to the Contract.
- 47.4.29 The Engineer must have complete authority to accept or reject any equipment or part thereof considered unsatisfactory and/or not in accordance with the Contract.
- 47.4.30 The switchgear and associated equipment will be inspected by the Engineer during manufacture and prior to despatch.
- 47.4.31 No equipment must be despatched from the manufacturer's works without the approval of the Engineer.

47.5 Tests In The Manufacturer's Works

47.5.1 General

- 47.5.1.1 The tests must be arranged to represent working conditions as closely as possible
- 47.5.1.2 Unless otherwise stated, type tests when called for must be made on equipment which has previously passed its routine tests
- 47.5.1.3 Test certificates proving successful completion of the type tests detailed below to be submitted with the tender documentation.
- 47.5.1.4 Should reasonable doubt exist as to the validity of test certificates submitted, for example by virtue of modifications made to the switchgear, the employer may direct that further tests be carried out at a recognized test facility in the presence of a representative of the employer, on a sample unit of the switchgear in question. The cost of these tests must be for the expense of the contractor.
- 47.5.1.5 The switchgear offered must have test certificates relating to complete switchgear assembly as manufactured or assembled at the proposed location. If a test certificate relating to a complete switchgear assembly manufactured elsewhere is submitted, it must be accompanied by a statement that the offered unit is identical (this must be verified by an accredited test authority, see note below) with the type tested product and the number of such units already produced and installed must be stated in the schedule.

Note identical in terms of all design parameters as developed and tested by the original manufacturer.

- 47.5.1.6 The manufacturer must be fully equipped to perform all the required tests as specified. Tenderers must confirm the manufacturer's capabilities in this regard when submitting tenders. Any limitations must be clearly stated. The employer reserves the right of inspection of the manufacturer's test facilities by the engineer. Where required instruments must be calibrated by an agreed independent body at the contractor's expense.
- 47.5.1.7 Test certificates proving successful completion of the routine tests detailed below must be supplied to the engineer on the completion of the relevant tests, and submission and approval of these certificates must be a pre-requisite for the issue of a factory release certificate by the engineer.

47.5.2 Medium Voltage Switchgear

- 47.5.2.1 The medium voltage switchgear must be tested in accordance with the requirements of SANS 62271-1, 62271-100, 62271-102, 62271-103 and 62271-200. Test must apply to the assembled switchgear, and must cover the specific switch panel and circuit breaker offered in terms of this tender.
- 47.5.2.2 Switchgear type tests
- 47.5.2.3 The type tests required in terms of SANS 62271-1, 62271-100, 62271-102, 62271-103 and 62271-200 must have been successfully conducted.
- 47.5.2.4 Where current transformers of the integral or separately mounted types are to be installed in or adjacent to the circuit breaker, the complete assembly must be included in the circuit breaker type test series when so required by the engineer.
- 47.5.2.5 For the purpose of the circuit breaker tests, the operating pressures for gas circuit breakers of all types must be as follows:-
- a. Making and breaking current capacity type test - minimum operating pressure.
 - b. Inductive current interrupting type test - maximum operating pressure.
 - c. Capacitive current interrupting type test - minimum operating pressure.

47.5.2.6 Partial Discharge Type Tests

All components of the switchgear apparatus utilising organic and/or cast insulation materials as the major insulation must be subjected to partial discharge measurements. The test method must be one which enables the apparent magnitude of individual discharge to be determined in accordance with the requirements of SANS 60270. Partial discharge tests must also be undertaken on the complete switch panel or on the complete switchgear apparatus ordered (eg circuit breaker).

47.5.2.7 Temperature Rise Tests

Test certification for the heat run tests must detail all busbar and conductor sizes and cross-sections, as tested.

47.5.2.8 Internal Arcing Test

The internal arc type testing must demonstrate the ability of the pressure relief devices to relieve pressure and direct hot gasses and overpressure in accordance with the IAC classification..

47.5.2.9 Switchgear Routine Tests

Routine tests must be conducted as required in terms of SANS 62271-1 and 62271-200.

47.5.2.10 Dielectric Tests

A power frequency voltage test at the level specified must be made on each component of the switchboard. Clause 7.1 of SANS 62271-1 is applicable, with the following addition and exception:

The power-frequency voltage test must be performed according to the requirements in 6.2.6.1 of SANS 62271:200:2004. The test voltage specified in tables 1a and 1b, column 2, of SANS 62271-1 must be applied connecting each phase conductor of the main circuit in turn to the high-voltage terminal of the test supply, with the other phase conductors connected to earth and the continuity of the main circuit assured (for example, by closing the switching devices or otherwise). For gas-filled compartments, the tests must be performed at the rated filling pressure (or density) of the insulating gas.

47.5.2.11 Partial Discharge Routine Tests

Each item of organic insulation must be subjected to partial discharge tests as specified in SANS 60270. Each factory assembled unit must also be tested.

47.5.2.12 Resistance of Main Circuits and Joints

SANS 62271-1 is not applicable. The d.c. Voltage drop or resistance of each phase of the main circuit must be measured under conditions as close as possible to those under which the corresponding type test was carried out. The measured value of the type test can be used to determine the limit of resistance value for the routine test. The resistance of each joint or contact within a particular assembly must be measured and must not differ from that measured during the temperature rise test by more than $\pm 10\%$.

47.5.2.13 Testing of Interlock Equipment

Each assembly of interlocking must be operated 50 times in succession with the electrical, pneumatic or hydraulic devices set to the most unfavourable operating values.

47.5.3 Current Transformers

47.5.3.1 Type Tests

Type tests must be made in accordance with SANS 61869-2 along with the additional tests as detailed below. Equivalent type test certification in accordance with the replaced standard SANS 60044-1 will be accepted for current transformers that have not yet been tested to the replacement standard SANS 61869-2 and subject to provision of type testing program to SANS 61869-2.

47.5.3.2 Special Tests

47.5.3.2..1 Thermal Stability Test

Each type of current transformer being provided must be subject to a thermal stability test as follows:-

- a. The transformer, complete as in service must be erected in a suitable chamber such that the temperature of the surrounding medium is maintained at 75°C. A sufficient period must be allowed for the transformer to reach equilibrium with the surrounding air prior to applying a voltage of 0,86E to the primary winding.
- b. The loss angle must be measured at suitable intervals until a virtually constant level is attained. The transformer must be allowed to cool to the ambient temperature and the loss angle test repeated. No significant change of loss angle must have occurred.

47.5.3.2..2 Magnetisation and Internal Burden Tests

The following magnetisation characteristic and an internal burden test must be made and test results submitted for each core:

- a. A magnetisation curve must be made for one ratio, preferably the ratio in the schedules for which the output accuracy class and accuracy limit factor (if applicable) are listed in this Specification. The exciting current at the secondary voltage specified in this Specification, or at the emf corresponding to the rated accuracy limit factor, must be particularly noted.
- b. Secondary winding resistance corrected for 75°C for each ratio.

47.5.3.3 Routine Tests

Each current transformer being provided must be subjected to the routine tests specified in SANS 61869-2 along with the additional tests as detailed below.

- a. Magnetisation and Internal Burden Tests.
- b. Partial discharge tests in accordance with SANS 61869-1.

47.5.3.4 Routine Tests – Class X (PX) Current Transformers

Class X (PX) current transformers have the following additional tests carried out:

47.5.3.4..1 Excitation Current

An excitation curve must be taken at least up to that point where an increase of 10% in voltage results in an increase of 100% in current. The exciting current at the rated knee-point voltage and/or at any stated percentage thereof, must not exceed the specified value(s).

47.5.3.4..2 Turns Ratio

The turns ratio must be determined and must not differ from the specified ratio by more than 0,25%.

47.5.4 **Voltage Transformers**

47.5.4.1 Type and Routine Tests

Voltage transformers must be subjected to the type and routine tests specified in SANS 61869-3. Equivalent type test certification in accordance with the replaced standard SANS 60044-2 will be accepted for voltage transformers that have not yet been tested to the replacement standard SANS 61869-3.

47.5.5 **Busbar Conductor and Connections**

The tests must be in accordance with IEC 60209.

47.5.6 **Control and Relay Panels, Instruments and Secondary Wiring**

47.5.6.1 Type Tests

47.5.6.1..1 Mimic Diagram Panel Operation Tests

One typical indicating panel must be erected as in service and the indicating devices operated to the satisfaction of the Engineer.

47.5.6.2 Routine Tests

47.5.6.2..1 All panels and instruments must comply with the tests specified in the appropriate standard Specifications.

47.5.6.2..2 The wiring on each panel, cubicle, rack and each removable panel or plate of apparatus must be subjected for one minute to an alternating voltage equal to the test pressure specified for the apparatus to which it is connected. This test must take place after the complete assembly of the apparatus, including thermionic valves, etc and wiring on or in the panels, cubicles and racks.

47.5.6.2..3 All wiring and apparatus which is, or may become, connected to voltage sources other than the supply for the very low voltage (50 V and below) apparatus must be subjected for one minute to an alternating test pressure of 2 kVrms to the frame of the panels on which they are accommodated, immediately after which the insulation measured at 500 V dc must not be less than 20 mΩ. Included in these requirements is apparatus and wiring which become connected to voltage or current transformers.

47.5.6.2..4 The windings and electrical connections of indicating and recording meters must be subjected for one minute to a test voltage of 2 kVrms to the case or any other metal which is not intended to be insulated from the case when the instrument or meter is in use.

47.5.7 **Material**

47.5.7.1 Type Tests

Samples selected by the Engineer from metals used in the Works must be tested to prove compliance with the Specification including the guarantees stated.

47.5.8 **Galvanising**

47.5.8.1 Routine Tests

Samples of all galvanised material, selected by the Engineer, must be subjected to the galvanising tests set out in SANS 32, 121, 4998 and BS EN 10143 whichever are applicable.

47.5.9 **Handling Devices and Lifting Tackle**

47.5.9.1 Routine Tests

47.5.9.1..1 Mechanical Test

All handling devices and lifting tackle supplied for maintenance purposes under this Contract, must, unless they are built into and form part of the equipment, be tested, and marked and certificates of test provided in the manner required by the appropriate regulations.

47.5.9.1..2 Operation Test

Lifting tackle built into and forming part of the equipment must be operated with the maximum working load to the IEC or BS Specifications or Occupational Health and Safety Act No. 85 of 1993.

47.5.9.1..3 All secondary wiring, including panel wiring and control circuits and all apparatus connected directly thereto must withstand a high voltage test of 2 kVrms to earth unless otherwise specified.

47.5.10 Cables

47.5.10.1 Each type of cable being provided for power supply, lighting, multicore cabling etc, must be subjected to the type, sample and routine tests specified in the British or other approved international standard appropriate to the particular category of cable.

47.5.11 Insulated Pressure Containers (Including Circuit Breakers)

47.5.11.1 Routine Tests

47.5.11.1..1 Pressure Tests

Containers made of insulating material which have in service to withstand pressures in excess of atmospheric pressure, must each be tested hydraulically after all necessary machining work on them has been completed. The tests must be carried out at the pressures given below for a period of 15 minutes, and components must thereafter be marked in an approved manner.

- a. For containers subject to static pressure loads only and not subject to significant mechanical shock in service the test must be made at twice maximum working pressure.
- b. For containers subject to rapid changes of pressures, or to pressure plus mechanical shock, the test must be made at three times maximum working pressure.

47.5.12 Circuit Breaker Tanks

47.5.12.1 Type Test

47.5.12.1..1 One tank of each type must be tested to three times the maximum impulse pressure to which the circuit breaker is subjected under short circuit conditions as stated in the Schedules.

47.5.12.1..2 Measurements must be made to determine the magnitude of the temporary distortion. There will be no permanent set.

47.5.13 Motors

Performance tests must be in accordance with SANS 60034-1.

47.5.14 Motor Control Equipment

Type and routine tests must be carried out in accordance with SANS 60947.

47.5.15 Protection Equipment

47.5.15.1 Routine Tests

All relays must be subjected to routine tests at the manufacturer's works to confirm that they comply with the claimed performance and design limits.

47.5.15.1..1 For measuring relays (ie relays which have a defined setting of the input and/or characteristic quantity

subjected to accuracy requirements, e.g. current, time etc) these routine tests must include as a minimum the following:

- a. Measurement of the assigned error(s) under reference conditions, ie measuring accuracy and operating time characteristics.
- b. Measurement of the resetting ratios.
- c. Dielectric tests as specified in Clause 6 of IEC 60255 5, the test voltage being 2 kV_{rms}. All normally open output contacts of all relays must withstand a test voltage of 1 kV_{rms}.

47.5.15.1..2 For all or nothing relays, the routine tests must include a check of relay operation and resetting, together with the dielectric tests described above.

47.5.15.1..3 Unless otherwise agreed with the Engineer, all unit protection schemes using either biased differential, current balance or voltage balance principles must be subjected to heavy current conjunctive tests using the actual current transformer windings which will be used in service. Tests must be made to prove operating sensitivity, time of operation and to demonstrate stability of the protection under the worst transient external fault conditions. Tests will only be waived if the manufacturer is able to produce type test results for an identical scheme. In this case it will be sufficient to prove that individual component characteristics are identical, eg current transformers are of the same design, have the same magnetization characteristics, knee point voltage and secondary resistance.

47.5.15.1..4 For protection schemes including distance protection, phase comparison protection, autoreclosing and automatic switching sequence schemes etc routine tests must be performed on each complete scheme to ensure that all possible operational sequences and features are fully functional. Where necessary, this must be done using simulation of any ancillary equipment normally used in conjunction with the scheme, e.g. Circuit breakers. These routine tests will be performed in addition to the tests normally applied to individual elements of the scheme and details of the proposed test programme must be submitted to the engineer for approval not less than one month before they are to be performed.

47.5.15.1..5 If such routine tests are not practicable due to the complexity of the scheme, a scheme type test will be accepted on representative production equipment. The test must be performed so as to simulate, as nearly as possible, the conditions which will be experienced in service and details of the proposed test programme must be submitted to the engineer for approval not less than one month before they are performed. In those cases where correct operation of the scheme is dependent on measured quantities associated with primary system plant (e.g. Circuit breaker gas pressure), such quantities must be measured directly during the tests.

47.5.15.2 Type Tests

47.5.15.2..1 Approved type tests must be carried out in the manufacturer's works on each type of protective system. During the tests, ancillary equipment must be erected and connected so as to reproduce service conditions as closely as possible. The main purpose of these tests must be to determine the performance of the protection for the range of system conditions which will be encountered by the protection in practice, and to determine all the appropriate application parameters. The test condition must be as agreed by the engineer.

47.5.15.2..2 Where type tests have been carried out under previous contracts on protective equipment similar in all essential respects to the equipment included in the contract, the engineer may waive the type tests on production of complete test records which he approves, relating to the equipment concerned. Each set of test records must include a full statement of the performance claims, e.g. Performance under reference conditions, effect of influencing the quantities, steady state and dynamic stability for unit protection schemes, current and voltage transformer requirements, etc and full details of tests performed on representative samples of production equipment to demonstrate that the performance claims have been met.

47.5.15.2..3 For circulating current protective schemes using high impedance relays, calculation of the predicted performance will be accepted in lieu of type testing of each individual scheme. Type test results must, however, be available for inspection by the Engineer to show that heavy current conjunctive tests

have been performed on a representative scheme to prove the stability and operating time performance. Details of the accepted method of calculation are given in Appendix A.

47.5.15.2..4 In addition, each scheme must fulfil the following supplementary routine testing requirements:

- a. Each current transformer, which must be of the low reactance type, must be individually tested for turns ratio, secondary winding resistance and excitation characteristic up to a secondary voltage equal to 120% of the "knee point" voltage.
- b. The VA consumption at operation of current operated relays must be measured and must not exceed the maximum value declared by the manufacturer.
- c. The operating current of voltage relays must be measured and must not exceed the maximum
- d. value declared by the manufacturer.

47.5.16 Tests at Site

- 47.5.16.1 After the plant and ancillary equipment have been erected and connected up on site, the Contractor must carry out to the satisfaction of the Engineer such tests as may be required to prove compliance with the Specification, independently of any tests carried out at the manufacturer's works.
- 47.5.16.2 Not more than eight weeks after the award of the tender and at least four weeks prior to the commencement of any installation work envisaged in terms of the tender, the Contractor must submit for the approval of the Engineer his detailed site test proposals for the switchgear installations, together with details of the test equipment and methods that he proposes to use. Subject to approval of the tests, these will be written by the Engineer into an overall programme of tests, which will be issued to all directly concerned prior to the starting date for the tests.
- 47.5.16.3 The Engineer must have the right to witness all tests, and the results must be available to him as the tests proceed. He may recommend waiving of some tests, or may add further tests if considered necessary to prove compliance with the Specification.
- 47.5.16.4 Clear records of all tests necessary before the plant can be regarded as ready to be first connected to the Employer's system must be maintained by the Contractor and submitted to the Engineer in duplicate (one copy being for the Employer). Both the Employer's and the Engineer require this information before the plant will be accepted for initial energising.
- 47.5.16.5 Initial energising and all subsequent 'live' tests will be directed by the Engineer, and carried out jointly by the Employer, Contractor and Engineer. They will be subject to the Employer's standard safety procedures, and all operational switching will be carried out by the Employer according to a detailed programme which the Engineer will prepare and which will be agreed in advance between all three parties.
- 47.5.16.6 During these 'live' tests the Contractor must remain responsible for the performance of his plant.
- 47.5.16.7 A record of the results of the tests in this category will be made available to the Contractor by the Engineer.
- 47.5.16.8 The Contractor must submit to the Engineer for approval a list of recommended settings for all protection and other types of automatic equipment, not less than thirteen weeks before such equipment is required in commercial service. Where the settings involve discrimination with settings of an existing network or plant supplied under a separate contract, the relevant information will be supplied to the Contractor.

47.5.17 Minimum Acceptable Site Tests

The Site Tests, full details of which are to be submitted by the Contractor after the Contract has been placed, must include those tests described in outline below, as appropriate to the switchgear installed.

47.5.17.1 Switchgear

- 47.5.17.1.1 All switchgear, once installed on site, must be subjected by the purchaser to an 80 % power frequency voltage test in accordance with SANS 62271-200. Furthermore, power cables connected to the switchgear must be tested at a value specified for cables complying with SANS 10198-13 for XLPE cables and SANS 97 for PILC cables, for the same system voltage as the switchgear.
- 47.5.17.1.2 All mechanical and electrical operation tests must be carried out in accordance with SANS 62271-200.
- 47.5.17.1.3 The resistance test on all primary connections must be done at not less than 50 A and up to the rated current of the circuit.
- 47.5.17.1.4 Vacuum checks by means of an a.c., r.m.s. or d.c. withstand test across open contacts must be done.
- 47.5.17.1.5 Manual closing and opening operation and emergency hand operation.
- 47.5.17.1.6 SF6 pressure monitoring and leakage tests.
- 47.5.17.1.7 Complete electrical functional tests, and circuit IR tests.
- 47.5.17.1.8 Closing and opening at reduced voltage.
- 47.5.17.1.9 Check of position indicators and operation counters.
- 47.5.17.1.10 Motor protection relay tests.

47.5.17.2 Circuit Breakers

- 47.5.17.2.1 Commissioning tests as specified in SANS 62271-100 must be undertaken.
- 47.5.17.2.2 The following additional tests must also be undertaken:
 - a. Coil resistance measurements of close coils, trip coils, anti-pumping relay and interlock relays.
 - b. Vacuum checks by means of an a.c., r.m.s. or d.c. withstand test across open contacts must be done.
 - c. Voltage tests.
 - d. Complete electrical functional tests, and circuit IR tests.
 - e. Closing and opening at reduced voltage.
 - f. Check of position indicators and operation counters.

47.5.17.3 Electro-Magnetic Voltage Transformers

47.5.17.3..1 General checks of insulators, earth strap connections, pressure relief diaphragm and terminal box venting and sealing.

47.5.17.3..2 Insulation resistance tests to earth and between primary and secondary windings.

47.5.17.3..3 No-load test with normal applied voltage on secondary terminals for minimum of 30 minutes. Measure secondary output volts with the VT energized at primary voltage.

47.5.17.3..4 Phasing tests.

47.5.17.4 Electrical Interlocks

47.5.17.4..1 Check local auxiliary switch chains.

47.5.17.4..2 Check auxiliary switch chains for parallel operation.

47.5.17.4..3 Electrical bolts operational tests at standing battery volts.

47.5.17.5 Current Transformers

47.5.17.5..1 General check of insulators, earth connectors and terminal identification.

47.5.17.5..2 Magnetisation curve, polarity, ratio, secondary winding resistance tests.

47.5.17.6 Protection Basic Tests

47.5.17.6..1 Insulation resistance of all secondary circuits (current and voltage transformers, control, indication and alarm circuits, etc).

47.5.17.6..2 Primary injection of current transformer circuits, including overall injection of differential protection circuits, to prove all connections and to check ratios, fault settings, stability and phase identification.

47.5.17.6..3 Secondary injection of voltage transformer circuits.

47.5.17.6..4 Secondary injection of ac and dc relays to check their operating characteristics.

47.5.17.6..5 Complete functional tests of tripping, alarm, control, indication and protection circuits, including testing and verification of correct performance of the SCADA system.

47.5.17.6..6 Operation of tripping elements at reduced dc. voltage. Phasing tests (of main plant) prior to making alive. Measurement of secondary currents and voltages on load.

47.5.17.7 Batteries and Associated Equipment

47.5.17.7..1 Constant Voltage Float Charger

After adjusting the constant voltage float charger to give the specified battery terminal voltage when the battery is fully charged and the normal load is connected, the charger must be switched off and the battery allowed to discharge to the specified terminal voltage. The charger must then be switched on and the initial current (load plus charging current) measured. This must not be greater than the value given in Schedule C3.7. The time taken for the battery to reach 80% of full charge must also be measured and this must not be more than 24 hours.

47.5.17.7..2 Battery

A capacity test must be carried out in accordance with the manufacturers' recommendations.

47.5.17.7..3 Boost Charging

Following the battery capacity test the fully discharged battery must be fully recharged to the manufacturer's recommendations by means of the boost charging facility. During the charging period frequent measurements of charging current and electrolyte temperature must be taken to ensure the battery manufacturer's recommended maximum values are not exceeded. Measurements must be taken to ensure the dc voltage at the distribution board does not exceed the specified value at any time during the boost charge cycle.

47.5.17.8 Power and control cables routine site tests

After laying and jointing all power and control cables must withstand and satisfactorily comply with all the tests specified in the appropriate Standard Specifications.

47.5.18 System Tests

47.5.18.1 Where special system tests are required the Contractor may be expected to participate in such tests in so far as the Works are concerned, and to provide suitable instrumentation. The tests themselves and the extent of the Contractor's participation in them will form the subject of special agreement.

47.5.18.2 The programme for system tests will be issued by the Engineer, who will be responsible for their overall direction.

SPECIFICATIONS

CURRENT:
 PYRAMID INSTRUMENTATION
 TYPE CA7LDG 6
 INPUT 0-6A
 OUTPUT 4-20mA
 Hz 50
 EXT. LOAD <750 OHM
 CLASS 0.5
 AUX SUPPLY 230V
 COMPLY TO IEC 60688

VOLTS:
 PYRAMID INSTRUMENTATION
 INPUT 0 - 125V AC
 OUTPUT 4 - 20mA
 Hz 50
 EXT. LOAD <750 OHM
 CLASS 0.5
 AUX SUPPLY 230V AC
 COMPLY TO IEC 60688

U.V. RELAY:
 R-HOMBERY
 VOLTAGE MONITOR
 SP 201

LATCHING RELAY:
 OMRON
 MK2KP
 30 V. DC

DRAWING NO:
PRP 1SHT1

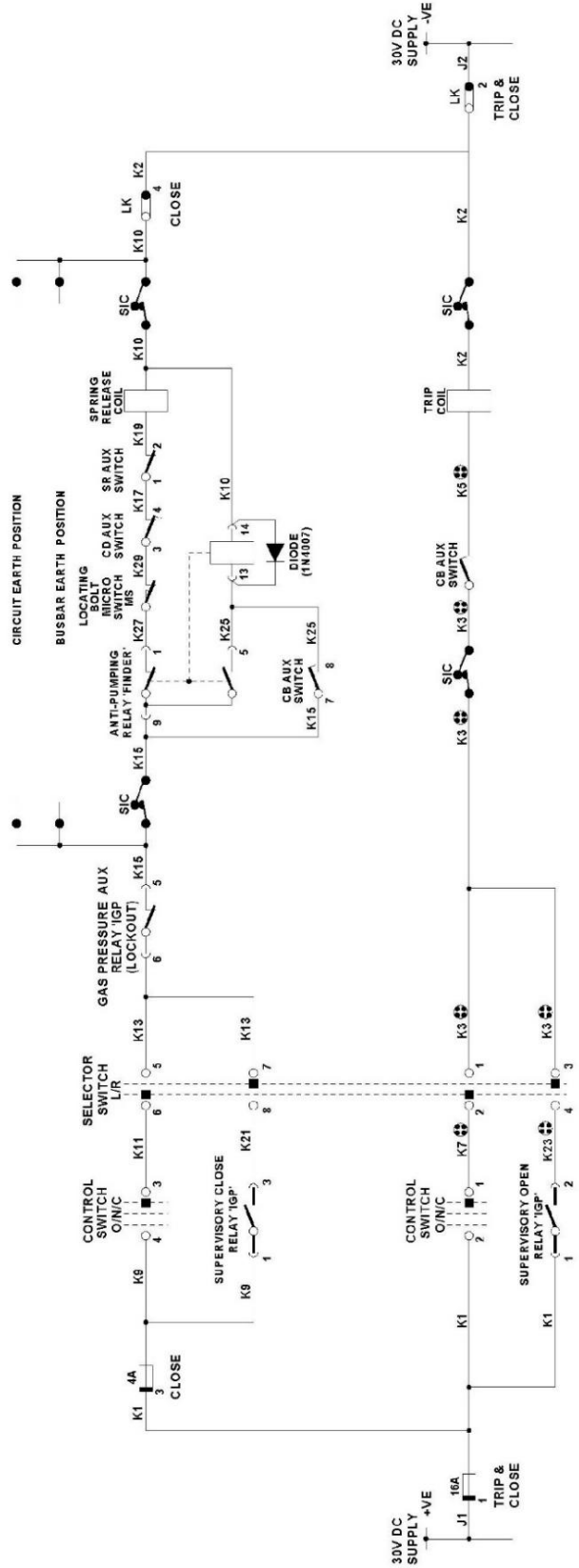
CB SUPERVISORY ALARM INDICATION


TO R03 TRAP CIRCUIT
SEE NOTE 2

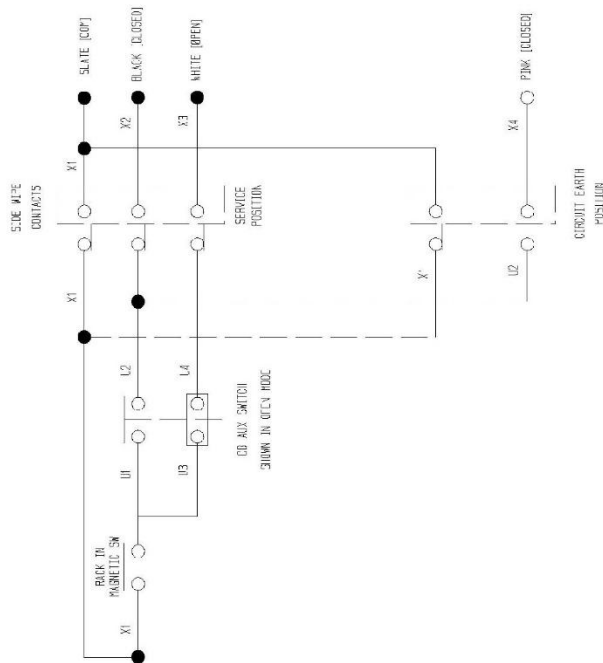
CITY OF CAPE TOWN
ELECTRICITY SERVICES

CHECKED: F. DOWNING
 DESIGN: G. WILLIAMS
 DRAWN: G. WILLIAMS
 DATE: 26-09-08
 SCALE: N.T.S.

No	AMENDMENT'S	DATE
1	30V DC WAS 24V DC.	14-11-2005
2	TRANSDUCER SPEC'S ADDED	14-11-2005
3	SPECIFICATIONS AMENDED	16-11-2005



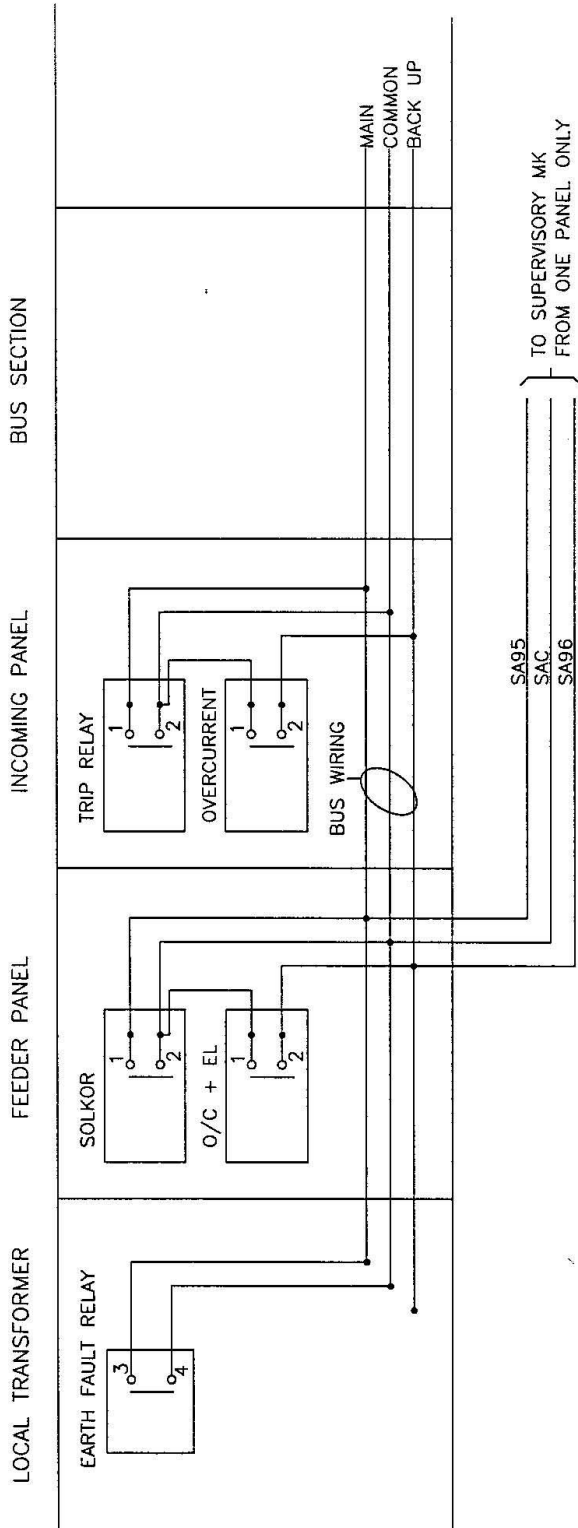
No	WYSIGINGS - AMENDMENTS	DATE/DATE	 DIREKTORAAT ELEKTRIESE DIENSTE DIRECTORATE ELECTRICITY SERVICES CITY OF CAPE TOWN ISIXEKO SASEKAPA TYGERBERG ADMINISTRASIE/ADMINISTRATION	SETEREN: D ANTHONY	ONTWERP: G v HEERDEN	NAGESIEN: G v HEERDEN	SUPERVISORY CONTROLS PRP1SH2
	1	UPDATED		15-11-2005	DRAWING: NENSIENUR: 15-11-2005	DESIGN: 15-11-2005	
				ENGINEER:	DATE:	SCALE:	



No	AMENDMENTS	DATE

CITY OF CAPE TOWN ELECTRICITY SERVICES	DRAWN: G. WILLIAMS ENGINEER	CHECKED: F. DOWNING	DRAWING NO: PRP 1SHT3
	DATE: 26-08-96	SCALE: N.T.S.	CB SUPERVISORY ALARM INDICATION BREAKER STATUS INDICATION

LMT SWITCHBOARD



NOTE:

USE SPARE N/O CONTACTS ON RELAYS

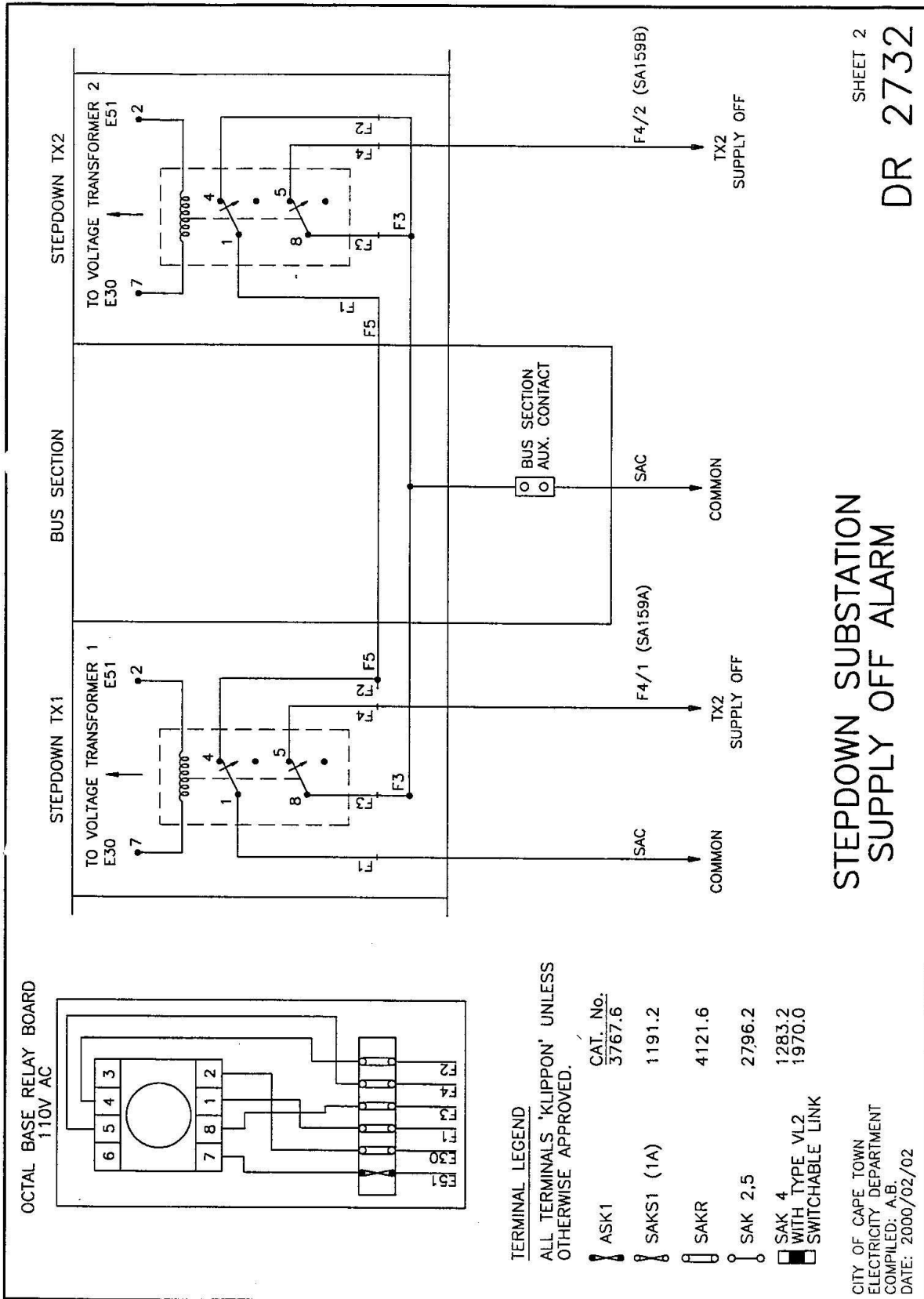
ALL WIRE TO BE 1,5mm² GREY

INSTALL OR UTILIZE 3 SPARE TERMINALS IN EACH PANEL

CITY OF CAPE TOWN
ELECTRICITY DEPARTMENT
COMPILED: A.B.
DATE: 2000/02/02

STEPDOWN SUBSTATIONS MAIN AND
BACK UP PROTECTION ALARMS.

