GEORGE MUNICIPALITY

TENDER NUMBER: ENG019/2022

TENDER FOR THE ENGINEERING, PROCUREMENT, AND CONSTRUCTION OF HYBRID SOLAR PV GENERATING PLANTS, INCLUDING A 24-MONTH OPERATION AND MAINTENANCE PERIOD

ENQUIRIES: Mr. Thabo Yiga YORK STREET GEORGE (073) 801 9247	ISSUED BY: THE CITY COUNCIL MUNICIPALITY OF GEORGE P O BOX 19 GEORGE 6530

SUMMARY FOR TENDER OPENING PURPOSES

NAME OF BIDDER: ……..……

SUPPLIER DATABASE NO.: MAAA ……..…….

TOTAL PRICE (INCLUDING VAT)	R
PREFERENCES CLAIMED FOR:	
B-BBEE Status Level of Contributor:	
Preference Points Claimed:	

B-BBEE certificates submitted with the quotation document MUST be VALID ORIGINAL B-BBEE CERTIFICATES or VALID CERTIFIED COPIES OF THE B-BBEE CERTIFICATES

QUOTATION CLOSES AT 12H00 ON WEDNESDAY, 23 NOVEMBER 2022

BIDDER CONTACT DETAILS

This information shall be used for any correspondence or contact with the bidder.

Please indicate whether you want to receive any correspondence via e-mail or send to your postal address by registered mail.

Name of Bidding Company:		**Mark choice of correspondence with X**
Postal Address:	.... Postal Code:	
E-mail Address:	.....	
Telephone Number:	.....	
Cellular Number:	.....	
Facsimile Number:	.....	

GEORGE MUNICIPALITY

TENDER No. ENG019/2022

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GENERAL TENDER INFORMATION

TENDER ADVERTISED	:20 October 2022
COMPULSORY BRIEFING SESSION	: Friday, 04 November ’22 at 11h00
VENUE FOR BRIEFING SESSION	: Committee Room George Municipal Offices Electro Technical Services Brick Road George Industrial George 6530
CLOSING DATE	: 23 November 2022
CLOSING TIME	: 12H00
LOCATION OF TENDER BOX	: **Tender Box** at the George Municipality, on the First Floor, Directorate: Financial Services, Supply Chain Management Unit, Civic Centre, York Street, George.

GEORGE MUNICIPALITY

DIRECTORATE: ELECTROTECHNICAL SERVICES

CONTRACT NUMBER: ENG019/2022

TENDER FOR THE ENGINEERING, PROCUREMENT, AND CONSTRUCTION OF HYBRID SOLAR PV GENERATING PLANTS, INCLUDING A 24-MONTH OPERATION AND MAINTENANCE PERIOD

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GEORGE MUNICIPALITY

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TENDER FOR THE ENGINEERING, PROCUREMENT, AND CONSTRUCTION OF HYBRID SOLAR PV GENERATING PLANTS, INCLUDING A 24-MONTH OPERATION AND MAINTENANCE PERIOD

The Tender (Part T)

GEORGE MUNICIPALITY

DIRECTORATE: ELECTROTECHNICAL SERVICES

CONTRACT NUMBER: ENG019/2022

TENDER FOR THE ENGINEERING, PROCUREMENT, AND CONSTRUCTION OF HYBRID SOLAR PV GENERATING PLANTS, INCLUDING A 24-MONTH OPERATION AND MAINTENANCE PERIOD

Tenders are hereby invited for the:

ENGINEERING, PROCUREMENT AND CONSTRUCTION OF HYBRID SOLAR PV GENERATING PLANTS, INCLUDING A 24 MONTH OPERATION AND MAINTENANCE PERIOD.

The locations and sizes of the PV installations are as follows:

a. The Electrotechnical Services building in 16 Brick Road – 20 kilo Watt peak (kWp) PV plant with a 60 kWh Lithium iron phosphate (LiFePO4) battery storage + 30 kW hybrid inverter.
b. The Tourism building in 124 York Street – 4kWp PV plant with a 10kWh LiFePO4 battery storage + 8kW hybrid inverter.
c. Schaapkop substation control building in Steinhoff Industrial Park – 2 kWp PV plant with a 10kWh LiFePO4 battery storage + 5 kW hybrid inverter.

Completed tenders in a sealed envelope, clearly marked:

Tender No. ENG 019/2022, must be placed in the tender box at the George Municipality on the First Floor, Department: Financial Services, Supply Chain Management, York Street, George by no later than **12:00** on **Wednesday, 23 November 2022**. Tenders will be opened on the same day in the Committee Room at 12:05. Late or unmarked tenders will not be considered. No posted tenders or tenders per fax or e-mail will be accepted.

A compulsory clarification meeting will be held in the Luminance Room at George Municipality's Electrical Department, Brick Road, Industrial Area, George at 11:00 on Friday, 04 November 2022. Non-attendance of the compulsory site meeting will disqualify your tender. Non-attendance of the compulsory briefing session will disqualify your tender.

Tender documents are available at a non-refundable deposit of R 253-00 each from the Supply Chain Management Unit, First Floor, Civic Centre, York Street, George.

Tender documents are available on the George Municipality's website: www.george.gov.za, free of charge.

Only Tenderers that meet the following pre-qualification conditions may respond:

1. The tenderer must have completed at least one hybrid (solar +batteries) PV installation of any size in the past 10 years and must be willing to provide a contactable referee to verify this.

2. Supply only locally produced goods meeting the following minimum threshold for local production and content:

- **Solar PV Components**
- Laminated PV Modules – 15%
- Module Frame – 65%
- DC Combiner Boxes – 65%
- Mounting Structure – 90%
- Inverter – 40%
- Electrical and telecom cables – 90%
- Smart Meters – 50%
- Steel Products and Components for Construction – 100%

3. A minimum CIDB contractor grading designation of **3EP** or higher, must be registered on the central supplier's database (CSD). The Contractor's grading must, however, be in accordance with the total sum awarded to that particular Contractor.

4. The tendering company or joint venture must have the following key staff: an ECSA-registered Electrical/Mechanical Engineer or Technologist, an ECSA registered Civil/Structural Engineer or Technologist, and a Construction Manager with a PV Greencard Certificate (or similar PV training installation certification). The tendering company is allowed to sub-contract these key staff members.

5. A Tenderer that is registered as an Electrical Contractor with the Department of Labour and which shall remain valid for the duration of the contract.

Tenderers who fail to comply with these conditions will be disqualified.

Tenders will be evaluated and adjudicated in terms of the Preferential Procurement Policy Framework Act (Act 5 of 2000) Regulations 2017 and the George Municipality's Supply Chain Management Policy, where 80 points will be scored for price and 20 points for B-BBEE status.

For more information, contact Mr. Thabo Yiga at (044) 801 9247/ tyiga@george.gov.za.

The Municipality reserves the right to withdraw any invitation to tender and/or to readvertise or to reject any quotation or to accept a part of it. The Municipality is not bound to accept the lowest or any tender.

A TCS PIN for bidders' tax compliance information must be submitted with the tender document.

It will be required for all successful bidders to register on the Central Supplier Database (CSD).

DR M GRATZ
MUNICIPAL MANAGER
GEORGE MUNICIPALITY
GEORGE
6530

GEORGE MUNICIPALITY

DIRECTORATE: ELECTROTECHNICAL SERVICES

CONTRACT NUMBER: ENG010/2022

TENDER NO.: ENG019/2022- TENDER FOR THE ENGINEERING, PROCUREMENT AND CONSTRUCTION OF HYBRID SOLAR PV GENERATING PLANTS, INCLUDING A 24 MONTH OPERATION AND MAINTENANCE CONTRACT

Tender Data (T1.2)

Clause number	The conditions of Tender are the **Standard Conditions of Tender** as contained in the Construction Industry Development Board (CIDB) Standard for Uniformity in Engineering and Construction Works Contracts, August 2019 (See www.cidb.org.za). The Standard Conditions of Tender for Procurements make several references to the Tender Data for details that apply specifically to this Tender. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the standard conditions of Tender. Each item of data given below is cross-referenced to the clause in the Standard Conditions of Tender to which it mainly applies.
C.1	**General**
C.1.1	The Employer is the GEORGE MUNICIPALITY, DIRECTORATE: ELECTROTECHNICAL SERVICES, PO Box 19, George,6530.
C.1.2	**Tender Documents**
	The Tender documents issued by the Employer comprise: **The Tender** **Part T1: Tender Procedures** T1.1 Tender notice and invitation to tender T1.2 Tender data **Part T2 Returnable Documents** T2.1 List of returnable documents T2.1 Returnable schedules T2.2 Other documents required for tender evaluation purposes T2.3. Returnable schedules that will be incorporated in the contract **The Contract** **Part C1: Agreement and contract data** C1.1 Form of offer and acceptance C1.2 Contract data C1.3 Objections and Complainants form **Part C2: Pricing data** C2.1 Pricing instructions C2.2 Pricing Schedule / Bill of Quantities / Activity Schedule **Part C3: Scope of Works** C3.1 Description of the works C3.2 Engineering C3.3 Procurement C3.4 Construction **Part C4: Health and**

	Safety **Specification** **Part C5: Site Information** C5.1: Site Information
C.1.3	**Interpretation**
C.1.3.1	The tender data and additional requirements contained in the tender schedules that are included in the returnable documents are deemed to be part of these conditions of tender.
C.1.3.2	These conditions of tender, the tender data and tender schedules which are required for tender evaluation purposes, shall form part of any contract arising from the invitation to tender/quote.
C.1.3.3	For the purposes of these conditions of tender, the following definitions apply: a) **conflict of interest** means any situation in which: i) someone in a position of trust has competing professional or personal interests which make it difficult to fulfil his or her duties impartially; ii) an individual or tenderer is in a position to exploit a professional or official capacity in some way for their personal or corporate benefit; or iii) incompatibility or contradictory interests exist between an employee and the tenderer who employs that employee. b) **comparative offer** means the price after the factors of a non-firm price and all unconditional discounts it can be utilized to have been taken into consideration; c) **corrupt practice** means the offering, giving, receiving or soliciting of anything of value to influence the action of the employer or his staff or agents in the tender process; d) **fraudulent practice** means the misrepresentation of the facts in order to influence the tender process or the award of a contract arising from a tender offer to the detriment of the employer, including collusive practices intended to establish prices at artificial levels.
C.1.4	**Communication and employer's agent**
	Name: Mr Thabo Yiga Address: 71 York Street, George Tel: (044) 801 9222 E-mail: tyiga@george.gov.za.
C.1.5	**Cancellation and Re-Invitation of Tenders**
C.1.5.1	An employer may, prior to the award of the tender, cancel a tender if- a) due to changed circumstances, there is no longer a need for the engineering and construction works specified in the invitation; b) funds are no longer available to cover the total envisaged expenditure; or c) no acceptable tenders are received. d) there is a material irregularity in the tender process.
C.1.5.2	The decision to cancel a tender invitation must be published in the same manner in which the original tender invitation was advertised.
C.1.5.3	An employer may only with the prior approval of the relevant treasury cancel a tender invitation for the second time.
C.1.6	**Procurement procedures**
C.1.6.1	**General**
	Unless otherwise stated in the tender data, a contract will, subject to C.3.13, be concluded with the tenderer who in terms of C.3.11 is the highest ranked or the tenderer scoring the highest number of tender evaluation points, as relevant, based on the tender submissions that are received at the closing time for tenders.

C.2	**Tenderer's obligations**
C.2.1	**Eligibility**
C.2.1	Only those tenderers who satisfy the following criteria are eligible to submit tenders: a) Only those tenderers who are registered with the CIDB, or are capable of being so prior to the evaluation of submissions, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations, for CE class of construction work, are eligible to have their tenders evaluated. A **3EP** contractor grading designation or higher is anticipated. b) Joint ventures provided that: i) Every member of the joint venture is registered with the CIDB; ii) The lead partner has a contractor grading designation not lower than one level below the required SL designation class of construction work; iii) The combined contractor grading designation calculated in accordance with the Construction Industry Development Board Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for that CE class of construction work or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations; and iv) All members of the joint venture submit copies of the returnable documentation or original copies where it is so stipulated, as well as for the following: • The tax compliance status PIN must be for the Joint Venture / Consortium or individual tax compliance status PIN's for all the members of the Joint Venture. • A valid consolidated BBBEE Verification Certificate must be submitted for the Joint Venture / Consortium, failing which the Tenderer will score zero points for Preference.

<table>
<tr><td>C.2.1.1</td><td>Only Tenderers that meet the following pre-qualification conditions are eligible to have their tenders further evaluated.

a) Quality control practices and procedures which ensure compliance with stated employer's requirements.
(b) Availability of resources.
(c) Capacity to mobilize own and sub-contracting resources.
(d) Availability of skills to manage and perform the contract (assigned personnel).
(e) Quality achievements on previous contracts of a similar nature.
(f) Previous work of a similar nature.

1. Supply only locally produced goods meeting the following minimum threshold for local production and content:

Solar PV Components
• Laminated PV Modules – 15%
• Module Frame – 65%
• DC Combiner Boxes – 65%
• Mounting Structure – 90%
• Inverter – 40%
• Electrical and telecom cables – 90%
• Smart Meters – 50%
• Steel Products and Component for Construction – 100%

For this purpose, the MBD 6.2 – Declaration Certificate for Local Content which is attached under Part T2.2.11 must be completed and duly signed. The exchange rate published by the South African Reserve Bank (SARB) at 12:00 on the date of the advertisement of the tender, and the South African Bureau of Standards (SANS) approved technical specification number SATS 1286:2011 method must be used for the calculation of the local production and content.