SHEET 1
DR 2732



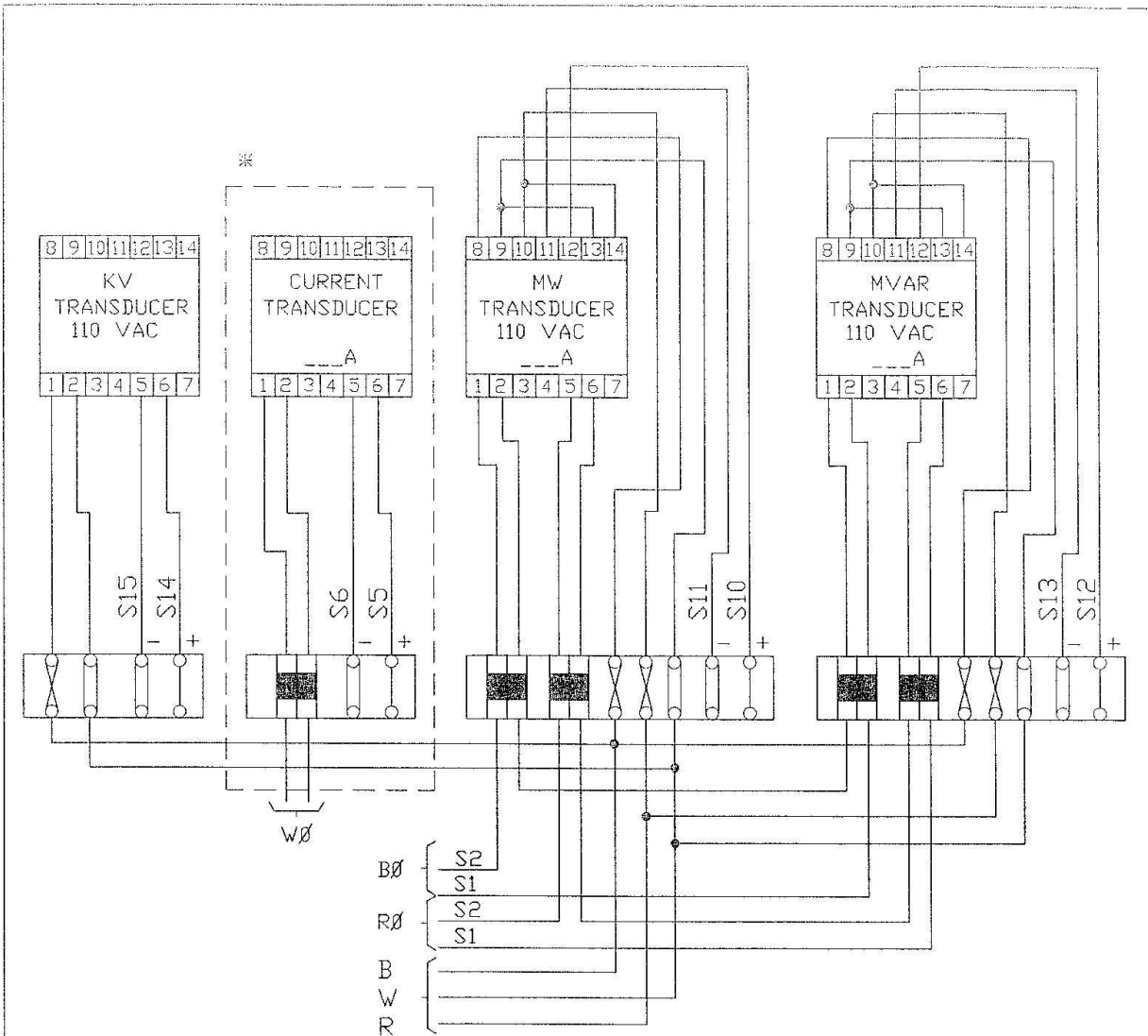
STEPDOWN SUBSTATION
SUPPLY OFF ALARM

SHEET 2
DR 2732

TERMINAL LEGEND
ALL TERMINALS 'KLIPPON' UNLESS OTHERWISE APPROVED.

- ASK1 CAT. No. 3767.6
- SAKS1 (1A) 1191.2
- SAKR 4121.6
- SAK 2.5 2796.2
- SAK 4 1283.2
- WITH TYPE VL2 1970.0
- SWITCHABLE LINK

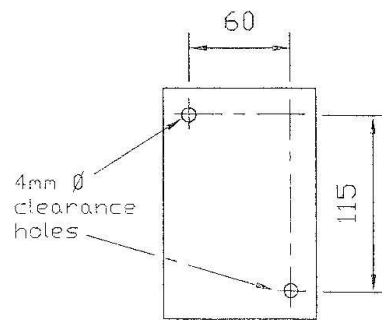
CITY OF CAPE TOWN
ELECTRICITY DEPARTMENT
COMPILED: A.B.
DATE: 2000/02/02



NOTE: ALL CURRENT CONNECTIONS FROM OVERCURRENT CT'S.

* CURRENT TRANSUCER ONLY ON OUTGOING SOLKOR/OVERCURRENT PROTECTED PANELS. VOLTAGE, CURRENT, MW AND MVAR TRANSUCERS ON INCOMING TRANSF. PANELS.

TERMINALS TO BE IN ORDER AS SHOWN BUT CAN BE GROUPED WITH OTHER PANEL TERMINALS IN AN ACCESSIBLE POSITION

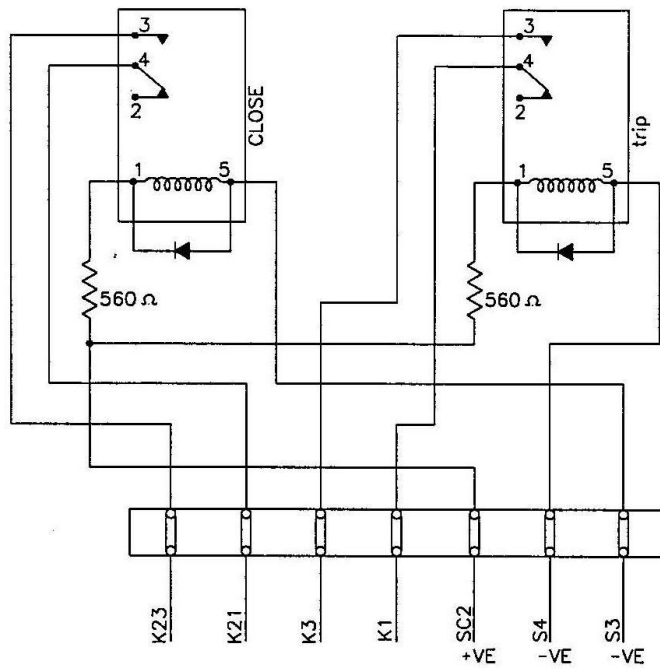


TRANSUCER MOUNTING DIAGRAM

CITY OF CAPE TOWN
ELECTRICITY DEPT.
DRAWN: A.B.
1984.10.19.






TRANSUCER CONNECTIONS

DR 2732
SHEET 4



TERMINAL LEGEND

ALL TERMINALS 'KLIPPON' UNLESS OTHERWISE APPROVED.

	ASK1	CAT. No. 3767.6
	SAKS1 (1A)	1191.2
	SAKR	4121.6
	SAK 2,5	2796.2
	SAK 4 WITH TYPE VL2 SWITCHABLE LINK	1283.2 1970.0

DIODE: TYPE F4

RELAYS:

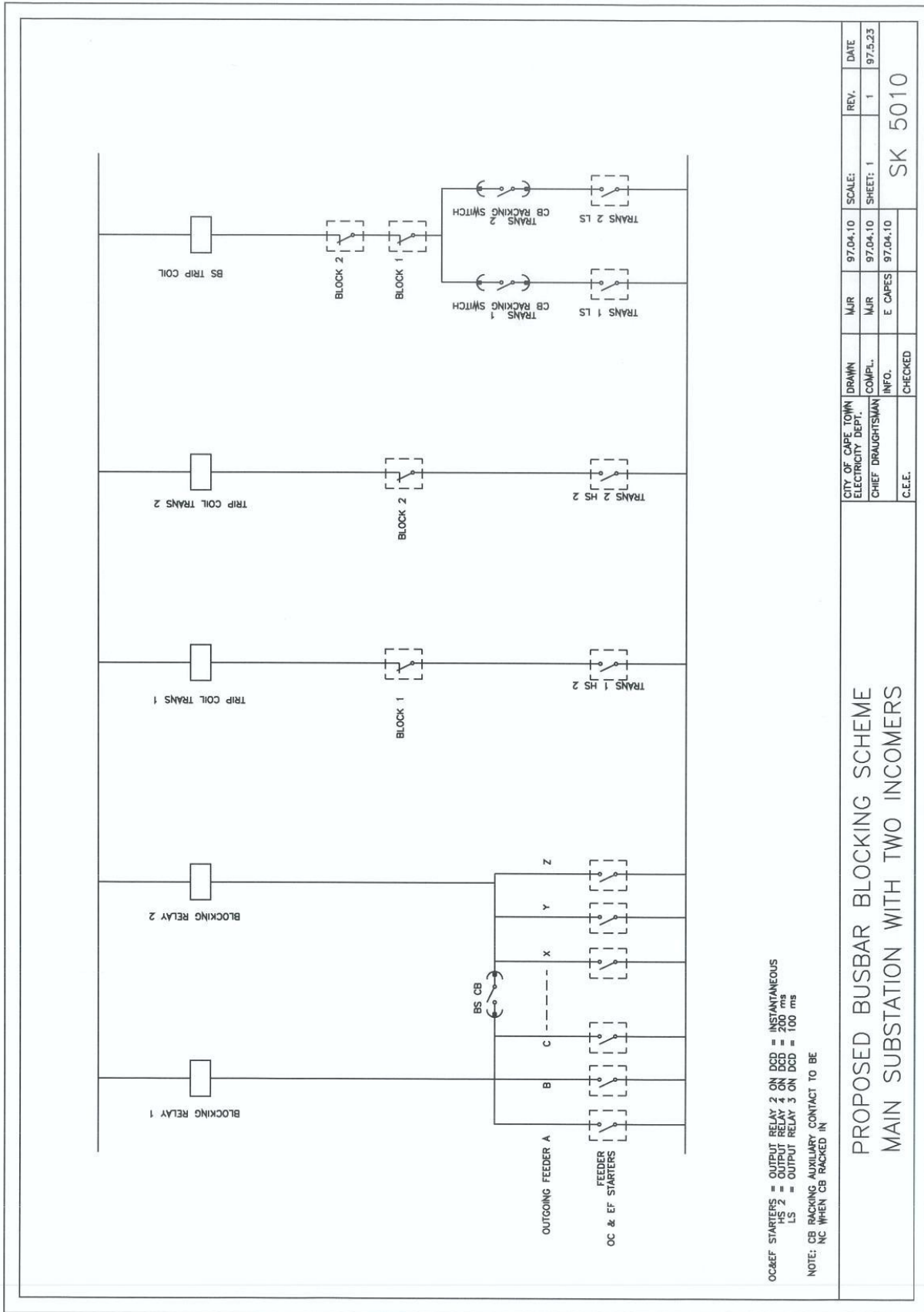
OMRON TYPE GSR-117 P-V-US
WITH 24V dc COIL (1100 Ω)
IN SERIES WITH 560 Ω RESISTOR.

**SUPERVISORY INTERPOSING
CONTROL RELAYS**

CITY OF CAPE TOWN
ELECTRICITY DEPARTMENT
COMPILED: A.B.
DATE: 2000/02/02

SHEET 5

DR 2732



OC&EF STARTERS = OUTPUT RELAY 2 ON DCD = INSTANTANEOUS
 HS 2 = OUTPUT RELAY 4 ON DCD = 200 ms
 LS = OUTPUT RELAY 3 ON DCD = 100 ms
 NOTE: CB RACKING AUXILIARY CONTACT TO BE
 NC WHEN CB RACKED IN

CITY OF CAPE TOWN ELECTRICITY DEPT. CHIEF DRAUGHTSMAN		DRAWN COMPL. INFO.	MAJ MAJ E CAPES	97.04.10 97.04.10 97.04.10	SCALE: SHEET: 1	REV. 1	DATE 97.5.23
C.E.E.		CHECKED				SK 5010	

PROPOSED BUSBAR BLOCKING SCHEME
 MAIN SUBSTATION WITH TWO INCOMERS

48 CONTINGENCY

48.1 An amount of 5% must be catered for the individual works projects.

49 WORKS PROJECT DOCUMENT/TEMPLATE

49.1 The Works Project Document/Template must include but not limited to the items below:

49.1.1 The Offer

49.1.1.1 Part A1: Work Allocation

- A1.1 Work allocation notice
- A1.2 Work allocation procedures

49.1.1.2 Part A2: Returnable Documents

- A2.1 List of returnable documents
- A2.2 Returnable schedules

49.1.2 The Contract

49.1.2.1 Part C1: Agreements and Contract Data

- C1.1 Form of offer and acceptance
- C1.2 Contract data
- C1.7 Insurance Broker's Warranty
- C1.9 Works Project Acceptance/Refusal Notice

49.1.2.2 Part C2: Pricing Data

- C2.1 Pricing Assumptions
- C2.2 Bills of Quantities

49.1.2.3 Part C3: Scope of Work

- C3.1 Description of the Works
- C3.2 Engineering
- C3.3 Procurement
- C3.4 Construction
- C3.5 Management
- C3.6 Annexes (see Volume 3A)

49.1.2.4 Part C4: Site information

49.1.3 A Site-Specific Risk Assessment

49.1.4 Health and Safety Plan

49.1.5 Site HSE Organogram

49.1.6 Training Records

49.1.7 Toolbox Talks

49.1.8 Emergency Contact Details

49.1.9 Authorisation & Appointment Letters

50 Procedures for Allocation of Works Projects

50.1 The Employer reserves the right to plan and effect individual Works Projects at its sole discretion.

50.2 The Employer will only order those quantities of work items which it actually requires for execution in a Works Project from time to time.

50.3 The Employer reserves the right not to order any quantities at all depending on circumstances and subject to operational requirements.

50.4 The Works Projects must be executed anywhere within the City of Cape Town municipal area and the Works Projects must be identified subject to availability of funding.

PROCEDURES FOR THE ALLOCATION OF WORKS PROJECTS

These procedures include the development of a Works Project contract document, applying the tendered rates in order to arrive at a financial offer, receiving the contractor's Works Project contract document, and allocating the Works Project to the contractor as follows:

In terms of the foregoing, "the contractor" in the procedures below is the contractor under consideration (starting with "the winner") for allocation of the Works Project.

The procedures are summarised under the stages below, wherein the Employer (acting through his agent) must

Stage 1: Employer prepares Works Project contract document and prices bills of quantities using the contractor's rates

- a) prepare a Works Project contract document, including Bills of Quantities and Scope Work therein; and
- c) compute the financial offer for the contractor, using the awarded framework contract rates;

Stage 2: Contractor collects copy of Works Project contract document and attends a Works Project meeting

- d) make available to the contractor a copy of the Works Project contract document with the Bills of Quantities priced by the Employer (as in b) and c) above);
- e) simultaneously, invite the contractor to attend a compulsory Works Project meeting;
- f) conduct the Works Project meeting, including discussing any issues the contractor may have (this may result in changes being made to the Works Project contract document and its being re-issued after steps c) and d) have been repeated); and
- g) receive any refusal notice from the contractor timeously after the meeting;

Stage 3: Contractor submits completed Works Project contract document and Employer allocates Works Project

- h) if the contractor who attended the Works Project meeting did not submit a refusal notice, request him to complete the Returnable Schedules, Form of Offer, Works Project Acceptance/Refusal Notice, etc. in the Works Project contract document and submit the completed document to the Employer; and
- i) test submission for completeness and allocate the Works Project to the contractor or, if his offer is non-responsive/invalid, repeat the processes in h) and i) with the contractor on the standby panel (IF ANY) with the next highest ranking.

Further details of the procedures under the above stages are given below.

Stage 1

As and when the Employer requires work to be executed in a Works Project under the framework contract, the Employer must specify, *inter alia*, the nature, location(s), extent, scope of work, proposed programme and contract period for the work required, in a **Works Project contract document** comprising, as relevant, Work Allocation Procedures, Returnable Schedules, Agreements and Contract Data, Bills of Quantities and Scope of Work.

In the Bills of Quantities the Employer must assign quantities to the work items relating to the specific Scope of Work in the Works Project. The assigned quantities must be multiplied by the framework contract rates to constitute amounts that will be totalled to provide a **financial offer** for the contractor for this specific Works Project.

Stage 2

The Employer must invite the contractor to attend a compulsory **Works Project meeting** at a time and venue disclosed in writing by the Employer.

The Employer must issue the invitation **three (3)** working days prior to the meeting date, and simultaneously make available to the contractor his individually priced Works Project contract

document.

The Employer must conduct the compulsory Works Project meeting on the date specified. The purpose of this meeting is to inform the contractor of the Scope of Work required in the Works Project. The meeting must furthermore serve to answer any queries the contractor may have in respect of the required work, billed items and quantities, etc. (this may result in changes being made to the Works Project contract document and its being re-issued as in f) above). A contractor who fails to attend the compulsory Works Project meeting will be **excluded** from further participation in the Works Project allocation process.

Included in the Works Project contract document is a Works Project **Acceptance/Refusal Notice** requesting the contractor to state in writing whether he accepts/refuses the opportunity afforded to participate further in the work allocation procedure (i.e. that he is willing/not willing to undertake the work specified in the Scope of Work and Bills of Quantities and has/has not the necessary resources, including a site specific construction manager, available to complete the work within the required Works Project contract period should he be allocated the work). The contractor who **refuses** will be required to complete and return the Works Project Acceptance/Refusal Notice, either by fax or email, to the Employer within **five (5)** working days after the compulsory Works Project meeting.

Stage 3

The Works Project contract document must be completed, signed and returned by the contractor to the Employer's agent's offices no later than **five (5)** working days after the date of the compulsory Works Project meeting or after receipt thereof if changes thereto were required (refer to f) above).

The Employer will specify the proposed Works Project construction time period (time from the date specified for commencement with Works execution to Due Completion Date) for completing the specified Works in the Scope of Work in the Works Project contract document. The contractor must submit a realistic **preliminary construction programme** reflecting his proposed sequence and tempo of execution of the Works Project contract for completing the Works within the prescribed construction time period, and must append the preliminary (initial) programme to the applicable schedule in Part A2.2 Returnable Schedules in the Works Project contract document.

The submission of a fully completed and signed Works Project contract document is mandatory for the contractor who accepts, and the contractor may be requested by the Employer to complete and/or sign his submission, if necessary, should he have not already done so. A submission will be **rejected** as being non-responsive/invalid if the document is not fully completed and/or signed after the contractor has been requested by the Employer to complete and/or sign his submission.

The returned Works Project contract document will be **tested for completeness** in accordance with these procedures. The contractor whose returned Works Project contract document is fully completed and signed will be appointed as Contractor to execute the Works for the specific Works Project in terms of the Contract.

Acceptance of the contractor's offer takes place on the date the contractor (now Contractor in terms of the Contract) receives the City of Cape Town's official **purchase order**, such date being the Commencement Date of the Works Project contract.

Working days for these procedures are Mondays to Fridays.

51 Commencement, Delays and Suspension

51.1 Commencement of Work

- 51.1.1 The Contractor must submit the required documentation, for approval as set out below. The documentation required is:
- a. Approved framework Health and Safety Plan (Refer to section 43 of Specification: Health and Safety Specification)
 - b. Security (Refer to section 52 below)
 - c. Evidence of Insurance (Refer to Clause 11 of C.6)
 - d. Health and Safety Agreement (C.3 in The Contract)
 - e. Letter of Good Standing from the Compensation Commissioner (if not insured with a Licensed
 - f. Compensation Insurer) (Refer to Clause 11 of C.6)
 - g. Protection of the Environment Declaration
 - h. Other requirements:
 - i. Submission of valid NRS040 certificate and nominated representative.
 - j. If a sub-contractor, a signed agreement is also required

52 EMPLOYMENT OF PRIVATE ARMED SECURITY PERSONNEL

- 52.1 All security staff employed by the Contractor on behalf of the CCT or at any CCT property must be registered with Private Security Industry Regulatory Authority (PSiRA). Proof of such registration must be made available to the CCT or its agent, upon request.
- 52.2 The rate for the Private Armed Security must include all necessary services for the duration of work on site in High Risk Areas.
- 52.3 The Contractor must submit a request to the Engineer, for the use of Private Armed Security. The request must include a detailed risk assessment and project plan outlining when Contractor staff will be onsite requiring such security. This request will be to the approval of the Engineer.

53 HEALTH AND SAFETY SPECIFICATION**CONTENTS****H1 DEFINITIONS****H2 SCOPE****H3 INTERPRETATION****H4 GENERAL REQUIREMENTS****H5 ADMINISTRATION**

- H5.1 Application for construction work permit
- H5.2 Notification of intention to commence construction work
- H5.3 Occupational Health and Safety Agreement
- H5.4 Good standing with the Compensation Fund or a licensed compensation insurer
- H5.5 Emergency procedures
- H5.6 Health and safety file
- H5.7 Health and safety committee
- H5.8 Inspections, formal enquires and incidents
- H5.9 Personal protective equipment and clothing

H6 APPOINTMENTS

- H6.1 Appointment of construction manager
- H6.2 Appointment of construction supervisor, and health and safety officers
- H6.3 Other competent persons
- H6.4 Health and safety representative(s)

H7 EMPLOYER'S HEALTH AND SAFETY AGENT**H8 CREATING AND MAINTAINING A SAFE AND HEALTHY WORK ENVIRONMENT**

- H8.1 General
- H8.2 Risk assessment
- H8.3 Health and safety plans
- H8.4 Responsibilities towards employees and visitors
- H8.5 Subcontractors
- H8.6 Work permits and wayleaves
- H8.7 Access to the Site
- H8.8 First aid and emergency procedures
- H8.9 Housekeeping
- H8.10 Fire precautions
- H8.11 Facilities for workers

H9 GENERAL HAZARDS AND RISKS APPLICABLE TO WORK REQUIRED IN TERMS OF THIS TERM TENDER

- H9.1 Existing Site conditions
- H9.2 Information provided by the designer (CR 6(1))
- H9.3 Construction materials (hazardous substances)

H1 DEFINITIONS

For the purposes of this Specification, the definitions given in the Occupational Health and Safety Act, 85 of 1993 and the Construction Regulations, 2014, and the following definitions, must apply:

- a) "Construction Regulations, 2014" means the Construction Regulations (GNR. 84 of 7 February 2014) published in terms of the OHS Act.
- b) "Contractor" means the Principal Contractor as defined in the Construction Regulations, 2014.
- c) "Employer" means the Client or his agent as defined in the Construction Regulations, 2014.
- d) "Engineer" means the person/firm so named in the Contract Data whose function is to administer the Contract as agent of the Employer, acting through, if appointed, a Health and Safety Agent.
- e) "OHS Act" means the Occupational Health and Safety Act, 85 of 1993.
- f) "subcontractor" means any contractor employed by the Contractor to perform construction work.

H2 SCOPE

In terms of the OHS Act and the Construction Regulations, 2014 the Employer must provide the Contractor with a Health and Safety Specification, to which the Contractor must respond with a Health and Safety Plan for approval by the Employer.

The purpose of this Specification is to ensure that a contractor entering into a contract with the Employer maintains an acceptable level of compliance with regard to health and safety issues during the performance of the Contract. In this regard the Health and Safety Specification forms an integral part of the Contract and the Contractor must ensure that his subcontractors and/or suppliers comply with the requirements of this Specification.

H3 INTERPRETATION

The OHS Act and its associated regulations must have precedence in the interpretation of any ambiguity or inconsistency between it and this Specification.

Responsibility for health and safety relating to the Works lies with the Contractor as described in this Specification. Nothing stated in or omitted from this Specification must in any way limit the Contractor's obligations and liabilities in terms of the OHS Act.

H4 GENERAL REQUIREMENTS

The Contractor must:

- a) create and maintain a safe and healthy work environment;
- b) execute the Works in a manner that complies with all the requirements of the OHS Act and all its associated regulations, and in so doing, minimize the risk of incidents occurring; and
- c) respond to the instructions issued by the Engineer through the Engineer's Representative, except in the case of a health and safety issue which requires the Contractor's immediate attention, in which case the Employer's Health and Safety Agent can issue an instruction directly to the Contractor.
- d) It should be noted that the Specification generally describes the end product and not specific methods. As the methods of construction to be used are generally determined by the Contractor, detailed safety requirements applicable to all the operations to be carried out on Site are not provided in the contract documentation. The Contractor must apply all the relevant safety regulations and requirements to the work methods and materials used.

H5 ADMINISTRATION**H5.1 Application for construction work permit**

Not applicable until 7 August 2017.

H5.2 Notification of intention to commence construction work

The Contractor must notify the Provincial Director of the Department of Labour in writing using the pro forma contained in Annexure A of the Construction Regulations, 2014 before construction work

commences, and retain a copy of such notification in the health and safety file, if such work will:

- a) include excavation work;
- b) include working at a height where there is a risk of falling;
- c) include the demolition of a structure; or
- d) include the use of explosives to perform construction work.

The Contractor must ensure that no work commences on an electrical installation which requires a new supply or an increase in electricity supply before the person who supplies or contracts or agrees to supply electricity to that electrical installation has been notified of such work.

The Contractor must ensure that no asbestos work is carried out before the Provincial Director of the Department of Labour has been notified in writing.

H5.3 **Occupational Health and Safety Agreement**

The Contractor is required to submit to the Employer the Occupational Health and Safety Agreement (included in C3 of The Contract) within 14 days after the Commencement Date of the Contract.

H5.4 **Good standing with the Compensation Fund or a licensed compensation insurer**

The Contractor is required to submit a letter of good standing from the Compensation Commissioner, or a licensed compensation insurer, within 14 days after the Commencement Date of the Contract.

H5.5 **Emergency procedures**

The Contractor must submit for acceptance to the Engineer a health and safety emergency procedure, which includes but is not limited to fire, spills, accidents and exposure to hazardous substances, which:

- a) identifies the key personnel who are to be notified of any emergency;
- b) sets out details of available emergency services, including contact particulars; and
- c) the actions or steps which are to be taken during an emergency.

The Contractor must within 24 hours of an emergency taking place notify the Engineer in writing of the emergency and briefly outline what happened and how it was dealt with.

H5.6 **Health and safety file**

The Contractor must ensure that a Health and Safety file, which must include all documentation required in terms of the provisions of the OHS Act, the Construction Regulations, 2014 and this Health and Safety Specification, is open and kept on Site at all times.

The Health and Safety file must be made available for inspection by any inspector, subcontractor, the Employer, the Engineer, the Employer's Health and Safety Agent, or employee of the Contractor, upon the request of such persons.

The Contractor must hand over the Health and Safety file to the Engineer upon Works completion of the Contract and, if applicable, a certificate of compliance accompanied by a test report for the electrical installation in accordance with the provisions of the Electrical Installation Regulations, 1992.

H5.7 **Health and safety committee**

Where applicable, the Contractor must establish a health and safety committee, and must convene health and safety meetings as provided for in the OHS Act.

The Engineer or the Employer's Health and Safety Agent must be invited to attend such meetings as an observer.

The Contractor must ensure that minutes of the health and safety committee meetings are kept.

H5.8 **Inspections, formal enquires and incidents**

The Contractor must inform the Engineer:

- a) beforehand of inspections, investigations or formal inquiries of which he has been notified by an inspector; and
- b) as soon as reasonably practicable of the occurrence of an incident (as defined in the OHS Act) on the Site.

The Contractor must record all incidents and notify the Engineer of any incident, except in the case of a traffic accident on a public road, as soon as possible after it has occurred and report such incident to an inspector as designated in terms of the OHS Act.

The Contractor must investigate all incidents and issue the Engineer with copies of such investigations.

H5.9 **Personal protective equipment and clothing**

The Contractor must ensure that all workers are issued with the necessary personal protective clothing.

H6 **APPOINTMENTS**

H6.1 **Appointment of construction manager**

The Contractor must, prior to commencing the Works on Site, appoint a full-time competent person as the construction manager, with the duty of managing all construction work on a single site, including the duty of ensuring occupational health and safety compliance. In the absence of the construction manager an alternative must be appointed by the Contractor.

The Contractor may, having considered the size of the project, appoint, in writing, one or more assistant construction managers for different sections thereof.

No construction manager may manage any construction work on or in any construction site other than the Site in respect of which he or she has been appointed.

H6.2 **Appointment of construction supervisor and health and safety officers**

The construction manager must appoint a competent employee(s) in writing as the construction supervisor(s) for the Site, who will be responsible for construction activities and ensuring occupational health and safety compliance on the construction site. The Contractor may, having considered the size of the project, appoint, in writing, one or more competent employees to assist the appointed construction supervisor(s).

The Contractor may, having considered the size of the project, the degree of danger likely to be encountered or the accumulation of hazards or risks on the Site, appoint a full-time or part-time construction health and safety officer in writing, who has in the Contractor's opinion the necessary competencies and resources, to assist the Contractor in the control of all health and safety related aspects on the Site.

The Contractor must compile and maintain an organogram which outlines the roles and responsibilities of the construction supervisor's assistants, and health and safety officers.

H6.3 **Other competent persons**

The Contractor must appoint in writing competent persons to supervise or inspect, as relevant, any of the following:

- a) temporary works operations;
- b) excavation work;
- c) demolition work;
- d) scaffolding work operations;
- e) suspended platform work operations;
- f) rope access work;
- g) material hoists;

- h) operation of bulk mixing plant;
- i) explosive activated fastening device;
- j) cranes;
- k) construction vehicles and mobile plant (equipment);
- l) the stacking and storage of articles on the Site; and
- m) fire equipment.

The Contractor must appoint in writing competent persons to:

- n) induct employees in health and safety; and
- o) prepare a fall protection plan.

H6.4 Health and safety representative(s)

The Contractor must appoint in writing, if necessary in terms of the OHS Act, a health and safety employee representative(s), whose duties must be as described in the OHS Act.

H7 EMPLOYER'S HEALTH AND SAFETY AGENT

The Employer's Health and Safety Agent must:

- a) audit the Contractor's compliance with the requirements of this Specification prior to the commencement of any physical construction activities on the Site;
- b) accept or reject all safety plans, giving reasons for rejecting such plans;
- c) monitor the effective implementation of all safety plans;
- d) conduct periodic and random audits on the health and safety file to establish compliance with the requirements of this Specification and the Contractor's health and safety plan; and
- e) visit the site at regular intervals to conduct site inspections, and based upon such visits issue, wherever necessary, any notices and/or instructions to the Contractor or any of the Contractor's subcontractors with a copy to the Engineer and, where relevant, to the Contractor.

The Contractor must invite the Employer's Health and Safety Agent to audit compliance with the requirements of this Specification before commencing with any new construction activity on the Site.

The Contractor must permit the Employer's Health and Safety Agent to audit the Contractor's compliance with the approved Health and Safety Plan, and must provide any assistance and/or documentation as may be required in this regard.

H8 CREATING AND MAINTAINING A SAFE AND HEALTHY WORK ENVIRONMENT

H8.1 General

The Contractor must with respect to the Site and the construction works that are contemplated:

- a) cause a preliminary hazard identification to be performed by a competent person before commencing any physical construction activity;
- b) evaluate the risks associated with such work constituting a hazard to the health and safety of such employees and the steps that need to be taken to comply with the OHS Act; and
- c) as far as is reasonably practicable, prevent the exposure of such employees to the hazards concerned or, where prevention is not reasonably practicable, minimize such exposure.

The Contractor must ensure that:

- d) all reasonably practicable steps are taken to prevent the uncontrolled collapse of any new or existing structure or any part thereof, which may become unstable or is in a temporary state of weakness or instability due to the carrying out of construction work;
- e) no structure or part of a structure is loaded in a manner which would render it unsafe;
- f) relevant information, if any, provided by the designer of the structure is taken into account in the risk assessment; and
- g) the designer of any temporary works complies with the requirements of regulation 6(2) of Construction Regulations, 2014.

The Contractor must carry out regular inspections and audits to ensure that the Works are being performed in accordance with the requirements of this Specification and the Contractor's health and safety plan

H8.2 Risk Assessment

The Contractor must before the commencement of any work on Site and during construction work, cause a risk assessment to be performed by a competent person appointed in writing. Such an assessment must as a minimum:

- a) identify the risks and hazards to which persons may be exposed to;
- b) analyse and evaluate the identified risks and hazards based on a documented method;
- c) document a plan of safe work procedures, including the use of any personal protective equipment or clothing and the undertaking of periodic "toolbox talks" or inductions before undertaking hazardous work, in order to mitigate, reduce or control the risks and hazards that have been identified;
- d) provide a monitoring plan; and
- e) provide a review plan.

The Contractor must ensure that as far as is reasonably practicable, ergonomic related hazards are analysed, evaluated and addressed in the risk assessment.

The Contractor must review the relevant risk assessment -

- f) where changes are effected to the design and or construction that result in a change to the risk profile; or
- g) when an incident has occurred.

H8.3 Health and Safety Plans

The Contractor must prior to commencing the Works to which this Specification applies, submit to the Employer's Health and Safety Agent for approval a suitable and sufficiently documented health and safety plan, based on this Specification and the risk assessment that is conducted.

The health and safety plan must include, but not be limited to, the following:

- a) The safety management structure, including the names of all designated persons such as the construction supervisor and any other competent persons;
- b) Safety method statements and procedures to be adopted to ensure compliance with the OHS Act; Construction Regulations, 2014 and this Health and Safety Specification;
- c) The provision and use of temporary services;
- d) Personal protective equipment, devices and clothing required;
- e) Emergency procedures;
- f) Provision of workers' welfare facilities;
- g) Induction and training;
- h) Arrangements for monitoring and control to ensure compliance with the safety plan; and
- i) Provision and maintenance of the health and safety file and all other relevant documentation.

The Contractor must provide each subcontractor with the sections of this Health and Safety Specification pertaining to the construction work to be performed by that subcontractor. The subcontractor must provide the Contractor with a health and safety plan pertaining to his work, for incorporation into the Contractor's health and safety plan.

The Contractor must discuss the submitted health and safety plan with the Employer's Health and Safety Agent, modify such plan in the light of the discussions and resubmit the modified plan for approval.

The Contractor must apply the approved health and safety plan from the date of its approval and for the duration of the Works to which this Specification applies.

The Contractor must conduct periodic audits for compliance with the approved health and safety plan at intervals agreed upon with the Employer's Health and Safety Agent, but at least once every month.

The Contractor must update the health and safety plan whenever changes to the Works are brought

about.

H8.4 Responsibilities towards employees and visitors

The Contractor must, as far as is reasonably practicable, cause every employee to be made conversant with the hazards to his health and safety attached to any work which he has to perform, any article or substance which he has to produce, process, use, handle, store or transport and any plant or machinery which he is required or permitted to use, as well as with the precautionary measures which should be taken and observed with respect to those hazards or safe work procedures.

The Contractor must ensure that all employees under his control are informed, instructed and trained by a competent person regarding any hazard and the related work procedures before any work commences, and thereafter at such times as may be determined in the risk assessment.

The Contractor must cause a record of training to be kept, which indicates the names, identity numbers and job description of all those who attended such training.

The Contractor must not allow or permit any employee to enter the Site, unless such person has undergone health and safety induction training pertaining to the hazards prevalent on the Site at the time of entry.

The Contractor must ensure that all of his employees have a valid medical certificate of fitness specific to the construction work to be performed and issued by an occupational health practitioner on the prescribed form.

The Contractor must ensure that each visitor to the Site, save where such visitor only visits the site office and is not in direct contact with the construction work activities:

- a) undergoes health and safety instruction pertaining to the hazards prevalent on the Site; and
- b) is in possession of and using the necessary personal protective equipment.

The Contractor must cause a record of all induction training to be kept in the Health and Safety file.

The Contractor must provide suitable on-site signage to alert workers and visitors to health and safety hazards and requirements. Such signage must include but not be limited to:

- c) prohibited unauthorized entrance;
- d) signage to indicate what personal protective equipment is to be worn; and
- e) activity related signs.

The Contractor must not permit any person who is or who appears to be under the influence of intoxicating liquor or drugs, to enter or remain at a workplace.

H8.5 Subcontractors

The Contractor may only subcontract work in terms of a written subcontract and must only appoint a subcontractor should he be reasonably satisfied that such a subcontractor has the necessary competencies and resources to safely perform the work falling within the scope of the subcontract.

The Contractor must ensure that all of his obligations in respect of subcontractors in terms of the Construction Regulations, 2014 are adhered to.

H8.6 Work permits and wayleaves

The Contractor must be responsible for obtaining all the wayleaves, permissions or permits applicable to working near any existing services or other infrastructure on Site, and must abide by the safety conditions imposed by such wayleaves, permissions or permits.

Access to the Site

The Contractor must ensure that access to the Site is strictly controlled and that, where possible, only authorised persons are permitted onto the Site.

The Contractor must control the access to Site of his own personnel and equipment, and that of his subcontractors and suppliers, in such a way so as to ensure that the safety of all public pedestrian and vehicular traffic is not compromised.

H8.7 First aid and emergency procedures

The Contractor must, where more than five employees are employed at a workplace, provide a first aid box or boxes at or near the workplace, which must be available and accessible for the treatment of injured persons at that workplace. Such first aid boxes must contain suitable first aid equipment.

The Contractor must ensure, where there are more than 10 employees employed on the Site, that for every group of up to 50 employees at that workplace at least one person is readily available during normal working hours who is in possession of a valid certificate of competency in first aid.

The following information must be conspicuously posted in the offices of the Contractor for the duration of the Contract:

- a) Telephone numbers of emergency services;
- b) The names of all safety representatives and safety officers; and
- c) The name(s) of the competent first aider(s).

The Contractor must post, in prominent places, notices indicating where the first aid box(es) is/are kept, as well as the name of the person in charge of the first aid box.

H8.8 Housekeeping

The Contractor must ensure, *inter alia*, that suitable housekeeping is continuously implemented on the Site, including provision for the:

- a) removal of scrap, waste and debris at appropriate intervals (in accordance with Construction Regulation 27); and
- b) proper stacking and storage of materials and equipment (in accordance with Construction Regulation 27 and 28).

H8.9 Fire precautions

The Contractor must ensure that all appropriate measures are taken to minimise the risk of fire and that appropriate procedures and equipment are in place to deal with the event of a fire, all in accordance with Construction Regulation 27 and the Environmental Management Specification in Part C3.5 of the Scope of Work.

H8.10 Facilities for workers

The Contractor must provide ablution facilities and eating areas all as specified in the Environmental Management Specification in Part C3.5 of the Scope of Work.