2. A minimum CIDB contractor grading designation of 3EP or higher and must be registered on the central supplier's database (CSD). The Contractor's grading must, however, be in accordance with the total sum awarded to that particular Contractor. Proof of the Tenderer's CIDB registration and contractor grading and CSD registration must be submitted with the tender.
Tenderers who fail to comply with these conditions will be disqualified.</td></tr>
<tr><td></td><td>Acknowledge receipt of addenda to the tender documents, which the employer may issue, and if necessary apply for an extension to the closing time stated in the tender data, in order to take the addenda into account.</td></tr>
<tr><td>C.2.7</td><td>The arrangements for a compulsory clarification meeting are:</td></tr>
<tr><td></td><td>Date: 04 November 2022
Starting time: 11h00</td><td>Location: Committee Room, George Municipal Offices, Electro-Technical Services, Brick Road, George Industrial, George.</td></tr>
<tr><td>C.2.11</td><td>Alterations to documents</td></tr>
<tr><td></td><td>Do not make any alterations or additions to the tender documents, except to comply with instructions issued by the employer, or necessary to correct errors made by the tenderer. All signatories to the tender offer shall initial all such alterations.</td></tr>
<tr><td>C.2.12</td><td>No alternative tender offers will be considered.</td></tr>
</table>

C.2.13.1	Submit one tender offer only, either as a single tendering entity or as a member in a joint venture to provide the whole of the works identified in the contract data and described in the scope of works, unless stated otherwise in the tender data.
C.2.13.2	Return all returnable documents to the employer after completing them in their entirety, either electronically (if they were issued in electronic format) or by writing legibly in non-erasable ink.
C.2.13.3	Submit the parts of the tender offer communicated on paper as an original plus the number of copies stated in the tender data, with an English translation of any documentation in a language other than English, and the parts communicated electronically in the same format as they were issued by the employer.
C.2.13.4	Sign the original and all copies of the tender offer where required in terms of the tender data. The employer will hold all authorized signatories liable on behalf of the tenderer. Signatories for tenderers proposing to contract as joint ventures shall state which of the signatories is the lead partner whom the employer shall hold liable for the purpose of the tender offer.
C.2.13.5	Seal the original and each copy of the tender offer as separate packages marking the packages as "ORIGINAL" and "COPY". Each package shall state on the outside the employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address. TheEmployer'saddressfordeliveryoftenderoffersandidentificationdetailsare: George Municipality, First Floor, Directorate: Financial Services, Supply Chain Management Unit, Civic Centre, York Street, George (location of tender box). The identification details are: Tender number **ENG019/2022**
C.2.13.6	A two-envelope system will **not** be followed.
C.2.13.7	Seal the original tender offer and copy packages together in an outer package that states on the outside only the employer's address and identification details as stated in the tender data.
C.2.13.8	Accept that the employer will not assume any responsibility for the misplacement or premature opening of the tender offer if the outer package is not sealed and marked as stated.
C.2.13.9	Accept that tender offers submitted by facsimile or e-mail will be rejected by the employer, unless stated otherwise in the tender data.
C.2.14	**Information and data to be completed in all respects**
	Accept that tender offers, which do not provide all the data or information requested completely and in the form required, may be regarded by the employer as non-responsive.
C.2.15	**Closing time**
C.2.15.1	Ensure that the employer received the tender offer at the address specified in the tender data not later than the closing time stated in the tender data. Accept that proof of posting shall not be accepted as proof of delivery. The closing time for submission of tender offers is at **12H00 on 23 November 2022**
C.2.15.2	Accept that, if the employer extends the closing time stated in the tender data for any reason, the requirements of these conditions of tender apply equally to the extended deadline.
C.2.16	**Tender offer validity**

C.2.16.1	The tender offer validity period is 84 days.
C.2.17	**Clarification of tender offer after submission**
	Provide clarification of a tender offer in response to a request to do so from the employer during the evaluation of tender offers. This may include providing a breakdown of rates or prices and correction of arithmetical errors by the adjustment of certain rates or item prices (or both). No change in the competitive position of tenderers or substance of the tender offer is sought, offered, or permitted.
C.2.18	**Provide other material**
C.2.18.1	Provide, on request by the employer, any other material that has a bearing on the tender offer, the tenderer's commercial position (including notarized joint venture agreements), preferencing arrangements, or samples of materials, considered necessary by the employer for the purpose of a full and fair risk assessment. Should the tenderer not provide the material, or a satisfactory reason as to why it cannot be provided, by the time for submission stated in the employer's request, the employer may regard the tender offer as non-responsive.
C.2.19	**Inspections, tests, and analysis**
	Provide access during working hours to premises for inspections, tests and analysis as provided for in the tender data.
C.2.22	**Return of other tender documents**
	If so instructed by the employer, return all retained tender documents within twenty-eight (28) days after the expiry of the validity period stated in the tender data.
C.2.23	**Certificates**
	Include in the tender submission or provide the employer with any certificates as stated in the tender data.
C.3.4.1	The time and location for opening of the tender offers is: **12h05 on 23 November 2022.** **The Tender Box at the George Municipality is on the First Floor, Directorate:** **Financial Services, Supply Chain Management Unit, Civic Centre, York Street, George.** **Tenders will be opened in the Committee Room**
C.3.11	**Evaluation of tender offers**
	Method 1: Price and Preference will be used 1) Score tender evaluation points for price. 2) Score points for BBBEE contribution. Add the points scored for price and BBBEE to two decimal places
C.3.13	**Acceptance of tender offer**

	Accept the tender offer; if in the opinion of the employer, it does not present any risk and only if the tenderer: a) is not under restrictions, or has principals who are under restrictions, preventing participating in the employer's procurement; b) can, as necessary and in relation to the proposed contract, demonstrate that he or she possesses the professional and technical qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, experience and reputation, expertise and the personnel, to perform the contract; c) has the legal capacity to enter into the contract; d) is not; insolvent, in receivership, under Business Rescue as provided for in chapter 6 of the Companies Act No. 2008, bankrupt or being wound up, has his/her affairs administered by a court or a judicial officer, has suspended his/her business activities or is subject to legal proceedings in respect of any of the foregoing; e) complies with the legal requirements, if any, stated in the tender data; and f) is able, in the opinion of the employer, to perform the contract free of conflicts of interest.
C.3.17	**Provide copies of the contracts**
	Provide to the successful tenderer the number of copies stated in the Tender Data of the signed copy of the contract as soon as possible after completion and signing of the form of offer and acceptance.

B-BBEE certificates submitted with the tender documents MUST be a VALID ORIGINAL B-BEEE CERTIFICATE or VALID CERTIFIED COPY OF THE B-BEE CERTIFICATE.

In the case of a Trust, Consortium or Joint Venture, they will qualify for points for their B-BBEE status level as a legal entity, provided that the entity submits their B-BBEE status level certificate.

TAX COMPLIANCE INFORMATION

PART A

Tax Compliance Status	TCS Pin:		**or**	CSD No:	
B-BBEE Status Level Verification Certificate [Tick Applicable Box]	☐ Yes ☐ No		B-BBEE Status Level Sworn Affidavit		☐ Yes ☐ No
[A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE / SWORN AFFIDAVIT (FORM EMES & QSEs) MUST BE SUBMITTED IN ORDER TO QUALIFY FOR PREFERENCE POINTS FOR B-BBEE]					
Are You The Accredited Representative **In South Africa For The Goods / Services / Works Offered?**	☐ Yes ☐ No [If Yes, Enclose Proof]		Are You A Foreign Based Supplier For **The Goods / Services / Works Offered?**		☐ Yes ☐ No [If Yes, Answer Part 2.]
Signature of Bidder	…….…		Date		…….

PART B
TERMS AND CONDITIONS FOR BIDDING

1. TAX COMPLIANCE REQUIREMENTS

1.1 Bidders must ensure compliance with their tax obligations.
1.2 Bidders are required to submit their unique personal identification number (PIN) issued by SARS to enable the organ of state to view the taxpayer's profile and tax status.
1.3 Application for the tax compliance status (TCS) certificate or PIN may also be made via E-Filing. In order to use this provision, taxpayers will need to register with SARS as E-Filers through the website WWW.SARS.GOV.ZA.
1.4 Foreign suppliers must complete the pre-award questionnaire in part B2.
1.5 Bidders may also submit a printed TCS certificate together with the bid.
1.6 In bids where consortia / joint ventures / sub-contractors are involved; each party must submit a separate TCS certificate / PIN / CSD number.
1.7 Where no TCS is available but the bidder is registered on the Central Supplier Database (CSD), a CSD number must be provided.

2. QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS [Tick Applicable Box]

2.1 Is the entity a resident of the Republic of South Africa (RSA)?	YES	NO
2.2 Does the entity have a branch in the RSA?	YES	NO
2.3 Does the entity have a permanent establishment in the RSA?	YES	NO
2.4 Does the entity have any source of income in the RSA?	YES	NO
2.5 Is the entity liable in the RSA for any form of taxation?	YES	NO

IF THE ANSWER IS "NO" TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO REGISTER FOR A TAX COMPLIANCE STATUS SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 1.3 ABOVE.

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

Signature of Bidder: ……..

Capacity Under Which This Bid Is Signed: ……..

Date: …….

DECLARATION OF INTEREST

1.	No bid will be accepted from persons in the service of the state*.	
2.	Any person, having a kinship with persons in the service of the state, including a blood relationship, may make an offer or offers in terms of this invitation to bid. In view of possible allegations of favouritism, should the resulting bid, or part thereof, be awarded to persons connected with or related to persons in the service of the state, it is required that the bidder 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 bidder or his / her representative: ……..	
3.2	Identity number: ……	
3.3	Position occupied in the Company (director, trustee, shareholder[2]): ……..	
3.4	Company 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 (where applicable) 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 the following particulars: Name of person / director / trustee / shareholder member: …….. Name of state institution at which you or the person connected to the bidder is employed: …….. Position occupied in the state institution: …….. Any other particulars: …….	

	……..	
3.9 3.9.1	Have you been in the service of the state for the past twelve months? If so, furnish particulars. …….. ……..	**YES / NO**
3.10 3.10.1	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? If yes, furnish the following particulars: Name of person: ……. Name of state institution at which you or the person connected to the bidder is employed: …….. Position occupied in the state institution: …….. Any other particulars: ……. ……..	**YES / NO**
3.11 3.11.1	Are you aware of any relationship (family, friend, other) between the bidder and any person in the service of the state who may be involved with the evaluation and or adjudication of this bid? If yes, furnish the following particulars: Name of person: ……. Name of state institution at which you or the person connected to the bidder is employed: …….. Position occupied in the state institution: …… Any other particulars: ……. ……...	**YES / NO**
3.12	Are any of the company's directors, managers, principal	**YES / NO**

	shareholders or stakeholders in the service of the state?	
3.12.1	If yes, furnish the following particulars: Name of person / director / trustee / shareholder / member: …… Name of state institution at which you or the person connected to the bidder is employed: …….. Position occupied in the state institution: …… Any other particulars: …….. ……..……..	
3.13	Is any spouse, child or parent of the company's directors, trustees, managers, principle shareholders or stakeholders in the service of the state?	**YES / NO**
3.13.1	If yes, furnish the following particulars: Name of person / director / trustee / shareholder / member: …… Name of state institution at which you or the person connected to the bidder is employed: …….. Position occupied in the state institution: …… Any other 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: ……..	

	……..	

4. Full details of directors / trustees / members / shareholders:

THE FOLLOWING INFORMATION IS COMPULSORY TO COMPLETE:

Full Name	Identity Number	Individual Tax Number for each Director	State Employee Number (where applicable)

5.	**The contract will be automatically cancelled if there is a conflict of interest which is not disclosed by the bidder.**

Protection of Personal Information Act, 2013 (Act no.4 of 2013) (POPIA)

All parties agree that they will comply with Protection of Personal Information Act, 2013 (Act no.4 of 2013) (POPIA) and process all the information and/or personal data in respect of the goods and/or services being rendered in accordance with the said act and only for the purpose of providing the goods and/or services set out in the agreement to provide such goods and/or services.

The contract between the municipality and the service provider must ensure compliance with the Protection of Personal Information Act, 2013 (Act no.4 of 2013) (POPIA), in that the service provider establishes and maintains security measures to safeguard personal information being processed on behalf of the municipality. The service provider must notify the municipality immediately in an event where there are reasonable grounds to believe personal information has been accessed by an unauthorised person.

The contract with a service provider must ensure confidentiality of personal information processed on behalf of the municipality. A supply contract with a service provider must include standard clauses outlining joint responsibility in terms of the protection of personal information.

…….. ……..

Signature Date

…… ……

Capacity Name of Bidder

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

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

MBD 6.1

PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2017

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

NB: BEFORE COMPLETING THIS FORM, BIDDERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF B-BBEE, AS PRESCRIBED IN THE PREFERENTIAL PROCUREMENT REGULATIONS, 2017.

---

1. GENERAL CONDITIONS

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

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

1.2

a) The value of this bid is estimated to not exceed R50 000 000 (all applicable taxes included) and therefore the 80/20. preference point system shall be applicable; or

b) Either the 80/20 or 90/10 preference point system will be applicable to this tender (*delete whichever is not applicable for this tender*).

1.3 Points for this bid shall be awarded for:

(a) Price; and

(b) B-BBEE Status Level of Contributor.

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

	POINTS
PRICE	
B-BBEE STATUS LEVEL OF CONTRIBUTOR	
Total points for Price and B-BBEE must not exceed	**100**

1.5 Failure on the part of a bidder to submit proof of B-BBEE Status level of

contributor together with the bid, will be interpreted to mean that preference points for B-BBEE status level of contribution are not claimed.