H9 GENERAL HAZARDS AND RISKS APPLICABLE TO WORK REQUIRED IN TERMS OF THIS TERM TENDER**H9.1 Existing Site conditions**

The Contractor must take into account, inter alia, the following conditions when complying with the OHS Act:

- Live high voltage and medium voltage electrical equipment.
- Existing utility services: See the drawings.
- Surrounding land use.
- Anticipated weather conditions.
- Work in confined spaces i.e. underground tunnel.
- Combustion by-products of SF6 gas, oil and component parts of switchgear and other equipment, following electrical faults

H9.2 Information provided by the designer (CR 6(1))

Safety method statements and procedures to be adopted to ensure compliance with the OHS Act. Aspects to be addressed must include, as a minimum:

- Storage and use of materials
- The use of tools, vehicles and plant
- Temporary support structures
- Working at height
- Excavation work
- Demolition work
- Security, access control and the exclusion of unauthorised persons
- Working in close proximity to live underground and overhead electrical services
- Public vehicular and pedestrian traffic accommodation measures
- Control of the movement of construction vehicles
- The provision and use of temporary services
- Compliance with way-leaves, permissions and permits
- Safety equipment, devices and clothing to be employed
- Emergency procedures
- Provision of welfare facilities
- Induction and training
- Provision and maintenance of the health and safety file and other documentation
- Arrangements for monitoring and control to ensure compliance with the safety plan

H9.3 Construction materials (hazardous substances)

The following commonly used construction materials and substances potentially pose health and safety hazards:

- All materials contained in pressurized containers
- Bitumen products
- Cement
- Epoxies
- Insulating oils and compounds
- Lime and other stabilizing agents
- Paints
- Tar products
- Timber preservatives

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E1 SCOPE

The Environmental Management Programme (EMP) for the project is comprised of this Environmental Management (EM) Specification and its Annexures, including the "Additional environmental issues deemed to form part of the Environmental Management Specification" attached as Annexure D hereto, which together cover the requirements for controlling the impact on the environment of construction activities.

E2 INTERPRETATIONS**E2.1 Supporting specifications**

The following standardised specification must, inter alia, apply to this Contract:

- a) SANS 1200A, as may be varied or added to in the Scope of Work

E2.2 Application

This EM Specification contains clauses that are generally applicable to the undertaking of construction works in areas where it is necessary to impose pro-active controls on the extent to which the construction activities impact on the environment.

In the event of any difference or discrepancy between the provisions of the Standardised Specifications and the provisions of the EM Specification, the latter must prevail.

E2.3 Definitions and abbreviations

For the purposes of this EM Specification the following definitions and abbreviations must apply:

E2.3.1 Environment

The surroundings within which humans exist and that are made up of -

- a) the land, water and atmosphere of the earth;
- b) micro-organisms, plant and animal life;
- c) any part or combination of i) and ii) and the interrelationships among and between them; and
- d) the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

E2.3.2 Potentially hazardous substance

A substance which, in the reasonable opinion of the Engineer, can have a deleterious effect on the environment.

E2.3.3 Method Statement

A written submission by the Contractor to the Engineer in response to the EM Specification or a request by the Engineer, setting out the plant, materials, labour and method the Contractor proposes using to carry out an activity, in such detail that the Engineer is enabled to assess whether the Contractor's proposal is in accordance with the Scope of Work and/or will produce results in accordance with the EM Specification.

E2.3.4 Reasonable

Unless the context indicates otherwise, means reasonable in the opinion of the Engineer after he has consulted with a person suitably experienced in "environmental implementation plans" and "environmental management plans" (both as defined in the National Environmental Management Act, 107 of 1998).

E2.3.5 Solid waste

All solid waste, including construction debris, chemical waste, excess cement/ concrete, wrapping materials, timber, tins and cans, drums, wire, nails, domestic waste, dead vegetation, asphalt products, etc.

E2.3.6 Contaminated water

Water contaminated by the Contractor's activities containing cements, concrete, lime, paint products, thinners, turpentine, chemicals, fuels, oils washing detergents, etc.

E2.3.7 Working area

Any area within the boundaries of the Site where construction is taking place.

E2.3.8 Contractor's camp or construction camp

The area designated for all temporary site offices, storage areas, construction plant parking areas, staff welfare facilities, etc.

E2.3.9 Engineer

The person/firm so named in the Contract Data, whose function is to administer the Contract as agent of the Employer.

E2.3.10 Engineer's Representative (ER)

The natural person appointed by the Engineer in terms of the Contract, who must observe the execution of the Works, examine and test materials and workmanship, and deliver and receive communications to/from the Contractor.

E2.3.11 Environmental Officer (EO)

Appointed by the Engineer as his environmental representative on Site, with the mandate to enforce compliance with the EMP. The duties of the EO are stipulated in the City's guideline document for the EO and ER.

E2.3.12 Environmental Control Officer (ECO)

An independent appointment to objectively monitor implementation of relevant environmental legislation, conditions of Environmental Authorisations (EAs), and the EMP for the project.

E2.3.13 Environmental Site Officer (ESO)

Employed by the Contractor as his environmental representative to monitor, review and verify compliance with the EMP by the Contractor. The ESO must ensure that he is involved at all phases of the construction (from site clearance to rehabilitation).

E2.3.14 Abbreviations

The following abbreviations occur in this EM Specification:
 EMP Environmental Management Programme
 EM Specification – Environmental Management Specification
 EO - Environmental Officer
 ECO – Environmental Control Officer
 ESO – Environmental Site Officer
 ER – Engineer's Representative
 MSDS Material Safety Data Sheets

E2.4 Engineer's authority to delegate

In terms of Sub-Clause 3.2 in the FIDIC General Conditions of Contract, 1999 (Yellow Book), the Engineer may assign duties and delegate authority to assistants who may include a resident engineer. For the purposes of this EM Specification a resident engineer is synonymous with the Engineer's Representative (ER). Other than the ER, another assistant to the Engineer can be in the form of an Environmental Officer (EO), who must be responsible for monitoring compliance with the EMP. All instructions given by the EO must go through the ER, who will then convey these to the Contractor, except in the case of an environmental emergency, in which case the EO can issue an instruction directly to the Contractor. An environmental emergency is one which, in the opinion of the EO, would cause serious environmental harm if not addressed immediately.

Depending on the nature/environmental sensitivity of the Contract the following variations in the organisational structure are possible:

- a) The ER may work together with an EO; or
- b) There may be an ER only (for construction projects with low potential for causing significant environmental impacts). In this case the ER has responsibility for the EO's functions.
- c) There may be an independently appointed Environmental Control Officer (ECO) who will fulfil essentially the same functions as the EO. The ECO may work with just the ER (if there is no EO) or may work with both the ER and EO.

The term "Engineer" in this EM Specification refers to the Engineer as defined in Clause 2.3.9 acting through the ER/EO/ECO as delegated.

E3 MATERIALS

E3.1 Materials handling, use and storage

The Contractor must ensure that any delivery drivers are informed of all procedures and restrictions (including "no go" areas) required to comply with the EM Specification. The Contractor must ensure that these delivery drivers are supervised during off-loading by someone with an adequate understanding of the requirements of the EM Specification.

Materials must be appropriately secured to ensure safe passage between destinations. Loads, including but not limited to, sand, stone chip, fine vegetation, refuse, paper and cement, must have appropriate cover to prevent them spilling from the vehicle during transit. The Contractor must be responsible for any clean up resulting from the failure by his employees or suppliers to properly secure transported materials.

All manufactured and or imported materials must, where reasonably possible, be stored within the Contractor's camp and, if so required by the Engineer, out of the rain. The location and method of protection of such materials stored outside of the Contractor's camp and the method of rehabilitation of these areas, must be subject to the Engineer's approval.

Stockpile areas must be approved by the Engineer before any stockpiling commences.

E3.2 Hazardous substances

Hazardous chemical substances (as defined in the Regulations for Hazardous Chemical Substances in GN 1179 (25 August 1995)) stored on Site for use during construction must be stored in secondary containers which are clearly and appropriately marked/signed. The relevant Material Safety Data Sheets (MSDS) must be available on Site. Procedures detailed in the MSDSes must be followed in the event of an emergency situation.

If potentially hazardous substances are to be stored on Site, the Contractor must inform the Engineer of such substances and provide a Method Statement detailing the substances/ materials to be used, together with the storage, handling and disposal procedures of the materials. Hazardous substances must be stored out of flood risk areas and disposal of these substances must be at a licensed waste disposal facility.

E4 PLANT (referring to “Contractor’s Equipment” as defined in the FIDIC General Condition of Contract, 1999 (Yellow Book), and the Contractor’s facilities as used in SANS 1200A)

E4.1 Fuel (petrol and diesel) and oil

E4.1.1 Storage

If fuel and oil is to be stored on Site, then the Contractor must submit a Method Statement covering the procedures for dealing with accidental hydrocarbon spillage and leaks, and detailing how these liquids will be stored, handled and disposed of.

The Engineer must approve the location of all fuel storage areas. All necessary approvals with respect to fuel storage and dispensing must be obtained from the appropriate authorities. Symbolic safety signs depicting “No Smoking”, “No Naked Lights” and “Danger” conforming to the requirement of SANS 1186 are to be prominently displayed in and around the fuel storage area. There must be adequate fire-fighting equipment at the fuel storage area.

The Contractor must ensure that all liquid fuels and oils are stored in tanks with lids, which are kept firmly shut and adequately secured. The capacity of the tank must be clearly displayed and the product contained within the tank clearly identified using the emergency information system detailed in SANS 0232 part 1. Fuel storage tanks must have a capacity not exceeding 9000 litres and must be kept on site only for as long as fuel is needed for construction activities, on completion of which they must be removed.

The tanks must be situated on a smooth impermeable base with an earth bund. The volume inside the bund must be 110% of the total capacity of the largest storage tank. The base may be constructed of concrete, or of plastic sheeting with impermeable joints, covered by a layer of compacted earth to protect the sheeting. The impermeable lining must extend to the crest of the bund. The floor of the storage area must be sloped to enable any spilled fuel and/or fuel-contaminated water to be removed easily.

If any rainwater collects in the bunded areas, it must be promptly removed and taken off Site to a disposal site approved by the Engineer.

Only empty and externally clean tanks may be stored on the bare ground. Empty and externally dirty tanks must be sealed and stored on an area where the ground has been protected.

Adequate precautions must be provided to prevent spillage during the filling of any tank and during the dispensing of the contents. If fuel is dispensed from 200 litre drums, the proper dispensing equipment must be used, and the drum must not be tipped in order to dispense fuel. The dispensing mechanism for the fuel storage tanks must be stored in a waterproof container when not in use.

E4.1.2 Refuelling

Plant must be refuelled at a designated refuelling area approved by the Engineer. The surface under the temporary refuelling area must be protected against pollution to the reasonable satisfaction of the Engineer prior to any refuelling activities. The Contractor must ensure that there is always a supply of absorbent material (e.g. Spill Sorb or Enretech #1 powder or equivalent) readily available that is designed to absorb, break down and encapsulate minor hydrocarbon spillage. The quantity of such material must be able to handle a minimum of 200 litres of hydrocarbon liquid spill.

E4.1.3 Treatment and remediation

Treatment and remediation of hydrocarbon spill and leak areas must be undertaken to the satisfaction of the Engineer. In the event of a hydrocarbon spill the source of the spillage must be isolated and the spillage contained.

E4.2 Ablution and toilet facilities

Washing, whether of the person or of personal effects, defecating and urinating are strictly prohibited other than at the facilities provided.

The Contractor must provide ablution facilities for all personnel employed on the Site, including shelter, toilets and washing facilities. The Contractor's personnel will not be permitted to use the City's ablution facilities.

Toilet facilities provided by the Contractor must occur at a maximum rate of 1 toilet per 30 workers (1:15 is preferred). Toilet facilities must be located within the Contractor's camp, but also at work areas remote from the camp, all to the satisfaction of the Engineer. All portable toilets must be adequately secured to the ground to prevent them toppling over as a result of wind or any other cause.

The Contractor must ensure that the entrances to these toilets are adequately screened from view, that they are maintained in a hygienic state, serviced regularly, that no spillage occurs when they are cleaned and that contents are removed from Site. Toilets must also be emptied before any temporary site closure for a period exceeding one week. Discharge of waste from toilets into the environment and burial of waste is strictly prohibited. The Contractor must provide toilet paper at all times.

No ablution facilities must be located closer than 50m to any water body

A Method Statement must be provided by the Contractor detailing the provision, location, and maintenance of ablution facilities.

E4.3 Eating areas

The Contractor must designate eating areas within the approved Contractor's camp. The feeding of, or leaving of food for, animals is strictly prohibited. Sufficient bins, as specified in Clause 4.4 below, must be present in these areas.

Any cooking on Site must be done on well maintained gas cookers with fire extinguishers present. No open fires for cooking purposes must be permitted, unless for occasional use in facilities specifically provided for this purpose and within the confines of the Contractor's camp.

E4.4 Solid waste management

E4.4.1 Litter and refuse

The site must be kept neat and clean at all times, littering is prohibited.

No on site burying or dumping of any waste materials, vegetation, litter or refuse must occur. The Contractor must provide scavenger and weatherproof bins with lids, of sufficient number and capacity to store the solid waste produced on a daily basis. The lids must be kept firmly on the bins at all times. Bins must not be allowed to become overfull and must be emptied regularly, at least once a week. Waste from bins may be temporarily stored on Site in a central waste area that is weatherproof and scavenger proof, and which the Engineer has approved. Wherever possible refuse must be recycled, and containers for glass, paper, metals and plastics must be provided and the contents delivered to suitable recycling facilities when necessary.

All other litter and refuse must be disposed of off Site at an approved landfill site. The Contractor must supply the Engineer with a certificate of disposal.

E4.4.2 Construction waste

Where possible all construction waste or spoil material must be recycled, either on Site or elsewhere. As a last resort all construction waste must be disposed of off Site at an approved landfill site. The Contractor must supply the Engineer with a certificate of disposal.

E4.5 Contaminated water management

Potential pollutants of any kind and in any form must be kept, stored, and used in such a manner that any spill or escape can be contained and the water table and/or any adjacent water courses or bodies are not endangered. Spill kits which can be used to contain and/or mop up spills must be available. Water containing such pollutants as cements, concrete, lime, chemicals, oils and fuels must be discharged into a conservancy tank for removal from the Site to a licensed disposal facility. This

particularly applies to water emanating from concrete batching plants and to runoff from fuel storage, refuelling or construction equipment washing areas. Wash down areas must be placed and constructed in such a manner so as to ensure that the surrounding areas are not polluted.

No paint products, chemical additives and cleaners, such as thinners and turpentine, may be disposed of into the stormwater system or elsewhere on Site. Brush/roller wash facilities must be established to the satisfaction of the Engineer.

A Method Statement must be provided by the Contractor detailing the management of contaminated water.

Should contaminated water be released into the environment, specifically into a water course, monitoring thereof must commence in accordance to the National Water Act, 36 of 1998, Section 21(f) – refer to GN 399 (26 March 2004). Contaminated water must not be released into the environment without authorisation from the relevant authority.

The Contractor must notify the Engineer immediately of any pollution incidents on Site and, at his own cost, take all reasonable measures to contain and minimise the effects of the pollution.

Any rehabilitation of the environment required as a result of such pollution must be carried out by the Contractor at his own cost in accordance with a Method Statement approved by the Engineer.

E4.6 Site structures

The type and colour of roofing and cladding materials to the Contractor's temporary structures must be selected to reduce the visual impact.

E4.7 Lights

The Contractor must ensure that any lighting installed on the Site for his activities does not cause a reasonably avoidable disturbance to other users of the surrounding area.

Lighting installed must, as far as practically possible, be energy efficient. Lighting utilised on Site must be turned off when not in use.

E4.8 Workshop, equipment maintenance and storage

No workshops or plant maintenance facilities must be constructed on Site for performing major or routine maintenance of equipment and vehicles.

The Contractor must ensure that in those areas where, after obtaining the Engineer's approval, the Contractor carries out emergency or minor routine plant maintenance, there is no contamination of the soil, water sources or vegetation. Drip trays to collect waste oil and other lubricants must be provided in any areas of the Site where such maintenance takes place. Drip trays must be emptied regularly and after rain, and the contents disposed of at a licensed disposal facility.

All vehicles and plant must be kept in good working order. Leaking vehicles and plant must be repaired immediately or removed from the Site.

The washing of vehicles and plant on Site must be restricted to emergency or minor routine maintenance requirements only. Washing may only be undertaken in areas designated by the Engineer.

E4.9 Noise

The Contractor must limit noise levels (for example, by installing and maintaining silencers on plant). The provisions of SANS 1200A Clause 4.1 regarding "built-up areas" must apply.

Appropriate directional and intensity settings are to be maintained on all hooters and sirens.

No amplified music must be allowed on Site. The use of audio equipment must not be permitted, unless the volume is kept sufficiently low so as to be unobtrusive. The Contractor must not use sound amplification equipment on Site, unless in emergency situations.

Construction activities generating output levels of 85 dB(A) or more in residential areas, must be confined to the hours 08h00 to 17h00 Mondays to Fridays. Should the Contractor need to do this work outside of the above times, he must do so only with the approval of the Engineer, and the surrounding communities must be informed prior to the work taking place.

E5 CONSTRUCTION

E5.1 Method Statements

The Contractor must submit the environmental method statements required within such reasonable time as the Engineer must specify or as required by the EM Specification. The Contractor must not commence any activity until the Method Statement in respect thereof has been approved and must, except in the case of emergency activities, allow a period of two weeks for consideration of the Method Statement by the Engineer.

The Engineer may require changes to a Method Statement if the proposal does not comply with the specification or if, in the reasonable opinion of the Engineer, the proposal may result in, or carries a greater than reasonable risk of, damage to the environment in excess of that permitted by the EM Specification.

Approved Method Statements must be readily available on the Site and must be communicated to all relevant personnel. The Contractor must carry out the Works in accordance with the approved Method Statement. Approval of the Method Statement must not absolve the Contractor from any of his obligations or responsibilities in terms of the Contract.

Changes to the way the Works are to be carried out must be reflected by amendments to the original approved Method Statements, and these amendments require the signature of both the Contractor and the Engineer.

Method Statements must consider all environmental hazards and risks identified by the Contractor and/or Engineer and must contain sufficient information and detail to enable the Engineer to assess the potential negative environmental impacts associated with the proposed activity and must cover applicable details with regard to:

- a) construction procedures,
- b) materials and equipment to be used,
- c) getting the equipment to and from Site,
- d) how the equipment/material will be moved while on Site,
- e) how and where material will be stored,
- f) the containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur,
- g) the control of fire,
- h) timing and location of activities,
- i) compliance/non-compliance with the EM Specification,
- j) any other information deemed necessary by the Engineer.

The format to be used for the required method statements is bound in Annexure A of this EM Specification. The Contractor (and, where relevant, any sub-contractors) must also sign the Method Statement, thereby indicating that the work will be carried out according to the methodology contained in the approved Method Statement.

E5.1.1 Method Statements to be provided within 14 days from the Commencement Date

- a) Ablution Facilities: number of, location, cleaning, method of securing to the ground, etc. of portable toilets (E4.2).

- b) Solid Waste Management: number of, type, location, cleaning, method of securing to the ground, etc. of bins (E4.4).
- c) Environmental Awareness Training: logistics for the environmental awareness courses for all the Contractor's management staff, as well as other employees (E5.2).
- d) Emergency Procedures for Accidental Hydrocarbon Leaks and Spillages (E4.1 and E5.8).

E5.2 Environmental Awareness Training

It is a requirement of this Contract that environmental awareness training courses are run for all personnel on Site. Two types of courses must be run: one for the Contractor's and subcontractors' management, and one for all site staff and labourers. Courses must be run during normal working hours at a suitable venue provided by the Contractor. All attendees must remain for the duration of the course and sign an attendance register that clearly indicates participants' names on completion, a copy of which must be handed to the Engineer. The Contractor must allow for sufficient sessions to train all personnel. Subsequent sessions must be run for any new personnel coming onto Site. A Method Statement with respect to the organisation of these courses must be submitted.

Notwithstanding the specific provisions of this clause, it is incumbent upon the Contractor to convey the spirit of the EM Specification to all personnel involved with the Works.

E5.2.1 Training Course for Management and Foremen

The environmental awareness training course for management must include all management and foremen. The course, which must be presented by the Engineer or his designated representative, must be of approximately one hour duration. The course must be undertaken prior to the commencement of work on Site.

E5.2.2 Training Course for Site Staff and Labour

The environmental awareness training course for site staff and labour must be presented by the Contractor from material provided by the Engineer. The course must be approximately one hour long. The course must be undertaken not later than 3 working days after the commencement of work on Site, with sufficient sessions to accommodate all available personnel.

All the Contractor's employees, sub-contractors' employees and any suppliers' employees that spend more than 1 day a week or four days in a month on Site must attend the Environmental Awareness Training Course for Site Staff and Labour

E5.3 Contractor's Environmental Representative (ESO)

The Contractor must appoint an environmental representative, also called an Environmental Site Officer (ESO), who must be responsible for undertaking a daily site inspection to monitor compliance with this EM Specification. The Contractor must forward the name of the environmental representative (ESO) to the Engineer for his approval. The environmental representative (ESO) must complete Environmental Site Inspection Checklists (Annexure B attached hereto) and these must be submitted to the Engineer once a week.

E5.4 Site division, demarcation and "no go" areas

The Contractor must restrict all his activities, materials, plant and personnel to within the Site or any particular working areas specified or indicated on the drawings.

The Contractor must erect and maintain permanent and/or temporary fences of the type and in the locations specified elsewhere in the Scope of Work or on the drawings. Such fences must, if so specified, be erected before undertaking any construction activities.

Where environmentally sensitive areas are specified as "no go" areas, the Contractor must ensure that, insofar as he has the authority, no person, plant or material must enter the "no go" areas at any time.

A Method Statement detailing the layout and method of establishment of the Contractor's camp (including all offices, shelters, eating areas, storage areas, ablution facilities and other infrastructure required for the running of the project) must be provided.

E5.5 Access routes/ haul roads

On the Site and, if so required, within such distance of the Site as may be stated by the Engineer, the Contractor must control the movement of all vehicles and construction equipment, including that of his suppliers, so that they remain on designated routes, are distributed so as not to cause an undue concentration of traffic, and that all relevant laws are complied with. In addition, the movement of such vehicles and construction equipment must be planned and operated so as to minimise disruption to regular users of the routes. As far as possible the Contractor must use existing access and haul routes. Damage to existing access roads as a result of construction activities must be repaired to the satisfaction of the Engineer, using material similar to that originally used. The cost of the repairs must be borne by the Contractor. New temporary access or haul routes may only be established with the prior approval of the Engineer. The rehabilitation of such routes must be to the Contractor's own cost and to the approval of the Engineer.

Any directional signage required by the Contractor for the purposes of directing the movement of his own vehicles and construction equipment (or that of his subcontractors or suppliers) must be of a design and in a location approved by the Engineer. Directional signage may not be erected in such a manner that it interferes with sight lines or pedestrian movement.

E5.6 Construction personnel information posters

The Contractor must erect and maintain information posters for the information of his employees, depicting actions to be taken to ensure compliance with aspects of the EM Specification. A2 information posters, printed on white vinyl, must be erected at the eating areas and any other locations specified by the Engineer.

The specification for the poster is presented in Annexure C of this EM Specification. The symbols must be black and the circles must be red lines. The Contractor must ensure that the construction personnel information posters are not damaged in any way, and must replace a poster if any part of it becomes illegible.

E5.7 Fire control

Other than for cooking purposes as specified in Clause E4.3, no fires may be lit on Site. Any fires which occur must be reported to the Engineer immediately.

Smoking must not be permitted in those areas where it is a fire hazard. Such areas must include fuel storage and refuelling areas, and any other areas where the vegetation or other materials are susceptible to the start and rapid spread of fire.

In terms of the National Environment Management: Air Quality Act, 39 of 2004 and Community Fire Safety By-law, burning is not permitted as a disposal method.

The Contractor must appoint a Fire Officer (who may be the ESO) who must be responsible for ensuring immediate and appropriate actions in the event of a fire and must ensure that employees are aware of the procedure to be followed. The Contractor must advise the relevant authority of a fire as soon as one starts and must not wait until he can no longer control it. The Contractor must forward the name of the Fire Officer to the Engineer for his approval.

The Contractor must comply with the Construction Regulations, 2014 where applicable, and must ensure that there is suitable and sufficient fire-fighting equipment available on Site at all times.

The Contractor must be liable for any costs relating to the rehabilitation of burnt areas, should the fire be the result of the Contractor's activities on Site

The Contractor must submit a Method Statement to the Engineer covering the procedure to be followed in the event of a fire.

E5.8 Emergency procedures

The Contractor's attention is drawn to the Method Statements required in terms of Clauses E4.1 and E5.7

above. Such Method Statements must include procedures to be followed by the Contractor in the event of an emergency.

Furthermore, in the event of an emergency, the Contractor must contact the City of Cape Town's Emergency Call Centre by telephoning 107 or 021 480 7700 (from a cell phone). Telephone numbers of emergency services, including the local fire fighting service, must be posted conspicuously in the Contractor's office near the telephone.

E5.9 Health and safety

The Contractor must comply with requirements of the Occupational Health and Safety Act, 85 of 1993 and Construction Regulations, 2014, the Health and Safety Specification and relevant clauses of GCC 2010, insofar as health and safety is concerned.

E5.10 Community relations

If so required, the Contractor must erect and maintain information boards in the position, quantity, design and dimensions specified in the Scope of Work or as directed by the Engineer. Such boards must include contact details for complaints by members of the public in accordance with details provided by the Engineer.

The Contractor must keep a "Complaints Register" on Site. The Register must contain all contact details of the person who made the complaint, and information regarding the complaint itself.

E5.11 General protections in terms of the National Heritage Resources Act, 25 of 1999

The Contractor must take cognisance of the provisions of the National Heritage Resources Act, 25 of 1999 in respect of, *inter alia*, structures older than 60 years; archaeology, palaeontology and meteorites; burial grounds and graves; and public monuments and memorials.

E5.12 Protection of natural features

The Contractor must not deface, paint, damage or mark any natural features (e.g. rock formations) situated in or around the Site for survey or other purposes, unless agreed beforehand with the Engineer. Any features affected by the Contractor in contravention of this clause must be restored/ rehabilitated to the satisfaction of the Engineer. The cost of restoration/rehabilitation must be borne by the Contractor.

The Contractor must not permit his employees to make use of any natural water sources (e.g. springs, streams, open water bodies) for the purposes of swimming, personal washing and the washing of machinery or clothes.

E5.13 Protection of flora and fauna

Except to the extent necessary for the carrying out of the Works, as specified by the Engineer, no vegetation must be removed, damaged or disturbed.

The presence of any wild animals found on Site must be reported to the Engineer, who must issue an instruction with regard to their removal or relocation. If a wild animal needs removal from the Site the CapeNature (Metro Region) Conservation Services Manager may be contacted for assistance (tel 021 955 9132/9121/3122/9130). Trapping, poisoning, injuring or shooting animals is strictly forbidden. No domestic pets or livestock are permitted on Site, with the exception of controlled watchdogs approved by the Engineer.

Where the use of herbicides, pesticides and other poisonous substances has been specified, the Contractor must submit a Method Statement to the Engineer for approval.

E5.14 Erosion and sedimentation control

The Contractor must take all reasonable measures to limit erosion and sedimentation due to the construction activities and must, in addition, comply with such detailed measures as may be required by the Scope of Work. Where erosion and/or sedimentation, whether on or off the Site, occurs, rectification must be carried out in accordance with details specified by the Engineer. Where erosion and/or sedimentation occur due to the fault of the Contractor, rectification must be carried out to the reasonable requirements of the Engineer, at the Contractor's cost. In particular, the Contractor must ensure that the City's stormwater system is kept free from

sediment arising from the Works.

Any runnels or erosion channels developed during the construction period or during the vegetation establishment period must be backfilled and compacted, and the areas restored to a proper condition. Stabilisation of cleared areas to prevent and control erosion must be pro-actively managed by the Contractor. The method of stabilisation must be determined in consultation with the Engineer.

E5.15 Aesthetics

The Contractor must take any requisite measures to ensure that construction activities do not have an undue negative impact on the aesthetics of the area.

E5.16 Temporary site closure

In the event of temporary site closure (for a period exceeding one week), the Contractor's ESO must carry out checks and ensure that, amongst others, the following conditions pertain and report on compliance with this clause:

- a) Fire extinguishers are serviced and accessible.
- b) There is adequate ventilation in enclosed spaces.
- c) All hazardous substance stores are securely locked.
- d) Fencing and barriers are in place.
- e) Emergency and management contact details are prominently displayed and available.
- f) Wind and dust mitigation measures, e.g. straw, brush packs, irrigation, etc. are in place.
- g) Excavated and filled slopes and stockpiles are at a stable angle and capable of accommodating normal expected water flows.
- h) There are sufficient detention ponds or channels in place.
- i) Cement and materials stores are secured.
- j) Toilets are empty and secured.
- k) Central waste area and all refuse bins are empty and secured.
- l) Contaminated water conservancy tank empty.
- m) Any bunded areas are clean and treated with an approved product where applicable (e.g. Spill Sorb or Enretech #1 powder or equivalent).
- n) Drip trays are empty and secure

E5.17 Asphalt and bitumen

Bitumen drums/products, if stored on Site, must be stored in an area approved by the Engineer. This area must be indicated on the Method Statement for the Layout and Preparation of the Contractor's Camp. The storage area must be constructed with an appropriate base, bunding and sump to the satisfaction of the Engineer. A Method Statement must be provided in this regard.

When heating bitumen products, the Contractor must take cognisance of appropriate fire risk controls. Heating must only be undertaken using LPG or similar zero emission fuels. Appropriate fire fighting equipment must be readily available on Site.

E5.18 Dust

The Contractors must be solely responsible, at his cost, for the control of dust arising from his activities on Site, and for any costs involved in damages resulting from the dust. The Contractor must take all reasonable measures to minimise the generation of dust

E5.19 Contractor's advertising signage

Any advertising on the Site or any part of the Works must remain at the sole discretion of the Employer, who reserves the right to order, via the Engineer, its removal, covering or re-sizing, wherever placed, at no cost to the Employer.

Apart from at the Contractor's camp, no signage advertising the Contractor, or any of its subcontractors, manufacturers, suppliers or service providers must be placed, fixed or erected anywhere on the Site or on the Works without the prior approval of the Engineer. No advertising signage will be permitted on any designated

scenic route. Notwithstanding any prior approval given, the Engineer may instruct the Contractor to remove, cover or re-size any advertising signage at any time at no cost to the Employer.

Advertising signage at the Contractor's camp must be appropriately designed and sized with due consideration to the surrounding environment, views and sight lines.

Branding or identification markings on the Contractor's and subcontractor's vehicles and equipment is generally permitted, although the Employer reserves the right to instruct, via the Engineer, the removal, covering or re-sizing of any branding, markings or signage, on any equipment (scaffolding, for example), which it considers inappropriate in the environment in which it is placed.

No third party advertising (that is, in respect of any person, business or product that is not associated with the Works) must be permitted anywhere on the Site or Works.

E5.20 Clearance of Site on completion

On completion of the Works, and at final completion when all defects have been remedied or corrected, the Contractor must, in addition to the requirements for clearance of the Site in terms of the Contract, ensure that he has complied with the following requirements in terms of this EM Specification:

E5.20.1 Clause E3.1

Clean-up of improperly secured transported materials, and rehabilitation of storage areas.

E5.20.2 Clause E4.1.3

Remediation of hydrocarbon spill and leak areas.

E5.20.3 Clause E4.4

Disposal of litter, refuse and Contractor's waste.

E5.20.4 Clause E5.4

Removal of temporary fences and Contractor's camp.

E5.20.5 Clause E5.5

Repair of access roads damaged by the Contractor, and rehabilitation of temporary access routes.

E5.20.6 Clause E5.7

Rehabilitation of burnt areas should a fire be the result of Contractor's activities on Site.

E5.20.7 Clauses E5.11 to E5.13

Rehabilitation of heritage and natural features, including vegetation which is damaged or disturbed, which required protection in terms of these clauses.

E5.20.8 Clause E5.14

Rectification where erosion and/or sedimentation has occurred due to the fault of the Contractor .

E5.20.9 Clause E5.19

Removal of Contractor's advertising signage.

E6 TOLERANCES**E6.1 Fines**

Environmental management is concerned not only with the final results of the Contractor's operations, but also with the control of how these operations are carried out. Tolerance with respect to environmental matters applies not only to the finished product, but also to the standard of the day-to-day operations required to complete the Works.

It is thus required that the Contractor must comply with the EM Specification on an on-going basis and any failure on his part to do so will entitle the Engineer to certify the imposition of a fine. Fines may be issued per incident at the discretion of the Engineer. Such fines will be issued in addition to any remedial costs incurred as a result of non-compliance with the environmental specifications. The Engineer will inform the Contractor of the contravention and the amount of the fine, and will deduct the amount from monies due in payment certificates issued under the Contract.

Maximum fines for the following transgressions by either the Contractor and/or his sub-contractors may be imposed by the Engineer, as follows:

	Maximum fine per incident
a) Vehicles, plant or materials related to the Contractor's operations, parked or stored outside the demarcated boundaries of the Site.	R 2 000
b) Persons, vehicles, plant or materials related to the Contractor's operations, found within the designated boundaries of a "no go" area.	R 4 000
c) Persistent and unrepaired oil leaks from machinery/not using a drip tray to collect waste oil and other lubricants/not using specified absorbent material to encapsulate hydrocarbon spillage/using inappropriate methods of refuelling (the use of a funnel rather than a pump).	R 3 000
d) Refuelling in areas not approved by the Engineer.	R 3 000
e) Litter on Site.	R 1 000
f) Deliberate lighting of fires on Site.	R 5 000
g) Individual not making use of the Site ablution facilities.	R 1 000
h) Damage to trees not specified to be removed.	R 5 000
i) Dust or excessive noise emanating from the site	R 1 000
j) Not containing water contaminated with pollutants such as cement, concrete, fuel, etc.	R 2 000

For each subsequent similar offence the fine must be doubled in value to a maximum value of R50 000.

E7 TESTING

Not used.

E8 MEASUREMENT AND PAYMENT**E8.1 Basic principles**

Except where separate pay items have been measured in the Bills of Quantities, all costs in respect of complying with the EM Specification are deemed to be covered by the sum tendered for complying with the EM Specification.

ANNEXURE A: ENVIRONMENTAL METHOD STATEMENT

CONTRACT:.....

DATE:.....

PROPOSED ACTIVITY (give title of method statement and reference number from the EMP):

WHAT WORK IS TO BE UNDERTAKEN (give a brief description of the works - attach extra information to ensure accurate description given):

WHERE THE WORKS ARE TO BE UNDERTAKEN (where possible, provide an annotated plan and a full description of the extent of the works):

START AND END DATE OF THE WORKS FOR WHICH THE METHOD STATEMENT IS REQUIRED:

Start Date:

End Date:

HOW THE WORKS ARE TO BE UNDERTAKEN (provide as much detail as possible, including annotated sketches and plans where possible):



Note: please give too much information rather than too little. Please ensure that issues such as emergency procedures, hydrocarbon management, wastewater management, access, individual responsibilities, materials, plant used, maintenance of plant, protection of natural features, etc. are covered where relevant.

DECLARATIONS

1) ENGINEER'S REPRESENTATIVE/ENVIRONMENTAL OFFICER/ENVIRONMENTAL CONTROL OFFICER

The work described in this Method Statement, if carried out according to the methodology described, appears to be satisfactorily mitigated to prevent avoidable environmental harm:

(signed)

(print name)

Dated: _____

2) CONTRACTOR

I understand the contents of this Method Statement and the scope of the works required of me. I further understand that this Method Statement may be amended on application to other signatories and that the Engineer's Representative/Environmental Officer/Environmental Control Officer will audit my compliance with the contents of this Method Statement. I understand that this method statement does not absolve me from any of my obligations or responsibilities in terms of the Contract.

(signed)

(print name)

Dated: _____

3) ENGINEER

The works described in this Method Statement are approved.

(signed)

(print name)

(designation)

Dated: _____

ANNEXURE B: ENVIRONMENTAL SITE INSPECTION CHECKLIST (To be submitted to the Engineer weekly)

CONTRACT:.....

DATE:.....
















ENVIRONMENTAL ASPECT	YES/ NO (✓ or X)	COMMENTS
<ul style="list-style-type: none"> All new personnel on Site are aware of the contents of the EMP and have been through the environmental awareness course. 		
<ul style="list-style-type: none"> Contractor's camp is neat and tidy and the labourers' facilities are of an acceptable standard. 		
<ul style="list-style-type: none"> Sufficient and appropriate fire fighting equipment is visible and readily available in the appropriate places. 		
<ul style="list-style-type: none"> Waste control and removal system is being maintained. 		
<ul style="list-style-type: none"> Fences are being maintained. 		
<ul style="list-style-type: none"> Drip trays are being utilised where there is a risk of spillage. 		
<ul style="list-style-type: none"> Bunded areas/drip trays are being emptied on a regular basis (especially after rain). 		
<ul style="list-style-type: none"> No leaks are visible from construction vehicles. 		
<ul style="list-style-type: none"> Refuelling of vehicles and plant occurs within designated areas, and appropriate refuelling apparatus and drip trays are being used. 		
<ul style="list-style-type: none"> "No go" areas, natural features, vegetation, etc. have not been damaged. 		
<ul style="list-style-type: none"> Dust control measures (if necessary) are in place and are effectively controlling dust. 		
<ul style="list-style-type: none"> Noise control measures (if necessary) are in place and are working effectively. 		
<ul style="list-style-type: none"> Erosion and sedimentation control measures (if necessary) are in place and are controlling effectively. 		
<ul style="list-style-type: none"> Material stockpiles are located within the boundary of the Site and are protected from erosion. 		
<ul style="list-style-type: none"> Other 		

Completed by:.....

Signed:.....

ANNEXURE C: CONSTRUCTION PERSONNEL INFORMATION POSTER

ENVIRONMENTAL MANAGEMENT DO'S AND DON'TS

	Workers & equipment must stay inside the site boundaries at all times		Use the toilets provided Report full or leaking toilets
	Do not swim in or drink from streams Do not throw oil, petrol, diesel, concrete or rubbish in the stream Do not work in the stream without direct instruction Do not damage the banks or vegetation of the stream		Only eat in demarcated eating areas Never eat near a river or stream Put packaging & leftover food into rubbish bins
	Protect animals on the site Ask your supervisor or Contract's Manager to remove animals found on site		Do not litter - put all rubbish (especially cement bags) into the bins provided Report full bins to your supervisor The responsible person should empty bins regularly
	Do not damage or cut down any trees or plants without permission Do not pick flowers		Always keep to the speed limit Drivers - check & report leaks Ensure loads are secure & do not spill
	Put cigarette butts in a rubbish bin Do not smoke near gas, paints or petrol Do not light any fires without permission Know the positions of fire fighting equipment Report all fires Do not burn rubbish or vegetation without permission		Know all the emergency phone numbers
	Work with petrol, oil & diesel in areas marked for this Report any petrol, oil & diesel leaks or spills Use a drip tray under vehicles & machinery Empty drip trays after rain & do not throw this water into a river		Fines of between R1000 and R5000 Removal from site Construction may be stopped
	Try to avoid producing dust - wet dry ground & soil		Report any breaks, floods, fires, leaks and injuries to your supervisor Ask questions!
	Do not make loud noises around the site, especially near schools and homes Report or repair noisy vehicles		

ANNEXURE D: ADDITIONAL ENVIRONMENTAL ISSUES DEEMED TO FORM PART OF THE ENVIRONMENTAL MANAGEMENT PROGRAMME

Listed below are issues pertaining to the environment that form part of the Contract Document. The clause references relate to the **General Conditions of Contract for Construction Works, Second Edition, 2010 (GCC 2010)**. They are listed here to emphasise that they form part of the environmental considerations and requirements for this project. They must be read together with any Contract Specific Data referring thereto in Part C1.2 Contract Data. The comments made below on the various issues are to be taken as explanatory, in so far as environmental matters are concerned, and do not modify the clauses in any way.

1. **Monitoring**

Clause 3.1.1 makes provision for the Engineer to administer the Contract in accordance with the provisions of the Contract, including the monitoring of any environmental variables.

2. **Health and safety**

Clauses 3.1.4, 4.3.1, 4.3.2 and 4.10.1 remind the Contractor of his obligations in terms of the Occupational Health and Safety Act (No. 85 of 1993) and Construction Regulations 2003.

Clause 5.7 of SANS 1200A reinforces these requirements through the observation of proper and adequate safety arrangements.

3. **Engineer's authority to delegate**

Clause 3.2.4 gives the Engineer the authority to appoint a representative to act as the Environmental Officer (EO) for the Contract. The EO, who must be responsible for monitoring compliance with the EMP, may be the Engineer's Representative or any other person accountable to the Engineer.

4. **Engineer's instructions**

Clause 4.2.1 requires that the Contractor comply with the Engineer's instructions on any matter relating to the Works. Moreover, Clause 4.2.2 ensures that the Contractor only takes instructions from the Engineer, the Engineer's Representative or a person authorised by the Engineer in terms of Clause 3.2.4.

5. **Compliance with applicable laws**

Clause 4.3.1 requires that the Contractor comply with all applicable laws, regulations, etc. in fulfilling the Contract.

6. **Protection of fossils, etc.**

Clause 4.7.1 requires the Contractor to take reasonable precautions to prevent any person from damaging, *inter alia* anything of geological or archaeological interest, and requires that he inform the Engineer and follows any instructions issued in this regard.

7. **Housing, food and transport**

Clause 4.10.1 requires the Contractor to make his own arrangements for payment, housing, feeding and transport for his employees, provided that if he uses any part of the Site for such purposes he must obtain the Engineer's prior approval.

Clause 4.2 of SANS 1200A further requires that facilities provided comply with local authority regulations and are maintained in a clean and sanitary condition.

8. **Competent employees**

Clause 4.11.1 requires that all persons employed on Site are careful, competent, and efficient. These attributes embrace knowledge of the environmental matters and issues dealt with in the EMP.

9. **Removal from Site**

Clause 4.11.2 makes provision for the Engineer to instruct the removal from the Works and Site of any person who is guilty of misconduct, or is incompetent or negligent, or is an undesirable presence on Site.

Clause 7.1.1 requires that all Construction Equipment be in good working order. Accordingly, the Engineer may order that any Construction Equipment not complying with the environmental specifications be removed from Site.

10. Unacceptable documentation

Clauses 5.3.1 and 5.3.2 require the Contractor to provide documentation required before commencement with Works execution, failing which the Employer may terminate the Contract. Such documentation includes the Protection of the Environment Declaration provided for in the Contract Document.

11. Programme and Method Statements

Clause 5.6.1 makes provision for the Engineer to request the programmes for carrying out the Works.

Clause 5.6.2 makes provision for the Engineer to request statements from the Contractor for the entire scope of the work. In the case of the environmental specifications, these would be submitted as Method Statements.

12. Hours of operation

Clause 5.8.1 restricts the Contractors hours of operation to between sunrise and sunset on working days (usually from Monday to Saturday), unless, *inter alia*, permitted by the Engineer in writing.

Clause 5.7.2 further requires that in the event that permission is granted for night work, then such work must be carried out without excessive noise and disturbance.

13. Suspension of Works

Clause 5.11.1 enables the Engineer to suspend the progress of the Works or any part thereof, which may be as a result of some default or breach of the Contract on the part of the Contractor.

14. Site clean-up

Clause 5.15.1 requires that, on completion of the Works, the Contractor must clear away and remove from the Site all Construction Equipment, surplus materials, rubbish and Temporary Works of every kind and leave the whole of the Site and Works clean and in a safe condition. All streams and watercourses must be restored to the condition as at the commencement of the Works. Should the Contractor fail to do the work upon notice from the Engineer, the Employer may in terms of Clause 7.8.3, employ others to carry out the work and recover the cost of doing so from the Contractor.

15. Access to the Works

Clause 7.3.1 makes provision for the Engineer to authorise the Environmental Officer (EO) to have access to the Works and Site.

16. Pollution prevention and interferences

Clause 8.1.2 requires that all operations necessary for the execution of the Works be carried out so as not to cause unnecessary noise or pollution, or to interfere unnecessarily or improperly with public services, or the access to, use and occupation of public or private roads and footpaths or properties.

Clause 5.6 of SANS 1200A further requires the Contractor to minimise dust nuisance and pollution of streams and inconvenience to or interference with the public.

17. Dust

Clause 8.1.2 requires that all operations necessary for the execution of the Works be carried out so as not to cause unnecessary pollution.

Clause 5.6 of SANS 1200A requires that the Contractor take all reasonable measures to minimise any dust nuisance.

18. Noise

Clause 8.1.2 requires that all operations necessary for the execution of the Works be carried out so as not to cause unnecessary noise.

Clause 4.1 of SANS 1200A requires that when working in built-up areas, the Contractor must provide and use suitable and effective silencing devices for pneumatic tools and other plant that would otherwise cause a noise level exceeding 85dB.

19. Protection of existing environment

Clause 8.1.3 requires that the Contractor uses every reasonable means to prevent any roads or bridges to or in the vicinity of the Site being subjected to damage by excessive loads, or disruption due to excessive traffic, occasioned by his transport arrangements.

20. Reinstatement

Clauses 8.2 and 8.4 make provision for the Contractor to repair and make good any damage to the Works in his care (other than "excepted risks"), and bear any costs associated with such reinstatement.

21. Reporting accidents

Clause 8.5.1 requires the Contractor to report to the Engineer every occurrence on the Site which causes environmental damage.

C.6 SPECIAL CONDITIONS OF CONTRACT

The following Special Conditions of Contract, referring to the National Treasury – Conditions of Contract (revised July 2010), are applicable to this agreement.

1. Definitions

Insert new clause 1.1A with the following:

- 1.1A “Commencement Date” means the date the Supplier confirms receipt from the Purchaser of 1 (one) complete, signed copy of the Contract, including the *Schedule of Deviations* (if any), or the date of the expiry date of the previous Contract date:
- 1.1B “Conditions of Contract” means the general conditions of contract and special conditions of contract including all other contract data incorporated by reference.

Delete Clause 1.15 and substitute with the following

- 1.15 The word ‘Goods’ is to be replaced everywhere it occurs in the GCC with the phrase ‘Goods and / or Services’ which means all of the equipment, machinery, materials, services, products, consumables, etc. that the Supplier is required to deliver to the Purchaser under the agreement. This definition must also be applicable, as the context requires, anywhere where the words “supplies” and “services” occurs in the GCC.

Delete Clause 1.19 and substitute with the following

- 1.19 The word ‘Order’ is to be replaced everywhere it occurs in the GCC with the words ‘Purchase Order’ which means the official purchase order authorised and released on the Purchaser’s SAP System.

Delete Clause 1.21 and substitute with the following:

- 1.21 ‘Purchaser’ means the City of Cape Town. The address of the Purchaser is **12 Hertzog Boulevard, Cape Town, 8001** (chosen domicilium citandi et executandi).

Add the following after Clause 1.25:

- 1.26 ‘Supplier’ means the provider of Goods and / or Services with whom the Contract is concluded also referred to as “contractor” in the GCC.
- 1.27 "Intellectual Property" means any and all intellectual property rights of any nature anywhere in the world whether registered, registerable or otherwise, including patents, trademarks, registered designs and domain names, applications for any of the foregoing, trade or business names, copyright and rights in the nature of copyright, design rights, rights in databases, know-how, trade secrets and any other intellectual property rights which subsist in computer software, computer programs, websites, documents, information, techniques, business methods, drawings, logos, instruction manuals, lists and procedures and particulars of customers, marketing methods and procedures and advertising literature, including the "look and feel" of any websites
- 1.28 “Working Day” means Monday to Friday excluding weekends and Public Holidays (in the Republic of South Africa).

3. General Obligations

Delete Clause 3.2 in its entirety and replace with the following clauses.

- 3.2 The Parties will be liable to each other arising out of or in connection with any breach of the obligations detailed or implied in this contract, subject to clause 28.
- 3.3 If the Supplier is a joint venture, all parties in a joint venture or consortium must be jointly and severally liable to the Purchaser in terms of the Contract and must carry individually the minimum levels of insurance

stated in the Contract, if any.

- 3.4 The Parties must comply with all laws, regulations and bylaws of local or other authorities having jurisdiction regarding the Delivery of the Goods and/or Services and give all notices and pay all charges required by such authorities.
- 3.4.1 The Parties agree that this Contract must also be subject to the CCT's Supply Chain Management Policy ("SCM Policy") that was applicable on the date the bid was advertised as amended from time to time. **If the Purchaser adopts a new SCM Policy which contemplates that any clause therein would apply to the Contract emanating from this tender, such clause must also be applicable to the Contract.** Please refer to this document contained on the CCT's website.
- 3.4.2 Abuse of the supply chain management system is not permitted and may result in termination of the Contract, restriction of the Supplier, and/or the exercise by the CCT of any other remedies available to it as described in the SCM Policy or in law.
- 3.5 The **Supplier** must:
- 3.5.1 Arrange for the documents listed below to be provided to the Purchaser prior to the issuing of the Purchase Order by the Purchaser and no later than the periods as set out in the Contract:
- a) Proof of Insurance (Refer to Clause 11) or Insurance Broker's Warrantee,
 - b) Letter of good standing from the Compensation Commissioner, or a licensed compensation insurer (Refer to Clause 11),
 - c) Initial delivery programme, and
 - d) Other requirements as detailed in the Contract.
- 3.5.2 Only when notified of the acceptance of the bid on the Date of Commencement of Contract, the Supplier must commence with and carry out the Delivery of the Goods and/or Services in accordance with the Contract, to the satisfaction, of the Purchaser.
- 3.5.3 Provide all of the necessary materials, labour, plant and equipment required for the delivery of the Goods and/or Services including any temporary services that may be required.
- 3.5.4 Insure his workmen and employees against death or injury arising out of the delivery of the Goods.
- 3.5.5 Be continuously represented during the Delivery of the Goods and/or Services by a competent representative duly authorised to execute instructions.
- 3.5.6 In the event of a loss resulting in a claim against the insurance policies stated in clause 11, pay the first amount (excess) as required by the insurance policy.
- 3.5.7 Comply with all written instructions from the Purchaser subject to clause 18.
- 3.5.8 Complete and Deliver the goods within the period stated in clause 10, or any extensions thereof in terms of clause 21.
- 3.5.9 Make good at his own expense, all incomplete and defective Goods during the warranty period.
- 3.5.10 Pay to the Purchaser any penalty for delay as due on demand by the Purchaser. The Supplier hereby consents to such amounts being deducted from any payment due to the Supplier.
- 3.5.11 **Comply with the provisions of the OHS Act & all relevant regulations.**
- 3.5.12 Comply with all laws relating to wages and conditions generally governing the employment of labour in the Cape Town area and any applicable Bargaining Council agreements.
- 3.5.13 Deliver the Goods in accordance with the Contract and with all reasonable care, diligence and skill in accordance with generally accepted professional techniques and standards.
- 3.6 The **Purchaser** must:

- 3.6.1 Issue Purchaser Orders for the Goods and/or Services required under this Contract. No liability for payment will ensue for arising out of the Delivery of the Goods and/or Services, unless a Purchase Order has been issued to the Supplier.
- 3.6.2 Make payment to the Supplier for the Goods and/or Services as set out herein.
- 3.6.3 Take possession of the Goods and /or Services upon Delivery by the Supplier.
- 3.6.4 Regularly inspect the Goods to establish that it is being delivered in compliance with the Contract.
- 3.6.5 Give any instructions and/or explanations and/or variations to the Supplier including any relevant advice to assist the Supplier to understand the Contract.
- 3.6.6 Grant or refuse any extension of time requested by the Supplier of the period stated in clause 10.
- 3.6.7 Inspect the Goods and/or Services to determine if, in the opinion of the Purchaser, it has been delivered in compliance with the Contract, alternatively in such a state that it can be properly used for the purpose for which it was intended.
- 3.6.8 Brief the Supplier and issue all documents, information, etc. in accordance with the contract.

5. Use of contract documents and information; inspection, copyright, confidentiality, etc.

Add the following after clause 5.4:

- 5.5 Copyright of all documents prepared by the Supplier in accordance with the relevant provisions of the Copyright Act (Act 98 of 1978) relating to the Contract must be vested in the Purchaser. Where copyright is vested in the Supplier, the Purchaser must be entitled to use the documents or copy them only for the purposes for which they are intended in regard to the agreement and need not obtain the Supplier's permission to copy it for such use. Where copyright is vested in the Purchaser, the Supplier must not be liable in any way for the use of any of the information other than as originally intended in terms of the agreement and the Purchaser hereby indemnifies the Supplier against any claim which may be made against it by any person / entity, arising from the use of such documentation for other purposes.

The ownership of data and factual information collected by the Supplier and paid for by the Purchaser must, after payment, vest with the Purchaser.

- 5.6 **Publicity and publication**
The Supplier must not release public or media statements or publish material related to the services or agreement within two (2) years of Delivery of the Goods, without the written approval of the Purchaser, which approval must not be unreasonably withheld.
- 5.7 **Confidentiality**
Both Parties must keep all information obtained by them in the context of the agreement, confidential and must not divulge it without the written approval of the other Party.
- 5.8 **Intellectual Property**
 - 5.8.1 The Supplier acknowledges that it must not acquire any right, title or interest in or to the Intellectual Property of the Purchaser.
 - 5.8.2 The Supplier hereby assigns to the Purchaser, all Intellectual Property created, developed or otherwise brought into existence by it for the purposes of the agreement, unless the Parties expressly agree otherwise in writing.
 - 5.8.3 The Supplier must, and warrants that it must:
 - 5.8.3.1 Not be entitled to use the Purchaser's Intellectual Property for any purpose other than as contemplated in the agreement;
 - 5.8.3.2 not modify, add to, change or alter the Purchaser's Intellectual Property, or any information or data

related thereto, nor may the Supplier produce any product as a result of, including and/or arising from any such information, data and Intellectual Property, and in the event that it does produce any such product, the product must be, and be deemed in law to be, owned by the Purchaser;

- 5.8.3.3 Not apply for or obtain registration of any domain name, trademark or design which is similar to any Intellectual Property of the Purchaser;
- 5.8.3.4 Comply with all reasonable directions or instructions given to it by the Purchaser in relation to the form and manner of use of the CCT Intellectual Property, including without limitation, any brand guidelines which the Purchaser may provide to the Supplier from time to time;
- 5.8.3.5 Ensure that its employees, directors, members and contractors comply strictly with the provisions of this Clause 5.5.8.4 above unless the Purchaser expressly agrees to the contrary, in writing and only after obtaining due internal authority for such agreement.
- 5.8.4 The Supplier represents and warrants to the Purchaser that, in providing Goods and/or Services for the duration of the agreement it will not infringe or make unauthorised use of the Intellectual Property rights of any third party and hereby indemnifies the Purchaser from any claims, liability, loss, damages, costs, and expenses arising from the infringement or unauthorised use by the Supplier of any third party's Intellectual Property rights.
- 5.8.5 Upon expiry of the contract period and in the event that the Contract is terminated, ended or is declared void, any and all of the Purchaser's Intellectual Property, and any and all information and data related thereto, must be immediately handed over to the Purchaser by the Supplier and no copies thereof must be retained by the Supplier unless the Purchaser expressly and in writing, after obtaining due internal authority, agrees otherwise.

Add the following after clause 5.8:

5.9 Protection of Personal Information Act of 2013

By submitting a tender to the Purchaser, (and by concluding any ensuing related agreement with the City of Cape Town, if applicable), the Tenderer thereby acknowledges and unconditionally agrees:

- 5.9.1 that the tenderer has been informed of the purpose of the collection and processing of its personal information as defined in the Protection of Personal Information Act of 2013 ("POPIA"), which, for the avoidance of doubt is for, and in relation to, the tender process and the negotiation, conclusion, performance and enforcement of the ensuing agreement, if applicable, as well as for the City of Cape Town's reporting purposes;
- 5.9.2 to the collection and processing of the tenderer's personal information by the City of Cape Town and agrees to make available to the City of Cape Town, all information reasonably required by the City of Cape Town for the above purposes;
- 5.9.3 that the personal information the City of Cape Town collects from the tenderer or about the tenderer may be further processed for other activities and/or purposes which are lawful, reasonable, relevant and not excessive in relation to the purposes set out above, for which it was originally collected;
- 5.9.4 that, the tenderer indemnifies the City of Cape Town and its officials, employees, and directors and undertakes to keep the City of Cape Town and its officials, employees, and directors indemnified in respect of any claim, loss, demands, liability, costs and expenses of whatsoever nature which may be made against the City of Cape Town (including the costs incurred in defending or contesting any such claim) in relation to the tenderer or the tenderer's employees', representatives' and/or sub-Suppliers' non-compliance with POPIA and/or the City of Cape Town's failure to obtain the tenderer's consent or to notify the tenderer of the reason for the processing of the tenderer's personal information;
- 5.9.5 to the disclosure of the tenderer's personal information by the City of Cape Town to any third party, where the City of Cape Town has a legal or contractual obligation to disclose such personal information to the third party (or a legitimate interest exists therein);
- 5.9.6 that, under POPIA, the tenderer may request to access, confirm, request the correction, destruction, or

deletion of, or request a description of, personal information held by the City of Cape Town in relation to you, subject to applicable law; and

that under POPIA, subject to applicable law, the tenderer also has the right to be notified of a personal information breach and the right to object to, or restrict, the City of Cape Town's processing of its personal information.

5.10 **PERFORMANCE MONITORING**

- 5.10.1 As required by section 116(2)(b) of the Local Government: Municipal Financial Management Act 56 of 2003, the CCT must monitor the performance of the Supplier on at least a monthly basis, and the Supplier agrees to provide the CCT with its full cooperation in this regard.

7. Performance Security

Delete clause 7.1 and replace with the following:

- 7.1 Within 14 (fourteen) days of Commencement Date the Supplier must furnish to the Purchaser the performance security:
- 7.1.1 The required Guarantee Sum per Category (A & B) for projects involving site installation will be as follows:
Category A: R 200 000.00
Category B: R 1 600 000.00
Being 7 percent of the Contract price or such other applicable amount.
- 7.1.2 The Performance Security/Guarantee furnished must be issued by an Approved Financial Institution listed in the Pro Forma Performance Security/Guarantee as at 28 February 2023 (being institutions approved for issue of contract guarantees by the Purchaser).

Delete clause 7.3 and replace with the following:

- 7.3 The performance security must be furnished strictly in accordance with the terms and conditions set out in Form of Performance Security/ Guarantee.

Delete clause 7.4 and replace with the following:

- 7.4 The performance security will be discharged by the Purchaser and returned to the Supplier strictly in accordance with the terms and conditions set out in the Performance Security/ Guarantee.

8. Inspections, tests and analyses

Delete Clause 8.2 and substitute with the following:

- 8.2 If it is a bid condition that Goods and/or Services to be produced or services to be rendered should at any stage during production or execution or on completion be subject to inspection, the premises of the bidder or Supplier must be open, at all reasonable hours, for inspection by a representative of the Purchaser or an organisation acting on behalf of the Purchaser.

10. Delivery and documents

Delete clauses 10.1 and 10.2 and replace with the following:

- 10.1 Delivery of the goods must be made by the Supplier in accordance with the terms specified in the contract. The time for Delivery of the goods must be the date as stated on the Purchase Order. In the case of agreements for Delivery of goods in terms of framework or panel agreements, Purchase Orders for the supply and delivery of goods may be raised up until the expiry of a framework or panel agreement, provided that the goods can be delivered within 30 (thirty) days of expiry of the framework or panel agreement. In this context, the "goods" does not include services and carries its ordinary meaning. All Purchase Orders other than for the supply and Delivery of goods (i.e. supply of services, professional services or

constructions works), must be completed prior to the expiry of the contract period.

- 10.2 The Purchaser must determine, in its sole discretion, whether the Goods and/or Services have been delivered in compliance with the Contract, alternatively in such a state that it can be properly used for the purpose for which it was intended. When the Purchaser determines that the Goods and/or Services have been satisfactorily delivered, the Purchaser must issue an appropriate certification, or written approval, to that effect. Invoicing may only occur, and must be dated, on or after the date of such written acceptance of the Goods.

11. Insurance

Add the following after clause 11.1:

- 11.2 Without limiting the obligations of the Supplier in terms of this Contract, the Supplier must effect and maintain the following additional insurances:

11.2.1 Public liability insurances, in the name of the Supplier, covering the Supplier and the Purchaser against liability for the death of or injury to any person, or loss of or damage to any property, arising out of or in the course of this Contract, in an amount not less than **[R20 million]** for any single claim;

11.2.2 Motor Vehicle Liability Insurance, in respect of all vehicles owned and / or leased by the Supplier, comprising (as a minimum) "Balance of Third Party" Risks including Passenger Liability Indemnity;

11.2.3 Registration / insurance in terms of the Compensation for Occupational Injuries and Disease Act, Act 130 of 1993. This can either take the form of a certified copy of a valid Letter of Good Standing issued by the Compensation Commissioner, or proof of insurance with a licenced compensation insurer, from either the Supplier's broker or the insurance company itself (see the Pro Forma Insurance Broker's Warranty).

11.2.4 Not Applicable

11.2.5 In the event of under insurance or the insurer's repudiation of any claim for whatever reason, the Purchaser will retain its right of recourse against the Supplier.

11.3 The Supplier must be obliged to furnish the Purchaser with proof of such insurance as the Purchaser may require from time to time for the duration of this Contract. Evidence that the insurances have been effected in terms of this clause, must be either in the form of an insurance broker's warranty worded precisely as per the pro forma version contained in the Pro forma Insurance Broker's Warranty or copies of the insurance policies.

15. Warranty

Add to Clause 15.2:

15.2 The warranty for this Contract must remain valid for **twelve (12) months** from date of Delivery of the Goods and/or Services.

16. Payment

Delete Clause 16.1 in its entirety and replace with the following:

16.1 Payment of invoices will be made:

16.1.1 Within 30 (thirty) days of receiving the relevant invoice or statement from the Supplier, unless otherwise prescribed for certain categories of expenditure or specific contractual requirements in accordance with any other applicable policies of the Purchaser.

16.1.2 Notwithstanding anything contained above, the Purchaser must not be liable for payment of any invoice that pre-dates the date of delivery of any Goods and/or Services.

Delete Clause 16.2 in its entirety and replace with the following:

- 16.2 The Supplier must furnish the purchaser's Accounts Payable Department with an original tax invoice, clearly showing the amount due in respect of each and every claim for payment.

Add the following after clause 16.4

- 16.5 Notwithstanding any amount stated on the Purchase Order, the Supplier must only be entitled to payment for Goods and/or Services actually delivered in terms of the Specification and Drawings, or any variations thereof made in accordance with clause 18. Any contingency sum included must be for the sole use, and at the discretion, of the Purchaser.

- 16.6 Not Applicable

17. Prices

Add the following after clause 17.1

- 17.2 If as a result of an award of a contract beyond the original tender validity period, the contract execution will be completed beyond a period of twelve (12) months from the expiry of the original tender validity period, then the contract may be subject to contract price adjustment for that period beyond such twelve (12) months. An appropriate contract price adjustment formula will be determined by the Purchaser delegated authority if such was not included in the bid documents.
- 17.3 If as a result of any extension of time granted, the contract execution will be completed beyond a period of twelve (12) months from the expiry of the original tender validity period, then contract price adjustment may apply to that period beyond such twelve (12) months. An appropriate contract price adjustment formula will be determined by the Director: Supply Chain Management if such was not included in the bid documents.
- 17.4 The prices for the goods and/or Services delivered and services performed **must be subject to contract price adjustment in terms of Schedule F.1 Contract Price Adjustment and/or Rate of Exchange Variations.**

18. Contract Amendments

Delete the heading of clause 18 and replace with the following:

18. Contract Amendments and Variations

Add the following to clause 18.1:

Variations means changes to the Goods and/or Services, extension of the contract period or increases in the value of the Contract as a result of written instructions issued by the Purchaser to the Supplier. Such changes are subject to prior approval by the Purchaser's delegated authority. Should the Supplier deliver any Goods not described in a written instruction from the Purchaser, the Purchaser's liability for payment must not arise until such time as the change has been duly approved and such approval communicated to the Purchaser.

20. Subcontracts

Add the following after clause 20.1:

- 20.2 The Supplier must be liable for the acts, defaults and negligence of any subcontractor, his agents or employees as fully as if they were the acts, defaults or negligence of the Supplier.
- 20.3 Any appointment of a subcontractor must not amount to a contract between the Purchaser and the subcontractor, or a responsibility or liability on the part of the Purchaser to the subcontractor and must not relieve the Supplier from any liability or obligation under the Contract.

21. Delays in the supplier's performance

Delete Clause 21.2 in its entirety and replace with the following:

21.2 If at any time during the performance of obligations contained in the Contract the Supplier or its subcontractors should encounter conditions beyond their reasonable control which impede the timely delivery of the Goods and/or Services, the Supplier must notify the Purchaser in writing, within 7 (seven) days of first having become aware of these conditions, of the facts of the delay, its cause(s) and its probable duration. As soon as practicable after receipt of the Supplier's notice, the Purchaser must evaluate the situation, and may at his discretion extend the time for Delivery.

Where additional time is granted, the Purchaser must also determine whether or not the Supplier is entitled to payment for additional costs in respect thereof. The principle to be applied in this regard is that where the Purchaser or any of its agents are responsible for the delay, reasonable costs must be paid. In respect of delays that were beyond the reasonable control of both the Supplier and the Purchaser, additional time only (no costs) will be granted.

The Purchaser must notify the Supplier in writing of his decision(s) in the above regard.

21.3 No provision in this Contract must be deemed to prohibit the obtaining of Goods and/or Services from a national department, provincial department, or a local authority.

22. Penalties

Delete clause 22.1 and replace with the following:

22.1 Subject to GCC Clause 25, if the Supplier fails to deliver any or all of the Goods and/or Services within the period(s) specified in the Contract, the Purchaser must, without prejudice to its other remedies under the Contract, deduct from amounts payable, as a penalty, a sum as stated herein for each day of the delay until actual Delivery or performance.

The penalty for this contract must be as follows:

- a) For Works Projects 0,1 % (one tenth of one percent) of the final Contract Price of the delayed Section per day of each Works Project that is delayed.
- b) For equipment ordered to stock and delivered to Stores 0,5 % (one half of one percent) of the final contract price of the equipment per week that the equipment is delayed.

No such penalties must exceed 10% of the value of the overdue goods concerned.

22.2 The Purchaser must, without prejudice to its other remedies under the contract, deduct from amounts payable, financial penalties as contained on the Preference Schedule for breaches of the conditions upon which preference points were awarded.

23. Termination for default

Delete the heading of clause 23 and replace with the following:

23. Termination

Add the following to the end of clause 23.1:

If the Supplier fails to remedy the breach in terms of such notice.

Add the following after clause 23.7:

23.8 In addition to the grounds for termination due to default by the Supplier, the Contract may also be terminated:

23.8.1 Upon the death of the Supplier who was a Sole Proprietor, or a sole member of a Close Corporation, in which case the contract will terminate forthwith.

23.8.2 If the Parties, by mutual agreement, terminate the Contract.

23.8.3 If a material irregularity vitiates the procurement process leading to the conclusion of the Contract, rendering the procurement process and the conclusion of the resulting Contract unfair, inequitable, non-transparent, uncompetitive or not cost-effective the Contract may be terminated by the Purchaser (upon conclusion of applicable processes by the City Manager as described in the Purchaser's SCM Policy).

23.8.4 Reputational risk or harm to the Purchaser

The Purchaser, without prejudice to any other remedy for breach of contract, by written notice of default sent to the Supplier, may terminate the contract if the implementation of the contract may result in reputational risk or harm to the Purchaser as a result of (inter alia):

- a) reports of poor governance and/or unethical behaviour;
- b) association with known notorious individuals and family of notorious individuals;
- c) poor performance issues, known to the Purchaser
- d) negative social media reports;
- e) adverse assurance (e.g. due diligence) report outcomes; or
- f) circumstances where the relevant vendor has employed, or is directed by, anyone who was previously employed in the service of the state (as defined in clause 1.53), where the person is or was negatively implicated in any SCM irregularity.

By or in relation to the Supplier, the Contract may be terminated by the Purchaser after providing notice to the Supplier.

23.9 If the Contract is terminated in terms of clause 23.8, all obligations that were due and enforceable prior to the date of the termination, must be performed by the relevant Party.

26. Termination for insolvency

Delete clause 26.1 and replace with the following:

26.1 In the event of the Supplier becoming bankrupt or otherwise insolvent the Purchaser may elect to:

26.1.1 At any time, terminate the Contract by giving written notice to the Supplier; or

26.1.2 Accept a Supplier's proposal (via the liquidator) to render delivery utilising the appropriate contractual mechanisms or takes steps to ensure its rights are protected and any negative impact on service delivery is mitigated.

26.2 In the event of the Purchaser electing to cancel the Contract in accordance with clause 26.1.1 above, the Purchaser must make payment of all verified and signed off invoices. In the event of there being any dispute in respect of any outstanding invoices such dispute must be dealt with in accordance with the dispute resolution mechanism in the Contract.

27. Settlement of Disputes

Amend clause 27.1 as follows:

27.1 If any dispute or difference of any kind whatsoever, with the exception of termination in terms of clause 23 arises between the Purchaser and the Supplier in connection with or arising out of the Contract, the Parties must make every effort to resolve such dispute or difference amicably, by mutual consultation.

Delete Clause 27.2 in its entirety and replace with the following:

27.2 Should the Parties fail to resolve any dispute by way of mutual consultation, either party must be entitled to refer the matter for mediation before an independent and impartial person appointed by the City Manager in accordance with Regulation 50(1) of the Local Government: Municipal Finance Management Act, 56 of 2003 – Municipal Supply Chain Management Regulations (Notice 868 of 2005). Such referral must 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 must bear their own costs concerning the mediation and share the costs of the mediator and related costs equally.

The mediator must agree the procedures, representation and dates for the mediation process with the Parties. The mediator may meet the Parties together or individually to enable a settlement.

Where the Parties reach settlement of the dispute or any part thereof, the mediator must record such agreement and on signing thereof by the Parties the agreement must be final and binding.

Save for reference to any portion of any settlement or decision which has been agreed to be final and binding on the Parties, no reference must 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.

28. Limitation of Liability

Delete clause 28.1 (a) and (b) and replace with the following:

- (a) notwithstanding any provision to the contrary contained in this contract, neither the supplier nor any of its officers, directors, employees, agents contractors, consultants or other representatives must be liable to the purchaser, whether in contract, tort, or otherwise, for any indirect, incidental, special or consequential loss or damage of any kind, including without limitation the loss of use, loss of production, or loss of profits or interest costs, loss of goodwill, lost or damaged data or software, costs of substitute products/services and/or loss of business or business opportunities (whether foreseeable or unforeseeable), provided that this exclusion must not apply to any obligation of the supplier to pay penalties and/or damages to the purchaser;
- (b) the aggregate liability of the Supplier to the Purchaser, whether under the Contract, in tort or otherwise, must not exceed the sums insured in terms of clause 11 in respect of insurable events, or where no such amounts are stated, to an amount equal to twice the Contract price, provided that this limitation must not apply to the cost of repairing or replacing defective equipment.

Add the following after clause 28.1:

- 28.2 Without detracting from, and in addition to, any of the other indemnities in this Contract, the Supplier must be solely liable for and hereby indemnifies and holds harmless the Purchaser against all claims, charges, damages, costs, actions, liability, demands and/or proceedings and expense in connection with:
 - a) personal injury or loss of life to any individual;
 - b) loss of or damage to property;

arising from, out of, or in connection with the performance by the Supplier in terms of this Contract, save to the extent caused by the gross negligence or wilful misconduct of the Purchaser.
- 28.3 The Supplier and/or its employees, agents, concessionaires, suppliers, sub-contractors or customers must not have any claim of any nature against the purchaser for any loss, damage, injury or death which any of them may directly or indirectly suffer, whether or not such loss, damages, injury or death is caused through negligence of the Purchaser or its agents or employees.
- 28.4 Notwithstanding anything to the contrary contained in this Contract, under no circumstances whatsoever, including as a result of its negligent (including grossly negligent) acts or omissions or those of its servants, agents or contractors or other persons for whom in law it may be liable, must any party or its servants (in whose favour this constitutes a *stipulatio alteri*) be liable for any indirect, extrinsic, special, penal, punitive, exemplary or consequential loss or damage of any kind whatsoever, whether or not the loss was actually foreseen or reasonably foreseeable), sustained by the other party, its directors and/or servants, including but not limited to any loss of profits, loss of operation time, corruption or loss of information and/or loss of contracts.
- 28.5 Each party agrees to waive all claims against the other insofar as the aggregate of compensation which might otherwise be payable exceeds the aforesaid maximum amounts payable.

31. Notices

Delete clauses 31.1 and 31.2 and replace with the following:

- 31.1 Any notice, request, consent, approvals or other communications made between the Parties pursuant to the Contract must be in writing and forwarded to the addresses specified in the Contract and may be given as set out hereunder and must be deemed to have been received when:
- a) hand delivered – on the day delivery of delivery or the next Working Day,
 - b) sent by registered mail – five (5) Working Days after mailing,
 - c) sent by email or telefax – one (1) Working Day after transmission.

32. Taxes and Duties

Delete the final sentence of 32.3 and replace with the following:

. In this regard, it is the responsibility of the Tenderer to submit evidence in the form of a valid Tax Compliance Status PIN issued by SARS to the CCT at the Supplier Management Unit located within the Supplier Management / Registration Office, 2nd Floor (Concourse Level), Civic Centre, 12 Hertzog Boulevard, Cape Town (Tel 021 400 9242/3/4/5), or included with this tender.

Add the following after clause 32.3:

32.4 The VAT registration number of the CCT is 4500193497.

ADDITIONAL CONDITIONS OF CONTRACT

Add the following Clause after Clause 34:

35. Reporting Obligations

35.1 The Supplier must complete, sign and submit with each delivery note, all the documents as required in the Specifications including Monthly Project Labour Reports (Annexure B). Any failure in this regard may result in a delay in the processing of payments.

36. Protection of personal information

36.1 The supplier acknowledges that it will be processing personal information as defined in the Protection of Personal Information Act No. 4 of 2013 relating to City customers, on behalf of the City. Accordingly, it undertakes to ensure compliance with the Act in respect of its processing activities. In particular, it undertakes to keep such information confidential and not to disclose it unless required by law or in the course of the proper performance of its duties. Furthermore, it undertakes to maintain security measures as envisaged in Sections 19 and 21 of the Act. The requirements of this apply to all agents and subcontractors acting on behalf of tenderers and must be included in all contracts between tenderers and their agents or subcontractors.

37. Percentage of retention

37.1 10% reducing to 5% upon the issue of a Taking-Over Certificate provided that for Works Projects less than or equal to R200 000 (incl. VAT) retention is waived.