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

2. DEFINITIONS

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

(b) "**B-BBEE status level of contributor"** means the B-BBEE status of an entity in terms of a code of good practice on black economic empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;

(c) **"bid"** means a written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of goods or services, through price quotations, advertised competitive bidding processes or proposals;

(d) **"Broad-Based Black Economic Empowerment Act"** means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);

(e) "EME" means an Exempted Micro Enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9 (1) of the Broad-Based Black Economic Empowerment Act;

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

(g) **"price"** includes all applicable taxes less all unconditional discounts;

(h) **"proof of B-BBEE status level of contributor"** means:

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

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

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

(i) **"QSE"** means a qualifying small business enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9 (1) of the Broad-Based Black Economic Empowerment Act;

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

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

4. POINTS AWARDED FOR PRICE

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

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

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

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

Where

Ps = Points scored for price of bid under consideration

Pt = Price of bid under consideration

Pmin = Price of lowest acceptable bid

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

4.3 POINTS AWARDED FOR PRICE

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

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

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

Where

Ps = Points scored for price of bid under consideration

Pt = Price of bid under consideration

Pmax = Price of highest acceptable bid

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

5.1 In terms of Regulation 6 (2) and 7 (2) of the Preferential Procurement Regulations, preference points must be awarded to a bidder for attaining the B-BBEE status level of contribution in accordance with the table below:

B-BBEE Status Level of Contributor	Number of points (90/10 system)	Number of points (80/20 system)
1	10	20
2	9	18
3	6	14
4	5	12
5	4	8
6	3	6
7	2	4
8	1	2

Non-compliant contributor	0	0

6. BID DECLARATION

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

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

7.1 B-BBEE Status Level of Contributor: . = ……(maximum of 10 or 20 points)

(Points claimed in respect of paragraph 7.1 must be in accordance with the table reflected in paragraph 4.1 and must be substantiated by relevant proof of B-BBEE status level of contributor.

8. SUB-CONTRACTING

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

(***Tick applicable box***)

YES		NO	

8.1.1 If yes, indicate:

i) What percentage of the contract will be subcontracted.....……..……%
ii) The name of the sub-contractor……..
iii) The B-BBEE status level of the sub-contractor.....……..
iv) Whether the sub-contractor is an EME or QSE
(Tick applicable box)

YES		NO	

v) Specify, by ticking the appropriate box, if subcontracting with an enterprise in terms of Preferential Procurement Regulations,2017:

Designated Group: An EME or QSE which is at last 51% owned by:	**EME** √	**QSE** √
Black people		
Black people who are youth		
Black people who are women		
Black people with disabilities		
Black people living in rural or underdeveloped areas or townships		
Cooperative owned by black people		
Black people who are military veterans		
OR		
Any EME		
Any QSE		

9. **DECLARATION WITH REGARD TO COMPANY/FIRM**

Tender Data – Annexure "A" **Part T1.2**

9.1 Name of company/firm:……

9.2 VAT registration number:……

9.3 Company registration number:……

9.4 TYPE OF COMPANY/ FIRM

- Partnership/Joint Venture / Consortium
- One person business/sole propriety
- Close corporation
- Company
- (Pty) Limited

[TICK APPLICABLE BOX]

9.5 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

……
……
……
……
……..

9.6 COMPANY CLASSIFICATION

- Manufacturer
- Supplier
- Professional service provider
- Other service providers, e.g. transporter, etc.

[*TICK APPLICABLE BOX*]

9.7 MUNICIPAL INFORMATION

Municipality where business is situated: …….

Registered Account Number: …….

Stand Number:……..

9.8 Total number of years the company/firm has been in business:……

9.9 I/we, the undersigned, who is / are duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the B-BBE status level of contributor indicated in paragraphs 1.4 and 6.1 of the foregoing certificate, qualifies the company/ firm for the preference(s) shown and I / we acknowledge that:

i) The information furnished is true and correct;

ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;

iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 6.1, the contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct;

iv) If the B-BBEE status level of contributor has been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the purchaser may, in addition to any other remedy it may have –

(a) disqualify the person from the bidding process;

(b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;

(c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;

(d) recommend that the bidder or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted by the National Treasury from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and

(e) forward the matter for criminal prosecution.

WITNESSES 1. …….. 2. ……	…… SIGNATURE(S) OF BIDDERS(S) DATE: …….. ADDRESS …….. …….. ……..

MBD 6.1(a)

SWORN AFFIDAVIT – BBBEE EXEMPTED MICRO ENTERPRISE

SWORN AFFIDAVIT – B-BBEE EXEMPTED MICRO ENTERPRISE

I, the undersigned,

Full name & Surname	
Identity number	

Hereby declare under oath as follows:

1. The contents of this statement are to the best of my knowledge a true reflection of the facts.

2. I am a member / director / owner of the following enterprise and am duly authorised to act on its behalf:

Enterprise Name	
Trading Name	
Registration Number	
Enterprise Address	

3. I hereby declare under oath that:

- The enterprise is _____% black owned;
- The enterprise is _____% black woman owned;
- Based on the management accounts and other information available on the _____ financial year, the income did not exceed R10,000,000.00 (ten million rands);
- Please confirm on the table below the B-BBEE level contributor, **by ticking the applicable box.**

100% black owned	**Level One** (135% B-BBEE procurement recognition)	
More than 51% black owned	**Level Two** (125% B-BBEE procurement recognition)	
Less than 51% black owned	**Level Four** (100% B-BBEE procurement recognition)	

4. The entity is an empowering supplier in terms of **the dti** Codes of Good Practice.

5. I know and understand the contents of this affidavit and I have no objection to take the prescribed oath and consider the oath binding on my conscience and on the owners of the enterprise which I represent in this matter.

6. The sworn affidavit will be valid for a period of 12 months from the date signed by commissioner.

Deponent Signature: _____

Date: _____

_____

Commissioner of Oaths
Signature & stamp

DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT FOR DESIGNATED SECTORS

This Municipal Bidding Document (MBD) must form part of all bids invited. It contains general information and serves as a declaration form for local content (local production and local content are used interchangeably).

Before completing this declaration, bidders must study the General Conditions, Definitions, Directives applicable in respect of Local Content as prescribed in the Preferential Procurement Regulations, 2017, the South African Bureau of Standards (SABS) approved technical specification number SATS 1286:2011 (Edition 1) and the Guidance on the Calculation of Local Content together with the Local Content Declaration Templates [Annex C (Local Content Declaration: Summary Schedule), D (Imported Content Declaration: Supporting Schedule to Annex C) and E (Local Content Declaration: Supporting Schedule to Annex C)].

1. General Conditions

1.1. Preferential Procurement Regulations, 2017 (Regulation 8) make provision for the promotion of local production and content.

1.2. Regulation 8.(2) prescribes that in the case of designated sectors, organs of state must advertise such tenders with the specific bidding condition that only locally produced or manufactured goods, with a stipulated minimum threshold for local production and content will be considered.

1.3. Where necessary, for tenders referred to in paragraph 1.2 above, a two-stage bidding process may be followed, where the first stage involves a minimum threshold for local production and content and the second stage price and B-BBEE.

1.4. A person awarded a contract in relation to a designated sector, may not sub-contract in such a manner that the local production and content of the overall value of the contract is reduced to below the stipulated minimum threshold.

1.5. The local content (LC) expressed as a percentage of the bid price must be calculated in accordance with the SABS approved technical specification number SATS 1286: 2011 as follows:

$$LC = [1 - x / y] * 100$$

Where
x is the imported content in Rand
y is the bid price in Rand excluding value added tax (VAT)

Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by South African Reserve Bank (SARB) at 12:00 on the date of advertisement of the bid as indicated in paragraph 4.1 below.

The SABS approved technical specification number SATS 1286:2011 is accessible on http:/www.thedti.gov.za/industrial development/ip.jsp at no cost.

1.6. A bid may be disqualified if this Declaration Certificate and the Annex C (Local Content Declaration: Summary Schedule) are not submitted as part of the bid documentation;

2. The stipulated minimum threshold(s) for local production and content (refer to Annex A of SATS 1286:2011) for this bid is/are as follows:

Description of services, works or goods	Stipulated minimum threshold
Solar PV Components	
• Laminated PV Modules	– 15%
• Module Frame	– 65%
• DC Combiner Boxes	– 65%
• Mounting Structure	– 90%
• Inverter	– 40%
• Electrical and telecom cables	– 90%
• Smart Meters	– 50%
• Steel Products and Component for Construction	– 100%
•	

3. Does any portion of the goods or services offered have any imported content?
(***Tick applicable box***)

YES		NO	

3.1 If yes, the rate(s) of exchange to be used in this bid to calculate the local content as prescribed in paragraph 1.5 of the general conditions must be the rate(s) published by SARB for the specific currency at 12:00 on the date of advertisement of the bid.

The relevant rates of exchange information is accessible on www.reservebank.co.za

Indicate the rate(s) of exchange against the appropriate currency in the table below (refer to Annex A of SATS 1286:2011):

Currency	**Rates of exchange**
US Dollar	R18,34
Pound Sterling	R20,53
Euro	R17,93
Yen	
Other	

NB: Bidders must submit proof of the SARB rate (s) of exchange used.

3. Where, after the award of a bid, challenges are experienced in meeting the stipulated minimum threshold for local content the dti must be informed accordingly in order for the dti to verify and in consultation with the AO/AA provide directives in this regard.

LOCAL CONTENT DECLARATION
(REFER TO ANNEX B OF SATS 1286:2011)

LOCAL CONTENT DECLARATION BY CHIEF FINANCIAL OFFICER OR OTHER LEGALLY RESPONSIBLE PERSON NOMINATED IN WRITING BY THE CHIEF EXECUTIVE OR SENIOR MEMBER/PERSON WITH MANAGEMENT RESPONSIBILITY (CLOSE CORPORATION, PARTNERSHIP OR INDIVIDUAL)

IN RESPECT OF BID NO. .....

ISSUED BY: (Procurement Authority / Name of Institution):
.....
NB

1 The obligation to complete, duly sign and submit this declaration cannot be transferred to an external authorized representative, auditor or any other third party acting on behalf of the bidder.

2 Guidance on the Calculation of Local Content together with Local Content Declaration Templates (Annex C, D and E) is accessible on http://www.thdti.gov.za/industrial_development/ip.jsp. Bidders should first complete Declaration D. After completing Declaration D, bidders should complete Declaration E and then consolidate the information on Declaration C. **Declaration C should be submitted with the bid documentation at the closing date and time of the bid in order to substantiate the declaration made in paragraph (c) below.** Declarations D and E should be kept by the bidders for verification purposes for a period of at least 5 years. The successful bidder is required to continuously update Declarations C, D and E with the actual values for the duration of the contract.

I, the undersigned, ……..... (full names), do hereby declare, in my capacity as …… ……..
of .....(name of bidder entity), the following:

(a) The facts contained herein are within my own personal knowledge.

(b) I have satisfied myself that:

(i) the goods/services/works to be delivered in terms of the above-specified bid comply with the minimum local content requirements as specified in the bid, and as measured in terms of SATS 1286:2011; and

(c) The local content percentage (%) indicated below has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 4.1 above and the information contained in Declaration D and E which has been consolidated in Declaration C:

Bid price, excluding VAT (y)	R
Imported content (x), as calculated in terms of SATS 1286:2011	R
Stipulated minimum threshold for local content (paragraph 3 above)	

Local content %, as calculated in terms of SATS 1286:2011	**Various**

If the bid is for more than one product, the local content percentages for each product contained in Declaration C shall be used instead of the table above.
The local content percentages for each product has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 4.1 above and the information contained in Declaration D and E.

(d) I accept that the Procurement Authority / Institution has the right to request that the local content be verified in terms of the requirements of SATS 1286:2011.

(e) I understand that the awarding of the bid is dependent on the accuracy of the information furnished in this application. I also understand that the submission of incorrect data, or data that are not verifiable as described in SATS 1286:2011, may result in the Procurement Authority / Institution imposing any or all of the remedies as provided for in Regulation 14 of the Preferential Procurement Regulations, 2017 promulgated under the Preferential Policy Framework Act (PPPFA), 2000 (Act No. 5 of 2000).

SIGNATURE: _____ **DATE:** _____

WITNESS No. 1 _____ **DATE:** _____

WITNESS No. 2 _____ **DATE:** _____

Annex C

Local Content Declaration – Summary Schedule

(C1)	Tender No.	ENG019/2022			Note: VAT to be excluded from calculations
(C2)	Tender description:	EPC For Hybrid Solar PV Plants at Three Municipal Sites			
(C3)	Designated product(s)				
(C4)	Tender Authority:	George Municipality			
(C5)	Tendering Entity name:				
(C6)	Tender Exchange Rate:		Pula -	EU -	GBP -
(C7)	Specified local content %			17,93	20,53

		Calculation of local content							Tender summary			
Tender Item no's	List of Items	Tender price – each (excl VAT)	Exempted imported value	Tender value net of exempted imported content	Imported value	Local value	Local content % (per item)		Tender quanitity	Total tender value	Total exempted imported content	Total imported content
(C8)	(C9)	(C10)	(C11)	(C12)	(C13)	(C14)	(C15)		(C16)	(C17)	(C18)	(C19)
								(C20) Total tender value		R.....		
								(C21) Total Exempt imported content			R.....	
								(C22) Total Tender value net of exempt imported content			R.....	
								(C23) Total Imported content				R.....
								(C24) Total local content				R.....
								(C25) Average local content % of tender				%

Signature of tenderer from Annex B: .....Date: ……

Annex D

SATS 1286.2011

Imported Content Declaration – Supporting Schedule to Annex C

(D1)	Tender No.	ENG019/2022			Note: VAT to be excluded from calculations
(D2)	Tender description:	EPC for Hybrid PV Plants at Three Municipal Sites			
(D3)	Designated product(s)				
(D4)	Tender Authority:	George Municipality			
(D5)	Tendering Entity name:				
(D6)	Tender Exchange Rate:		Pula -	EU – 17,93	GBP – 20,53

A. Exempted imported content

				Calculation of imported content							Summary	
Tender Item no's	Description of imported content	Local supplier	Overseas Supplier	Foreign currency value as per commercial invoice	Tender Exchange Rate	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl VAT		Tender Quantity	Exempted imported value
(D7)	(D8)	(D9)	(D10)	(D11)	(D12)	(D13)	(D14)	(D15)	(D16)		(D17)	(D18)
									(D19) Total exempt imported value			R.....
											This total must correspond with Annex C-C21	

B. Imported directly by the Tenderer

				Calculation of imported content							Summary	
Tender Item no's	Description of imported content	Unit of measure	Overseas supplier	Foreign currency as per commercial invoice	Tender Exchange Rate	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl VAT		Tender Quantity	Total imported value
(D20)	(D21)	(D22)	(D23)	(D24)	(D25)	(D26)	(D27)	(D28)	(D29)		(D30)	(D31)
									(D32) Total imported value by Tenderer			R.....