37.2 No retention will be deducted for equipment delivered to Stores.

C.7 GENERAL CONDITIONS OF CONTRACT

(National Treasury - General Conditions of Contract (revised July 2010))

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1. Definitions

1. The following terms must be interpreted as indicated:

- 1.1 'Closing time' means the date and hour specified in the bidding documents for the receipt of bids.
- 1.2 'Contract' means the written agreement entered into between the purchaser and the supplier, as recorded in the contract form signed by the Parties, including all attachments and appendices thereto and all documents incorporated by reference therein.
- 1.3 'Contract price' means the price payable to the supplier under the contract for the full and proper performance of his or her contractual obligations.
- 1.4 'Corrupt practice' means the offering, giving, receiving, or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution.
- 1.5 'Countervailing duties' are imposed in cases in which an enterprise abroad is subsidised by its government and encouraged to market its products internationally.

- 1.6 'Country of origin' means the place where the goods were mined, grown or produced or from which the services are supplied. Goods are produced when, through manufacturing, processing or substantial and major assembly of components, a commercially recognised new product results that is substantially different in basic characteristics or in purpose or utility from its components.
- 1.7 'Day' means calendar day.
- 1.8 'Delivery' means delivery in compliance with the conditions of the contract or order.
- 1.9 'Delivery ex stock' means immediate delivery directly from stock actually on hand.
- 1.10 'Delivery into consignee's store or to his site' means delivered and unloaded in the specified store or depot or on the specified site in compliance with the conditions of the contract or order, the supplier bearing all risks and charges involved until the supplies are so delivered and a valid receipt is obtained.
- 1.11 'Dumping' occurs when a private enterprise abroad markets its goods on its own initiative in the RSA at lower prices than that of the country of origin, and which action has the potential to harm the local industries in the RSA.
- 1.12 'Force majeure' means an event beyond the control of the supplier, not involving the supplier's fault or negligence, and not foreseeable. Such events may include, but are not restricted to, acts of the purchaser in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.
- 1.13 'Fraudulent practice' means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of any bidder, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial, non-competitive levels and to deprive the bidder of the benefits of free and open competition.
- 1.14 'GCC' means the General Conditions of Contract.
- 1.15 'Goods' means all of the equipment, machinery, and/or other materials that the supplier is required to supply to the purchaser under the contract.
- 1.16 'Imported content' means that portion of the bidding price represented by the cost of components, parts or materials which have been or are still to be imported (whether by the supplier or his subcontractors) and which costs are inclusive of the costs abroad, plus freight and other direct importation costs such as landing costs, dock dues, import duty, sales duty or other similar tax or duty at the South African place of entry as well as transportation and handling charges to the factory in the Republic where the supplies covered by the bid will be manufactured.
- 1.17 'Local content' means that portion of the bidding price which is not included in the imported content, provided that local manufacture does take place.
- 1.18 'Manufacture' means the production of products in a factory using labour, materials, components and machinery, and includes other, related value-adding activities.
- 1.19 'Order' means an official written order issued for the supply of goods or works or the rendering of a service.
- 1.20 'Project site', where applicable, means the place indicated in bidding documents.
- 1.21 'Purchaser' means the organisation purchasing the goods.
- 1.22 'Republic' means the Republic of South Africa.
- 1.23 'SCC' means the Special Conditions of Contract.

1.24 'Services' means those functional services ancillary to the supply of the goods, such as transportation and any other incidental services, such as installation, commissioning, provision of technical assistance, training, catering, gardening, security, maintenance, and other such obligations of the supplier covered under the contract.

1.25 'Written' or 'in writing' means handwritten in ink or any form of electronic or mechanical writing.

2. Application

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

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

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

3. General

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

3.2 With certain exceptions, invitations to bid are only published in the Government Tender Bulletin. The Government Tender Bulletin may be obtained directly from the Government Printer, Private Bag X85, Pretoria 0001, or accessed electronically from www.treasury.gov.za.

4. Standards

4.1 The goods supplied must conform to the standards mentioned in the bidding documents and specifications.

5. Use of contract documents and information; inspection.

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

5.2 The supplier must not, without the purchaser's prior written consent, make use of any document or information mentioned in GCC clause 5.1, except for purposes of performing the contract.

5.3 Any document, other than the contract itself, mentioned in GCC clause 5.1 must remain the property of the purchaser and must be returned (all copies) to the purchaser on completion of the supplier's performance under the contract if so required by the purchaser.

5.4 The supplier must permit the purchaser to inspect the supplier's records relating to the performance of the supplier and to have them audited by auditors appointed by the purchaser, if so required by the purchaser.

6. Patent rights

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

7. Performance Security

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

8. Inspections, tests and analyses

- 8.1 All pre-bidding testing will be for the account of the bidder.
- 8.2 If it is a bid condition that supplies to be produced or services to be rendered should at any stage during production or execution or on completion be subject to inspection, the premises of the bidder or contractor must be open, at all reasonable hours, for inspection by a representative of the Department or an organisation acting on behalf of the Department.
- 8.3 If there are no inspection requirements indicated in the bidding documents and no mention of such is made in the contract, but during the contract period it is decided that inspections must be carried out, the purchaser must itself make the necessary arrangements, including payment arrangements with the testing authority concerned.
- 8.4 If the inspections, tests and analyses referred to in clauses 8.2 and 8.3 show the supplies to be in accordance with the contract requirements, the cost of the inspections, tests and analyses must be defrayed by the purchaser.
- 8.5 Where the supplies or services referred to in clauses 8.2 and 8.3 do not comply with the contract requirements, irrespective of whether such supplies or services are accepted or not, the cost in connection with these inspections, tests or analyses must be defrayed by the supplier.
- 8.6 Supplies and services which are referred to in clauses 8.2 and 8.3 and which do not comply with the contract requirements may be rejected.
- 8.7 Any contract supplies may on or after delivery be inspected, tested or analysed and may be rejected if found not to comply with the requirements of the contract. Such rejected supplies must be held at the cost and risk of the supplier, who must, when called upon, remove them immediately at his own cost and forthwith substitute them with supplies which do comply with the requirements of the contract. Failing such removal, the rejected supplies must be returned at the suppliers cost and risk. Should the supplier fail to provide the substitute supplies forthwith, the purchaser may, without giving the supplier further opportunity to substitute the rejected supplies, purchase such supplies as may be necessary at the expense of the supplier.
- 8.8 The provisions of clauses 8.4 to 8.7 must not prejudice the right of the purchaser to cancel the contract on account of a breach of the conditions thereof, or to act in terms of Clause 23 of the GCC.

9. Packing

- 9.1 The supplier must provide such packing of the goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the contract. The packing must be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit, and open storage. Packing, case size and weights must

take into consideration, where appropriate, the remoteness of the goods' final destination and the absence of heavy handling facilities at all points in transit.

- 9.2 The packing, marking, and documentation within and outside the packages must comply strictly with such special requirements as must be expressly provided for in the contract, including additional requirements, if any, specified in the SCC, and in any subsequent instructions ordered by the purchaser.

10. Delivery and documents

- 10.1 Delivery of the goods must be made by the supplier in accordance with the terms specified in the contract. The details of shipping and/or other documents to be furnished by the supplier are specified in the SCC.
- 10.2 Documents to be submitted by the supplier are specified in the SCC.

11. Insurance

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

12. Transportation

- 12.1 Should a price other than an all-inclusive delivered price be required, this must be specified in the SCC.

13. Incidental Services

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

14. Spare parts

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

15. Warranty

- 15.1 The supplier warrants that the goods supplied under the contract are new, unused, of the most recent or current models, and that they incorporate all recent improvements in design and materials unless provided otherwise in the contract. The supplier further warrants that all goods supplied under this contract must have no defect arising from design, materials, or workmanship (except when the design and/or material

is required by the purchaser's specifications), or from any act or omission of the supplier, that may develop under normal use of the supplied goods in the conditions prevailing in the country of final destination.

15.2 This warranty must remain valid for 12 (twelve) months after the goods, or any portion thereof, as the case may be, have been delivered to and accepted at the final destination indicated in the contract, or for 18 (eighteen) months after the date of shipment from the port or place of loading in the source country, whichever period concludes earlier, unless specified otherwise in the SCC.

15.3 The purchaser must notify the supplier promptly, in writing, of any claims arising under this warranty.

15.4 Upon receipt of such notice, the supplier must, within the period specified in the SCC and with all reasonable speed, repair or replace the defective goods or parts thereof, without costs to the purchaser.

15.5 If the supplier, having been notified, fails to remedy the defect(s) within the period specified in the SCC, the purchaser may proceed to take such remedial action as may be necessary, at the supplier's risk and expense and without prejudice to any other rights which the purchaser may have against the supplier under the contract.

16. Payment

16.1 The method and conditions of payment to be made to the supplier under this contract must be specified in the SCC.

16.2 The supplier must furnish the purchaser with an invoice accompanied by a copy of the delivery note and upon fulfilment of any other obligations stipulated in the contract.

16.3 Payments must be made promptly by the purchaser, but in no case later than 30 (thirty) days after submission of an invoice or claim by the supplier.

16.4 Payment will be made in Rand unless otherwise stipulated in the SCC.

17. Prices

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

18. Contract Amendments

18.1 No variation in or modification of the terms of the contract must be made except by written amendment signed by the Parties concerned.

19. Assignment

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

20. Subcontracts

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

21. Delays in the supplier's performance

21.1 Delivery of the goods and performance of services must be made by the supplier in accordance with the time schedule prescribed by the purchaser in the contract.

21.2 If at any time during the performance of the contract, the supplier or its subcontractor(s) should encounter conditions impeding timely delivery of the goods and performance of services, the supplier must promptly notify the purchaser in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the supplier's notice, the purchaser must evaluate the situation and may at his

or her discretion extend the supplier's time for performance, with or without the imposition of penalties, in which case the extension must be ratified by the Parties by amendment of contract.

- 21.3 No provision in a contract must be deemed to prohibit the obtaining of supplies or services from a national department, provincial department, or a local authority.
- 21.4 The right is reserved to procure, outside of the contract, small quantities of supplies; or to have minor essential services executed if an emergency arises, or the supplier's point of supply is not situated at or near the place where the supplies are required, or the supplier's services are not readily available.
- 21.5 Except as provided under GCC Clause 25, a delay by the supplier in the performance of its delivery obligations must render the supplier liable to the imposition of penalties, pursuant to GCC Clause 22, unless an extension of time is agreed upon pursuant to GCC Clause 21.2 without the application of penalties.
- 21.6 Upon any delay beyond the delivery period in the case of a supplies contract, the purchaser must, without cancelling the contract, be entitled to purchase supplies of a similar quality and up to the same quantity in substitution of the goods not supplied in conformity with the contract and to return any goods delivered later at the supplier's expense and risk, or to cancel the contract and buy such goods as may be required to complete the contract and, without prejudice to his other rights, be entitled to claim damages from the supplier.

22. Penalties

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

23. Termination for default

- 23.1 The purchaser, without prejudice to any other remedy for breach of contract, by written notice of default sent to the supplier, may terminate this contract in whole or in part:
- (a) if the supplier fails to deliver any or all of the goods within the period(s) specified in the contract, or within any extension thereof granted by the purchaser pursuant to GCC Clause 21.2;
 - (b) if the supplier fails to perform any other obligation(s) under the contract; or
 - (c) if the supplier, in the judgment of the purchaser, has engaged in corrupt or fraudulent practices in competing for or in executing the contract.
- 23.2 In the event the purchaser terminates the contract in whole or in part, the purchaser may procure, upon such terms and in such manner as it deems appropriate, goods, works or services similar to those undelivered, and the supplier must be liable to the purchaser for any excess costs for such similar goods, works or services. However, the supplier must continue performance of the contract to the extent not terminated.
- 23.3 Where the purchaser terminates the contract in whole or in part, the purchaser may decide to impose a restriction penalty on the supplier by prohibiting such supplier from doing business with the public sector for a period not exceeding 10 years.
- 23.4 If a purchaser intends imposing a restriction on a supplier or any person associated with the supplier, the supplier will be allowed a time period of not more than 14 (fourteen) days to provide reasons why the envisaged restriction should not be imposed. Should the supplier fail to respond within the stipulated 14 (fourteen) days the purchaser may regard the intended penalty as not objected against and may impose it on the supplier.
- 23.5 Any restriction imposed on any person by the Accounting Officer/Authority will, at the discretion of the Accounting Officer/Authority, also be applicable to any other enterprise or any partner, manager, director or other person who wholly or partly exercises or exercised or may exercise control over the enterprise of

the first-mentioned person, and with which enterprise or person the first-mentioned person is or was, in the opinion of the Accounting Officer/Authority, actively associated.

23.6 If a restriction is imposed, the purchaser must, within 5 (five) working days of such imposition, furnish the National Treasury with the following information:

- (i) the name and address of the supplier and/or person restricted by the purchaser;
- (ii) the date of commencement of the restriction;
- (iii) the period of restriction; and
- (iv) the reasons for the restriction.

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

23.7 If a court of law convicts a person of an offence as contemplated in sections 12 or 13 of the Prevention and Combating of Corrupt Activities Act, Act 12 of 2004, the court may also rule that such person's name be endorsed on the Register for Tender Defaulters. When a person's name has been endorsed on the Register, the person will be prohibited from doing business with the public sector for a period of not less than five years and not more than 10 years. The National Treasury is empowered to determine the period of restriction, and each case will be dealt with on its own merits. According to section 32 of the Act the Register must be open to the public. The Register can be perused on the National Treasury website.

24. Anti-dumping and countervailing duties and rights

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

25. Force majeure

25.1 Notwithstanding the provisions of GCC Clauses 22 and 23, the supplier must not be liable for forfeiture of its performance security, damages, or termination for default if, and to the extent that, his delay in performance or other failure to perform his obligations under the contract is the result of an event of force majeure.

25.2 If a force majeure situation arises, the supplier must notify the purchaser promptly, in writing, of such condition and the cause thereof. Unless otherwise directed by the purchaser in writing, the supplier must continue to perform its obligations under the contract as far as is reasonably practical, and must seek all reasonable alternative means for performance not prevented by the force majeure event.

26. Termination for insolvency

26.1 The purchaser may at any time terminate the contract by giving written notice to the supplier if the supplier becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the supplier, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the purchaser.

27. Settlement of Disputes

27.1 If any dispute or difference of any kind whatsoever arises between the purchaser and the supplier in connection with or arising out of the contract, the Parties must make every effort to resolve such dispute or difference amicably, by mutual consultation.

27.2 If, after 30 (thirty) days, the Parties have failed to resolve their dispute or difference by such mutual consultation, then either the purchaser or the supplier may give notice to the other party of his intention

to commence with mediation. No mediation in respect of this matter may be commenced unless such notice is given to the other party.

27.3 Should it not be possible to settle a dispute by means of mediation, it may be settled in a South African court of law.

27.4 Mediation proceedings must be conducted in accordance with the rules of procedure specified in the SCC.

27.5 Notwithstanding any reference to mediation and/or court proceedings herein,

- (a) the Parties must continue to perform their respective obligations under the contract unless they otherwise agree; and
- (b) the purchaser must pay the supplier any monies due to the supplier.

28. Limitation of Liability

28.1 Except in cases of criminal negligence or wilful misconduct, and in the case of infringement pursuant to Clause 6:

- (a) the supplier must not be liable to the purchaser, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion must not apply to any obligation of the supplier to pay penalties and/or damages to the purchaser; and
- (b) the aggregate liability of the supplier to the purchaser, whether under the contract, in tort or otherwise, must not exceed the total contract price, provided that this limitation must not apply to the cost of repairing or replacing defective equipment.

29. Governing language

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

30. Applicable Law

30.1 The contract must be interpreted in accordance with South African laws, unless otherwise specified in the SCC.

31. Notices

31.1 Every written acceptance of a bid must be posted to the supplier concerned by registered or certified mail, and any other notice to him must be posted by ordinary mail, to the address furnished in his bid or to the address notified later by him in writing; and such posting must be deemed to be proper service of such notice.

31.2 The time mentioned in the contract documents for performing any act after such aforesaid notice has been given, must be reckoned from the date of posting of such notice.

32. Taxes and Duties

32.1 A foreign supplier must be entirely responsible for all taxes, stamp duties, licence fees, and other such levies imposed outside the purchaser's country.

32.2 A local supplier must be entirely responsible for all taxes, duties, licence fees, etc., incurred until delivery of the contracted goods to the purchaser.

32.3 No contract must be concluded with any bidder whose tax matters are not in order. Prior to the award of a bid the Department must be in possession of a tax clearance certificate submitted by the bidder. This certificate must be an original issued by the South African Revenue Services.

33. National Industrial Participation (NIP) Programme

33.1 The NIP Programme administered by the Department of Trade and Industry must be applicable to all contracts that are subject to the NIP obligation.

34 Prohibition of Restrictive practices

- 34.1 In terms of section 4 (1) (b) (iii) of the Competition Act, Act 89 of 1998, as amended, an agreement between or concerted practice by firms, or a decision by an association of firms, is prohibited if it is between Parties in a horizontal relationship and if a bidder(s) is/are or a contractor(s) was/were involved in collusive bidding (or bid rigging).
- 34.2 If a bidder(s) or contractor(s), based on reasonable grounds or evidence obtained by the purchaser, has/have engaged in the restrictive practice referred to above, the purchaser may refer the matter to the Competition Commission for investigation and possible imposition of administrative penalties as contemplated in the Competition Act, Act 89 of 1998.
- 34.3 If a bidder(s) or contractor(s) has/have been found guilty by the Competition Commission of the restrictive practice referred to above, the purchaser may, in addition and without prejudice to any other remedy provided for, invalidate the bid(s) for such item(s) offered, and/or terminate the contract in whole or part, and/or restrict the bidder(s) or contractor(s) from conducting business with the public sector for a period not exceeding 10 (ten) years and/or claim damages from the bidder(s) or contractor(s) concerned.

C.8 ANNEXURES

Annexure A – Pro Forma Insurance Broker’s Warranty



Letterhead of supplier’s Insurance Broker

Date _____

CCT
City Manager
Civic Centre
12 Hertzog Boulevard
Cape Town
8000

Dear Sir

TENDER NO.: 2023/24

TENDER DESCRIPTION:

NAME OF SUPPLIER: _____

I, the undersigned, do hereby confirm and warrant that all the insurances required in terms of the abovementioned contract have been issued and/or in the case of blanket/umbrella policies, have been endorsed to reflect the interests of the CCT with regard to the abovementioned contract, and that all the insurances and endorsements, etc., are all in accordance with the requirements of the contract.

I furthermore confirm that all premiums in the above regard have been paid.

Yours faithfully

Signed: _____

For: _____ (Supplier’s Insurance Broker)

Annexure B – Monthly Project Labour Report

ANNEX 1

CITY OF CAPE TOWN MONTHLY PROJECT LABOUR REPORT



Instructions for completing and submitting forms

General

- 1 The Monthly Project Labour Reports must be completed in full, using typed, proper case characters; alternatively, should a computer not be available, handwritten in black ink.
- 2 Incomplete / incorrect / illegible forms will not be accepted.
- 3 Any conditions relating to targeted labour stipulated in the Contract (in the case of contracted out services or works) shall apply to the completion and submission of these forms.
- 4 This document is available in Microsoft Excel format upon request from the City's EPWP office, tel 021 400 9406, email EPWPLR@capetown.gov.za.

Project Details

- 5 If a field is not applicable insert the letters: NA
- 6 Only the Project Number supplied by the Corporate EPWP Office must be inserted.
The Project Number can be obtained from the Coordinator or Project Manager or from the e-mail address in point 4 above.
- 7 On completion of the contract or works project the anticipated end date must be updated to reflect the actual end date.

Beneficiary Details and Work Information

- 8 Care must be taken to ensure that beneficiary details correspond accurately with the beneficiary's ID document.

- 9 A new beneficiary is one in respect of which a new employment contract is signed in the current month. A certified ID copy must accompany this labour report on submission.
 - 10 Was the beneficiary sourced from the City's job seeker database?
 - 11 The contract end date as stated in the beneficiary's employment contract.
 - 12 Where a beneficiary has not worked in a particular month, the beneficiary's name shall not be reflected on this form at all for the month in question.
 - 13 Training will be recorded separately from normal working days and together shall not exceed the maximum of 23 days per month
 - 14 Workers earning more than the maximum daily rate (currently R450 excluding any benefits) shall not be reflected on this form at all.
- ##### Submission of Forms
- 15 Signed hardcopy forms must be scanned and submitted to the City's project manager in electronic (.pdf) format, together with the completed form in Microsoft Excel format.
 - 16 Scanned copies of all applicable supporting documentation must be submitted along with each monthly project labour report. Copies of employment contracts and ID documents are only required in respect of new beneficiaries.
 - 17 If a computer is not available hardcopy forms and supporting documentation will be accepted.

PROJECT DETAILS

Numbers in cells below e.g (6) refer to the relevant instruction above for completing and submitting forms

CONTRACT OR WORKS PROJECT NAME: (6)		EPWP SUPPLIED PROJECT NUMBER: (6)										
DIRECTORATE:		DEPARTMENT:										
CONTRACTOR OR VENDOR NAME:		CONTRACTOR OR VENDOR E-MAIL ADDRESS:										
CONTRACTOR OR VENDOR CONTACT PERSON:		CONTRACTOR OR VENDOR TEL. NUMBER:										
		CELL WORK										
PROJECT LABOUR REPORT CURRENT MONTH (mark with "X")												
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR

ACTUAL START DATE (yyyy/mm/dd)						ANTICIPATED / ACTUAL END DATE (yyyy/mm/dd) (7)					
TOTAL PROJECT EXPENDITURE / VALUE OF WORK DONE TO-DATE (INCLUDING ALL COSTS, BUT EXCLUDING VAT)											
R											

MONTHLY PROJECT LABOUR REPORT

BENEFICIARY DETAILS AND WORK INFORMATION



CONTRACT OR WORKS PROJECT NUMBER:	
-----------------------------------	--

Year	Month

Sheet		
1	of	

No.	(8) First name	(8) Surname	(8) ID number	(9) New Beneficiary (Y/N)	Gender (M/F)	Disabled (Y/N)	(10) Job seeker database (Y/N)	Contract start date (DDMMYY)	(11) Contract end date (DDMMYY)	(12) No. days worked this month (excl. training)	(13) Training days	(14) Rate of pay per day (R - c)
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

0 0 R -

Declared by Contractor or Vendor to be true and correct:	Name		Signature	
	Date			

Received by Employer's Agent / Representative:	Name		Signature	
	Date			

Annexure C - Pro Forma Performance Security/ Guarantee

GUARANTEE PERFORMANCE SECURITY

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means:

Physical address of Guarantor:

"Supplier" means:

"Contract Sum" means: The accepted tender amount (INCLUSIVE OF VAT) of R

Amount in words:

"Guaranteed Sum" means: The maximum amount of R

Amount in words:

"Contract" means: The agreement made in terms of the Form of Offer and Acceptance for tender no ...and such amendments or additions to the contract as may be agreed in writing between the Parties.

PERFORMANCE GUARANTEE

1. The Guarantor's liability must be limited to the amount of the Guaranteed Sum.
2. The Guarantor's period of liability must be from and including the date of issue of this Guarantee/Performance Security up to and including the termination of the Contract or the date of payment in full of the Guaranteed Sum, whichever occurs first.
3. The Guarantor hereby acknowledges that:
 - 3.1 any reference in this Guarantee/Performance to "Contract" is made for the purpose of convenience and must not be construed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a suretyship;
 - 3.2 Its obligation under this Guarantee/Performance Security is restricted to the payment of money.
4. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor hereby undertakes to pay the CCT the sum due and payable upon receipt of the documents identified in 4.1 to 4.2:
 - 4.1 A copy of a first written demand issued by the CCT to the Supplier stating that payment of a sum which is due and payable has not been made by the Supplier in terms of the Contract and failing such payment within seven (7) calendar days, the CCT intends to call upon the Guarantor to make payment in terms of 4.2;
 - 4.2 A first written demand issued by the CCT to the Guarantor at the Guarantor's physical address with a copy to the Supplier stating that a period of seven (7) days has elapsed since the first written demand in terms of 4.1 and the sum has still not been paid.
5. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor undertakes to pay to the CCT the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the CCT to the Guarantor at the Guarantor's physical address calling up this Guarantee / Performance Security, such demand stating that:
 - 5.1 The Contract has been terminated due to the Supplier's default and that this Guarantee/Performance Security is called up in terms of 5; or
 - 5.2 a provisional or final sequestration or liquidation court order has been granted against the Supplier and that the Guarantee/Performance Guarantee is called up in terms of 5; and

- 5.3 *The aforesaid written demand is accompanied by a copy of the notice of termination and/or the provisional/final sequestration and/or the provisional liquidation court order.*
- 6. *It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 4 and 5 must not exceed the Guarantor's maximum liability in terms of 1.*
- 7. *Where the Guarantor has made payment in terms of 5, the CCT must upon the termination date of the Contract, submit an expense account to the Guarantor showing how all monies received in terms of this Guarantee/Performance Security have been expended and must refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of this Guarantee/Performance Security must bear interest at the prime overdraft rate of the CCT's bank compounded monthly and calculated from the date payment was made by the Guarantor to the CCT until the date of refund.*
- 8. *Payment by the Guarantor in terms of 4 or 5 must be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.*
- 9. *The CCT must have the absolute right to arrange its affairs with the Supplier in any manner which the CCT may deem fit and the Guarantor must not have the right to claim his release from this Guarantee /Performance Security on account of any conduct alleged to be prejudicial to the Guarantor.*
- 10. *The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.*
- 11. *This Guarantee/Performance Security is neither negotiable nor transferable and must expire in terms of 2, where after no claims will be considered by the Guarantor. The original of this Guarantee / Performance Security must be returned to the Guarantor after it has expired.*
- 12. *This Guarantee/Performance Security, with the required demand notices in terms of 4 or 5, must be regarded as a liquid document for the purposes of obtaining a court order.*
- 13. *Where this Guarantee/Performance Security is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Courts Act No 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.*

Signed at

Date

Guarantor's signatory (1)

Capacity

Guarantor's signatory (2)

Capacity

Witness signatory (1)

Witness signatory (2)

**Annexure D - Pro Forma Advance Payment Guarantee
Not Applicable**

Approved Financial Institution as at 13 February 2025:

1.1 National Banks

ABSA Bank Limited
Firststrand Bank Limited
Investec Bank Limited
Nedbank Limited
Standard Bank of South Africa Limited

1.2 International Banks (with branches in South Africa)

Barclays Bank PLC
Citibank NA
Credit Agricole Corporate and Investment Bank
HSBC Bank PLC
JPMorgan Chase Bank
Societe Generale
Standard Chartered Bank

1.3 Insurance Companies

American International Group Inc (AIG)
Bryte Insurance Company Limited
Coface SA
Compass Insurance Company Limited
Credit Guarantee Insurance Corporation of Africa Limited
Guardrisk Insurance Company Limited
Hollard Insurance Company Limited
Infiniti Insurance Limited
Lombard Insurance Company Limited
Old Mutual Alternative Risk Transfer Insure Limited (OMART Insure)
New National Assurance Company Limited
PSG Konsult Ltd (previously Absa Insurance)
Regent Insurance Company Limited
Renasa Insurance Company Limited
Santam Limited

F.1: Contract Price Adjustment and/or Rate of Exchange Variation

1. TENDER CONDITIONS

- 1.1 The Contract Price Adjustment (CPA) mechanism and/or provisions relating to Rate of Exchange (RoE) Variation, contained in this schedule is compulsory and binding on all Tenderers/Suppliers and this schedule (the parts relevant to the particular tender) must be completed by all Tenderers / Suppliers.
- 1.2 Tenderers/Suppliers are not permitted to amend, vary, alter or delete this schedule or any part thereof unless otherwise stated in this schedule.
- 1.3 Tenderers are not permitted to offer fixed and firm prices except as provided for in the Price Schedule.

2. CPA PROVISIONS SELECTION

- 2.1 The prices stipulated on the Price Schedule are subject to adjustment as set out below.
- 2.2 Tenderer to indicate the specific CPA and/or RoE provisions applicable to their bid by marking the relevant checkboxes below. Tenderers to note that the CPA and/or RoE provisions are not exclusive and multiple CPA Types can exist if the bid contains both local and foreign exchange based pricing. In such cases the CPA and/or ROE provision applies only to that particular portion of the tendered price.
- 2.3 The CPA and/or RoE provisions applicable to this tender and resulting contract are to be indicated below by checking the relevant boxes (with multiple selections only where indicated permissible):

	<u>Indicate option</u>	<u>CPA Type</u>	<u>Period</u>	<u>Refer to Section</u>
A	<div style="text-align: center;">↓</div> <input type="checkbox"/> N/A	FIRM PRICES as per Pricing Schedule	Annual	<i>Pricing Schedule C.4 and Schedule F.1 (A)</i>
<u>LOCAL (RSA) TENDER CONTENT:</u>				
EITHER				
B	<input type="checkbox"/>	SEIFSA Index based CPA	Quarterly Ad-hoc	<i>Schedule F.1 (B): Part 1 - TABLE F.1 (B).1 Part 2 - TABLE F.1 (B).2</i>
OR				
C	<input type="checkbox"/>	Pricelist / Quotation Based CPA	Ad-Hoc / Periodic	<i>Schedule F.1 (C)</i>
OR				
D	<input type="checkbox"/> N/A	STATS SA CPI Index Based CPA	Annually	<i>Schedule F.1 (D)</i>
OR/AND				
E	<input type="checkbox"/> N/A	Sectorial Determination 1:Contract Cleaning Sector	Annually	<i>Schedule F.1 (E)</i>
OR				
E	<input type="checkbox"/> N/A	Sectorial Determination 6: Private Security Sector	Annually	<i>Schedule F.1 (E)</i>
<u>IMPORTED GOODS AND / OR COMPONENTS (IF APPLICABLE)</u>				
F	<input type="checkbox"/>	ROE based CPA	Ad-Hoc	<i>Schedule F.1 (F)</i>
AND (IF REQUIRED), EITHER				
G	<input type="checkbox"/>	Pricelist / Quotation based CPA	Ad-Hoc / Periodic	<i>Schedule F.1 (G)</i>
OR				
H	<input type="checkbox"/>	Overseas CPI / PPI index based CPA	Ad-Hoc / Periodic	<i>Schedule F.1 (H)</i>

2.4 CPA and/or RoE provisions marked as **not applicable** is not relevant and will not apply to this tender and resulting contract.

3. CONTRACT CPA APPLICATIONS AND ADMINISTRATION

3.1 Any claim for variation in the contract price (either CPA or RoE adjustments) must be submitted in writing:

- i. By letter to: Director, Mr Edgar Capes, City of Cape Town,
P O Box 655, Cape Town, 8000 or
- ii. By email to: EAMCPA.Request@capetown.gov.za

at least 14 days prior to the month upon which the adjustment would become effective in the case of prices being set in advance, and as soon as relevant indices are available and no later than 60 days after the date of delivery of goods or the completion of the project (i.e. date of issue of the Taking-Over Certificate, if applicable) in the case of adjustments being claimed retrospectively for Goods or Services. The latter case is only applicable where specifically provided for in the CPA provisions.

- 3.2 When submitting a request for CPA and/or RoE adjustment the Supplier must indicate the Rand Value claimed for each item listed on C.4 - Price Schedule, clearly indicating the item number as per C.4 - Price Schedule. Percentage increases will not be considered. A mere notification of a request for CPA without stating the new price claimed for each item must, for the purpose of this clause, not be regarded as a valid request.
- 3.3 The CCT reserves the right to request the Supplier to submit auditor's certificates or such other documentary proof as it may require in order to verify a claim for CPA or RoE adjustments. Price adjustments will not be processed until such time as the Supplier submits such auditor's certificates or other documentary proof to the CCT. Should the Supplier fail to submit the auditor's certificates or other documentary proof to the CCT within 30 days from the written request, it must be presumed that the Supplier has abandoned his request.
- 3.4 The CCT reserves the right to withhold payment of any claim for adjustment while only provisional figures are available and until such time as the final (revised) figures are issued by the relevant authority.
- 3.5 The CCT will confirm in writing once processing of the CPA or RoE adjustments have been completed including the effective date of the adjustments.
- 3.6 Where pricelist-based and other non-index based CPA requests are investigated and found to be not reasonable and market related, the CCT reserves the right to reject such requests. Where disputes arise with respect to such rejected requests the CCT reserves the right to procure the Goods from other available Suppliers until such time as the dispute is resolved.
- 3.7 Unless indicated otherwise in the relevant schedule below, all Purchase Orders issued on or after the effective date of the adjustment must be issued at, and the Goods or Services supplied, invoiced and paid for at the adjusted prices. The relevant adjustment will not be applied to Purchase Orders issued prior to the effective date.

F.1 (A) – FIRM PRICES

NOT APPLICABLE

F.1 (B) LOCAL SOUTH AFRICAN CONTENT – SEIFSA INDICES

Part 1: SEIFSA BASE MATERIAL AND LABOUR PRICES - MV Switchgear and Equipment (FOR)

The following clause are applicable to SIEFSA based CPA in respect to **MV Switchgear and Equipment**:

1. Tenderers/Suppliers that are manufacturers of the tendered goods and that indicate CPA provision above based on SEIFSA Indices must comply with the conditions specified below and must complete Table F.1 (B).1: SEIFSA Base Material and Labour Prices - **MV Switchgear and Equipment (FOR)** in full.
2. Material, labour and / or road freight price variation must be calculated based upon the SEIFSA base material, labour and / or road freight prices / indices and the price proportions indicated by the Tenderer/Supplier for the Goods tendered, as detailed in Table F.1 (B).1: SEIFSA Base Material and Labour Prices - **MV Switchgear and Equipment (FOR)**.
3. For items that are also subject to RoE and / or Overseas Pricelist / Quotation based CPA, the SEIFSA index based CPA **must apply only to the South African Content portion**.
4. A minimum of 10% of the **South African Content portion** of the tender price must be fixed and free of variation for the duration of the contract.
5. The contract price per item must be adjusted Quarterly in advance of placement of orders, and the adjusted contract price must be applicable for purchase orders placed during the following three full calendar months.
6. Fluctuations in the prices of raw materials, labour and road freight will be acceptable for the item price in C.4 Price Schedule, CPA calculations.
7. The base month for CPA calculations must be the calendar month prior to the month of the closing date for tenders, and SEIFSA indices published in this month must be used.
8. Adjusted contract prices per item must be calculated based upon the SEIFSA indices published in the calendar month of application for the amended item contract prices.
9. Material and labour price variation must be calculated based upon the SEIFSA base material and labour indices and the stipulated price proportions as detailed in Table F.1 (B).1.
10. The process to be followed by Tenderers/Suppliers for claims for CPA in terms of SEIFSA for **MV Switchgear and Equipment** must be as follows:
 - a) The Tenderers/Suppliers must approach the CCT in writing during the week following the third Friday of each of the **February, May, August** and **November** month with an application for the adjustment of the contract prices in C.4 Price Schedule and the amended prices to be applicable to the contract during the following quarter.
 - b) The application must be based upon the SEIFSA indices published during the calendar month of application (those published on the Monday following the third Friday of the month and detailing the latest available indices) and must detail the proposed adjusted unit prices for the Items and include detailed calculations indicating how the adjusted unit prices per item have been established.
 - c) Calculations of the CPA must use the original tendered unit rates, the base indices, the indices published in the calendar month of application and the SEIFSA formula and must contain no other factors or adjustments.
 - d) The CCT will check and approve the proposed unit prices for the following three months prior to the last day of the month of application. The CCT will notify the Tenderers/Suppliers in writing of approval of the proposed prices.
 - e) All purchase orders for the contracted Items issued during a quarterly period must be issued, invoiced and paid at the contract unit prices approved for that quarterly period and no further SEIFSA based contract price adjustment claims will be considered, irrespective of the actual month of delivery and whether or not deliveries were subject to any manufacturing or delivery delays.

- f) The required delivery dates for orders placed by the Employer for the contracted Items will be determined based upon the date of issue of the purchase order and the contract delivery period. Delays in the delivery of the Items for orders placed by the CCT must not entitle the Tenderers /Suppliers to any amendment of the approved contract price adjustment applicable to that order.
- g) Failure by the Tenderers/Suppliers to submit claims for CPA within the timeframes detailed above will result in the unit rates for the items concerned being determined by the CCT in accordance with the published SEIFSA indices. The CCT however reserves the right in such a case not to amend the unit rates for the item if it is not to the CCT's advantage.
- h) The successful Tenderers/Suppliers must immediately upon notification of commencement date of contract (or date of issue of first PO) submit written application for approval of adjustment to the contract prices in C.4 Price Schedule that must be applicable during the first calendar month of the contract. This application will be assessed in accordance with the process laid out above in order to determine approved contract prices for the first calendar month of the contract.
- i) Failure to submit such application within two working weeks of commencement of contract must result in the tendered unit prices in C.4 Price Schedule being applied for orders placed during the first calendar month of the contract.
- j) Application for CPA thereafter must follow the process detailed above.

Part 2: SEIFSA BASE MATERIAL AND LABOUR PRICES – Installation and Site Work

The following clauses are applicable to SIEFSA based CPA in respect to Installation and Site Work:

1. Installation and Site Work must comprise of General Requirements and Conditions, Health and Safety, Environmental Management, Sundries, and all other items as described in C.4 Price Schedule (Schedule of Quantities in Works Project Document), namely:
 - a. Items: A1.1 – A4.5.3
 - b. Items: B2.1 – B5.53
2. Tenderers/Suppliers must comply with the conditions specified below and must complete Table F.1 (B).2: SEIFSA Base Material and Labour Prices – **Installation and Site Work** in full.
3. Material, labour and / or road freight price variation must be calculated based upon the SEIFSA base material, labour and / or road freight prices / indices and the price proportions indicated by the Tenderer/Supplier for the Goods tendered, as detailed in Table F.1 (B).2: SEIFSA Base Material and Labour Prices - **Installation and Site Work**
4. A minimum of 10% of the South African Content portion of the tender price must be fixed and free of variation for the duration of the contract.
5. No Contract price adjustment must be applied to the total values in respect of providing the Performance Security – Surety Bond and Insurances.
6. The contract price per Works Project Document must be adjusted after Works Project completion.
7. No claims for adjustments for changes in cost will be accepted which are submitted later than 60 days after Works Project completion (i.e. date of issue of the Taking-Over Certificate).
8. The base month for CPA calculations must be the calendar month prior to the month of the closing date for tenders, and SEIFSA indices published in this month must be used.
9. Adjusted contract prices per Works Project Document must be calculated based upon the SEIFSA indices published in the month in which Works Project is completed (i.e. month in which Taking-Over Certificate is issued).
10. Material and labour price variation must be calculated based upon the SEIFSA base material and labour indices and the stipulated price proportions as detailed in Table F.1 (B).2.

TABLE F.1 (B).1: SEIFSA BASE MATERIAL AND LABOUR PRICES - MV Switchgear and Equipment (FOR)
--

Formula(e) for FOR price adjustment on MV Switchgear and Equipment manufactured in South Africa:

For any variation in the cost of labour and materials the Contract Price must be adjusted in accordance with the formula(e) utilising the published SEIFSA indices which is stated hereunder:

$$P = Po(0,1 + a*L/Lo + b*C/Co + c*S/So + d*EM/EMo + e*K/Ko)$$

Where:

P = Adjusted Price

Po = Original Price

10% - Fixed

And:

<u>% of tender price subject to adjustment</u>	<u>Index Symbol</u>	<u>SEIFSA index on which basis the price will be adjusted for any variation</u>
a%	Lo = base index L = Final Index	Labour – SEIFSA Table C3 or Table C3(a)
b %	Co C	Republic Copper Price - SEIFSA Table F Metric Ton
c %	So S	Steel Price Index (all Types) - SEIFSA Table E-EX Hot Rolled Sheets
d %	EMo EM	Electrical Engineering Materials - SEIFSA Table G1
e %	Ko K	Consumer Price Index (CPI) - SEIFSA Table D4

TABLE F.1 (B).1: SEIFSA BASE MATERIAL AND LABOUR PRICES - MV Switchgear and Equipment (FOR)

Where Tender prices are subject to adjustment the prices quoted must be subject to price variation based upon the SEIFSA base prices or indices for materials and labour detailed below.

For the purposes of this tender the **base month** must be **April 2026**

	Labour - a	Republic Copper Price - b	Steel Price Index (all Types) - c	Electrical Engineering Materials - d	Consumer Price Index (CPI) - e
SEIFSA Table No:	Table C3 or Table C3(a)	Table F Metric Ton	Table E-EX Hot Rolled Sheets	Table G1	Table D4
SEIFSA ITEM DESCRIPTION:					
Base Month Price / Index:					

TENDERER/SUPPLIER TO NOTE:

- a) **This Schedule is only applicable if the Tenderer/Supplier is the Manufacturer of the Goods**
- b) **A Minimum of 10% of the tendered local South African price must remain fixed.**

Schedule of formula (e):

	Fixed	a %	b %	c %	d %	e %
MV Switchgear and Equipment (FOR) Items: B1.1 – B1.35	10 %					

* Tenderer must insert the appropriate % in each cell such that each row = 100% incl. the fixed portion. Failure to insert any % must be considered fixed and NOT subject to adjustment.

TABLE F.1 (B).2: SEIFSA BASE MATERIAL AND LABOUR PRICES – Installation and Site Work

Where Tender prices are subject to adjustment the prices quoted must be subject to price variation based upon the SEIFSA base prices or indices for materials and labour detailed below.

For the purposes of this tender the **base month** must be **April 2026**

	Labour - a	Republic Copper Price - b	Steel Price Index (all Types) - c	Electrical Engineering Materials - d	Consumer Price Index (CPI) - e
SEIFSA Table No:	Table C3 or Table C3(a)	Table F Metric Ton	Table E-EX Hot Rolled Sheets	Table G1	Table D4
SEIFSA ITEM DESCRIPTION:					
Base Month Price / Index:					

TENDERER/SUPPLIER TO NOTE:

- a) **A Minimum of 10% of the tendered local South African price must remain fixed.**

	Fixed	a %	b %	c %	d %	e %
Installation and Site Work	10 %					

F.1 (C) LOCAL SOUTH AFRICAN CONTENT - SUPPLIER/ MANUFACTURER PRICE LIST/QUOTATIONS

1. Tenderers /Suppliers that are not the manufacturer or original supplier of the tendered goods and whose tender prices are based on the price list/quotation of another company (manufacturer or other supplier) may apply Supplier / Manufacturer Pricelist / Quotation based CPA.
2. In such cases the Tenderer is required to submit with his tender a copy of the original Supplier / Manufacturer Pricelist / Quotation upon which his tender prices are based. Such pricelist / Quotation is required to be on the Letterhead of the Supplier / Manufacture, is to be dated, referenced and signed, and is to provide clear reference to the tender number and is required to clearly reference each item quoted to the respective Tender Item Number indicated in C.4 Price Schedule.
3. The tenderer must further confirm the Manufacturer / supplier, Quotation date and reference number and applicable tender Items by completing Table F.1(C).1 below.

Table F.1(C).1: Price Schedule information for Manufacturers/Suppliers Price List(s)/Quotation

Manufacturer/ Supplier Name	Price List Information		
	Price List/Quotation Date.	Price List/Quotation Reference Number	Pricelist applicable to Items as per C.4 Price Schedule

4. During the contract period, the Tenderer (now Supplier) must submit the request for price adjustment based on increases in pricelists of manufacturers/suppliers prior to the effective date of the increase in the pricelist.
5. The effective date of any price adjustment granted will be the first day of the month following the month during which the fully substantiated application for contract price adjustment is submitted or, by agreement between the Tenderer/Supplier and the CCT, a subsequent date on which the price adjustment will become effective.
6. In instances where the Supplier's price adjustment claimed is less than entitled, the lesser price will be accepted.

7. Purchase orders placed prior to the effective date of any price increase must be placed at the previously agreed price, not the claimed adjusted price.
8. Only the difference in source supplier / manufacturer pricelist (actual cost, not percentage) may be adjusted and under no circumstances may the Tenderer/Supplier increase their profit margin.
9. The Tenderer/Supplier must, when submitting claims for contract price adjustment, submit all of the documentation indicated below a minimum of two weeks prior to the effective date of the contract price adjustment:
 - a) Copies of price lists upon which original tender prices were based (refer to clause 2, Table F.1(C).1 above) clearly indicating the item(s) according to C.4 Price Schedule.
 - b) The new price list (*from the same Supplier / Manufacturer as originally tendered*) on the relevant manufacturer/suppliers letterhead (with pamphlets, brochures and e-mail communication) clearly indicating the item(s) according to C.4 Price Schedule.
 - c) Detailed calculations indicating how the “adjusted” price was calculated. The calculations must be submitted in Excel, together with a signed, “PDF” version of the Excel spreadsheet. The example below – Table F.1(C).2, is what is required.
 - d) A covering letter on the Supplier's letterhead requesting the CPA with the effective date of the claim.
10. The CCT will consider the request and either refer the request back for correction or additional information or approve the request.
11. The CCT will assess such pricelist based CPA claims against market pricing and indices and other input pricing indicators and will only approve such claims that are confirmed to be reasonable and market related with reference to the source pricing information provided with the tender and with the CPA application
12. Approval of the CPA request including confirmation of the effective date, will be communicated to the Supplier in writing together with a list of the approved adjusted rates. The effective date will be as per clause 3 above.
13. The successful Tenderer/Supplier must immediately upon notification of the commencement date of contract submit written application for approval of any adjusted unit prices for the Goods that may have been notified by the Supplier / Manufacturer of the Goods, together with the required supporting documentation. This application will be assessed in accordance with the process laid out above in order to determine approved contract prices at the commencement of the contract.
14. Failure to submit such application within two working weeks of commencement of contract must result in the tendered unit prices being applied for initial orders placed following commencement of the contract.
15. In the event of a Supplier changing their Supplier / Manufacturer during the tenure of the contract, no request for price variations will be considered unless the Supplier has obtained prior approval from the City for the change of Supplier / Manufacturer. Such approval must include technical approval by the Engineer of the goods supplied by the replacement Supplier / Manufacturer. Technical approval by the Engineer must be a prerequisite for any change of Supplier / Manufacturer.

Table F.1(C).2 – Pro Forma Table for Adjustments in price where the Supplier is not the Manufacturer)

C.4 Price Schedule Item No.	Original Tender Price	Previous and New Price List Information					New Contract Price (Excl. VAT)
		Manufacturer/Supplier	Material no.	Price as per previous Manufacturer/Supplier Price List (Excl. Vat) Price List Date:_____	Price as per new Supplier/Manufacturer Price List (Excl. Vat) Price List Date:_____	Difference between the previous and new manufacturer Price list (C)-(B)	
	(A)			(B)	(C)	(D)	(A)+(D)

**When submitting the first request for price adjustment, use the tender price as per C.4 Price Schedule.*

F.1 (D) LOCAL SOUTH AFRICAN CONTENT - STATS SA CONSUMER PRICE INDEX

NOT APPLICABLE

F.1 (E) LOCAL SOUTH AFRICAN CONTENT – SECTORIAL DETERMINATION

NOT APPLICABLE

F.1 (F) GOODS AND/OR COMPONENTS IMPORTED FROM OUTSIDE OF SOUTH AFRICA RATE OF EXCHANGE PRICE VARIATIONS
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1. Subject to the above, when tendered prices of certain items in C.4 Price Schedule are subject to adjustment for changes in the cost of goods and/or components imported from outside of South Africa, the Tenderer must (as part of the bid submission) provide a list of such items and other information as required in Table F.1 (F).2 below and include it in the bid submission.
2. Only tenderers who are the direct importer of the goods may claim rate of exchange price variations.

Table F.1 (F).1: Information required for prices subject to Rate of Exchange adjustments

Exchange Rate on which tender is based:	_____ 1 : Rand _____
Exchange Rate on which tender is based: (if more than one currency)	_____ 1 : Rand _____
Exchange Rate on which tender is based: (if more than one currency)	_____ 1 : Rand _____
Name of Bank	
Date of quoted rate of exchange	
Documentation relevant to calculation of adjustments based on Rate of Exchange (Mark with "x")	
Bill of Lading	
Waybill	
Customs invoice	
Other: _____	

TABLE F.1 (F).2: Price Basis for Imported Resources

C.4 Price Schedule Detail		Rand Value Calculation for Foreign Content (FOB)			Customs Surcharge		Customs Duty			Rand Value for South African Content (FOR)	Total Tender Price in Rand of (C) + (D) + (E) + (F) included in Price Schedule C.4
C.4 Price Schedule Item No.	Description of Resources	Value in Foreign Currency denomination (A)	Rate of Exchange as at Base Date* (B)	Value in Rand for Foreign currency content (A) x (B) (C)	%	Rand (D)	%	Rand (E)	Customs Duty Tariff Reference	Value in Rand for South African Content (F)	(G)
A1.9	Supply, installation and testing of internal arc rated doors and frames for "racking-behind-closed-doors" operation on switch panel equipped with ABB LMS or LMR or RPS LMVP 630A / 800A / 1250A CB, per switch panel										
A1.10	Supply, installation and testing of internal arc rated doors and frames for "racking-behind-closed-doors" operation on switch panel equipped with ABB HD4-LMT or VD4-LMT 630A / 800A / 1250A CB, per switch panel										
A1.11	Supply, installation and testing of internal arc rated doors and frames for "racking-behind-closed-doors" operation on switch panel equipped with ABB LMS or LMR or RPS LMVP 2000A / 2500A CB, per switch panel										

C.4 Price Schedule Detail		Rand Value Calculation for Foreign Content (FOB)			Customs Surcharge		Customs Duty			Rand Value for South African Content (FOR)	Total Tender Price in Rand of (C) + (D) + (E) + (F) included in Price Schedule C.4
C.4 Price Schedule Item No.	Description of Resources	Value in Foreign Currency denomination (A)	Rate of Exchange as at Base Date* (B)	Value in Rand for Foreign currency content (A) x (B) (C)	%	Rand (D)	%	Rand (E)	Customs Duty Tariff Reference	Value in Rand for South African Content (F)	(G)
A1.12	Supply, installation and testing of internal arc rated doors and frames for "racking-behind-closed-doors" operation on switch panel equipped with ABB HD4-LMT or VD4-LMT 2000A / 2500A switch panel, per switch panel										
A1.13	Supply and installation of arc vented circuit breaker compartment rear covers to existing LMx 630A / 800A / 1250A switch panel, per switch panel										
A1.14	Supply and installation of arc vented circuit breaker compartment rear covers to existing LMx 2000A main substation incomer switch panel, per switch panel										
A1.15	Supply and installation of arc vented circuit breaker compartment rear covers to existing LMx 2000A main substation bus-section switch panel, per switch panel										

C.4 Price Schedule Detail		Rand Value Calculation for Foreign Content (FOB)			Customs Surcharge		Customs Duty			Rand Value for South African Content (FOR)	Total Tender Price in Rand of (C) + (D) + (E) + (F) included in Price Schedule C.4
C.4 Price Schedule Item No.	Description of Resources	Value in Foreign Currency denomination (A)	Rate of Exchange as at Base Date* (B)	Value in Rand for Foreign currency content (A) x (B) (C)	%	Rand (D)	%	Rand (E)	Customs Duty Tariff Reference	Value in Rand for South African Content (F)	(G)
A1.16	Supply and installation of arc vented top covers to busbar chamber and CT chamber on existing LMx 630A / 800A / 1250A switch panel, per switch panel										
A1.17	Supply and installation of arc vented top covers to busbar chamber and CT chamber on existing LMx 2000A main substation incomer switch panel, per switch panel										
A1.18	Supply and installation of arc vented top covers to busbar chamber and CT chamber on existing LMx 2000A main substation bus-section switch panel, per switch panel										
A1.19	Supply and installation of arc vented top covers to busbar chamber and CT chamber on existing LMx 630A / 800A / 1250A switch panel with circuit connected VT, per switch panel										

C.4 Price Schedule Detail		Rand Value Calculation for Foreign Content (FOB)			Customs Surcharge		Customs Duty			Rand Value for South African Content (FOR)	Total Tender Price in Rand of (C) + (D) + (E) + (F) included in Price Schedule C.4
C.4 Price Schedule Item No.	Description of Resources	Value in Foreign Currency denomination (A)	Rate of Exchange as at Base Date* (B)	Value in Rand for Foreign currency content (A) x (B) (C)	%	Rand (D)	%	Rand (E)	Customs Duty Tariff Reference	Value in Rand for South African Content (F)	 (G)
A1.20	Supply and installation of arc vented top covers to busbar chamber and CT chamber on existing LMx 2000A main substation incomer switch panel with circuit connected VT, per switch panel										
A1.21	Supply and installation of arc vented top covers to busbar chamber and CT chamber on existing LMx 2000A main substation bus-section switch panel with circuit connected VT, per switch panel, complete										
A1.22	Supply and Installation of end blast covers, frameworks and fittings for upgrading of switchboard to arc vented standard, per switchboard, both ends, complete as specified										
A1.31	Supply, installation, testing and commissioning of spring charge motor into existing ABB HD4-LMT 630 A CB, and associated panel wiring modifications										
A1.33	Supply, installation, testing and commissioning of 30Vdc or 110Vdc closing coils into existing ABB HD4-LMT 630A / 800A / 1250A CBs										
A1.41	Supply of black jacketed arc detection fibre, made-up complete with arc detection point sensor and V-pin connectors, one metre length										
A1.42	Supply of black jacketed arc detection fibre (without fittings), per metre										

C.4 Price Schedule Detail		Rand Value Calculation for Foreign Content (FOB)			Customs Surcharge		Customs Duty			Rand Value for South African Content (FOR)	Total Tender Price in Rand of (C) + (D) + (E) + (F) included in Price Schedule C.4
C.4 Price Schedule Item No.	Description of Resources	Value in Foreign Currency denomination (A)	Rate of Exchange as at Base Date* (B)	Value in Rand for Foreign currency content (A) x (B) (C)	%	Rand (D)	%	Rand (E)	Customs Duty Tariff Reference	Value in Rand for South African Content (F)	 (G)
A1.44	Supply of clear jacketed fibre arc flash detection sensor for busbar loop detectors, made-up complete with 2x V-pin connectors, one metre length										
A1.45	Supply of clear jacketed fibre arc flash detection sensor (without fittings) for busbar loop detector, per metre										
B1.1	12 kV, 630A, 25 kA, 30 V dc, 400/300/5 Distribution Feeder panels, as specified										
B1.2	12 kV, 630 A, 25 kA, 30 V dc, 400/200/5 Distribution Feeder metering panels, as specified										
B1.3	12 kV, 1250 A, 25 kA, 30 V dc, 1200/5 Distribution Bus-section panels including riser, as specified										
B1.4	12 kV, 630 A, 25 kA, 110 V dc, 2000 A Busbar, 400/300/5 Main substation Feeder panels (Internal Arc Vented), as specified										

C.4 Price Schedule Detail		Rand Value Calculation for Foreign Content (FOB)			Customs Surcharge		Customs Duty			Rand Value for South African Content (FOR)	Total Tender Price in Rand of (C) + (D) + (E) + (F) included in Price Schedule C.4
C.4 Price Schedule Item No.	Description of Resources	Value in Foreign Currency denomination (A)	Rate of Exchange as at Base Date* (B)	Value in Rand for Foreign currency content (A) x (B) (C)	%	Rand (D)	%	Rand (E)	Customs Duty Tariff Reference	Value in Rand for South African Content (F)	(G)
B1.5	12 kV, 1250 A, 25 kA, 110 V dc, 2000 A Busbar, 400/300/5 Main substation Feeder panels (Internal Arc Vented), as specified										
B1.6	12 kV, 2000 A, 25 kA, 110 V dc, 2000/1 Main substation incoming transformer panels (Internal Arc Vented), as specified										
B1.7	12 kV, 2000 A, 25 kA, 110 V dc, 2000 A Main substation Bus-section panels including riser (Internal Arc Vented), as specified										
B1.8	12kV, 630 A 30 V dc circuit breaker as specified, fitted with secondary plug and socket contacts										
B1.9	12kV, 630 A, 110 V dc circuit breaker as specified, fitted with secondary plug and socket contacts										
B1.10	12kV, 1250 A, 110 V dc circuit breaker as specified, fitted with secondary plug and socket contacts										

C.4 Price Schedule Detail		Rand Value Calculation for Foreign Content (FOB)			Customs Surcharge		Customs Duty			Rand Value for South African Content (FOR)	Total Tender Price in Rand of (C) + (D) + (E) + (F) included in Price Schedule C.4
C.4 Price Schedule Item No.	Description of Resources	Value in Foreign Currency denomination (A)	Rate of Exchange as at Base Date* (B)	Value in Rand for Foreign currency content (A) x (B) (C)	%	Rand (D)	%	Rand (E)	Customs Duty Tariff Reference	Value in Rand for South African Content (F)	 (G)
B1.11	12kV, 2000 A, 110 V dc circuit breaker as specified, fitted with secondary plug and socket contacts										
B1.12	11kV/110V, 15 VA, Class 0,5 voltage transformers as specified										
B1.13	11kV/110V, 15 VA, Class 0,2 voltage transformers as specified										
B1.14	Dual core 400/300/5 Class X // 400/5 10 VA Class 5P10 current transformers for Type LMx switchgear, as specified										
B1.15	Dual core 400/200/5 10 VA Class 0.5S (ISF 10) // 400/5 10 VA Class 5P10 current transformers for Type LMx switchgear, as specified										
B1.16	Dual core 400/200/1 10 VA Class 0.5S (ISF 10) // 400/5 10 VA Class 5P10 current transformers for LMx type switchgear, as specified										

C.4 Price Schedule Detail		Rand Value Calculation for Foreign Content (FOB)			Customs Surcharge		Customs Duty			Rand Value for South African Content (FOR)	Total Tender Price in Rand of (C) + (D) + (E) + (F) included in Price Schedule C.4
C.4 Price Schedule Item No.	Description of Resources	Value in Foreign Currency denomination (A)	Rate of Exchange as at Base Date* (B)	Value in Rand for Foreign currency content (A) x (B) (C)	%	Rand (D)	%	Rand (E)	Customs Duty Tariff Reference	Value in Rand for South African Content (F)	(G)
B1.17	Dual core 100/50/5 10 VA Class 0.5S (ISF 10) // 100/5 10 VA Class 5P10 current transformers for ABB / Reyrolle Type LMx switchgear, as specified										
B1.18	Single core 1600/5 10 VA Class 5P10 current transformers for LMx type switchgear, as specified										
B1.19	Multi core 1200/800/1, Class X // 1200/800/1 10 VA Class 5P10 // 1200/800/1 10 VA Class 0,2 current transformers for LMx type switchgear										
B1.20	Multi core 2000/1, Class X // 2000/1 10 VA Class 5P10 // 2000/1 10 VA Class 0,2 current transformers for LMx type switchgear, as specified										
B1.21	230Vac Spring Charge Motor for 630A CB										
B1.22	230Vac Spring Charge Motor for 1250 A CB										
B1.23	230Vac Spring Charge Motor for 2000 A CB										

C.4 Price Schedule Detail		Rand Value Calculation for Foreign Content (FOB)			Customs Surcharge		Customs Duty			Rand Value for South African Content (FOR)	Total Tender Price in Rand of (C) + (D) + (E) + (F) included in Price Schedule C.4
C.4 Price Schedule Item No.	Description of Resources	Value in Foreign Currency denomination (A)	Rate of Exchange as at Base Date* (B)	Value in Rand for Foreign currency content (A) x (B) (C)	%	Rand (D)	%	Rand (E)	Customs Duty Tariff Reference	Value in Rand for South African Content (F)	(G)
B1.24	30Vdc closing coils for 630A CB										
B1.25	110Vdc closing coils for 1250A CB										
B1.26	110Vdc closing coils for 630A CB										
B1.27	110Vdc closing coils for 2000A CB										
B1.28	Manual racking handle for switchgear operation										
B1.29	Wall mounted cubicle for associated operating handles and accessories for switchgear										
B1.30	Hand-held remote switching device with open/close functions and 30m lead										
B1.31	Circuit breaker primary cluster 1250A										
B1.32	Shutter operating arms for 630/1250/2000A panels										
B1.33	Shutter box complete with shutters for 630/1250A panels										
B1.34	Shutter box complete with shutters for 2000A panels										
B1.35	230Vac, 100W Heater										

C.4 Price Schedule Detail		Rand Value Calculation for Foreign Content (FOB)			Customs Surcharge		Customs Duty			Rand Value for South African Content (FOR)	Total Tender Price in Rand of (C) + (D) + (E) + (F) included in Price Schedule C.4
C.4 Price Schedule Item No.	Description of Resources	Value in Foreign Currency denomination (A)	Rate of Exchange as at Base Date* (B)	Value in Rand for Foreign currency content (A) x (B) (C)	%	Rand (D)	%	Rand (E)	Customs Duty Tariff Reference	Value in Rand for South African Content (F)	 (G)
B2.12	Supply, installation and testing of internal arc rated doors and frames for "racking-behind-closed-doors" operation on switch panel equipped with either ABB HD4-LMT, LMS, LMR or RPS LMVP 630A / 800A / 1250A CB, per switch panel, complete										
B2.13	Supply, installation and testing of internal arc rated doors and frames for "racking-behind-closed-doors" operation on switch panel equipped with 630A / 800A / 1250A CB, per switch panel, complete										
B2.14	Supply, installation and testing of internal arc rated doors and frames for "racking-behind-closed-doors" operation on switch panel equipped with either ABB HD4-LMT, LMS, LMR or RPS LMVP 2000A / 2500A CB, per switch panel, complete										

C.4 Price Schedule Detail		Rand Value Calculation for Foreign Content (FOB)			Customs Surcharge		Customs Duty			Rand Value for South African Content (FOR)	Total Tender Price in Rand of (C) + (D) + (E) + (F) included in Price Schedule C.4
C.4 Price Schedule Item No.	Description of Resources	Value in Foreign Currency denomination (A)	Rate of Exchange as at Base Date* (B)	Value in Rand for Foreign currency content (A) x (B) (C)	%	Rand (D)	%	Rand (E)	Customs Duty Tariff Reference	Value in Rand for South African Content (F)	 (G)
B2.15	Supply, installation and testing of internal arc rated doors and frames for "racking-behind-closed-doors" operation on switch panel equipped with 2000A / 2500A CB, per switch panel, complete										
B2.16	Supply and installation of arc vented circuit breaker compartment rear covers to existing LMx 630A / 800A / 1250A switch panel, per switch panel, complete										
B2.17	Supply and installation of arc vented circuit breaker compartment rear covers to existing LMx 2000A main substation incomer switch panel, per switch panel, complete										
B2.18	Supply and installation of arc vented circuit breaker compartment rear covers to existing LMx 2000A main substation bus-section switch panel, per switch panel, complete										
B2.19	Supply and installation of arc vented top covers to busbar chamber and CT chamber on existing LMx 630A / 800A / 1250A switch panel, per switch panel, complete										

C.4 Price Schedule Detail		Rand Value Calculation for Foreign Content (FOB)			Customs Surcharge		Customs Duty			Rand Value for South African Content (FOR)	Total Tender Price in Rand of (C) + (D) + (E) + (F) included in Price Schedule C.4
C.4 Price Schedule Item No.	Description of Resources	Value in Foreign Currency denomination (A)	Rate of Exchange as at Base Date* (B)	Value in Rand for Foreign currency content (A) x (B) (C)	%	Rand (D)	%	Rand (E)	Customs Duty Tariff Reference	Value in Rand for South African Content (F)	(G)
B2.20	Supply and installation of arc vented top covers to busbar chamber and CT chamber on existing LMx 2000A main substation incomer switch panel, per switch panel, complete										
B2.21	Supply and installation of arc vented top covers to busbar chamber and CT chamber on existing LMx 2000A main substation bus-section switch panel, per switch panel, complete										
B2.22	Supply and installation of arc vented top covers to busbar chamber and CT chamber on existing LMx 630A / 800A / 1250A switch panel with circuit connected VT, per switch panel, complete										
B2.23	Supply and installation of arc vented top covers to busbar chamber and CT chamber on existing LMx 2000A main substation incomer switch panel with circuit connected VT, per switch panel, complete										

C.4 Price Schedule Detail		Rand Value Calculation for Foreign Content (FOB)			Customs Surcharge		Customs Duty			Rand Value for South African Content (FOR)	Total Tender Price in Rand of (C) + (D) + (E) + (F) included in Price Schedule C.4
C.4 Price Schedule Item No.	Description of Resources	Value in Foreign Currency denomination (A)	Rate of Exchange as at Base Date* (B)	Value in Rand for Foreign currency content (A) x (B) (C)	%	Rand (D)	%	Rand (E)	Customs Duty Tariff Reference	Value in Rand for South African Content (F)	(G)
B2.24	Supply and installation of arc vented top covers to busbar chamber and CT chamber on existing LMx 2000A main substation bus-section switch panel with circuit connected VT, per switch panel, complete										
B2.26	Supply and Installation of end blast covers, frameworks and fittings for upgrading of switchboard to arc vented standard, per switchboard, both ends, complete as specified										
B2.43	Supply, installation, testing and commissioning of circuit connected voltage transformer housing onto existing switch panel, per switch panel										
B2.49	Supply of black jacketed arc detection fibre, made-up complete with arc detection point sensor and V-pin connectors, one metre length										
B2.50	Supply of black jacketed arc										

C.4 Price Schedule Detail		Rand Value Calculation for Foreign Content (FOB)			Customs Surcharge		Customs Duty			Rand Value for South African Content (FOR)	Total Tender Price in Rand of (C) + (D) + (E) + (F) included in Price Schedule C.4
C.4 Price Schedule Item No.	Description of Resources	Value in Foreign Currency denomination (A)	Rate of Exchange as at Base Date* (B)	Value in Rand for Foreign currency content (A) x (B) (C)	%	Rand (D)	%	Rand (E)	Customs Duty Tariff Reference	Value in Rand for South African Content (F)	(G)
	detection fibre (without fittings), per metre										
B2.52	Supply of clear jacketed fibre arc flash detection sensor for busbar loop detectors, made-up complete with 2x V-pin connectors, one metre length										
B2.53	Supply of clear jacketed fibre arc flash detection sensor (without fittings) for busbar loop detector, per metre										
B6.1											
B6.2											
B6.3											
B6.4											
B6.5											
B6.6											
B6.7											
B6.8											
B6.9											
B6.10											

C.4 Price Schedule Detail		Rand Value Calculation for Foreign Content (FOB)			Customs Surcharge		Customs Duty			Rand Value for South African Content (FOR)	Total Tender Price in Rand of (C) + (D) + (E) + (F) included in Price Schedule C.4
C.4 Price Schedule Item No.	Description of Resources	Value in Foreign Currency denomination (A)	Rate of Exchange as at Base Date* (B)	Value in Rand for Foreign currency content (A) x (B) (C)	%	Rand (D)	%	Rand (E)	Customs Duty Tariff Reference	Value in Rand for South African Content (F)	(G)
B6.11											
B6.12											
B6.13											
B6.14											
B6.15											

* Base Date: 7 (seven) calendar days before tender closing.

- Any items/resources not inserted in Table F.1 (F).2 above, are deemed to be manufactured / supplied in South Africa and is not subject to adjustment in terms of variation in rate of exchange.
- The price adjustment for variations in the cost of plant and materials imported from outside of South Africa must be based on the information contained on the schedule titled "Price Basis for Imported Resources" (Table F.1 (F).2). The Rand value of goods and components comprising entirely or partly imported content that is inserted on the Table F.1(F).2 titled "Price Basis for Imported Resources" (column (G)) must be the rate tendered in the Pricing Schedule C.4, and must be the value in foreign currency (column (A)) converted to South African Rand (column (C)) by using the closing spot selling rate on the Base Date (seven calendar days before tender closing date) rounded to the second decimal place (column (B)), to which must be added any Customs Surcharge and Customs Duty applicable at that date (columns (D) and (E)) and any South African manufactured or added content (column (F)). Any mark-up by the Tenderer or other costs not detailed above must be entirely contained within the South African Content (Column (F)).
- Column A of Table F.1 (F).2 must detail the actual quotation for the imported Goods or components, and must be substantiated by the original source quotation for such Goods or components. (Source quotation from foreign supplier/manufacturer, see Schedule F.1 (G), Table F.1 (G).1 below). No Supplier mark-up on the foreign

currency value of such imported Goods or components is permissible. All Supplier mark-up must be included in the South African content, Column F of Table F.1 (F).2 above.

6. Based on the evidence provided in Clause 5 above, the value in Rand inserted in column (C) on the schedule titled "Price Basis for Imported Resources" must be recalculated using the forward cover rate obtained, and any increase or decrease in the Rand value defined in this clause must be adjusted accordingly, subject to Clause 7 below.
7. The adjustments must be calculated upon the value in foreign currency in the Supplier's forward cover contract, provided that, should this value exceed the value in foreign currency inserted in column (A) of on the schedule titled "Price Basis for Imported Resources", then the value in column (A) must be used (or any adjusted value approved in accordance with Schedule F.1 (G) below).
8. Any increase or decrease in the Rand value between the amounts of Customs Surcharge and Customs Duty inserted in on the schedule titled "Price Basis for Imported Resources" and those amounts actually paid to the Customs and Excise Authorities, which are due to changes in the percentage rates applicable or to the foreign exchange rate used by the authorities, must be adjusted accordingly.
9. The Tenderer must state the Customs Duty Tariff Reference applicable to each item and the Supplier must advise the CCT's Agent of any changes which occur.
10. Suppliers must take out Forward Cover covering the foreign exchange component of the cost of any imported portion of the Goods ordered on each purchase order issued by the Employer.
11. The process to be followed by Suppliers for claims for Rate of Exchange Variations must be as follows:
 - a) The Supplier must within seven working days from the date of receipt of the purchase order arrange for cover or recovering forward by way of a contract with a bank which is an authorised foreign exchange dealer, the foreign exchange component of the cost of any imported goods and components inserted by the Tenderer on the scheduled titled "Price Basis for Imported Resources" (Table F.1 (F).2), and submit such Forward Cover quotation to the City for approval.
 - b) Upon receipt of the quotation for Forward Cover from the bank, the Supplier must forward the quote ideally, within 15 minutes of receiving it from their banker to the CCT: **EAMCPA.Request@capetown.gov.za** and Contract Manager: Patrick.O'Halloran@capetown.gov.za. This is to ensure that the time difference from generation of the quotation for Forward Cover to finalising the Forward Cover with the Bank, is kept to a minimum due to the change in the exchange rate throughout the day.
 - c) The Contract Manager will forward the quotation to the CCT Treasury Department immediately for their consideration and approval. The cut-off time for receipt of quotations for Forward Cover will be 14h00. It must be noted that if this deadline will not be achieved, it is recommended that the quotation process be undertaken on the following day which should fall within the 7 days of receipt of the purchase order.
 - d) Only once the Forward Cover quotation rate has been approve by CCT Treasury Department, may the Supplier finalise the Forward Cover contract with their bank at the rate approved by the CCT Treasury Department for that Purchase Order and forward a copy of the contract to the CCT via email: **EAMCPA.Request@capetown.gov.za** and Contract Manager: Patrick.O'Halloran@capetown.gov.za.
 - e) The Forward Cover quotation envisaged above must have the CCT purchase order number and a Forward Cover Contract (FCC) Value Date that is directly based upon the required delivery date for the imported Goods or components necessary in order to meet the Contract Delivery Period. Future FCC Value Dates beyond the Contract Delivery Period must not be acceptable.

12. On delivery of the goods to the City the Supplier must submit the following documentation to the CCT via email: **EAMCPA.Request@capetown.gov.za** and Contract Manager: **Patrick.O'Halloran@capetown.gov.za**:
 - a) The Bill of Lading/Waybill/Customs Invoice (clearly indicating the items as identified on the purchase order).
 - b) Calculations detailing the difference in the rate of exchange at the time of entry and the date of tender. These must be submitted on a covering letter.
 - c) The invoice / credit note for the Rate of Exchange adjustment applicable to the specific order.
13. In exceptional circumstances, and subject to the Employer's explicit approval, Rate of Exchange variations on Goods or components that are imported in bulk in advance in fulfilment of the contract requirements or to create buffer stocks, but not specifically in response to specific purchase orders placed by the Employer in accordance with the contract, must be based upon whichever of the following two methodologies is more advantageous to the Employer:
 - a) Methodology 1: A spot quotation for the Forward Cover Contract rate for the imported portion of the Goods, based upon the FCC Value Date for the particular purchase order(s), as outlined in clause 11 above.
 - b) Methodology 2: The actual Rate of Exchange cost variations incurred in fulfilment of the purchase order(s), fully substantiated by detailed Bills of Lading and Customs Invoice applicable to the particular Goods delivered. The applicable Rate of Exchange must be the rate as defined on the Customs Invoice for the imported Goods.
 - c) Determination of the more advantageous methodology must be conducted and approved following delivery of the imported Goods or components to the Supplier but prior to delivery of the Goods to the Employer.
14. Approval of the process detailed in Clause 13 and sub-clauses above must be on an order by order basis and application must be submitted, with required supporting documents, immediately on receipt of the relevant purchase order(s).

F.1. (G) GOODS AND/OR COMPONENTS IMPORTED FROM OUTSIDE OF SOUTH AFRICA - MANUFACTURER/SUPPLIER PRICE/QUOTATION LIST

1. Manufacturer’s / Supplier’s Pricelist / Quotation Based CPA – Imported Goods or Components:

- 1.1 Tenderers with imported Goods or Components may claim contract price adjustment based on the overseas SUPPLIER’S / MANUFACTURER’S PRICE LISTS/ QUOTATION from the supplier or manufacturer of the tendered items.
- 1.2 In such cases the Tenderer is required to submit with his tender a copy of the original overseas Supplier / Manufacturer Pricelist / Quotation upon which his tender prices are based. Such pricelist / Quotation is required to be on the Letterhead of the Supplier / Manufacture, is to be dated, referenced and signed, and is to provide clear reference to the tender number or unambiguously indicate the relevant component.
- 1.3 The Tenderer is required to clearly reference each item quoted to the respective Tender Item Number indicated in C.4 Price Schedule by completing Table F.1 (G).1 below.

Table F.1 (G).1: Price Schedule information for Imported Goods or Components - Manufacturers/Suppliers Price List(s)/Quotation

	Price List Information		
Manufacturer/ Supplier Name	Price List/Quotation Date.	Price List/Quotation Reference Number	Pricelist applicable to Items as per C.4 Price Schedule

- 1.4 During the contract period, the Tenderer (now Supplier) must submit the request for price adjustment based on increases in pricelists of manufacturers/suppliers prior to the effective date of the increase in the pricelist.