Annex D (contd.)

C. Imported by a 3rd party and supplied to the Tenderer

				Calculation of imported content							Summary	
Description of imported content	Unit of measure	Local supplier	Overseas Supplier	Foreign currency value as per commercial invoice	Tender rate of exchange	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl VAT		Quantity imported	Total imported value
(D33)	(D34)	(D35)	(D36)	(D37)	(D38)	(D39)	(D40)	(D41)	(D42)		(D43)	(D44)
									(D45) Total imported value by 3rd party			R.....

D. Other foreign currency payments

			Calculation of foreign currency payments	
Type of payment	Local supplier making the payment	Overseas beneficiary	Foreign currency value paid	Tender rate of exchange
(D46)	(D47)	(D48)	(D49)	(D50)

	Summary of payments
	Local value of payments
	(D51)
(D52) Total of foreign currency payments declared by tenderer and/or 3rd party	R.....
(D53) Total of imported content & foreign currency payments – (D32), (D45) & (D52) above	R.....
	This total must correspond with Annex C – C23.

Signature of tenderer from Annex B: ……

Date: ……

Annex E

SATS 1286.2011

Local Content Declaration – Supporting Schedule to Annex C

(E1)	Tender No.	ENG019/2022
(E2)	Tender description:	EPC for Hybrid PV Plants at Three Municipal Sites
(E3)	Designated product(s)	
(E4)	Tender Authority:	George Municipality
(E5)	Tendering Entity name:	

Local Products (Goods, Services and Works)	Description of items purchased	Local suppliers	Value
	(E6)	(E7)	(E8)
	(E9) Total local products (Goods, Services and Works)		R……..
(E10) [redacted]	(Tenderer's manpower cost)		R……..
(E11) [redacted]	(Rental, depreciation & amortisation, utility costs, consumables, etc)		R……..
(E12) [redacted]	(Marketing, insurance, financing, interest, etc)		R……
	(E13) Total local content		R……..
			This total must correspond with Annex C – C24

MBD8

DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

1 This Municipal Bidding Document must form part of all bids invited.

2 It serves as a declaration to be used by municipalities and municipal entities in ensuring that when goods and services are being procured, all reasonable steps are taken to combat the abuse of the supply chain management system.

3 The bid of any bidder may be rejected if that bidder, or any of its directors have:

3.1 abused the municipality's / municipal entity's supply chain management system or committed any improper conduct in relation to such system;
3.2 been convicted for fraud or corruption during the past five years;
3.3 willfully neglected, reneged on or failed to comply with any government, municipal or other public-sector contract during the past five years; or
3.4 been listed in the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004).

4 In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.

Item	Question	Yes	No
4.1	Is the bidder or any of its directors listed on the National Treasury's database as a company or person prohibited from doing business with the public sector? (Companies or persons who are listed on this database were informed in writing of this restriction by the National Treasury after the *audi alteram partem* rule was applied). **The Database of Restricted Suppliers now resides on the National Treasury's ebsite (www.treasury.gov.za) and can be accessed by clicking on its link at the bottom of the home page.**	Yes ☐	No ☐
4.1.1	If so, furnish particulars:		

4.2	Is the bidder or any of its directors listed on the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004)? **The Register for Tender Defaulters can be accessed on the National Treasury's website (www.treasury.gov.za) by clicking on its link at the bottom of the home page.**	Yes ☐	No ☐
4.2.1	If so, furnish particulars:		
4.3	Was the bidder or any of its directors convicted by a court of law (including a court of law outside the Republic of South Africa) for fraud or corruption during the past five years?	Yes ☐	No ☐
4.3.1	If so, furnish particulars:		
Item	**Question**	**Yes**	**No**
4.4	Does the bidder or any of its directors owe any municipal rates and taxes or municipal charges to the municipality / municipal entity, or to any other municipality / municipal entity, that is in arrears for more than three months?	Yes ☐	No ☐
4.4.1	If so, furnish particulars:		
4.5	Was any contract between the bidder and the municipality / municipal entity or any other organ of state terminated during the past five years on account of failure to perform on or comply with the contract?	Yes ☐	No ☐
4.5.1	If so, furnish particulars:		

CERTIFICATION

I, THE UNDERSIGNED (FULL NAME) ……..……

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

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

……...	**……..…..…**
Signature	**Date**
……	**……..…..**
Position	**Name of Bidder**

MBD 9

CERTIFICATE OF INDEPENDENT BID DETERMINATION

1. This Municipal Bidding Document (MBD) must form part of all bids[1] invited.

2. Section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by, firms, or a decision by an association of firms, if it is between parties in a horizontal relationship and if it involves collusive bidding (or bid rigging).[2] Collusive bidding is a *pe se* prohibition meaning that it cannot be justified under any grounds.

3. Municipal Supply Regulation 38(1) prescribes that a supply chain management policy must provide measures for the combating of abuse of the supply chain management system, and must enable the accounting officer, among others, to:

   3.1 take all reasonable steps to prevent such abuse;
   3.2 reject the bid of any bidder if that bidder or any of its directors has abused the supply chain management system of the municipality or municipal entity or has committed any improper conduct in relation to such system; and
   3.3 cancel a contract awarded to a person if the person committed any corrupt or fraudulent act during the bidding process or the execution of the contract.

4. This MBD serves as a certificate of declaration that would be used by institutions to ensure that, when bids are considered, reasonable steps are taken to prevent any form of bid-rigging.

5. In order to give effect to the above, the attached Certificate of Bid Determination (MBD9) must be completed and submitted with the bid:

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

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

MBD 9

CERTIFICATE OF INDEPENDENT BID DETERMINATION

I, the undersigned, in submitting the accompanying bid:

_____
(Bid Number and Description)

in response to the invitation for the bid made by:

GEORGE MUNICIPALITY

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

I certify, on behalf of:_____that:
(Name of Bidder)

6. I have read and I understand the contents of this Certificate;

7. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect;

8. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;

9. Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign, the bid, on behalf of the bidder;

10. For the purposes of this Certificate and the accompanying bid, I understand that the word "competitor" shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:

    10.1 has been requested to submit a bid in response to this bid invitation;
    10.2 could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and
    10.3 Provides the same goods and services as the bidder and/or is in the same line of business as the bidder.

MBD9

11 The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However communication between partners in a joint venture or consortium[3] will not be construed as collusive bidding.

12 In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:

12.1 prices;
12.2 geographical area where product or service will be rendered (market allocation);
12.3 methods, factors or formulas used to calculate prices;
12.4 the intention or decision to submit or not to submit, a bid;
12.5 the submission of a bid which does not meet the specifications and conditions of the bid; or bidding with the intention not to win the bid.

13 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.

14 The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.

15 I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No. 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No. 12 of 2004 or any other applicable legislation.

…….…… ……
Signature Date

…… ……
Position Name of Bidder

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

Tender Data – Annexure "A" **Part T1.2**

CERTIFICATE FOR MUNICIPAL SERVICES (COMPULSORY TO COMPLETE)

Information required in terms of the Supply Chain Management Regulations, Regulation 28 (1) (c).

Tender Number: ENG019 OF 2022
Name of the Bidder: _____

DETAILS OF THE BIDDER/S: Owner / Proprietor / Director(s) / Partner(s), etc:

Physical Business address of the Bidder	Municipal Account Number(s)

If there is not enough space for all the names, please attach the additional details to the Tender document.

Name of Director / Member / Partner	Identity Number	Physical **residential** address of Director / Member / Partner	Municipal Account number(s)

I, _____, the undersigned,
(full name in block letters)
certify that the information furnished on this declaration form is correct and that I/we have no undisputed commitments for municipal services towards a municipality or other service provider in respect of which payment if overdue for more than 30 days.

_____
Signature

THUS DONE AND SIGNED for and on behalf of the Bidder / Contractor

at _____ on the _____ day of _____ 2022

PLEASE NOTE:

MUNICIPAL ACCOUNTS FOR ALL PROPERTIES OWNED BY BIDDER/S MUST BE ATTACHED TO THE TENDER DOCUMENT!
Even if the requested information is not applicable to the Bidder, the table above should be endorsed NOT APPLICABLE with a reason and THIS DECLARATION MUST STILL BE COMPLETED AND SIGNED. In the event of leasing, a lease agreement MUST be attached to the tender document.

GEORGE MUNICIPALITY

DIRECTORATE: ELECTROTECHNICAL SERVICES

CONTRACT NUMBER: ENG019/2022

TENDER FOR THE ENGINEERING, PROCUREMENT, AND CONSTRUCTION OF HYBRID SOLAR PV GENERATING PLANTS, INCLUDING A 24-MONTH OPERATION AND MAINTENANCE PERIOD

Returnable Documents (Part T2)

(ALL Documents and Schedules MUST BE RETURNED for the TENDER to Qualify)

NOTE:

Although the documents under Part T2 is headed “Returnable Documents” in line with the CIDB model, these are not the only documents to be returned together with the Tender. **All** the documents indicated on document T1, must be completed and signed where applicable and submitted as a **complete set of documents**.

GEORGE MUNICIPALITY

DIRECTORATE: ELECTROTECHNICAL SERVICES

CONTRACT NUMBER: ENG019/2022

TENDER FOR THE ENGINEERING, PROCUREMENT, AND CONSTRUCTION OF HYBRID SOLAR PV GENERATING PLANTS, INCLUDING A 24-MONTH OPERATION AND MAINTENANCE PERIOD

List of Returnable Schedules Required for Tender Evaluation Purposes (T2.1)

FORM 2.1.1 GENERAL INFORMATION

1. Name of tendering entity: _____

1. Contact details

Address : _____

_____

Tel no : (_____)_____

Fax no : (_____)_____

E-mail address : _____

2. Legal entity: Mark with an **X**.

Sole proprietor	
Partnership	
Close corporation	
Company (Pty) Ltd	
Joint venture	

In the case of a Joint venture, provide details on joint venture members:

Joint venture member	Type of entity (as defined above)

3. Income tax reference number: _____
(in the case of a joint venture, provide for all joint venture members)

4. Regional services area where the enterprise is registered: _____
(In the case of a joint venture, provide for all joint venture members)

5. Regional services levy registration number:_____
(In the case of a joint venture, provide for all joint venture members)

6. VAT registration number:_____ (In the case of a joint venture, provide for all joint venture members)

8. Company or closed corporation registration number: _____ (In the case of a joint venture, provide for all joint venture members)

9. Details of proprietor, partners, closed corporation members, or company directors, indicating technical qualifications where applicable (Form on the next page).

10. For joint ventures the following must be attached (**COMPULSORY**):

- Written power of attorney for authorised signatory.
- **Pro-forma of the joint venture agreement.**
  *** If the Joint Venture Agreement is not attached, the tender will not be considered!**

DETAILS OF PROPRIETOR, PARTNERS, CLOSED CORPORATION MEMBERS OR COMPANY DIRECTORS

Name and Identity Number	Relevant qualifications and experience	Years of relevant experience

No.	Pre-Qualifying Criteria	Please tick
1.	Tenderer has a CIDB contractor grading designation of 3EP or higher and is registered on the Central Suppliers Database (CSD).	YES ☐ NO ☐
2.	Has successfully completed at least one hybrid (PV + batteries) solar installation of any size in the past 10 years and has included details of a contactable referee or a Certificate of Practical Completion signed by the client or their Agent. A Practical Completion Certificate has been attached.	YES ☐ NO ☐
3.	Obtained Local Content Exemption from the Department of Trade, Industry and Competition. Letter attached.	YES ☐ NO ☐
4.	Has an ECSA registered Electrical/Mechanical Engineer or Technologist with some post registration experience in PV installations. ECSA registration certificate has been attached.	YES ☐ NO ☐
5.	Has an ECSA registered Structural/Civil Engineer or Technologist to design and sign off the steel structures required for the Tourism building. At least one member of the team shall have a PV Greencard Certificate or similar PV installation training certificate. Attachments of the required documents have been provided with the tender.	YES ☐ NO ☐
6.	The Guaranteed Performance (as shown on the tenderer's design simulations) for each of the three PV plants is at least 75%. Design simulation reports for the three sites are attached.	YES ☐ NO ☐
7.	Registered as an Electrical Contractor with the Department of Employment and Labour. Attached valid registration certificate.	YES ☐ NO ☐

Name of Tendering Entity : _____

Signature : _____ **Date :** _____

FORM 2.1.2 AUTHORITY FOR SIGNATORY

Details of person responsible for Tender process

Name .....

Contact number ( ) .....

Address of office submitting the Tender .....

.....

.....

Telephone no ( ) .....

Fax no ( ) .....

E-mail address .....

Signatories for close corporations and companies shall confirm their authority by attaching to this form a **duly signed and dated original or certified copy** of the relevant resolution of their members or their board of directors, as the case may be.

"By resolution of the board of directors passed on *(date)* .....

Mr. .....

has been duly authorized to sign all documents in connection with the Tender for Contract Number ……and any Contract which may arise there from on behalf of

(BLOCK CAPITALS) .....

.....

.....

SIGNED ON BEHALF OF THE COMPANY .....

IN HIS CAPACITY AS .....

DATE .....

FULL NAMES OF SIGNATORY .....

AS WITNESSES 1. ……..

2. ……...

FORM 2.1.3 SCHEDULE OF WORK CARRIED OUT BY TENDERER

Previous experience

Provide the following information on relevant previous experience (indicate specifically projects of similar or larger size and/or which is similar with regard to type of work. In addition to any requirements, bidders must furnish particulars of:

a. all consultancy services provided to an organ of state in the last five years;
b. any similar consultancy services provided to an organ of state in the last five years.

This information is material to the award of the Contract.

Description	Value (R, VAT excluded)	Year(s) executed	Reference		
			Name	Organisation	Tel no

Name of Tendering Entity: _____

Signature : **Date :** _____

FORM 2.1.4 PROPOSED KEY PERSONNEL

The Tenderer shall list below the key personnel (including first nominee and the second-choice alternate), whom he proposes to employ on the project should his Tender be accepted, both at his headquarters and on the Site, to direct and for the execution of the work, together with their qualifications, experience, positions held and their nationalities.

DESIGNATION	NAME OF **NOMINEE / ALTERNATE**	NATIONALITY:	SUMMARY OF **QUALIFICAT-IONS AND NQF STATUS**	**EXPERIENCE AND PRESENT OCCUPATION**	**HDI Status Yes/No**	**Fee (Time Based)**
HEADQUARTERS Partner/director						
Project manager						
Other key staff (give designation)						

Name of Tendering Entity : _____

Signature : _____ **Date :** _____

Form 2.1.4 continued ….

DESIGNATION	NAME OF **NOMINEE / ALTERNATE**	NATIONALITY:	SUMMARY OF **QUALIFICAT-IONS AND NQF STATUS**	**EXPERIENCE AND PRESENT OCCUPATION**	**HDI Status** **Yes/No**	**Fee (Time Based)**
CONSTRUCTION MONITORING Engineer on Site						
Other key staff (give designation)						

Name of Tendering Entity : _____

Signature : _____ **Date :** _____

FORM 2.1.5 SCHEDULE OF INFRASTRUCTURE AND RESOURCES

Provide information on the following:

Infrastructure and resources available

Physical facilities

Description	Address	Area (m^2)

Equipment

Provide information on equipment and resources that you have available for this project (attach details if the space provide is not enough):

Description : Equipment owned	Number of units
Description : Computer Hardware	**Number of units**
Description : Software to be Used	**Number of units**

Size of enterprise and current workload

What was your turnover in the previous financial year? .....

What is the estimated turnover for your current financial year? .....

Returnable Schedules Required For Tender Evaluation **Part T2.1**

List your current contracts and obligations

Description	Value ®	Start date	Duration	Expected completed date

Do you have the capacity to supply the goods and services described in this Tender, should the contract be awarded to you?

Staffing Profile

Provide information on the staff that you have available to execute this contract (attach a separate list if the space provided is insufficient)

Permanently employed staff : gender and race	Number of staff
Temporary staff to be employed for the project : gender and race	**Number of staff**

Name of Tendering Entity : _____

Signature : _____ **Date :** _____

FORM 2.1.6 SCHEDULE OF APPROACH AND METHODOLOGY/ WORK PLAN

Understanding the terms of reference / brief

1. Do you as the contractor understand what is required in terms of the project stated above?

Yes		No		(Tick Appropriate Block)

2. If you answered Yes to question 1 above, please explain briefly your understanding of the project in no more than 50 words:

3. Considering questions 1 and 2 above, please provide in summary, details of your proposed approach and work plan to the successful completion of the above project.

4. Briefly state if you have any innovative approach for this particular project mentioned above, that you feel will be unique but also economically superior to the normal workable approach at presently undertaken as the norm.

Name of Tendering Entity : _____

Signature : _____ **Date :** _____

FORM 2.1.7 SCHEDULE OF PROPOSED SUB-CONTRACTORS

The Tenderer shall, in accordance with the provisions of condition of Tender, list below the sub-contractors he/she proposes to employ for part(s) of the work.

If any or all of the sub-contractor/s listed hereunder are not approved subsequent to acceptance of the Tender, it shall in no way invalidate the Tender or the Contract, and the Tendered unit rates for the respective items of work shall remain final and binding even if sub-contractor/s not listed below is approved by the Employer.

PART OR TYPE OF WORK	PROPOSED SUB-CONTRACTOR	WORK RECENTLY EXECUTED BY SUB-CONTRACTOR

FORM 2.1.8 FINANCIAL REFERENCES

FINANCIAL STATEMENTS

I/We agree, if required, to furnish an audited copy of the latest set of financial statements together with my/our Directors' and Auditors' report for consideration by the Employer.

DETAILS OF TENDERING ENTITY'S BANK

I/We hereby authorize the Employer/Engineer to approach all or any of the following banks for the purposes of obtaining a financial reference:

DESCRIPTION OF BANK DETAIL	BANK DETAILS APPLICABLE TO TENDERER 'S HEAD OFFICE
Name of bank	
Branch name	
Branch code	
Street address	
Postal address	
Name of manager	
Telephone number	( )
Fax number	( )
Account number	

GEORGE MUNICIPALITY

DIRECTORATE: ELECTROTECHNICAL SERVICES

CONTRACT NUMBER: ENG019/2022

TENDER FOR THE ENGINEERING, PROCUREMENT, AND CONSTRUCTION OF HYBRID SOLAR PV GENERATING PLANTS, INCLUDING A 24-MONTH OPERATION AND MAINTENANCE PERIOD

Other Documents Required For Tender Evaluation Purposes (Part T2.2)

Form 2.2.1	Certificate of Tenderer's Attendance at the Compulsory Information Session/Meeting
Form 2.2.2	Written Proof of Tenderers registration at the Construction Industry Development Board (CIDB)

FORM 2.2.1 CERTIFICATE OF TENDERER'S ATTENDANCE AT THE COMPULSORY CLARIFICATION MEETING

This is to certify that I, ... ,

representative of (Tenderer) .....

.....

of (address) .....

.....

.....

Telephone number .....

Fax number .....

attended Clarification Meeting on **Friday, 04 November 2022 at 11:00** in the company

of (George Municipality / Employer's Representative) .....

PLEASE NOTE:
Tenderers are requested to submit the minutes received at above-mentioned compulsory information session/meeting with their Tender documents. (Non-submission of this information may lead to rejection of this Tender)

TENDERER 'S REPRESENTATIVE: .....

GEORGE MUNICIPALITY / EMPLOYER'S REPRESENTATIVE: .....

FORM 2.2.2 PROOF OF REGISTRATION AT THE CONSTRUCTION INDUSTRY DEVELOPMENT BOARD (CIDB)

The Tenderer is to affix to this page
:

- Written proof of Tenderers registration at the CIDB

GEORGE MUNICIPALITY

DIRECTORATE: ELECTROTECHNICAL SERVICES

CONTRACT NUMBER: ENG010/2022

TENDER FOR THE ENGINEERING, PROCUREMENT, AND CONSTRUCTION OF HYBRID SOLAR PV GENERATING PLANTS, INCLUDING A 24-MONTH OPERATION AND MAINTENANCE PERIOD

Returnable Schedules that will be Incorporated in the Contract (Part T2.3)

Form 2.2.3 Record of Addenda to Tender Documents

FORM 2.2.3 RECORD OF ADDENDA TO TENDER DOCUMENTS

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

	Date	**Title or Details**
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Attach additional pages if more space is required.

Signed: ……..…….. Date: ……

Name: ……..…. Position: ……..

SIGNED ON BEHALF OF TENDERER: .....

1. **Infrastructure and resources available**
   Evaluation of the following in terms of the size, nature and complexity of goods and/or services required:
   - Physical facilities
   - Infrastructure and resources available for the contract owned by the Tenderer
   - Infrastructure and resources the Tenderer intends renting, should the contract be awarded to him.

2. **Size of enterprise, and current workload**
   Evaluation of the Tenderer's position in terms of:
   - Previous and expected current annual turnover
   - Current contractual obligations
   - Capacity to execute the contract

3. **Staffing profile**
   Evaluation of the Tenderer's position in terms of:
   - Staff available for this contract being Tendered for
   - Qualifications and experience of key staff to be utilized on this contract.

4. **Previous experience**
   Evaluation of the Tenderer's position in terms of his previous experience. Emphasis will be placed on the following:
   - Experience in the relevant technical field
   - Experience of contracts of similar size
   - Some or all of the references will be contacted to obtain their input.

5. **Financial ability to execute the contract**
   Evaluation of the Tenderer's financial ability to execute the contract. Emphasis will be placed on the following:
   - Professional indemnity
   - Contact the Tenderer's bank manager to assess the Tenderer's financial ability to execute the contract and the Tenderer hereby grants his consent for this purpose.

   If the Tender does **not** meet the requirements contained in the George Municipality Procurement Policy, and the mentioned framework, it will be rejected by the Council, and may not subsequently be made acceptable by correction or withdrawal of the non-conforming deviation or reservation.

6. **Penalties**
   The George Municipality will if upon investigation it is found that a preference in terms of the Act and these regulations has been obtained on a fraudulent basis, or any specified goals are not attained in the performance of the contract, on discretion of the Departmental Head, one or more of the following penalties will be imposed:
   - Cancel the contract and recover all losses or damages incurred or sustained from the Tenderer.
   - Impose a financial penalty of twice the theoretical financial preference associated with the claim, which was made in the Tender.
   - Restrict the Tenderer, its shareholders and directors on obtaining any business from the George Municipality for a period of 5 years.

Good standing with SA Revenue Services

Attach a valid **original tax clearance certificate** to the **second page of your Tender document.**

PLEASE NOTE: In case of a **Joint Venture**, the valid **original tax clearance certificate/s of all the partners in the Joint Venture,** must be **submitted** with the Tender document.

ONLY THE VALID ORIGINAL TAX CLEARANCE CERTIFICATE/S FROM SARS WILL BE ACCEPTED, CERTIFYING THAT THE TAXES OF THAT PERSON TO BE IN ORDER, OR THAT SUITABLE ARRANGEMENTS HAVE BEEN MADE WITH SARS.

Compliance with Employment Equity Act 55 of 1998

Attach a valid certificate from the Department of Labour, or a declaration (Refer to Equity Ownership Table) by the designated EMPLOYER, that the EMPLOYER complies with the relevant chapters of the Employment Equity Act.

A failure to comply with the above is sufficient ground for rejection of any offer to conclude an agreement or for cancellation of the agreement.

Definitions in terms of the last mentioned Act.

"designated EMPLOYER means-

a) a EMPLOYER who employs 50 or more employees;
b) a EMPLOYER who employees fewer than 50 employees, but has a total annual turnover that is equal to or above the applicable annual turnover of a small business in terms of Schedule 4 to this Act."

"Schedule 4"

TURNOVER THRESHOLD APPLICABLE TO DESIGNATED EMPLOYERS

Sector or sub sector in accordance with the Standard Industrial Classification	Total annual turnover
Agriculture	R 2,00 m
Mining and Quarrying	R 7,50 m
Manufacturing	R 10,00 m
Electricity, Gas and Water	R 10,00 m
Construction	R 5,00 m
Retail and Motor Trade and Repair Services	R 15,00 m
Wholesale Trade, Commercial Agents and Allied Services	R 25,00 m
Catering, Accommodation and other Trade	R 5,00 m
Transport, Storage and Communications	R 10,00 m
Finance and Business Services	R 10,00 m
Community, Social and Personal Services	R 5,00 m

GEORGE MUNICIPALITY

DIRECTORATE: ELECTROTECHNICAL SERVICES

CONTRACT NUMBER: ENG010/2022

TENDER FOR THE ENGINEERING, PROCUREMENT, AND CONSTRUCTION OF HYBRID SOLAR PV GENERATING PLANTS, INCLUDING A 24-MONTH OPERATION AND MAINTENANCE PERIOD

The Contract (Part C)

Part C1	Agreement and Contract Data
Part C2	Pricing Data
Part C3	Scope of Works

GEORGE MUNICIPALITY

DIRECTORATE: ELECTROTECHNICAL SERVICES

CONTRACT NUMBER: ENG010/2022

TENDER FOR THE ENGINEERING, PROCUREMENT, AND CONSTRUCTION OF HYBRID SOLAR PV GENERATING PLANTS, INCLUDING A 24-MONTH OPERATION AND MAINTENANCE PERIOD

Agreement And Contract Data (Part C1)

Form of Offer and Acceptance **Part C1.1**

GEORGE MUNICIPALITY

DIRECTORATE: ELECTROTECHNICAL SERVICES

CONTRACT NUMBER: ENG010/2022

TENDER FOR THE ENGINEERING, PROCUREMENT, AND CONSTRUCTION OF HYBRID SOLAR PV GENERATING PLANTS, INCLUDING A 24-MONTH OPERATION AND MAINTENANCE PERIOD

To: The Municipal Manager, George Municipality

The undersigned, carrying on business under the name of .....…….

.....……

hereby offer to execute and complete to the entire satisfaction of the Electrotechnical Services Director, the requirements as tendered for in strict accordance with the Conditions of Tender, the Contract Specification and both General and either Special or Supplementary Conditions of Contract, as applicable, and Schedules of Prices relating thereto, for the total sum of:

THE OFFERED TOTAL OF THE PRICES FOR THE COMPLETE PROJECT, INCLUSIVE OF VALUE ADDED TAX

IS……

…… (in words)

…… (in figures)

I/We further undertake that this offer shall not be retracted or withdrawn for and during the time period stated in clause F.2.16 of the Conditions of Tender, from the date of closing of the tenders and may be accepted at any time during the said period without prejudice to any penalty which may otherwise be incurred.
In the event of the acceptance of this offer, either wholly or in part, this offer, together with your written acceptance thereof, shall constitute a binding contract between us.

ADDRESS:
.....….....……

..... POSTAL CODE:.....……

TELEPHONE NO: .....….....FAX NO: ….....……

AREA CODE: .....

E-MAIL ADDRESS: ……

NAME OF TENDERER'S CONTACT PERSON: …….

Note: Owing to errors in tenders on a number of occasions by certain firms, tenderers are requested to take every care in submitting tenders since in future the Committee will abide strictly by the Conditions of Tender and the Conditions of Contract.