- 1.5 The effective date of any price adjustment granted will be the first day of the month following the month during which the fully substantiated application for contract price adjustment is submitted or, by agreement between the Tenderer/Supplier and the CCT, a subsequent date on which the price adjustment will become effective.
- 1.6 In instances where the Supplier's price adjustment claimed is less than entitled, the lesser price will be accepted.
- 1.7 Only the difference in source supplier / manufacturer pricelist (actual cost, not percentage) may be adjusted and under no circumstances may the Tenderer/Supplier increase their profit margin.
- 1.8 The Tenderer/Supplier must, when submitting claims for contract price adjustment, submit all of the documentation indicated below a minimum of two weeks prior to the effective date of the contract price adjustment:
 - a) Copies of price lists upon which original tender prices were based (refer to Clause 1.2, Table F.1 (G).1 above) clearly indicating the item(s) according to C.4 Price Schedule.
 - b) The new price list (*from the same Supplier / Manufacturer as originally tendered*) on the relevant manufacturer/suppliers letterhead (with pamphlets, brochures and e-mail communication) clearly indicating the item(s) according to C.4 Price Schedule.
 - c) Submit detailed calculations indicating how the "new" price is calculated. The calculations must be submitted in Excel, together with a signed, "PDF" version of the Excel spreadsheet. The example below – Table F.1(G).2, is what is required.
 - d) A covering letter on the Supplier's letterhead requesting the CPA with the effective date of the claim.
- 1.9 The CCT will consider the request and either refer the request back for correction or additional information or approve the request.
- 1.10 The CCT will assess such pricelist based CPA claims and will only approve such claims that are confirmed to be reasonable and market related with reference to the source pricing information provided with the tender and with the CPA application
- 1.11 Approval of the CPA request including confirmation of the effective date, will be communicated to the Supplier in writing. The effective date will be as per clause 1.3 above.
- 1.12 The successful Tenderer/Supplier must immediately upon notification of the commencement date of contract submit written application for approval of any adjusted unit prices for the Goods that may have been notified by the Supplier / Manufacturer of the Goods, together with the required supporting documentation. This application will be assessed in accordance with the process laid out above in order to determine approved contract prices at the commencement of the contract.
- 1.13 Failure to submit such application within two working weeks of commencement of contract must result in the tendered unit prices being applied for initial orders placed following commencement of the contract.
- 1.14 In the event of a Supplier changing their Supplier / Manufacturer during the tenure of the contract, no request for price variations will be considered unless the Supplier has obtained prior approval from the City for the change of Supplier / Manufacturer. Such approval must include technical approval by the Engineer of the goods supplied by the replacement Supplier / Manufacturer. Technical approval by the Engineer must be a prerequisite for any change of Supplier / Manufacturer.

2. **Supplier Price List Variations for Suppliers Supplying Goods Imported by Another Party**
 - 2.1 The Tenderers (now Supplier) that are not the director importer of the manufactured goods/components, and intend to purchase the goods from another supplier who in turn is importing the goods, may apply for Supplier / Manufacturer Pricelist / Quotation based CPA imported by a another Party.
 - 2.2 In such cases the Tenderer is required to submit with his tender a copy of the original Supplier / Manufacturer Pricelist / Quotation upon which his tender prices are based. Such pricelist / Quotation is required to be on the Letterhead of the Supplier / Manufacture, is to be dated, referenced and signed, and is to provide clear reference to the tender number, exchange rate on which the quote is based and is required to clearly reference each item quoted to the respective Tender Item Number indicated in C.4 Price Schedule.
 - 2.3 The tenderer must further confirm the Manufacturer / supplier, Quotation date, exchange rate at date of quote and reference number and applicable tender Items by completing Table F.1(G).3 below.

Table F.1 (G).3: Price Schedule information for Imported Goods or Components, imported by Another Party Manufacturers/Suppliers Price List(s)/Quotation

Price List Information				
Manufacturer/ Supplier Name	Price List/Quotation Date.	Price List/Quotation Reference Number	Exchange Rate on which quote is based	Pricelist applicable to Items as per C.4 Price Schedule
			_____1 : Rand _____	
			_____1 : Rand _____	
			_____1 : Rand _____	
			_____1 : Rand _____	

- 2.4 During the contract period, the Tenderer (now Supplier) must submit the request for price adjustment based on increases in pricelists of manufacturers/suppliers within seven calendar days of the date of the purchase order date.
- 2.5 The price adjustment claim will be fully substantiated and the approval will be limited to the relevant Purchase Order.
- 2.6 In instances where the Supplier's price adjustment claimed is less than entitled, the lesser price will be accepted.

- 2.7 Only the difference in source supplier / manufacturer pricelist (actual cost, not percentage) may be adjusted and under no circumstances may the Tenderer/Supplier increase their profit margin.
- 2.8 The Tenderer/Supplier must, when submitting claims for contract price adjustment, submit all of the documentation indicated below a minimum of seven (7) days from date of purchase order:
- a) Copies of price lists upon which original tender prices were based (refer to Clause 2.2, Table 2 above) clearly indicating the item(s) according to C.4 Price Schedule.
 - b) The new price list (*from the same Supplier / Manufacturer as originally tendered*) on the relevant manufacturer/suppliers letterhead (with pamphlets, brochures and e-mail communication) clearly indicating the item(s) according to C.4 Price Schedule.
 - c) Submit detailed calculations indicating how the “new” price is calculated.
 - d) A covering letter on the Supplier’s letterhead requesting the CPA with the effective date of the claim.
- 2.9 The CCT will consider the request and either refer the request back for correction or additional information or approve the request.
- 2.10 The CCT will assess such pricelist based CPA claims and will only approve such claims that are confirmed to be reasonable and market related with reference to the source pricing information provided with the tender and with the CPA application
- 2.11 Approval of the CPA request for the relevant Purchase Order (refer to clause 2.5 above), will be communicated to the Supplier in writing.

F.1. (H) GOODS AND/OR COMPONENTS IMPORTED FROM OUTSIDE OF SOUTH AFRICA - BASED ON FOREIGN INDICES
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1. Adjustment for variation in labour and material Costs based on Indices in the country of manufacture.

1.1 If the prices for imported Goods and/or components are not fixed, the Supplier must in their Tender specify the formula for calculating Contract Price Adjustments normally used in the country of manufacture and the indices and relative proportions of labour and material on which his Tender prices are based. The imported goods and or components must be adjusted annually in accordance with clause 18.2 below.

1.2 The FOB adjustment in this CPA must be read with the values stipulated in the F.1 (F) (Column A) Schedule for Rate of Exchange.

2. Formula(e) for FOB price adjustment on goods and/or components ex-import:

Cost of goods and or components manufactured outside of South Africa and any foreign installation labour (FOB values in Table 2 titled “**Price Basis for Imported Resources**” (column (A))) will be fixed and firm except for variations in the rate of exchange and statutory obligations unless the following information is provided:

$$P = P_o(0,1 + 0,9N/No)$$

Where

P = Adjusted Price

P_o = Original Price

10% - Fixed

And:

No

Origin:

N

Foreign Published Index (similar to SEIFSA CPI/PPI) in country of

DETAIL: _____

PPI Reference Country:: _____

Base Month: _____

Published PPI for Base Month: _____

3. The FOB values in Table 2 titled “**Price Basis for Imported Resources**” (column (A)), must remain fixed and firm for the first 12 calendar months from date of

Commencement Date of Contract and Suppliers are not permitted to requests CPA during this period.

4. The FOB values will thereafter be subject to adjustment annually based on the average percentage of 12 months as published in the Foreign Published Index as follows:
 - 4.1 From the start of the 13th month to the end of the 24th month calculated as follows:
 - a) The base month for the price adjustment being three (3) calendar months prior to Commencement Date of Contract; and
 - b) The end month must be three (3) calendar months prior to the 12th month.
 - 4.2 From the start of the 25th month to end of the 36th month calculated as follows:
 - a) The base month for the price adjustment must be three (3) calendar months prior to the 13th month; and
 - b) The end month must be three (3) calendar months prior to 24th month.
5. The average percentage increase in the published index will be calculated using the base month to the end month (both included) divided by the number of months. (12 months totalled/12 to achieve the average for the Foreign Published Index)

Schedule F.2: Certificate of Authority for Partnerships/ Joint Ventures/ Consortiums

This schedule is to be completed if the tender is submitted by a partnership/joint venture/ consortium.

1. We, the undersigned, are submitting this tender offer as a partnership/ joint venture/ consortium and hereby authorize Mr/Ms _____, of the authorised entity _____, acting in the capacity of Lead Partner, to sign all documents in connection with the tender offer and any contract resulting from it on the partnership/joint venture/ consortium’s behalf.

2. By signing this schedule the partners to the partnership/joint venture/ consortium:
 - 2.1 warrant that the tender submitted is in accordance with the main business and objectives of the partnership/joint venture/ consortium;
 - 2.2 agree that the CCT must make all payments in terms of this Contract into the following bank account of the Lead Partner:
 Account Holder: _____
 Financial Institution: _____
 Branch Code: _____
 Account No.: _____
 - 2.3 agree that in the event that there is a change in the partnership/ joint venture/ consortium and/or should a dispute arise between the partnership/joint venture/ consortium partners, that the CCT must continue to make any/all payments due and payable in terms of the Contract into the aforesaid bank account until such time as the CCT is presented with a Court Order or an original agreement (signed by each and every partner of the partnership/joint venture/ consortium) notifying the CCT of the details of the new bank account into which it is required to make payment.
 - 2.4 agree that they must be jointly and severally liable to the CCT for the due and proper fulfilment by the successful tenderer/supplier of its obligations in terms of the Contract as well as any damages suffered by the CCT as a result of breach by the successful tenderer/supplier. The partnership/joint venture/ consortium partners hereby renounce the benefits of excussion and division.

SIGNED BY THE PARTNERS OF THE PARTNERSHIP/ JOINT VENTURE/ CONSORTIUM		
NAME OF FIRM	ADDRESS	DULY AUTHORISED SIGNATORY
Lead partner		Signature..... Name..... Designation.....
		Signature..... Name..... Designation.....
		Signature..... Name..... Designation.....
		Signature..... Name..... Designation.....

Note: A copy of the Joint Venture Agreement must be appended to *List of Other Documents Attached by Tenderer Schedule*.

Schedule F.3: Declaration for Procurement above R10 million

If the value of the transaction is expected to exceed R10 million (VAT included) the tenderer must complete the following questionnaire, attach the necessary documents and sign this schedule:

1. Are you by law required to prepare annual financial statements for auditing? **(Please mark with X)**

YES		NO	
-----	--	----	--

If YES, submit audited annual financial statements:

- (i) For the past three years, or
(ii) Since the date of establishment of the tenderer (if established during the past three years)

By attaching such audited financial statements to **List of Other Documents Attached by Tenderer Schedule**.

2. Do you have any outstanding undisputed commitments for municipal services towards the CCT or other municipality in respect of which payment is overdue for more than 30 (thirty) days? **(Please mark with X)**

YES		NO	
-----	--	----	--

2.1 If NO, this serves to certify that the tenderer has no undisputed commitments for municipal services towards any municipality for more than three (3) (three) months in respect of which payment is overdue for more than 30 (thirty) days.

2.2 If YES, provide particulars:

--

3. Has any contract been awarded to you by an organ of state during the past five (5) years? **(Please mark with X)**

YES		NO	
-----	--	----	--

If YES, insert particulars in the table below including particulars of any material non-compliance or dispute concerning the execution of such contract. Alternatively attach the particulars to **List of Other Documents Attached by Tenderer** schedule in the same format as the table below:

Organ of State	Contract Description	Contract Period	Non-compliance/dispute (if any)

4. Will any portion of the goods or services be sourced from outside the Republic, and if so, what portion and whether any portion of payment from the CCT is expected to be transferred out of the Republic? **(Please mark with X)**

YES		NO	
-----	--	----	--

If YES, furnish particulars below

The tenderer hereby certifies that the information set out in this schedule and/or attached hereto is true and correct, and acknowledges that failure to properly and truthfully complete this schedule may result in steps being taken against the tenderer, the tender being disqualified, and/or (in the event that the tenderer is successful) the cancellation of the contract, restriction of the tenderer or the exercise by the CCT of any other remedies available to it.

Signature
Print name:
On behalf of the tenderer (duly authorised)

Date

Schedule F.4: Preference Points Claim Form In Terms Of the Preferential Procurement Regulations 2022

1. GENERAL CONDITIONS

- 1.1 The following preference point systems are applicable to invitations to tender:
- the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included); and
 - the 90/10 system for requirements with a Rand value above R50 000 000 (all applicable taxes included).

1.2 To be completed by the organ of state

The applicable preference point system for this tender is the 90/10 preference point system.

- 1.3 Points for this tender (even in the case of a tender for income-generating contracts) must be awarded for:
- (a) Price; and
 - (b) Specific Goals.

1.4 To be completed by the organ of state:

The maximum points for this tender are allocated as follows:

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

- 1.5 Failure on the part of a tenderer to submit proof or documentation required in terms of this tender to claim points for specific goals with the tender, will be interpreted to mean that preference points for specific goals are not claimed.
- 1.6 The organ of state reserves the right to require of a tenderer, either before a tender is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the organ of state.

2. DEFINITIONS

The following definitions must apply to this schedule:

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

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

POINTS AWARDED FOR PRICE

THE 90/10 PREFERENCE POINT SYSTEMS

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

90/10

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

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmin = Price of lowest acceptable tender

4. POINTS AWARDED FOR SPECIFIC GOALS

4.1 In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1 below as may be supported by proof/documentation stated in the conditions of this tender:

4.2 In cases where organs of state intend to use Regulation 3(2) of the Regulations, which states that, if it is unclear whether the 80/20 or 90/10 preference point system applies, an organ of state must, in the tender documents, stipulate in the case of—

- (a) an invitation for tender for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system; or
- (b) any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system,

then the organ of state must indicate the points allocated for specific goals for both the 90/10 and 80/20 preference point system.

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

(Note to organs of state: Where either the 90/10 or 80/20 preference point system is applicable, corresponding points must also be indicated as such.

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

The specific goals allocated points in terms of this tender	To be Completed by the Organ of State		To be Completed by the Tenderer	
	Number of points Allocated (90/10 system)	Number of points Allocated (80/20 system)	Number of points claimed (90/10 system)	Number of points claimed (80/20 system)
Gender	3	5		-
Race	3	5		-
Disability	1	3		-
Promotion of Micro and Small Enterprises	3	7		-

DECLARATION WITH REGARD TO COMPANY/FIRM

4.3 Name of company/firm.....

4.4 Company registration number:

4.5 TYPE OF COMPANY/ FIRM

- Partnership/Joint Venture / Consortium
- One-person business/sole propriety

- Close corporation
- Public Company
- Personal Liability Company
- (Pty) Limited
- Non-Profit Company
- State Owned Company

[Tick applicable box]

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

- i) The information furnished is true and correct;
- ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
- iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 4.1 and 4.2, the Supplier may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;
- iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –
 - (a) disqualify the person from the tendering process;
 - (b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
 - (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
 - (d) recommend that the tenderer or Supplier, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the audi alteram partem (hear the other side) rule has been applied; and
 - (e) forward the matter for criminal prosecution, if deemed necessary.

<i>Signature of Tenderer</i>	<i>Date</i>	<i>Name and Surname</i>	<i>Address</i>

For official use.		
SIGNATURE OF CCT OFFICIALS AT TENDER OPENING		
1.	2.	3.

Schedule F.5: Declaration of Interest – State Employees (MBD 4 amended)

1. No bid will be accepted from:
 - 1.1 persons in the service of the state¹, or
 - 1.2 if the person is not a natural person, of which any director, manager or principal shareholder or stakeholder is in the service of the state, or
 - 1.3 from persons, or entities of which any director, manager or principal shareholder or stakeholder, has been in the service of the City of Cape Town (CCT) during the previous twelve (12) months, or
 - 1.4 from an entity who has employed a former CCT employee who was at a level of T14 or higher at the time of leaving the CCT's employ and involved in any of the CCT's bid committees for the bid submitted, if:
 - 1.4.1 the CCT employee left the CCT's employment voluntarily, during the previous twelve (12) months;
 - 1.5 a person who was a CCT employee, or an entity that employs a CCT employee, if
 - 1.5.1 the CCT employee left the CCT's employment whilst under investigation for alleged misconduct, or
 - 1.5.2 was facing disciplinary action or potential disciplinary action by the CCT, or
 - 1.5.3 was involved in a dispute against the CCT during the previous thirty six (36) months.

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 tenderer or their authorised representative declare their position in relation to the evaluating/adjudicating authority.

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 tenderer or his or her representative: _____
 - 3.2 Identity Number: _____
 - 3.3 Position occupied in the Company (director, trustee, shareholder²): _____
 - 3.4 Company or Close Corporation Registration Number: _____
 - 3.5 Tax Reference Number: _____
 - 3.6 VAT Registration Number: _____
 - 3.7 The names of all directors / trustees / shareholders members, their individual identity numbers and state employee numbers must be indicated in paragraph 4 below.
 - 3.8 Are you presently in the service of the state? **YES / NO**
 - 3.8.1 If yes, furnish particulars: _____
 - 3.9 Have you been in the service of the state for the past twelve months? **YES / NO**
 - 3.9.1 If yes, furnish particulars: _____
 - 3.10 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**
 - 3.10.1 If yes, furnish particulars: _____
 - 3.11 Are you, aware of any relationship (family, friend, other) between any other tenderer and any persons in the service of the state who may be involved with the evaluation and or adjudication of this bid? **YES / NO**
 - 3.11.1 If yes, furnish particulars: _____
 - 3.12 Are any of the company's directors, trustees, managers, principle shareholders or stakeholders in service of the state? **YES / NO**
 - 3.12.1 If yes, furnish particulars: _____

- 3.13 Are any spouse, child or parent of the company’s directors, trustees, managers, principle shareholders or stakeholders in service of the state? **YES / NO**
 3.13.1 If yes, furnish particulars: _____
- 3.14 Do you or any of the directors, trustees, managers, principle 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**
 3.14.1 If yes, furnish particulars: _____
- 3.15 Have you, or any of the directors, trustees, managers, principle shareholders, or stakeholders of this company been in the service of the CCT in the past twelve months? **YES / NO**
 3.15.1 If yes, furnish particulars: _____
- 3.16 Do you have any employees who was in the service of the CCT at a level of T14 or higher at the time they left the employ of the CCT, and who was involved in any of the CCT’s bid committees for this bid? **YES / NO**
 3.16.1 If yes, furnish particulars: _____

4. Full details of directors / trustees / members / shareholders

Full Name	Identity Number	State Employee Number

If the above table does not sufficient to provide the details of all directors / trustees / shareholders, please append full details to the tender submission.

The tenderer hereby certifies that the information set out in this schedule and/or attached hereto is true and correct, and acknowledges that failure to properly and truthfully complete this schedule may result in steps being taken against the tenderer, the tender being disqualified, and/or (in the event that the tenderer is successful) the cancellation of the contract, restriction of the tenderer or the exercise by the CCT of any other remedies available to it.

 Signature
 Print name: _____ Date
 On behalf of the tenderer (duly authorised)

- 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.

Schedule F.6: Conflict of Interest Declaration

1. The tenderer must declare whether it has any conflict of interest in the transaction for which the tender is submitted. **(Please mark with X)**

YES		NO	
-----	--	----	--

1.1 If yes, the tenderer is required to set out the particulars in the table below:

2. The tenderer must declare whether it has directly or through a representative or intermediary promised, offered or granted:

2.1 Any inducement or reward to the CCT for or in connection with the award of this contract; or

2.2 Any reward, gift, favour or hospitality to any official or any other role player involved in the implementation of the supply chain management policy. **(Please mark with X)**

YES		NO	
-----	--	----	--

If yes, the tenderer is required to set out the particulars in the table below:

Should the tenderer be aware of any corrupt or fraudulent transactions relating to the procurement process of the CCT, please contact the following:

The CCT's anti-corruption hotline at 0800 32 31 30 (toll free)

The tenderer hereby certifies that the information set out in this schedule and/or attached hereto is true and correct, and acknowledges that failure to properly and truthfully complete this schedule may result in steps being taken against the tenderer, the tender being disqualified, and/or (in the event that the tenderer is successful) the cancellation of the contract, restriction of the tenderer or the exercise by the CCT of any other remedies available to it.

 Signature
 Print name:
 On behalf of the tenderer (duly authorised)

 Date

Schedule F.7: Declaration of Tenderer's Past Supply Chain Management Practices (MBD 8)

Where the entity tendering is a partnership/joint venture/consortium, each party to the partnership/joint venture/consortium must sign a declaration in terms of the Municipal Finance Management Act, Act 56 Of 2003, and attach it to this schedule.

1 The tender offer of any tenderer may be rejected if that tenderer or any of its directors/members have:

- a) abused the municipality's / municipal entity's supply chain management system or committed any fraudulent conduct in relation to such system;
- b) been convicted for fraud or corruption during the past five years;
- c) willfully neglected, reneged on or failed to comply with any government, municipal or other public sector contract during the past five years; or
- d) been listed in the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004) or Database of Restricted Suppliers.

2 In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.

Item	Question	Yes	No
2.1	<p>Is the tenderer or any of its directors/members listed on the National Treasury's Database of Restricted Suppliers as companies or persons prohibited from doing business with the public sector?</p> <p>(Companies or persons who are listed on this Database were informed in writing of this restriction by the Accounting Officer/Authority of the institution that imposed the restriction after the <i>audi alteram partem</i> rule was applied).</p> <p>The Database of Restricted Suppliers now resides on the National Treasury's website (www.treasury.gov.za) and can be accessed by clicking on its link at the bottom of the home page.</p>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
2.1.1	If so, furnish particulars:		
2.2	<p>Is the tenderer or any of its directors/members 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) or Database of Restricted Suppliers?</p> <p>The Register for Tender Defaulters can be accessed on the National Treasury's website (www.treasury.gov.za) by clicking on its link at the bottom of the home page.</p>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
2.2.1	If so, furnish particulars:		
2.3	<p>Was the tenderer or any of its directors/members 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?</p>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
2.3.1	If so, furnish particulars:		

Item	Question	Yes	No
2.4	Does the tenderer 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 <input type="checkbox"/>	No <input type="checkbox"/>
2.4.1	If so, furnish particulars:		
2.5	Was any contract between the tenderer 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 <input type="checkbox"/>	No <input type="checkbox"/>
2.5.1	If so, furnish particulars:		

The tenderer hereby certifies that the information set out in this schedule and/or attached hereto is true and correct, and acknowledges that failure to properly and truthfully complete this schedule may result in steps being taken against the tenderer, the tender being disqualified, and/or (in the event that the tenderer is successful) the cancellation of the contract, restriction of the tenderer or the exercise by the CCT of any other remedies available to it.

 Signature
 Print name:
 On behalf of the tenderer (duly authorised)

 Date

Schedule F.8: Authorisation for the Deduction of Outstanding Amounts Owed to the CCT

To: THE CITY MANAGER, City of Cape Town

From: _____
(Name of tenderer)

RE: AUTHORISATION FOR THE DEDUCTION OF OUTSTANDING AMOUNTS OWED TO THE CCT

The tenderer:

- a) hereby acknowledges that according to SCM Regulation 38(1)(d)(i) the City Manager 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 CCT, or to any other municipality or municipal entity, are in arrears for more than 3 (three) months; and
- b) therefore hereby agrees and authorises the CCT to deduct the full amount outstanding by the Tenderer or any of its directors/members/partners from any payment due to the tenderer; and
- c) confirms the information as set out in the tables below for the purpose of giving effect to b) above;

Physical Business address(es) of the tenderer	Municipal Account number(s)	Inside the CCT municipal boundary (Yes/No)

If there is not enough space for all the names, please attach the information to **List of other documents attached by tenderer** schedule in the same format:

Name of Director / Member / Partner	Identity Number	Physical residential address of Director / Member / Partner	Municipal Account number(s)	Inside the CCT municipal boundary (Yes/No)

The tenderer hereby certifies that the information set out in this schedule and/or attached hereto is true and correct, and acknowledges that failure to properly and truthfully complete this schedule may result in steps being taken against the tenderer, the tender being disqualified, and/or (in the event that the tenderer is successful) the cancellation of the contract, restriction of the tenderer or the exercise by the CCT of any other remedies available to it.

Signature
Print name:
On behalf of the tenderer (duly authorised)

Date

Schedule F.9: Certificate of Independent Tender Determination
--

I, the undersigned, in submitting this tender number: **206G/2025/26** and tender description: **SUPPLY, INSTALLATION, AND COMMISSIONING OF 12 KV INDOOR SWITCHGEAR AND ANCILLARY EQUIPMENT FOR EXTENSION OF EXISTING TYPE LMX AND NEW INSTALLATIONS** in response to the tender invitation made by THE CCT, do hereby make the following statements, which I certify to be true and complete in every respect:

I certify, on behalf of: _____ (Name of tenderer) that:

1. I have read and I understand the contents of this Certificate;
2. I understand that this tender will be disqualified if this Certificate is found not to be true and complete in every respect;
3. I am authorised by the tenderer to sign this Certificate, and to submit this tender, on behalf of the tenderer;
4. Each person whose signature appears on this tender has been authorised by the tenderer to determine the terms of, and to sign, the tender on behalf of the tenderer;
5. For the purposes of this Certificate and this tender, I understand that the word 'competitor' must include any individual or organisation other than the tenderer, whether or not affiliated with the tenderer, who:
 - (a) has been requested to submit a tender in response to this tender invitation;
 - (b) could potentially submit a tender in response to this tender invitation, based on their qualifications, abilities or experience; and
 - (c) provides the same goods and services as the tenderer and/or is in the same line of business as the tenderer.
6. The tenderer has arrived at this tender independently from and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium¹ will not be construed as collusive price quoting.
7. In particular, without limiting the generality of paragraphs 5 and 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
 - (a) prices;
 - (b) geographical area where product or service will be rendered (market allocation);
 - (c) methods, factors or formulas used to calculate prices;
 - (d) the intention or decision to submit or not to submit a tender;
 - (e) the submission of a tender which does not meet the specifications and conditions of the tender; or
 - (f) tendering with the intention not to win the contract.
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 tender invitation relates.
9. The terms of this tender have not been and will not be disclosed by the tenderer, directly or indirectly, to any competitor, prior to the date and time of the official tender 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 tenders and contracts, tenders 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, Act 89 of 1998, and/o/r 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 10 (ten) years in terms of the Prevention and Combating of Corrupt Activities Act, Act 12 of 2004, or any other applicable legislation.

Signature: _____

Date: _____

Print name: _____

On behalf of the tenderer (duly authorised)

(¹ Consortium: 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.)

Schedule F.11: List of Other Documents Attached By Tenderer
--

The tenderer has attached to this schedule, the following additional documentation:

	Date of Document	Title of Document or Description (refer to clauses / schedules of this tender document where applicable)
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		

Attach additional pages if more space is required.

Signature: _____ Date: _____

Print name: _____

On behalf of the tenderer (duly authorised)

Schedule F.12: Record of Addenda to Tender Documents

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

	Date	Title or Details
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
Attach additional pages if more space is required.		

Signature: _____

Date: _____

Print name: _____

On behalf of the tenderer (duly authorised)

Schedule F.13: Information to Be Provided With the Tender

The following information must be provided with the Tender:

- a) Schedule F.13 A: Schedule of Manufacturer Information
- b) Schedule F.13 B: Schedule of Technical Data
- c) Schedule F.13 C: Schedule of Manufacturer's Experience, Equipment Track Record and Facilities
- d) Schedule F.13 D: Details of Tenderer's Installations History, Track Record of Equipment & Key Personnel Information
- e) Schedule F.13 E: Departures from the Requirements of the Specification
- f) Schedule F.13 F: OEM, Quality and Environmental Certification (Proof to be attached)
- g) Schedule F.13 G: Schedule of Type Tests
- h) Schedule F.13 H: Details of Switchgear Disposal
- i) Schedule F.13 I: Drawing Summary Sheet
- j) Schedule F.13 J: Proposed Work Plan
- k) Schedule F.13 K: Commencement Date And Dates Of Readiness For Inspection, Testing And Delivery
- l) Schedule F.13 L: Schedule of Sub-Contractors
- m) Schedule F.13 M: Schedule of Construction Equipment
- n) The various returnable documents required for supporting information in the Returnable Schedules, all other specified Returnables as detailed in the "Particulars" section of the Technical Specification, as well as all other returnables requested throughout this tender document. This includes, but is not limited to, the following (all of which should be listed in Schedule F.13):

Kindly ensure that documentation and drawings are clearly marked on each document (and in the titles of electronic files) with the Tender's Item Number(s) (unless it is a generally applicable document) that pertain to that attached document so as to enable a proper understanding and context of these supporting documents. Documents in soft/electronic copy must be of adequate resolution to be fully legible.

- i. Brochures and information of Manufacturers to support Schedule F.13 A & C
- ii. Brochures and Data sheets to support Schedule F.13 B
- iii. OEM & Tenderer Quality Assurance documentation to support Schedule F.13 D
- iv. OEM ISO certificates to support Schedule F.13 F
- v. OEM Authorisation letters (OEM to Tenderer) or (OEM to Supplier & Supplier to Tenderer) to support Schedule F.13 F
- vi. Type Test Certificates or SABS Certificates to support Schedule F.13 G
Kindly provide the Schedules of Type Tests for the equipment offered in soft (electronic) copy (and at adequate resolution), clearly referencing the type test compliance as required in terms of the relevant specifications and then referencing on such document(s) to which item numbers in the tender it is applicable.
- vii. BBBEE Certificates or Affidavits
- viii. Tax PIN certificate
- ix. Quotations from OEM(s) or Supplier to Tenderer
Kindly provide a copy(s) of the original pricelist(s) upon which your tender is based (as referenced), noting that these must be signed, dated and on the supplier's letterhead, addressed to your company with the CCT tender number referenced, and clearly detailing a single price that is referenced to the relevant tender item number(s) as quoted for.
- x. COIDA letter of Good Standing or proof of Compensation Insurance
- xi. Proof of Public liability and other insurance required

TENDERER NAME _____ SIGNED ON BEHALF OF TENDERER _____

Schedule F.13 A: Schedule of Manufacturer Information

(To be completed by Tenderer)

Category A: MANUFACTURERS AND PLACES OF MANUFACTURE, TESTING AND INSPECTION

Description	Manufacturer	Place of Manufacture	Place of testing and inspection
MAIN EQUIPMENT			
Internal arc rated doors, frames and covers			
Canon Sockets			
Anti-condensation panel heaters			
Transducers			
Supervisory trip and close relays			
Spring charge motors for circuit breaker equipment			
Circuit breaker closing coils			
Arc detection fibres			
Arc detection fibre fittings			

TENDERER NAME _____ SIGNED ON BEHALF OF TENDERER _____

Category A: MANUFACTURERS AND PLACES OF MANUFACTURE, TESTING AND INSPECTION (Cont'd)

Description	Manufacturer	Place of Manufacture	Place of testing and inspection
MAIN EQUIPMENT (Contd)			
Multicore Cables			
Data Cable			
Earthing conductors			
Cable trays and cable ladders			
Other (Specify):			
Hand-held remote switching device with open/close functions and 30m lead			
Circuit breaker primary cluster 1250A			
Shutter operating arms for 630/1250/2000A panels			
Shutter box complete with shutters for 630/1250A panels			
Shutter box complete with shutters for 2000A panels			
230Vac, 100W Heater			

TENDERER NAME _____ SIGNED ON BEHALF OF TENDERER _____

Category B: MANUFACTURERS AND PLACES OF MANUFACTURE, TESTING AND INSPECTION

Description	Manufacturer	Place of Manufacture	Place of testing and inspection
MAIN EQUIPMENT			
Metalclad switch panels			
Circuit breakers			
Vacuum bottles			
Earth switches			
Current transformers			
Electromagnetic voltage transformers			
Busbars			
Internal support insulators and bushings			
Cable Bushings			
Internal arc ducting			

TENDERER NAME _____ SIGNED ON BEHALF OF TENDERER _____

Category B: MANUFACTURERS AND PLACES OF MANUFACTURE, TESTING AND INSPECTION

Description	Manufacturer	Place of Manufacture	Place of testing and inspection
MAIN EQUIPMENT (Contd)			
Internal arc rated doors, frames and covers			
Circuit breaker mechanisms			
Spring charge motors for circuit breaker equipment			
VDS and Electrical Phasing Devices			
Capacitive Dividers			
Ammeters			
Canon Sockets			
Anti-condensation panel heaters			
Transducers			
Supervisory trip and close relays			

TENDERER NAME _____ SIGNED ON BEHALF OF TENDERER _____

Category B: MANUFACTURERS AND PLACES OF MANUFACTURE, TESTING AND INSPECTION (Cont'd)

Description	Manufacturer	Place of Manufacture	Place of testing and inspection
MAIN EQUIPMENT (Cont'd)			
Secondary jumpers			
Circuit breaker closing coils			
Arc detection fibres			
Arc detection fibre fittings			
Multicore Cables			
Data Cable			
Earthing conductors			
Cable trays and cable ladders			
Other (Specify):			

TENDERER NAME _____ SIGNED ON BEHALF OF TENDERER _____

Schedule F.13 B: Schedule of Technical Data

Technical Particulars of Equipment Offered

Item No.	Description	Requirements	Particulars of Equipment Offered
1	SITE CONDITIONS		
1.1	Site altitude	Sea level to 500m	
1.2	Site ambient temperature:		
1.2.1	Maximum °C	40	
1.2.2	Daily average °C	35	
1.2.3	Yearly average °C	25	
1.2.4	Minimum °C	-10	
1.3	Relative humidity range %	20 – 90	
1.4	Lightning frequency days/year	0 – 5	
1.5	Climatic conditions	Humid salt air	
1.6	Level of pollution	Very heavy	
1.7	Access to Site	Road	
1.8	Maximum solar radiation intensity W/m ²	1 100	
2	GENERAL		
2.1	Nominal system voltage, U _o kV	11,66	
2.2	Highest system voltage, U _m kV	12,5	
2.3	System frequency Hz	50	
2.4	Earthing of system neutral	Direct or through 1 600 A or 800 A resistor	
2.5	Number of phases	3	
2.6	Phase sequence	BWR (Areas N & S); RWB (Area E)	
2.7	Rated insulation level (All equipment at Site altitude) kV	95	
2.8	Location quality	Indoors	

TENDERER NAME _____

SIGNED ON BEHALF OF TENDERER _____

Item No.	Description	Requirements	Particulars of Equipment Offered
3	SWITCH PANELS		
3.1	Switch panel model/type designation	-	
3.2	Busbar configuration	"Reyrolle LMT 1", vertically spaced	
3.3	Busbar arrangement	Single	
3.4	Withdrawable / non-withdrawable	CB and VT withdrawable	
3.5	Rated voltage	kV	12
3.6	Rated frequency	Hz	50
3.7	Rated normal current:		
3.7.1.1	Busbars (Main substation panels, Standard)	A	2 000
3.7.1.2	Busbars (Main substation panels, Where specified)	A	2 500
3.7.1.3	Busbars (Distribution substation panels)	A	1 250
3.7.1.4	Switchgear (Main substation incoming transformer & Main substation bus-section panels)	A	2 000
3.7.1.5	Switchgear (Main substation feeder panels)	A	630
3.7.1.6	Switchgear (Main substation feeder panels), where specified	A	1 250
3.7.1.7	Switchgear (Distribution Feeder and Metering panels)	A	630
3.7.1.8	Switchgear (Distribution Bus-Section panels)	A	1 250
3.8	Cross-section area of busbars (Main substation)mm ²	-	
3.9	Cross-section area of busbars (Dbn substation) mm ²	-	
3.10	Basic insulation level:		
3.10.1	Rated short duration power frequency withstand (1 min)	kV	28
3.10.2	Peak lightning impulse withstand voltage	kV	95
3.11	Short time and peak current withstand:		
3.11.1	Rated short-circuit withstand of switchgear kA for 3 s		25
3.11.2	Rated peak withstand current	kA	63
3.11.3	Making capacity of earthing switch	kA	63

TENDERER NAME _____

SIGNED ON BEHALF OF TENDERER _____

Item No.	Description	Requirements	Particulars of Equipment Offered
3.12	Internal arc withstand classification:		
3.12.1	Rated short circuit for internal arc withstand kA	25	
3.12.2	Internal arc classification withstand accessibility and duration for complete switch-panels, as specified	SANS 60298, 25 kA 200 ms OR SANS 62271-200 IAC AFL 25 kA 200 ms	
3.12.3	Internal arc classification withstand accessibility and duration for internal arc venting retrofit facilities, as specified	SANS 60298, 25 kA 200 ms OR SANS 62271-200 IAC AFL 25 kA 200 ms	
3.12.4	Maximum substation room height (Main substations)m	3,5	
3.12.5	Required minimum switch room height (Distribution Substations) (as per Internal Arc Type Test) m	-	
3.13	Internal Arc Pressure Relief Facilities: Hot gas & Overpressure relief type	Rear venting covers, End blast covers	
3.14	Partition class	PM	
3.15	Loss of service continuity category	LSC2B	
3.16	Compartment access categories:		
3.16.1	Busbar compartment	Tool-based	
3.16.2	Cable compartment	Tool-based	
3.16.3	CT compartment	Tool-based	
3.16.4	VT compartment	Procedure-based	
3.16.5	CB compartment	Procedure-based	
3.16.6	Active component of CB	Non-accessible	
3.17	Insulation:		
3.17.1	Switchgear panels fully insulated?	Yes	YES/NO*
3.17.2	Type of busbar insulation	-	
3.17.3	Busbar and CT joints shrouded and compound filled?	Yes	YES/NO*
3.17.4	Type of busbar and CT connection insulation	-	
3.17.5	Type of switch panel primary conductor insulation	-	
3.18	Degree of protection for indoor equipment:		
3.18.1	Switchgear HV compartments	IP 4X	
3.18.2	Switchgear LV compartments	IP 2X	

TENDERER NAME _____

SIGNED ON BEHALF OF TENDERER _____

Item No.	Description	Requirements	Particulars of Equipment Offered
3.19	Circuit breaker racking:		
3.19.1	Racking behind closed IAC doors	YES	YES/NO*
3.19.2	Type of racking employed	Manual	
3.19.2.1	Racking motor rating (if provided additionally) A	-	
3.19.2.2	Racking motor rating (if provided additionally) V _{ac}	230	
3.20	Anti-condensation heaters:		
3.20.1	Manufacturer	-	
3.20.2	Make	-	
3.20.3	Rating (each) W	-	
3.20.4	Compartments installed:		
3.20.4.1	Busbar	-	YES/NO*
3.20.4.2	Cable Termination	-	YES/NO*
3.20.4.3	Circuit Breaker	-	YES/NO*
3.20.4.4	Current Transformer	-	YES/NO*
3.21	Cable termination compartment:		
3.21.1	Segregated cable termination compartment	Yes	YES/NO*
3.21.2	Minimum cable compartment height (Gland plate to connection centres): mm	600	
3.21.3	Minimum clearance phase to earth mm	To NRS 012	
3.21.4	Minimum clearance between phases mm	To NRS 012	
3.22	Switch panel primary isolating contact orifice bushings:		
3.22.1	Manufacturer	-	
3.22.2	Type or Designation	-	
3.22.3	Material	-	
3.22.4	Routine pd tested in accordance with SANS 60270	Yes	YES/NO*
3.23	Switch panel bulkhead bushings:		
3.23.1	Manufacturer	-	
3.23.2	Type or Designation	-	
3.23.3	Material	-	
3.23.4	Routine pd tested in accordance with SANS 60270	Yes	YES/NO*

TENDERER NAME _____

SIGNED ON BEHALF OF TENDERER _____

Item No.	Description	Requirements	Particulars of Equipment Offered
3.24	Switch panel support insulators:		
3.24.1	Manufacturer	-	
3.24.2	Type or Designation	-	
3.24.3	Material	-	
3.24.4	Routine pd tested in accordance with SANS 60270	Yes	YES/NO*
3.25	Cable termination compartment bushings:		
3.25.1	Manufacturer	-	
3.25.2	Type or Designation	-	
3.25.3	Material	-	
3.25.4	Routine pd tested in accordance with SANS 60270	Yes	YES/NO*
3.26	Minimum factors of safety for Switchgear		
3.26.1.1	Busbars or other connections based on elastic limit	2,5	
3.26.1.2	Complete insulators based on electro-mechanical test	2,5	
3.26.1.3	Insulator metal fittings based on elastic limit	2,5	
3.27	Finish of equipment		
3.27.1	All equipment	SANS 1091 G29 Light Grey	
3.27.2	Control and relay panels interior	White	
3.28	Method of levelling and fixing switchgear on switch room floor	Pre-installed steel mounting frame	
4	CIRCUIT BREAKERS		
4.1	Circuit breaker model/type designation	-	
4.2	Interrupting medium	Vacuum	
4.3	Number of poles	3	
4.4	Class	Indoor	
4.5	Mechanical endurance class	M2	
4.6	Electrical endurance class	E2	
4.7	Capacitive switching class	C2	
4.8	Normal operating sequence	0-3 min-CO-3 min-CO	

TENDERER NAME _____

SIGNED ON BEHALF OF TENDERER _____

Item No.	Description	Requirements	Particulars of Equipment Offered
4.9	Circuit breaker design	Encapsulated / Enclosed	
4.10	Circuit breaker Degree of Protection for interrupter external contacts and un-insulated primary circuit components (other than primary isolating contacts)	IP 4X, with vermin grids	
4.11	Rated voltage kV	12	
4.12	Rated insulation level (peak) kV	95	
4.13	Rated frequency Hz	50	
4.14	Rated normal current (Main substation incoming transformer and Bus-section circuit breakers) A	2 000	
4.15	Rated normal current (Main substation feeder circuit breaker) A	630	
4.16	Rated normal current (Main substation feeder circuit breaker) where specified A	1 250	
4.17	Rated normal current (Distribution Bus Section circuit breaker) A	1 250	
4.18	Rated normal current (Distribution panel circuit breaker) A	630	
4.19	Fault ratings:		
4.19.1	Rated short circuit breaking current kA	25	
4.19.2	Rated duration of short circuit s	3	
4.19.3	Symmetrical breaking capacity 3 ph/1 ph kA for 3s	25	
4.19.4	Asymmetrical breaking capacity kA	To SANS 62271-100	
4.19.5	Asymmetrical crest factor	2,5	
4.19.6	Rated short circuit making current kA	63	
4.19.7	Rated cable-charging breaking current A	25	
4.19.8	Circuit breaker rated ΣI^2t	-	
4.20	Rated maintenance free operations (normal service life) of vacuum interrupter at full service rating	20 000	
4.21	Rated no of operations of interrupter at rated short circuit breaking current	50	
4.22	Maximum chopping current A	5	

TENDERER NAME _____ SIGNED ON BEHALF OF TENDERER _____

Item No.	Description	Requirements	Particulars of Equipment Offered
4.23	Transient recovery voltage (TRV):		
4.23.1	First pole to clear factor	1,5	
4.23.2	Rated TRV(peak) kV	SANS 62271-100	
4.24	Electro-mechanical performance:		
4.24.1	Max opening time: Main contacts at full load current ms	-	
4.24.2	Max opening time: Main contacts at 25 kA ms	-	
4.24.3	Max opening time: Auxiliary contacts ms	-	
4.24.4	Maximum total break time at 25 kA i.e. trip coil initiation to final arc extinction ms	<70	
4.24.5	Maximum time interval between opening of first and last phase of three phase circuit breaker ms	3	
4.24.6	Maximum closing time: Main contacts ms	-	
4.24.7	Maximum closing time: Auxiliary contacts ms	-	
4.24.8	Maximum time interval between closure of first and last phase of three phase circuit breaker ms	3	
4.24.9	Maximum temperature rise under normal load conditions °C	To BS 5311	
4.24.10	Voltage drop across terminals of a pole at normal current mV	15	
4.25	Operating mechanism : circuit breaker:		
4.25.1	Method of operation	Stored Energy	
4.25.2	Is the circuit breaker trip free or fixed trip?	Trip free	
4.25.3	Is switch panel internal arc rating maintained during manual spring charging operation? (Where applicable)	-	YES/NO*
4.25.4	Type of spring charging employed	Motorised (Manual Backup)	
4.25.4.1	Spring charge motor rating A	-	
4.25.4.2	Spring charge motor rating V _{ac}	230	
4.25.5	Rated supply voltage of closing mechanism V _{dc}	30 / 110, as specified	
4.25.6	Maximum power drain of closing mechanism to close circuit breaker, at rated supply voltage W	-	

TENDERER NAME _____ SIGNED ON BEHALF OF TENDERER _____

Item No.	Description	Requirements	Particulars of Equipment Offered
4.25.7	Rated supply voltage of opening mechanism V_{dc}	30 / 110, as specified	
4.25.8	Maximum power drain of tripping mechanism to open circuit breaker, at rated supply voltage W	-	
4.26	Number and type of spare auxiliary switches	4 NO; 4 NC	
4.27	Current required at rated supply voltage by other auxiliaries A	-	
4.28	Construction features: 630 A & 1 250 A circuit breakers:		
4.28.1	Type of main contacts	-	
4.28.2	Type of arcing-contacts and/or arc control device	-	
4.28.3	Number of tanks/bottles per circuit breaker	-	
4.28.4	Thickness of tank mm	-	
4.28.5	Thickness of top plate mm	-	
4.28.6	External dimensions of tank mm	-	
4.28.7	Mass of complete circuit breaker (without insulating medium) kg	-	
4.28.8	Number of breaks in series per pole	One	
4.28.9	Total length of break per pole mm	-	
4.28.10	Minimum clearances and creepages in air:		
4.28.10.1	Between poles mm	To NRS 012	
4.28.10.2	To earth mm	To NRS 012	
4.28.11	Minimum clearance in interrupting medium:		
4.28.11.1	Between phases mm	-	
4.28.11.2	Between live parts and earth mm	-	
4.29	Construction features: 2 000 A circuit breakers:		
4.29.1	Type of main contacts	-	
4.29.2	Type of arcing-contacts and/or arc control device	-	
4.29.3	Number of tanks/bottles per circuit breaker	-	
4.29.4	Thickness of tank mm	-	

TENDERER NAME _____ SIGNED ON BEHALF OF TENDERER _____

Item No.	Description	Requirements	Particulars of Equipment Offered
4.29.5	Thickness of top plate mm	-	
4.29.6	External dimensions of tank mm	-	
4.29.7	Mass of complete circuit breaker (excluding insulating medium) kg	-	
4.29.8	Number of breaks in series per pole	One	
4.29.9	Total length of break per pole mm	-	
4.29.10	Minimum clearances and creepages in air:		
4.29.10.1	Between poles mm	To NRS 012	
4.29.10.2	To earth mm	To NRS 012	
4.29.11	Minimum clearance in interrupting medium:		
4.29.11.1	Between phases mm	-	
4.29.11.2	Between live parts and earth mm	-	
5	CURRENT TRANSFORMERS		
5.1	Manufacturer and type designation	-	
5.2	Type of current transformer	-	
5.3	Current transformer insulation	-	
5.4	Type of primary winding (single turn or cascade)	-	
5.5	Rated primary current:		
5.5.1	Distribution Feeder Panels A	630	
5.5.2	Distribution Bus-section panels A	1 250	
5.5.3	Main substation incoming transformer panels A	2 000	
5.5.4	Main substation Bus-section panels A	2 000	
5.5.5	Main substation feeder panels A	630	
5.5.6	Main substation feeder panels (Where specified) A	1 250	
5.6	Power frequency withstand voltage dry kV _{rms}	28	
5.7	Basic insulation level kV _p	95	
5.8	Rated short-time thermal current kA	25	
5.9	Rated continuous thermal current (% primary rating) %	120	
5.10	Voltage level for routine partial discharge test kV	As per SANS 61869-1	
5.11	Maximum permissible discharge level pC	As per SANS 61869-1	

TENDERER NAME _____ SIGNED ON BEHALF OF TENDERER _____

Item No.	Description	Requirements	Particulars of Equipment Offered
5.12	Details of insulation materials	-	
5.13	Current transformer ratios and classes:		
5.13.1	Distribution Feeder Panels:		
5.13.1.1	Solkor Rf protection	400/300/5 Class X	
5.13.1.2	Overcurrent and earth fault protection and ammeter indication	400/5, 10 VA, Class 5P10	
5.13.2	Distribution Feeder metering panels:		
5.13.2.1	Overcurrent and earth fault protection and ammeter indication	400/5, 10 VA, Class 5P10	
5.13.2.2	Metering	400/200/1, 10 VA, Class 0,5S, Ext 120%, Security Factor 10	
5.13.3	Distribution Bus section panels:		
5.13.3.1	Overcurrent and earth fault protection and ammeter indication	1 200/5, 10 VA, Class 5P10	
5.13.4	Main substation incoming transformer panels:		
5.13.4.1	Duobias M transformer protection	2 000/1 Class X	
5.13.4.2	Overcurrent and earth fault protection	2 000/1 Class 5P10 10 VA	
5.13.4.3	Metering	2 000/1 10 VA Class 0,2, Ext 120% Security Factor 10	
5.13.5	Main substation feeder panels:		
5.13.5.1	Solkor Rf protection	400/300/5 Class X	
5.13.5.2	Overcurrent and earth fault protection	400/5 Class 5P10 10 VA	
5.14	Class X CTs (Main SS incoming transformer panels):		
5.14.1	Minimum knee point voltage at 50 mA maximum exciting current:	V	260
5.14.2	Maximum secondary resistance at 75°C	Ω	6
5.14.3	Turns ratio error	%	0,25
5.14.4	Turns compensation		None

TENDERER NAME _____ SIGNED ON BEHALF OF TENDERER _____

Item No.	Description	Requirements	Particulars of Equipment Offered
5.15	Class X CTs (Distribution panels):		
5.15.1	Minimum knee point voltage at 50 mA maximum exciting current (at 400/5 ratio):	V	135
5.15.2	Minimum knee point voltage at 50 mA maximum exciting current (at 300/5 ratio):	V	140
5.15.3	Maximum secondary resistance at 75°C	Ω	0,3
5.15.4	Turns ratio error	%	0,25
5.15.5	Turns compensation		None

TENDERER NAME _____ SIGNED ON BEHALF OF TENDERER _____

Item No.	Function	Ratio	Accuracy Class (SANS 61869-2)	Knee-point emf V	Maximum exciting current at kneepoint emf	75°C Maximum res of secondary winding	Rated Output VA	Accuracy limit factor
5.16	Current Transformers:							
5.16.1	Overcurrent and earth fault protection & indication:							
	All distribution panels except bus-section panels	400/5						
	Distribution Bus-section panels	1200/5						
	Main substation incoming transformer panels	2000/1						
	Main substation feeder panels	400/5						
5.16.2	Solkor Rf protection All Feeder panels	400/300/5						
5.16.3	Duobias M protection Main substation incoming transformer panels	2 000/1						
5.16.4	Metering Feeder metering panels	400/200/1						
	Main substation incoming transformer panels	2000/1						

TENDERER NAME _____

SIGNED ON BEHALF OF TENDERER _____

Item No.	Description	Requirements	Particulars of Equipment Offered
6	VOLTAGE TRANSFORMERS		
6.1	Maker's type number or identification	-	
6.2	Type of voltage transformer (electromagnetic, capacitive cascade etc)	Electromagnetic	
6.3	Voltage transformer configuration	3 Φ UVT / 3 x 1 Φ EVT	
6.4	Type of insulation	Resin encapsulated	
6.5	Ratio:		
6.5.1	Three phase unearthened voltage transformer V	11000:110	
6.5.2	Three single phase voltage transformers on common carriage V	$\frac{11000}{\sqrt{3}} : \frac{110}{\sqrt{3}}$	
6.6	Rated output VA	15	
6.7	Accuracy class	0,5 / 0,2, as specified	
6.8	Voltage factor	1,2 Continuous	
6.9	Discharge free	Yes	YES/NO*
6.10	Lightning impulse withstand voltage kV _p	95	
6.11	Power frequency withstand voltage kV _{rms}	28	
6.12	Ferro-resonance:		
6.12.1	Method of suppressing ferro-resonance Phenomena (where required)	-	
6.12.2	Tertiary open delta winding provided	Where required	YES/NO*
6.12.3	Transformer protector device provided	Where required	YES/NO*
6.12.4	Transformer protector make / model	-	
6.13	VT primary fuse make	-	
6.14	VT primary fuse rating A	-	
6.15	VT secondary fuse make	-	
6.16	VT secondary fuse rating A	-	
6.17	Total mass of voltage transformer kg	-	
6.18	Voltage level for routine partial discharge test kV	As per SANS 61869-3	

TENDERER NAME _____ SIGNED ON BEHALF OF TENDERER _____

Item No.	Description	Requirements	Particulars of Equipment Offered
6.19	Maximum permissible discharge level pC	As per SANS 61869-3	
6.20	Guarantee period years	5	
7	CAPACITIVE VOLTAGE SENSING		
7.1	Method of voltage sensing	Capacitive bushings	
8	ASSOCIATED EQUIPMENT		
8.1	Maximum Demand Indicating Ammeters		
8.1.1	Make	-	
8.1.2	Model	-	
8.1.3	Size mm	100 x 100	
8.2	Voltmeters		
8.2.1	Make	-	
8.2.2	Model	-	
8.2.3	Indication range kV	7 to 13,5	
8.2.4	Size mm	150 x 150	
9	AUXILIARY SUPPLIES		
9.1	Auxiliary dc supply (Distribution substations) V _{dc}	30	
9.2	Auxiliary dc supply (Main substations) V _{dc}	110	
9.3	Closing and tripping supply (Distribution substations) V _{dc}	30	
9.4	Closing and tripping supply (Main substations) V _{dc}	110	
9.5	Intertripping supply (Main substations) V _{dc}	60	
9.6	Supervisory supply (Distribution substations) V _{dc}	24	
9.7	Supervisory supply (Main substations) V _{dc}	48	
9.8	Panel heaters V _{ac}	230 ± 10%	
9.9	Nominal ac supply V _{ac}	230 ± 10%	

TENDERER NAME _____

SIGNED ON BEHALF OF TENDERER _____

Item No.	Description	Requirements	Particulars of Equipment Offered
10	SUPERVISORY CONTROL AND RESET RELAYS		
10.1	Relay Make	Omron, or equiv to approval	
10.2	Relay model	-	
10.3	Relay voltage V_{dc}	24 or 48	
10.4	No of contacts	3 x NO / NC pairs	
10.5	Relay base rating V_{dc}	12 to 48	
11	TRANSDUCERS		
11.1	Transducer maximum dimensions:		
11.1.1	Height mm	125	
11.1.2	Width mm	70	
11.1.3	Depth mm	115	
11.2	Current transducers:		
11.2.1	Input (Main substation incoming transformer and bus-section panels) A_{ac}	0 – 1,2	
11.2.2	Input (All other panels) A_{ac}	0 - 6	
11.2.3	Output mA_{dc}	4 - 20	
11.2.4	Class	0.5	
11.2.5	Auxiliary supply voltage V_{dc}	30 or 110	
11.2.6	Make, type, model	To IEC 60688	
11.3	Volt transducers:		
11.3.1	Input V_{ac}	0 - 125	
11.3.2	Output mA_{dc}	4 - 20	
11.3.3	Class	0,5	
11.3.4	Auxiliary supply voltage V_{dc}	30 or 110	
11.3.5	Make, type, model	To IEC 60688	

TENDERER NAME _____

SIGNED ON BEHALF OF TENDERER _____

Item No.	Description	Requirements	Particulars of Equipment Offered
11.4	Power transducers - Watt:		
11.4.1	Input A	0 – 1,2	
11.4.2	V _{ac}	0 – 125	
11.4.3	Output mA _{dc}	4 – 20	
11.4.4	Calibration W	0 – 200	
11.4.5	Auxiliary supply voltage V _{dc}	110	
11.4.6	Make, type, model	To IEC 60688	
11.5	Power transducers - VAR:		
11.5.1	Input A	0 – 1,2	
11.5.2	V _{ac}	0 – 125	
11.5.3	Output mA _{dc}	4 – 20	
11.5.4	Calibration W	0 – 200	
11.5.5	Auxiliary supply voltage V _{dc}	110	
11.5.6	Make, type, model	To IEC 60688	

TENDERER NAME _____

SIGNED ON BEHALF OF TENDERER _____

Schedule F.13 C: Schedule of Tenderer Installations History, Track Record of Equipment & Key Personnel Information

SCHEDULE OF WORK EXPERIENCE OF TENDERER

The tenderer must insert in the spaces provided below a list of similar completed contracts awarded to it and to each major sub-contractor, and those currently being undertaken. Attach additional pages if more space is required.

Category A (To be completed by Tenderers tendering for Category A)

Demonstrated Experience of Tenderer (Note: Refer to Specification - Section 42: Key Personnel & Competency)

Description	Quantity
Number of substation installations of equivalent scope / complexity and of the MV AIS switchgear detailed in this tender or of equivalent MV AIS switchgear to that detailed in this tender completed by Tenderer or their sub-contractor during the past ten years.	
Number of circuit breaker retrofit installations of equivalent scope / complexity and of the MV retrofit circuit breaker detailed in this tender completed by Tenderer or their sub-contractor during the past ten years.	

TENDERER

EMPLOYER (NAME, TEL No. AND EMAIL)	CONTACTABLE REFERENCE (NAME, TEL No. AND EMAIL)	NATURE OF WORK	VALUE OF WORK R(m)	COMPLETION DATE
COMPLETED CONTRACTS				

CURRENT CONTRACTS				

* Tender to append copies of this schedule if more space is needed.
Number of sheets appended by the tenderer to this Schedule (If nil, enter NIL).

SIGNED ON BEHALF OF TENDERER:

EACH SUB-CONTRACTOR (Category A)

EMPLOYER (NAME, TEL No. AND EMAIL)	CONTACTABLE REFERENCE (NAME, TEL No. AND EMAIL)	NATURE OF WORK	VALUE OF WORK R(m)	COMPLETION DATE
COMPLETED CONTRACTS				

CURRENT CONTRACTS				

*Tender to append copies of this schedule if more space is needed.
Number of sheets appended by the tenderer to this Schedule (If nil, enter NIL).

SIGNED ON BEHALF OF TENDERER:

Category B (To be completed by Tenderers tendering for Category B)**Demonstrated Experience of Tenderer (Note: Refer to Specification - Section 42: Key Personnel & Competency)**

Description	Quantity
Number of substation installations of equivalent scope / complexity and of the MV AIS switchgear detailed in this tender or of equivalent MV AIS switchgear to that detailed in this tender completed by Tenderer or their sub-contractor during the past ten years.	
Number of circuit breaker retrofit installations of equivalent scope / complexity and of the MV retrofit circuit breaker detailed in this tender completed by Tenderer or their sub-contractor during the past ten years.	

TENDERER

EMPLOYER (NAME, TEL No. AND EMAIL)	CONTACTABLE REFERENCE (NAME, TEL No. AND EMAIL)	NATURE OF WORK	VALUE OF WORK R(m)	COMPLETION DATE
COMPLETED CONTRACTS				

CURRENT CONTRACTS				

*Tender to append copies of this schedule if more space is needed.
Number of sheets appended by the tenderer to this Schedule (If nil, enter NIL).

SIGNED ON BEHALF OF TENDERER:

EACH SUB-CONTRACTOR (Category B)

EMPLOYER (NAME, TEL No. AND EMAIL)	CONTACTABLE REFERENCE (NAME, TEL No. AND EMAIL)	NATURE OF WORK	VALUE OF WORK R(m)	COMPLETION DATE
COMPLETED CONTRACTS				

CURRENT CONTRACTS				

*Tender to append copies of this schedule if more space is needed.
Number of sheets appended by the Tenderer to this Schedule (If nil, enter NIL).

SIGNED ON BEHALF OF TENDERER:

SCHEDULE OF EQUIPMENT MANUFACTURING AND SERVICE HISTORY

The tenderer must insert in the spaces provided below a list of similar completed contracts and those currently being undertaken where the equipment offered has been supplied. Attach additional pages if more space is required.

Category B (To be completed by Tenderers tendering for Category B):

Track Record of Equipment

Note: Refer to Specification - Section 43: Equipment track record, tenderer experience and tenderer track record

MANUFACTURER NAME:

Description	Quantity
Total quantity manufactured, installed and commissioned to date (worldwide) of the MV AIS switch-panels offered with this tender.	
Total quantity manufactured, installed and commissioned to date (worldwide) of the MV vacuum circuit breakers offered with this tender (including those included in above)	
Total number of completed retrofit installations (substations & circuit breakers) of the MV circuit breakers detailed in this tender into Reyrolle / ABB Type LMx switchgear, of equivalent scope / complexity to this contract	Substations: Circuit Breakers:

MANUFACTURER (Past ten years)

EMPLOYER (NAME, TEL No. AND EMAIL)	CONTACTABLE REFERENCE (NAME, TEL No. AND EMAIL)	NATURE OF WORK	VALUE OF WORK R(m)	COMPLETION DATE
COMPLETED CONTRACTS				

CURRENT CONTRACTS				

*Tender to append copies of this schedule if more space is needed.
 Number of sheets appended by the Tenderer to this Schedule (If nil, enter NIL).

SIGNED ON BEHALF OF TENDERER:

DETAILS OF QUALIFICATIONS AND EXPERIENCE OF TENDERER'S KEY PERSONNEL

Category A: KEY PERSONNEL (To be completed by Tenderers tendering for Category A)

Note: Refer to Specification Section 42: Key Personnel & Competency

Designation	NAME:			
This person, as a minimum should have completed the appropriate formal training by the switchgear OEM such that he/she is fully competent and certified/accredited in the switchgear installation and retrofit work envisaged in accordance with this specification and Scope of Works			Supporting evidence to be attached	
The following evidence to be attached: <ul style="list-style-type: none"> • Training/certification/accreditation (not older than 5 years) 				
Number of Projects completed of the same or equivalent nature to that detailed in the Scope of Works (Quantity to right; Detail list below and attached):			QTY:	
CONTRACT & CLIENT	NATURE OF WORK	POSITION HELD	VALUE OF WORK	YEAR COMPLETED

--	--	--	--	--

*Tender to this schedule for each Key Personnel member and append sheets accordingly.
Number of sheets appended by the Tenderer to this Schedule (If nil, enter NIL).

SIGNED ON BEHALF OF TENDERER:

DETAILS OF QUALIFICATIONS AND EXPERIENCE OF TENDERER'S KEY PERSONNEL

Category B: KEY PERSONNEL (To be completed by Tenderers tendering for Category B)

Note: Refer to Specification Section 42: Key Personnel & Competency

Designation	NAME:			
This person, as a minimum should have completed the appropriate formal training by the switchgear OEM such that he/she is fully competent and certified/accredited in the switchgear installation and retrofit work envisaged in accordance with this specification and Scope of Works			Supporting evidence to be attached	
The following evidence to be attached: <ul style="list-style-type: none"> • Training/certification/accreditation (not older than 5 years) 				
Number of Projects completed of the same or equivalent nature to that detailed in the Scope of Works (Quantity to right; Detail list below and attached):			QTY:	
CONTRACT & CLIENT	NATURE OF WORK	POSITION HELD	VALUE OF WORK	YEAR COMPLETED

--	--	--	--	--

*Tender to this schedule for each Key Personnel member and append sheets accordingly.
Number of sheets appended by the Tenderer to this Schedule (If nil, enter NIL).

SIGNED ON BEHALF OF TENDERER:

Schedule F.13 D: DETAILS OF EXPERIENCE, QUALITY SYSTEMS AND AFTER SALES FACILITIES IN SOUTH AFRICA

(To be completed by Tenderer if Tenderer is OEM or Local South African Agent)

1	Name of Tenderer (OEM or Local South African Agent) to support the offered equipment	
2	Address	
3	Telephone Number and Area Code	
4	After Hours Contact Details	
5	OEM Manufacturing Location & Years established	
6	Number Of Permanent Skilled Staff	
7	Location of these facilities Technical Support & Repair facilities	
8	Availability of spares in South Africa: State typical lead times (weeks)	
9	Has a QA system for the support facility has been approved in terms of SANS/ISO 9001?	YES/ NO
10	Is a detailed Quality Assurance Plan attached that details the programme of quality control and inspection activities during manufacture, prior to delivery, on completion and installation, the equipment and works to ensure compliance with the requirements of the specification and tendered delivery times?	<u>Document name, number or reference:</u>
11	Is a company organogram attached that details the positions of the Quality Assurance Department, the Project Manager for this Tender and the key Technical personnel with their qualifications and years of post-qualification experience relevant to this particular project listed?	<u>Document name, number or reference:</u>
12	Other relevant details	

TENDERER NAME _____ SIGNED ON BEHALF OF TENDERER _____

Schedule F.13 E: Departures from the Requirements of the Specification

(To be completed by Tenderer)

Clause	Departures from the requirements of this Specification with details of alternative proposals

Note: If the above is insufficient the Tenderer must complete the Schedule by affixing completed numbered copies of Schedule F.13 E.

TENDERER NAME _____ SIGNED ON BEHALF OF TENDERER _____

Schedule F.13 F: OEM, Quality and Environmental Certification

(To be completed by Tenderer for each group of equipment)

ORIGINAL EQUIPMENT MANUFACTURER SUPPORT OF TENDERER CERTIFICATION

OEM Certification as authorised agent. Attached Proof (Tenderers must be an authorised agent with the Original Equipment Manufacturer supported with a Letter/Certificate from OEM to authorise to distribute or resell their product.	Yes/No <u>Document name, number or reference:</u>
OEM Certification to support supplied equipment. Attached Proof (Proven in form of a Letter/Certificate from OEM to authorise supplier to Support product.)	Yes/No <u>Document name, number or reference:</u>

QUALITY ASSURANCE CERTIFICATION OF MANUFACTURER

SANS/ISO 9001 or equivalent Quality Assurance Certification of MANUFACTURER of products Attached Proof Certificate	Yes/No <u>Document name, number or reference:</u>
---	---

ENVIRONMENTAL CERTIFICATION

SANS/ISO 14001 or equivalent Environmental Certification of Disposal company to be used Attached Proof Certificate	Yes/No <u>Document name, number or reference:</u>
---	---

TENDERER NAME _____ SIGNED ON BEHALF OF TENDERER _____

Schedule F.13 H: Details of Circuit Breaker Oil and SF6 Disposal

(To be completed by Tenderer)

1	Tenderer name	
2	Address	
3	Telephone Number and Area Code	
4	Years established	
5	Original Equipment Manufacturer's name	
6	Address	
7	Telephone Number and Area Code	
8	Years established	
9	State whether and Environmental Management System has been approved in terms of SANS/ISO 14001. If yes, state registration No. , and date that registration expires.	YES / NO _____ _____
10	Does the OEM undertake to dispose of the SF ₆ on behalf of the tenderer in the event of the tenderer (distributor) not being able to dispose of the SF ₆ for the duration of this contract and that CCT must not be liable or incur any cost?	YES / NO State attached proof:
11	Does the OEM undertake to dispose of the oil on behalf of the tenderer in the event of the tenderer (distributor) not being able to dispose of the oil for the duration of this contract and that CCT must not be liable or incur any cost?	YES / NO State attached proof:
12	Is a Disposal Plan and Works Method Statements , detailing the quality assurance processes for the environmentally sound disposal of all oil and SF ₆ , attached to this Annexure?	YES / NO State attached proof:

TENDERER NAME _____

SIGNED ON BEHALF OF TENDERER _____

Schedule F.13 I: Drawing summary sheet

(To be completed by Tenderer)

Filename / Drawing number	Drawings supplied as part of the Tender documentation To cover: Dimensioned GA's / Single lines / Schematic / I/O's

*Tender to append copies of this schedule if more space is needed.
 Number of sheets appended by the tenderer to this Schedule (If nil, enter NIL).

TENDERER NAME _____ SIGNED ON BEHALF OF TENDERER _____

Schedule F.13 J: PROPOSED WORK PLAN

(To be completed by Tenderer)

The tenderer must append their proposed work plan to this Schedule.

It should be noted that while a programme may form part of the required work plan, more than a programme is expected in response to this requirement. The work plan must indicate the approach and methodology that the tenderer intends following in order to reach the required outcomes. The work plan must show that the tenderer has appreciated the Scope of Work, and has good insight as to what actions or activities are required in order to comply with the Employer's objectives.

TENDERER NAME _____

SIGNED ON BEHALF OF TENDERER _____

Schedule F.13 K: Commencement Date And Dates Of Readiness For Inspection, Testing And Delivery

(To be completed by Tenderer)

Category A: COMMENCEMENT DATE AND DATES OF READINESS FOR INSPECTION, TESTING AND DELIVERY

1	EQUIPMENT TO BE ORDERED AS AND WHEN REQUIRED OVER A PERIOD OF THREE YEARS	Weeks	
		Specified	Tendered
1.1	Engineering Approval: Times from Contract Commencement Date within which:-		
1.1.1	The drawings detailed in section 46 of the specification (including Equipment arrangements, Equipment details, control and protection scheme schematic diagrams and details of auxiliary equipment) must be submitted for approval	4	
1.2	Equipment Installation and Testing per Substation: Times from issue and acceptance of Works Project Document and receipt of Official Order within which:		
1.2.1	The Contractor will require access to the Site	2	
1.2.2	The equipment will be collected and delivered to Site	2	
1.2.3	Equipment erection will be completed	4	
1.2.4	The Works will be completed, tested and ready for commissioning and continuous use	6	

TENDERER'S SIGNATURE: _____

DATE: _____

Category B: COMMENCEMENT DATE AND DATES OF READINESS FOR INSPECTION, TESTING AND DELIVERY

1	EQUIPMENT TO BE ORDERED AS AND WHEN REQUIRED OVER A PERIOD OF THREE YEARS	Weeks	
		Specified	Tendered
1.1	<u>Engineering Approval: Times from Contract Commencement Date within which:-</u>		
1.1.1	The drawings detailed in section 46 of the specification (including Equipment arrangements, Equipment details, control and protection scheme schematic diagrams and details of auxiliary equipment) must be submitted for approval	4	
1.2	<u>Equipment Manufacture, Testing and Delivery: Times from receipt of official Purchase Order (after completion of Engineering Approval) within which:</u>		
1.2.1	The ordering and delivery to factory of locally manufactured materials and sub-components must be completed	-	
1.2.2	The ordering and delivery to factory of imported materials and sub-components must be completed	-	
1.2.3	Manufacture at the manufacturer's works must commence	-	
1.2.4	The equipment will be ready for factory inspection and testing	18	
1.2.5	The equipment will be delivered to the Employer's Stores	20	
1.3	<u>Equipment Installation and Testing per Substation: Times from issue and acceptance of Works Project Document and receipt of Official Order within which:</u>		
1.3.1	The Contractor will require access to the Site	2	
1.3.2	The equipment will be collected and delivered to Site	2	
1.3.3	Equipment erection will be completed	4	
1.3.4	The Works will be completed, tested and ready for commissioning and continuous use	6	

TENDERER'S SIGNATURE: _____

DATE: _____

Schedule F.13 L: Schedule of Subcontractors

We notify you that it is our intention to employ the following sub-contractors for work (excluding work covered by provisional sums and contingencies) in this contract.

Acceptance of this tender must not be construed as approval of all or any of the listed sub-contractors. Should any of the sub-contractors not be approved subsequent to acceptance of the tender, this must in no way invalidate the contract, and the tendered unit rates for the various items making up the work activities must remain final and binding.

SUBCONTRACTORS (Category A)				
Category/type	Subcontractor Name/ Address/Contact Person/ Phone/Fax/Details of Organisation/Firm Experience	Years established and experience	Work activities to be undertaken by the Sub-contractor	Estimated Value of Work (Rand)
E.g. Installation, commissioning, etc.				
TOTAL (Excluding VAT)				

*Tender to append copies of this schedule if more space is needed.
 Number of sheets appended by the tenderer to this Schedule (If nil, enter NIL).

SIGNED ON BEHALF OF TENDERER:

SUBCONTRACTORS (Category B)				
Category/type	Subcontractor Name/ Address/Contact Person/ Phone/Fax/Details of Organisation/Firm Experience	Years established and experience	Work activities to be undertaken by the Sub-contractor	Estimated Value of Work (Rand)
E.g. Installation, commissioning, etc.				
TOTAL (Excluding VAT)				

*Tender to append copies of this schedule if more space is needed.

Number of sheets appended by the tenderer to this Schedule (If nil, enter NIL).

SIGNED ON BEHALF OF TENDERER:

Schedule F.13 M: Schedule Of Construction Equipment

The tenderer must state below what construction equipment will be available for this Contract. The tenderer must differentiate, if applicable, between construction equipment immediately available and construction equipment which will become available by virtue of outstanding orders, and indicate what further construction equipment will be acquired or hired for the work should he be awarded the Contract.

CONSTRUCTION EQUIPMENT IMMEDIATELY AVAILABLE

DESCRIPTION, SIZE, CAPACITY	NUMBER
E.g. Rigging equipment, crane trucks, test equipment, etc.	

CONSTRUCTION EQUIPMENT ON ORDER

(State details of arrangements made, with delivery dates)

DESCRIPTION, SIZE, CAPACITY	NUMBER

CONSTRUCTION EQUIPMENT THAT WILL BE ACQUIRED OR HIRED

(State details of delivery arrangements)

DESCRIPTION, SIZE, CAPACITY	NUMBER

*Tender to append copies of this schedule if more space is needed.
Number of sheets appended by the tenderer to this Schedule (If nil, enter NIL).

SIGNED ON BEHALF OF TENDERER:

Schedule F.14: Appeal Application

Annexure 'B'

OFFICIAL RECEIPT
 (Valid only if printend
 By official cash
 Receipting machine)

IRISITI ESESIKWENI
 (Isemthethweni kuphela
 xa ishicilelwe
 Ngumatshini wokukhupa
 irisiti osesikweni)

AMPTELIKE KWITANSIE
 (Geldig alleenlik indien deur
 amptelike kontantvangs
 masjien gedruk)

GL DATA CAPTURE RECEIPT
 (CASHIER TO RETAIN A COPY)

Receipt NO: _____
DATE: _____

SAP GL:

8	1	0	1	0	0
---	---	---	---	---	---

PROFIT CENTRE:

1	3	0	5	0	0	0	1
---	---	---	---	---	---	---	---

NAME/COMPANY NAME

AMOUNT

			R	3	0	0	-	0	0
--	--	--	---	---	---	---	---	---	---

SERVICE DEPARTMENT DETAILS:

DEPARTMENT: LEGAL SERVICES: APPEALS UNIT

CONTACT PERSON: CHARLENE CEBEKHULU / MELANIE CLOETE

PHONE NO: 021 400 2503 / 021 400 3788

OFFICIAL RECEIPT
 (Valid only if printend
 By official cash
 Receipting machine)

IRISITI ESESIKWENI
 (Isemthethweni kuphela
 xa ishicilelwe
 Ngumatshini wokukhupa
 irisiti osesikweni)

AMPTELIKE KWITANSIE
 (Geldig alleenlik indien deur
 amptelike kontantvangs
 masjien gedruk)

GL DATA CAPTURE RECEIPT
 (CASHIER TO RETAIN A COPY)

Receipt NO: _____
DATE: _____

SAP GL:

8	1	0	1	0	0
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PROFIT CENTRE:

1	3	0	5	0	0	0	1
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NAME/COMPANY NAME

AMOUNT

			R	3	0	0	-	0	0
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