Is your price ***firm*** delivered? ..... If not ***firm***, are all your basic rates detailed in the ***Schedule of Omissions and Variations*** (Page 65 of Part C1.1) .....…… …..
Discount: For prompt settlement within 30 days of receipt of statement or equipment, whichever is the later; ☐☐, ☐☐☐%. (Tenderers must please note that any settlement discounts offered shall also be applied to claims for contract price adjustments. eg. Labour, Materials, Transport, Rate of Exchange, Escalation etc.)
Is your firm listed by the South African Bureau of Standards as a firm whose quality Management system complies with SABS Code of Practice ISO 9001 : 2008, Quality Systems, in respect of the products covered by this contract? ....

Further details regarding country of origin and place of manufacture should be given on the next page ***Omissions and Variations***, if necessary.

OMISSIONS AND VARIATIONS

Notes and Explanatory Remarks by the Tenderer

To be filled in where necessary by the Tenderer, whose attention is drawn to the Conditions of Contract and/or Conditions of Tender.

ACCEPTANCE OF APPOINTMENT / TENDER CONDITIONS / STATUTORY OBLIGATIONS *

NOTE: The successful tenderer will be required to complete and sign pages 66 to 69 of C1.1 before commencing work. These are only included in order to inform tenderers what their obligations will be in this regard, should they be successful.

1	Contractor's Business Trading Name and Address		
	Contractor's Contact Person - Name :		
	Telephone :	Cell :	
		Fax :	

2	Contractor's Responsible Person - Name :		
	Telephone :	Cell :	
		Fax :	

3	Contractor's Safety Representative's Name (where applicable)	

4	I, _____ (Name of Contractor personally or representative legally entitled to sign – PRINT PLEASE) acknowledge that we accept and agree to abide by all the terms and conditions of the Tender Invitation and this Contract Specification and the applicable Conditions of Contract as well as the Statutory Conditions printed overleaf.

5	Contractor's Compensation Commissioner's Registration Number: .....……..... [In terms of the Compensation for Occupational Injuries and Diseases Act - (COID Act:130 of 1993)]

	Signed: _____ Date: _____ (Contractor or Representative – named above)
6	Signed:_____ Date: _____ (George Project Manager - as witness)

***** **NOTE**:A separate form is to be completed and signed by the Contractor as well as any agent or sub-contractor of his/hers.

NB!! IN THE TEXT BELOW THE WORD "CONTRACTOR" SHALL BE REPLACED BY AND MEAN CONSULTANT AND SHALL ONLY BE VALID AS FAR AS IT IS APPLICABLE TO CONSULTANTS

1. STATUTORY REQUIREMENTS

1.1 OCCUPATIONAL HEALTH AND SAFETY ACT (OHS ACT)

Any equipment, where applicable, offered against this specification and all work carried out shall conform to and comply with the relevant requirements of the *Occupational Health and Safety Act - (Act 85 of 1993)* as amended, and/or the regulations framed thereunder [as amended].

1.2 COMPENSATION FOR OCCUPATIONAL INJURIES AND DISEASES ACT (COID ACT)

The contractor will be expected to familiarise himself/herself with and comply with all the relevant provisions of the *Compensation for Occupational Injuries and Diseases Act - (Act 130 of 1993)* and/or the regulations framed thereunder [as amended].

1.3 UNEMPLOYMENT INSURANCE ACT (UIF)

The contractor will be expected to familiarise himself/herself with and comply with all the relevant provisions of the *Unemployment Insurance Act - (ACT 30 OF 1996)* and/or the regulations framed thereunder [as amended].

1.4 LABOUR RELATIONS ACT

The contractor shall familiarise himself/herself with the content of the *Labour Relations Act - (Act 66 of 1995)* and/or regulations framed thereunder [as amended] and shall adhere to the Act in all relevant respects.

1.5 BASIC CONDITIONS OF EMPLOYMENT ACT

The contractor shall familiarise himself/herself with the content of the *Basic Conditions of Employment Act - (Act 75 of 1997)* and/or the regulations framed thereunder [as amended] and shall adhere to the Act in all relevant respects.

NOTE: *All costs which might be necessary to comply with these or other statutory requirements not specifically mentioned, in any way, including the provision of any necessary/suitable equipment/materials must be allowed for in the tender price and shall be at the cost and for the full account of the successful tenderer (contractor).*

2. EXTENT OF CONTRACTOR'S OBLIGATIONS: Section 37 (2) of the OHS Act.

The Municipality and the Contractor agree, in terms of the provisions of Section 37(2) of the Occupational Health & Safety Act, 1993 (Act 85 of 1993), as amended, hereinafter referred to as *the Act*, that the following arrangements and procedures shall apply between them to ensure compliance by the Contractor with the provisions of the Act, namely:

(a) The Contractor undertakes that the appropriate officials and employees of the Contractor will fully acquaint themselves with all relevant provisions of the Act and the regulations promulgated in terms of the Act;

(b) The Contractor undertakes that all relevant duties, obligations and prohibitions imposed in terms of the Act and regulations will be fully compiled with;

(c) The Contractor hereby accepts sole liability for such due compliance with the relevant duties, obligations and prohibitions imposed by the Act and regulations, and expressly absolves the Municipality from itself being obliged to comply with any of the aforesaid duties, obligations and prohibitions;

(d) The Contractor agrees that any duly authorised officials of the Municipality shall be entitled (although not obliged) to take such steps as may be necessary to ensure that the Contractor has complied with his undertakings as set out more fully in paragraph (a) and (b) above, which steps may include, but will not be limited to, the right to inspect any appropriate site or premises occupied by the Contractor, or to inspect any appropriate records held by the Contractor;

(e) The Contractor shall be obliged to report to the Municipality any investigation, complaint or criminal charge which may arise as a consequence of the provisions of the Act and Regulations, pursuant to work performed in terms of this Contract, and shall, on written demand, provide full details in writing, of such investigation, complaint or criminal charge.

3. SAFETY CONDITIONS: Construction Regulations, 2003.

The Contractor shall develop and fully maintain, on an ongoing basis, a Health and Safety Plan as per the Construction Regulations of 2003 in terms of the OHS Act of 1993.

All work undertaken by the Contractor and any agents or sub-contractors employed by him/her in terms of this Contract shall strictly comply with any relevant safety requirements called for in any of the Statutory Requirements laid out in Clause (1) above.

It is the responsibility of the Contractor to acquaint himself/herself with such requirements and to ensure that his/her work force are also aware of these requirements and comply with them at all times.

All statutory safety equipment that may be required shall be supplied by the Contractor and it shall be used by his/her workers who must be instructed in its proper use.

The Contractor and any agents or sub-agents shall not carry out any operating or work on Council plant or the electrical reticulation infrastructure.

INDEMNITY

I, the undersigned,

in my capacity as Director / Member / Partner / Trustee / Owner of

(hereinafter referred to as the contractor) and hereby warranting my authority to depose hereto,

hereby indemnify and safeguard The George Municipality having an office at Civic Centre, York Street, George, or its successors in title (hereinafter referred to as the Municipality), and its employees, agents, mandatories, or independent contractors against all action, suits, proceedings, claims, costs and expenses of whatsoever nature which may arise out of or in connection with any damages, loss, death or injury which may be suffered by any employee, agent or representative of the contractor or sub-contractor engaged by the contractor as a result of any act or omission on behalf of the Municipality or its employees, agents, mandataries, or independent contractors, arising from their attendance upon the property of the Municipality and/or arising out of works executed for and on behalf of the Municipality.

SIGNED: ..... DATE: .....

PLACE: ..... WITNESS: .....

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✸ ***The FIDIC General Conditions of Contract are not issued with the Tender documents. These are protected by copyright.***

TABLE OF CONTENTS

The following clauses amplify the General Conditions of Contract and highlight areas in that document that require specific attention, and where further details are required to suit the particular circumstances of each contract and the specific locality of the Works. These variable clauses which must be specially prepared to suite each particular contract should cover such of the undermentioned matters and any others as are applicable.

NB: Certain information below is to be supplied by the successful Tenderer (Contractor) and will be included from his submissions with his tender.

Notes: i) The clause numbers below refer to the actual numbering in the (FIDIC) General Conditions of Contract.
ii) The clauses which are shaded/printed in bold require/contain specific information for each particular tender.

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CLAUSE

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GEORGE MUNICIPALITY

DIRECTORATE: ELECTROTECHNICAL SERVICES

CONTRACT NUMBER: ENG010/2022

TENDER FOR THE ENGINEERING, PROCUREMENT, AND CONSTRUCTION OF HYBRID SOLAR PV GENERATING PLANTS, INCLUDING A 24-MONTH OPERATION AND MAINTENANCE PERIOD

NB: Certain information below is to be supplied by the successful Tenderer (Contractor) and will be included from his submissions with his tender:

Clause 1 **General Provisions**

The (FIDIC) General Conditions are, by enlarge, based on the fact that the Contractor had access to the single site associated with the (once-off) contract. Hence the logic underlining the General Conditions is that the Contractor could have been able, by inspection, to familiarize himself with all circumstances surrounding the site and that he could have made financial provision in his quote for the prevailing circumstances

Clause 1.1 **Definitions**

New (N) Definitions

1.1.N.1 **Practical Completion**

Means the works have passed the Practical Completion Test as defined in the George Standard and the Facility is accepted for the purposes of Commercial Operation. The *defects* period of 36 months begins and the *O&M* period of 24 months begin.

1.1.N.2 **Final Completion**

Means the works have passed the Final Acceptance Tests as defined in the George Standard and the Facility has demonstrated guaranteed performance expectations and is defect-free. The *defects* period an *O&M* period conclude.

1.1.N.3 **FOB Escalation**

If part or all of a price is subject to Rate of Exchange variations, the escalation applicable to the FOB part of the price. Unless otherwise stated in Employer's requirements, such escalation shall only be applied once per calendar year, i.e. the FOB in the foreign currency shall remain fixed for the first year of the contract after which it shall be escalated once. It shall then remain fixed for another year after which it will be escalated a second time.

1.1.N.4 **Latent Defect**

Means a defect in the Works or a Section (excluding fair wear and tear) which is attributable to:

- The design of the Works done by the Contractor;
- Plant, Materials or workmanship not being in accordance with the contract or reasonable acceptable international standards;
- Improper operation and maintenance which is attributable to matters for which the Contractor is responsible;
- Failure of the Contractor to comply with any other obligation under the Contract; and / or;
- Error made by the Contractor, his personnel, subcontractors; and any of their associates.

Existing Definitions

1.1.1.1 **Contract**

Add to the last sentence: “or in the Memorandum of Pre-Award negotiations”.

1.1.1.6 **Schedules**

The definition of schedules shall be understood to include parts T2.1, T2.2, C1.1 and C2.2 of the tender suite.

1.1.1.9 **Appendix to Tender**

There shall be no pages entitled “appendix to tender”. All references in the General Conditions of Contract to “Appendix to Tender” shall mean (this) Particular Conditions of Contract.

1.1.2.2 **Employer.** The Employer is George Local Municipality
1.1.2.4 **Engineer.** The Engineer is Thabo Yiga and Danie Greeff

1.1.3.3 **Time for Completion**

The time for completion shall be that offered by the Contractor in the Summary page of Section C2.2 (Bill of Prices) if requested by the relevant schedules, alternatively the time stated by the Contractor in his Letter of Tender, or as negotiated with the Employer.

1.1.3.7 **Defects Notification Period**

36 Months

Clause 1.2 **Interpretation**

Shall also include:

a) Where figures are referred to in numerals and in words, if there is any conflict between the two the words shall prevail;
b) Drawings, reports and or data and information issued to the Contractor by the Engineer or Employer or Employer’s Representative (other than drawings, reports and or data and information forming part of the Contractor’s Requirements) shall, unless specifically otherwise notified in writing by the Contractors Representative, be for information purposes only;
c) Termination of the Contract for any cause shall not release a Party from any liability which at time of termination has already accrued to such Party or which thereafter any accrue in respect of any act or omission prior to termination. Similarly, the termination of the Contract shall not release a Party from any obligation which by its nature, is intended to survive such termination.
d) The terms “inspect” and “test” and their derivatives include checking, examining, measuring, surveillance, auditing, and or testing as required in terms of the Contract;
e) The term “experienced Contractor” in the Agreement shall be construed and interpreted to mean an experienced international Contractor whit adequate skills, capacity, capability, resources, historical record of performance, etc.

Clause 1.3 **Communications**

(a) Emails shall be considered an acceptable way of electronic transmission provided that the receipt of mails is acknowledged by return mails.

(b) The Employer’s mail address :

PO Box 19
George
6530

The Employer’s physical address :

16 Brick Road
George Industria
George

Clause 1.4 **Law and Language**

The governing law shall be : The law of the Republic of South Africa.

Special attention is drawn to the following Acts:

- Occupational Health and Safety Act (OHS Act)
- Compensation for Occupational Injuries and Diseases Act (COID Act)
- Unemployment Insurance Act (UIF)

- Labour Relations Act
- Basic Conditions of Employment Act

The language for communication is : English

Clause 1.6 **Contract Agreement**

There shall be no Contract Agreement. The Letter of acceptance shall reference all documents making up the Contract. Once receipt of the Letter of Acceptance has been confirmed by the Contractor together with his (the Contractor's) agreement to the content of the Letter of Acceptance, Contract shall have the meaning as defined by clause 1.1.1.1 in the General Conditions.

Clause 2.1 **Right of Access to the Site**

The Contractor shall apply in writing to the Employer for access to a site at least 14 days prior to the date by which access is required. This time shall be considered built into the Time for Completion.

Authority for Access to a secured site

The contractor, shall, at least 48 hours before commencing work on a **secured** site, hand to the Engineer, a list of all persons under his employ who may be likely to come onto the site during the currency of the Contract. This list shall be kept up to date.

Whilst on site, all employees of the Contractor and the Contractor himself shall carry an acceptable form of identification issued by the Contractor, which identification shall be shown on demand to any authorised representative of the Employer.

Every employee of the Contractor and the Contractor himself shall accept that whilst on the site or upon entering or leaving the site, his person, vehicle and possessions may be searched by any authorised representative of the Employer.

In the event of the Employer issuing to the Contractor or his employees an identification card, such card shall be shown on demand to any authorised representative of the Employer.

Clause 2.4 **Employer's Financial Arrangements**

No evidence shall be provided by the Employer. Any further clauses in the General Conditions making reference to such evidence provision (e.g. 8.1 (b)) shall hence be null and void by this deletion.

Clause 3.1 **Engineer's Duties and Authority**

The Engineer could be a staff member of the Employer.

At the end of Sub-Clause 3.1, insert:

d) without derogating from the authority vested in the Engineer, any decision made by the Engineer that has an effect on costs, time extension and waiving of any rights of the Employer as per the Contract, will be referred to the Employer for acceptance and reduced in writing via an Addendum to the contract signed by the Employer

Clause 4.1 **Contractor's General Obligations**

Add the following to clause 4.1 in the General Conditions:

Drawings and Manuals

The Contractor shall submit to the Engineer for approval :

a) Within 28 days upon request or on the dates clearly stipulated on the programme, all drawings, samples, patterns and models as may be called for in the Employer's Requirements;

b) During the progress of the Works, within such reasonable times as the Engineer may require, such Drawings of the general arrangement and details of the Works as the Engineer may reasonably require, provided that the Contractor shall not be under any obligation to supply copies of shop drawings.

Within **28 days** after receiving such Drawings, samples, patterns and models , the engineer shall signify his approval or otherwise and, if the Engineer fails to signify his approval or otherwise within **28 days**, they shall be deemed to be approved. The Contractor shall supply additional copies of the approved Drawings in accordance with the details set out in the Specification. If the Engineer shall not approve any Drawing, sample, pattern or model so provided the same shall be forthwith to meet the reasonable requirements of the engineer and shall be resubmitted. Approved Drawings shall be signed or otherwise identified by the Engineer.

c) Drawings approved as above described shall not be departed from except as provided in Clause 13. (Variations and Adjustments).

d) The Engineer shall have the right at all reasonable times to inspect at the premises of the Contractor all Drawings of any portion of the Works.

e) The Contractor shall, within the times named in the Specification or in accordance with the programme, provide Drawings showing the manner in which the Plant is to be affixed together with all information relating to the Works, required for preparation suitable foundations, for providing suitable access for the Plant and any necessary equipment to the point on Site where the Plant is to be erected and for making all necessary connections to the Plant (whether such connections are to be made by the Contractor under the Contract or not).

f) Subject to sub-clause (a) of Errors and Mistakes below, any expenses resulting from an error or omission in or from delay in delivery of the Drawings and information mentioned in Sub-Clause (e) of this Clause shall be borne by the Contractor.

g) The Contractor shall furnish to the Employer, before the Works are taken over, Operating and Maintenance Instructions together with Drawings (other than shop drawings) of the Works as completed, in sufficient detail to enable the Employer to maintain, dismantle, reassemble and adjust all parts of the Works. Unless otherwise agreed, the Works shall not be considered to be completed for the purpose of taking over under the terms of Clause 10 (Employer's Taking Over) until such instructions and Drawings have been supplied to the Employer.

Errors and Mistakes

a) The contractor shall be responsible for any discrepancies, errors or omissions in the Drawings and information supplied by him, whether they have been approved by the Engineer or not, provided that such discrepancies, errors or omissions are not due to incorrect Drawings or inaccurate information furnished to the Contractor in writing by the Employer or the Engineer.

b) The Contractor shall at his own expense carry out all alterations or remedial work necessitated by reason of such discrepancies, errors or omissions for which he is responsible and modify the Drawings and information accordingly, or, if the same be done by or on behalf of the Employer because of the Contractor's failure to undertake same, the Contractor shall bear all costs reasonably incurred therein. The performance of his obligations under this Sub-Clause shall be in full satisfaction of the Contractor's liability under Sub-Clause (a) above and under Sub-Clause (f) of Drawings and Manuals (above), but shall not relieve him of his liability under Clause 8.7 (Delay Damages) insofar as that liability arises as a result of such discrepancies, errors or omissions.

c) The Employer shall be responsible for Drawings and information supplied by the Employer or the Engineer in writing and for the details of special work specified by either of them. The Employer shall pay to the Contractor for alterations of the work necessitated by reason of incorrect Drawings or information so supplied to the Contractor a sum ascertained and determined in like manner to the valuation of variations under Clause 13 (Variations and Adjustments).

Clause 4.2 **Performance Security**

The Contractor shall furnish a Performance Security, by way of an on-demand (unconditional) guarantee

from a bank or insurer registered in South Africa. The guarantee shall be issued in an amount equal to the percentage, indicated below, of the total Contract Price.

The said guarantee shall expire upon issue of the verified *Taking-Over Certificate* (once the Employer has Taken Over the complete Works).

Percentage	5 %

Clause 4.7 **Setting Out**

At the end of the first paragraph of Sub-Clause 4.7, insert:
There will be no original points, lines and levels of reference supplied by the Employer other than the information provided in the proposed site layout drawings and site descriptions forming parts of the Employers Requirements in the Tender Documents. Any other point, lines and levels required for correct setting out shall be provided by the Contractor as part of the survey and design work to be performed by the Contractor.

The Contractor shall use surveyors with relevant experience. The surveyors shall be subjected to an approval procedure as specified for sub-contractors in SCC 4.4.

Clause 4.8 **Safety Procedures**

(d) & (e) In the case of multi year contracts constituting rates, as opposed to an “Accepted Contract Amount”, the Employer shall pay for these items using rates in the Bill.

At the end of Sub-Clause 4.8, add the following paragraph:

The Contractor is obliged to keep his own safety devices for his work

Permit to Work will be issued to the Contractor’s authorised responsible site representative, who must be present on the Site during the whole time the work the Permit to Work is valid for is carried out.

All Permits to Work must be in writing.

Request to enter into and/or work in the vicinity of live parts, shall be forwarded to the Employer/Engineer at least one week prior to the beginning of such work together with a list of persons participating in the work.

Clause 4.10 **Site Data**

Site Information is provided in Section C5
All goods are to be suitable for long and trouble-free service under full load conditions in a corrosive salt-laden atmosphere at the sea coast, in areas subject to occasional lightning storms, frequent severe wind storms and periods of high humidity and condensation, and high sun temperatures. The ambient temperature ranges are from -5°C minimum to 40°C maximum with a daily average not exceeding 35°C. For wind pressure, refer to **GEOE Standard 003**.

GEOE Standard 002 contains a complete set of site data that the equipment must be able to withstand.

The Contractor warrants that all goods are to be finished for serviceable use under these atmospheric conditions. Where galvanising is not called for in the Contract Specification all ferrous parts are to be thoroughly descaled and primed with not less than two coats of Zinc Chromate primer and finished with at least one coat of gloss paint. Unless otherwise specified the finished colour shall be battleship grey.

All moving parts such as retaining bolts, screws, cover hinges, clips, shafts etc., that are unavoidably exposed to the weather shall be of non-corrodible metal or other materials. There shall be no possibility of corrosion or accumulations of dirt or insects causing any deterioration in the operation of any part of the equipment.

All equipment must be easily accessible for repairs, maintenance and removal for replacement purposes.

Clause 4.13 **Rights of Way and Facilities**

In the case of multi year contracts constituting rates, as opposed to an “Accepted Contract Amount”, the Employer shall pay the Contractor for these items using rates in the Bill.

Clause 4.15 **Access Route**

In the case of multi year contracts constituting rates, as opposed to an “Accepted Contract Amount”, the Employer shall pay for these items using rates in the Bill.

Clause 4.19 **Electricity, Water and Gas**

The cost of electricity and water usage shall be included in the contractor’s Preliminary and Generals. The municipality will provide a connection point for the electricity, but it is the contractor’s responsibility to get the power from it’s source to where it will be utilised.

Water and 230 V electricity are available. Exact positions of availability to be indicated at tender briefing meeting.

Clause 4.20 **Employer’s Equipment and free-issue materials**

Equipment and facilities to be provided by the Employer (if any):	None
Free issue material	None

Clause 4.21 **Progress Reports**

A single copy is required.

Clause 6.5 **Working Hours**

At the end of Sub-Clause 6.5, insert:

Shall be the normal working hours recognised in the district of the particular site. No Sunday work is allowed.

Subject to any provision to the contrary contained in the Contract, the Contractor shall have the option to work outside the normal working hours and on locally recognised days of holidays, except for Sundays on agreement with the Employer.

Clause 6.13 **Supply of Foodstuffs**

The Contractor shall be fair in allowing staff access to food stuffs in a way mutually agreed between the Contractor and his Personnel.

Clause 7.4 **Testing**

Testing and Commissioning shall be performed in accordance with George Standard GEOE 004.

Clause 7.7 **Ownership of Plant and Material**

Add a clause (c) :

When the Contractor is paid his claim against Plant and Material Intended for the Works (clause 14.5 of the General Conditions.)

Clause 7.8 **Royalties**

In the case of multi year contracts constituting rates, as opposed to an "Accepted Contract Amount", the Employer shall pay for these items using rates in the Bill.

Clause 8.1 **Commencement of Works**

(a) There shall be no Contract Agreement.

Clause 8.7 **Delay Damages**

Percentage reduction (penalty) of Contract Price	1% of Contract Price per Week
Maximum reduction permissible	10%

Clause 11.12 **Latent Defects Liability**

The Latent Defects Liability period shall be 60 months (5 years) from Completion; and the following shall apply:

The Contractor shall, notwithstanding the issue of the Performance Certificate, at the cost and risk of the Contractor, execute all work required to remedy Latent Defects as may be notified by (or on behalf) by the Engineer on or before the expiry date of the Latent Defects Notification Period for the Contract Works or Section of Works.

If the Contractor fails to remedy or rectify the latent design defect, then clause 11.4 shall apply mutatis mutandis.

If the work or remedying of any such Latent Defect may affect the performance of the Works, the Engineer may require repetition if any tests and inspections as may be necessary at the Contractors costs.

The Latent Design Defect shall be attended to within 14 days of receipt of the Engineers notice or as may be agreed by both parties.

Clause 12.3 **Evaluation**

Multi year contracts of the nature where orders are placed as the need arises, shall not be subject to (a) points (i) to (iv).

Clause 13.5 **Provisional Sums**

(b) (ii)	% rate	0%

Clause 13.8 **Adjustments for Changes in Cost**

For all Contracts the rates in Part C2.2 shall remain fixed for the first year of the Contract.

This clause shall apply for all multi year contracts and / or contracts where the Contractor has indicated in his offer that his price is not fixed, regardless of whether a table of adjustment data was supplied in the schedules or not. The Price adjustment will be applicable from month 13 of the Contract.
RoE and CPA (see next clause) cannot be claimed on the "same portion" of any line item in the Bill.

Contract Price Adjustment (CPA):
Only changes underwritten or covered by SEIFSA will be allowed. These need not necessarily be only those covered by the standard SEIFSA publication, so long as SEIFSA "supports" the relevant changes.

Tenderers shall, as part of their offer, submit all escalation formula in table format if escalation is applicable. The formula shall be numbered to allow easier reference to the rates in Part C2.2.

The following must be noted with regards to the EPC Work and Operations & Maintenance:

EPC Work

All the rates in Part C2.2 shall remain fixed for the first year of the Contract. At the beginning of month 13, after contract award, all rates shall be subject to the escalation formula listed in Part C2.2 for the specific item. The adjusted prices will remain fixed for year 2 of the contract, after which it will be adjusted one last time. I.e. the prices will only be adjusted twice during the course of the three-year contract.

Operations and Maintenance
The Operations and Maintenance for Construction Works will only commence after Practical Completion has been reached. All the rates in Part C2.2 shall remain fixed for the first year of the Contract. Annually thereafter, beginning at month 13, all rates shall be subject to the escalation formula listed in Part C2.2 for the specific item.

Imported goods
Where goods are imported and the Contractor has indicated in his tender that his price(s) (or part thereof) is subject to rate of exchange variations, the exchange rates below shall be used as base rates. These rates are supplied by a commercial bank (not the central bank of the country) and can be adjusted directly by the actual exchange rate at either the date of order (by the Contractor from his suppliers) or the date of payment (of the Contractor to his suppliers) or a combination of these 2 options. The Contractor shall specify clearly in his Tender which of these dates would be applicable, and in the case of both dates, in what ratio.

Over and above adjustments for exchange rate variations, the FOB portion could also be escalated to reflect adjustments in labour and material costs (called FOB escalation to distinguish it from CPA adjustments for non-imported goods). Should the Contractor have indicated in his tender that FOB escalation shall apply, the following rules are applicable :

FOB escalation shall be based on one of the following methods :

(a) South African SEIFSA indices, or ;
(b) The country of origin's version of SEIFSA indices, or ;
(c) South African CPIX, or ;
(d) The CPIX of the country of origin.

The Contractor shall state clearly in his tender which of the methods shall be employed.

The base cost (L_0, E_0, etc.) shall either be that stated in the relevant indices, or in the absence thereof, the average for the month prior to the month in which the tender period started.

The current cost (Ln, En, etc.) shall be that defined by the indices, and in the absence thereof, the 49 days specified by the General Conditions shall apply.

It shall be the Contractor's responsibility to provide full proof to the satisfaction of the Engineer of all base and adjusted data required to calculate adjusted rates or prices.

1 US $	=	18,34	ZAR	(Refer to Conditions of Tender)
1 Euro	=	17,93	ZAR	(Refer to Conditions of Tender)
1 British Pound	=	20,53	ZAR	(Refer to Conditions of Tender)

Local goods and labour
The base cost (L_0, E_0, etc.) shall either be that stated in the relevant indices, or in the absence thereof, the average for the month prior to the month in which the tender period started.

The current cost (Ln, En, etc.) shall be that defined by the indices, and in the absence thereof, the 49 days specified by the General Conditions shall apply.

Rates of Exchange (ROE)

Preference may be given to offers not subject to RoE variations.
In multi-year Contracts (only), Tenderers will be allowed to request a fixed % annual increase to the base price (in the foreign currency!) for items subject to ROE variations, to allow for the inflation rate of the country from where the goods are imported. Should Tenderers follow this route, the base price quoted

shall be valid and fixed (i.e. only subject to ROE and not CPA) until the 1st of the month following tender closing + 12 months. The price will then be adjusted once and the revised base price shall be valid for the next 12 months, at which stage it shall be adjusted for a second and last time.

Example :

Assume the tender closes on 29 August 2013.

Assume the ZAR to US$ exchange rate on the Base Date for RoE : R 10 = 1 US$, and

Item 1 = R 1000 based on 90% subject to RoE to the US$ (= R100 + $US 90).

Assume the Tender requested a fixed % annual increase on the imported base price of 2%.

On 1 Sep 2014 (The 1st of the month following tender closing + 12 months), the price of Item 1 could be adjusted to R100 + (1.02 x $US 90) = R 100 + $US 91.8.

Often the R 100 in the example above is not allowed to be escalated, as it constitutes the profit. However, the items purchased under this Contract could be a combination of local and imported goods and escalation of the “R 100” would be allowed providing the Tenderer has clearly spelled out the rules for escalation in his bid.

Clause 14.2 **Advance Payment**

No advance payment shall be applicable. It is not allowed by the Employer’s financial standing orders.

Clause 14.3 **Application for Interim Payment Certificates.**

(c) Retention (%) : 20% per material claim

Limit of Retention : 5% of the Contract Price.

Clause 14.4 **Schedule of Payments**

There is no Schedule of Payments.

Clause 14.5 **Plant and Materials intended for the Works**

All non-miscellaneous material listed in C2.2 (The Bill) shall be considered “listed for payment when delivered to site.

(b) Delete the entire section (b).

(c) Section (c) is applicable to the Contract.

Payment shall be 80% of the Engineer’s determination, but the price of the material (excluding labour) in the Bill, minus retention.

Clause 14.6 **Issue of Interim Payment Certificates**

Minimum amount of Payment Certificate : R 20 000.00

Clause 14.8 **Delayed Payment**

Central Bank : South African Reserve Bank

Clause 14.9 **Payment of Retention Money**

Substitution of last 50% of retention for a guarantee allowed ? : No. The full last half of the retention money shall be kept for the duration of the Defects Notification Period.

Clause 14.15 **Currencies of Payment**

	Currencies for Payment	: Only South African Rand allowed
Clause 17.6	**Limitation of Liability**	
	Multiplier	: 1.2
Clause 17.7	**Use of Employer's Accommodation / Facilities**	: None
Clause 18	**Insurance**	
Clause 18.1	Insuring Party :	Contractor
Clause 18.1	Period for Notification :	20 working days prior to Commencement Date
Clause 18.2	Clauses (a) to (e) :	As per the General Conditions of Contract.
Clause 18.3	Clause (d) iii	The Contractor, as the Insuring Party, shall also take affect insurance for the Employer's risk.

Clause 20 **Claims, disputes and Arbitration**

Delete the entire clause 20 in the General Conditions of Contract and replace with the SAICE General Conditions of Contracts 2015 clauses:

10.2 Dissatisfaction claim
10.3 Dispute Notice
10.3.2 Amicable settlement in terms of clause 10.4 shall be contemplated for all disputes prior to referring any dispute to adjudication or arbitration.
10.4 Amicable settlement
10.5 Adjudication
10.5.2 Dispute resolution shall be by ad-hoc adjudication
10.5.3 The number of Adjudication Board Members to be appointed is one (1)
10.6 Disagreement with Adjudication Board's decision
10.7 Arbitration
10.7.1 The determination of disputes which are unresolved in terms of clause 10.5.3 shall be by arbitration
10.8 Court Proceedings
10.9 Appointment
10.10 Common Provisions
10.11 Continuing Validity

All terms used in the clauses above (i.e. clause 20 and its sub-clauses) shall have the meaning and definitions in accordance with the SAICE document.

Clause 21 **Low Performance Damages**

Liquidated damages per % Performance Ratio (PR) below PR guaranteed will be payable by the Contractor and is as per Result 2 of the Financial Model provided (LCOE spreadsheet).
The PR will be finalised during Contract Negotiations and will based on the Contract Award price.

GEORGE MUNICIPALITY

ELECTROTECHNICAL DIRECTORATE

FIDIC (GEOE) PARTICULAR CONDITIONS OF CONTRACT

TENDER FOR THE ENGINEERING, PROCUREMENT, AND CONSTRUCTION OF HYBRID SOLAR PV GENERATING PLANTS, INCLUDING A 24-MONTH OPERATION AND MAINTENANCE PERIOD

AMENDMENT SHEET

[LAST NUMBERED PAGE(S) OF SPECIAL CONDITIONS]

REV NO.	AMDT NO.	DESCRIPTION	AUTHOR	DATE OF ISSUE / REVISION

GEORGE MUNICIPALITY

DIRECTORATE: ELECTROTECHNICAL SERVICES

CONTRACT NUMBER: ENG010/2022

TENDER FOR THE ENGINEERING, PROCUREMENT, AND CONSTRUCTION OF HYBRID SOLAR PV GENERATING PLANTS, INCLUDING A 24-MONTH OPERATION AND MAINTENANCE PERIOD

Contract Data (Part C1.2)

CONDITIONS OF CONTRACT

The **Standard Professional Services Contract (Second Edition, September 2005)** published by the Construction Industry Development Board, are applicable to this.

Copies of these Conditions of Contract may be obtained from the Construction Industry Development Board's website www.cidb.org.za.

PART 1: DATA PROVIDED BY THE EMPLOYER

The following contract specific data are applicable to this Contract:

Clause 1	The Employer is the George Municipality.	
3.4 and 3.5	The Authorised and Designated representative of the Employer is:	
	Name: Mr Thabo Yiga	
	The Employer's address for receipt of communications is:	
	Physical address: York Street George, 6530	Postal address: George Municipality PO Box 19 George, 6530
	Telephone: (044) 801 9222 E-mail: tyiga@george.gov.za	
	The Project is for the appointment of a contractor for the supply, delivery, and installation of high mast lighting for a period of three-years, from date of appointment, if and when required.	
3.6	The Service Provider may release public or media statements or publish material related to the Services or Project subject to the approval of the Employer.	
3.7	The Services Provision shall be completed for the portions as set out in the Scope of Works.	
5.1.1 and 5.1.2	The Service Provider is required to provide the Service with all reasonable care, diligence and skill in accordance with generally accepted professional techniques and standards. Where services include the powers to certify, decide or otherwise exercise discretion in regard to a contractor agreement between the Employer and others then the Service provider shall act in respect of that contract/agreement as an independent	

Clause 1	The Employer is the George Municipality.	
5.4.1	The Service Provider is required to provided the following insurances:	
	1. Insurance against	**Risk in performing professional services (Professional Indemnity cover)**
	Cover is:	Equivalent to the project value
	Period of cover:	Duration of Project
	Deductibles are:	
5.5	The Service Provider is required to obtain the Employer's prior approval in writing before taking any of the following actions: 1. Appointing Sub-Contractors for the performance of any part of the Services.	
Additional Clause to be added 7.3	The Employer will not be responsible for any overtime worked by or overtime payments made to personnel, or any additional costs not specified in the tender submitted by the Tenderer.	
9.1	Copyright of documents prepared for the Project shall be vested with George Municipality.	
12.1	Settlement of disputes is to be in terms of Clause 49 and 50 of the Supply Chain Management Policy of the George Municipality. See Document C1.3.	
14	Where not specifically indicated, all tendered prices, rates, tariffs, fees, etcetera are to include 15% VAT.	

PART 2: DATA PROVIDED BY THE SERVICE PROVIDER

Clause		
5.1	The Service Provider is:	
5.3	The authorized and designated representative of the Service Provider is:	
	Name:	
	The Service Provider's address for receipt of communications is	
	Physical address:	Postal address:
	Telephone:	
	Fax:	
	E-mail:	

GEORGE MUNICIPALITY

DIRECTORATE: ELECTROTECHNICAL SERVICES

CONTRACT NUMBER: ENG010/2022

TENDER FOR THE ENGINEERING, PROCUREMENT, AND CONSTRUCTION OF HYBRID SOLAR PV GENERATING PLANTS, INCLUDING A 24-MONTH OPERATION AND MAINTENANCE PERIOD

Objections and Complainants Form (Part C1.3)

(Section 1.11.15 of the George Municipality's Supply Chain Management Policy)

(1) Details of Objector/Complainant

Name: _____

Address: (postal and street): _____

_____

_____

Tel: _____Fax: _____

Contact person:_____

Reference number of Tender : _____

Other Party's Details (If any)

Name: _____

Address: (postal and street): _____

_____

_____

Tel: _____Fax: _____

Contact person:_____

Objection and Complainants Form **Part C1.3**

Reference number of Tender: _____

Description of Issue[s] in Dispute

_____

_____

_____

_____

List of Documents Attached

_____

_____

_____

_____

Determination Sought in Respect of Objection or Complaint

_____

_____

_____

_____

Form submitted by:

Name: _____

Signature: _____

Position: _____

Date: _____

Place: _____

GEORGE MUNICIPALITY

DIRECTORATE: ELECTROTECHNICAL SERVICES

CONTRACT NUMBER: ENG010/2022

TENDER FOR THE ENGINEERING, PROCUREMENT, AND CONSTRUCTION OF HYBRID SOLAR PV GENERATING PLANTS, INCLUDING A 24-MONTH OPERATION AND MAINTENANCE PERIOD

Form of Professional Indemnity Insurance OR FORM OF GUARANTEE ??
(Part C1.4)

The Tenderer must affix proof of Professional Indemnity Insurance to this page.

N/A

GEORGE MUNICIPALITY

DIRECTORATE: ELECTROTECHNICAL SERVICES

CONTRACT NUMBER: ENG010/2022

TENDER FOR THE ENGINEERING, PROCUREMENT, AND CONSTRUCTION OF HYBRID SOLAR PV GENERATING PLANTS, INCLUDING A 24-MONTH OPERATION AND MAINTENANCE PERIOD

Pricing Data (Part C 2)

C2.1 Pricing Instructions

C2.2 Pricing Schedule / Schedule of Activities

Pricing Instructions (Part C2.1)

C2.1 PRICING INSTRUCTIONS

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

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

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

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

CONTRACT NUMBER: ENG010/2022

TENDER FOR THE ENGINEERING, PROCUREMENT, AND CONSTRUCTION OF HYBRID SOLAR PV GENERATING PLANTS, INCLUDING A 24-MONTH OPERATION AND MAINTENANCE PERIOD

Pricing Instructions (Part C2.1)

1. PRICING ASSUMPTIONS

The pricing instructions are contained in the Tender Data, the Special Conditions of Contract and GEOE Standard 004.

The following must be noted when pricing the tender:

1. The purpose of the Bills of Quantity (BOQ) is to define measurable pricing data for tender evaluation and to determine payment due for Works done to date.
2. This is a re-measurable contract, with a maximum upper limit of 10% above the tendered Form of Offer.
3. The tender price must be based on the Bills of Quantities. The priced Bills of Quantities shall be submitted with the tender documents.
4. The summary page of the BOQ lists all the subtotals for each phase of the tender, with phase 01 being the Electrotechnical Services complete installation, phase 02 is the Tourism building and phase 03 is the Schaapkop substation installation. The subtotals of each of these three projects will be added together, including the Operation and Maintenance cost as well as the Training cost. The sum of the above items produces a Total for Material and Labour (excl.VAT) as an input in A7. Then a 10% Contingency Sum is added to the Material and Labour amount to produce a Nett Tender Amount (excl. VAT). Thereafter a 15% VAT amount is added to the above Nett Tender Amount to produce a Gross Evaluation Amount (Form of Offer) inclusive of VAT (A11).
5. The BOQ forms part of and must be read in conjunction with the Specification. The BOQ will include (all subtotal prices will be exclusive of VAT)
    a. Subtotal no. A.11 – Gross Evaluation Amount
6. The Gross Evaluation Amount is the same as the Gross Tender Amount. This amount will be used in the evaluation formula (stated in part T1.2) to calculate each tenderer's points scored out of the 80 points total.
7. Item A.5 (SUBTOTAL 5: Operation and Maintenance) of the BOQ includes 24 months O&M for all the three solar PV plants.
8. The Total to be carried forward to the **Form of Offer**, after VAT is added to the total, shall include the following subtotals:

ITEM	DESCRIPTION
A.1	SUB-TOTAL 1: Preliminary & General

A.2	SUBTOTAL 2: 20 kWp PV + 60 kWh Battery
A.3	SUBTOTAL 3: 4 kWp PV + 10 kWh Battery
A.4	SUBTOTAL 4: 2 kWp PV + 10 kWh Battery
A.5	SUBTOTAL 5: 24 Months O&M (for all 3 plants)
A.6	SUBTOTAL 6: Training (3 Municipal staff)
A.7	Total for Material and Labour
A.8	Contingency Sum (10%)
A.9	Nett Tender Amount (Exc VAT)
A.10	15% VAT
A.11	Gross Evaluation Amount (Form of Offer)

9. State the rates and prices in Rand unless instructed otherwise in the tender data. For imported goods subject to rate of exchange variation, the contractor shall use the exchange rates quoted in Part C1.1 under Imported goods. These forex values were obtained from the South African Reserve Bank website on the date of the tender advertisement (20th of October 2022). If the exchange rate used for pricing in the BOQ changes when the successful contractor has to be place an order for the imported goods, the client will cover the additional incurred amount.
10. The Tenderer is responsible for the Engineering of the works and as such will be responsible to quantify certain items in the BOQ in line with his design. The Tenderer will then also include the Supply and Installation costs of the specific items. Column 5 (Contractor to Quantify) indicate which items will have to be priced by the Tenderer. For instance, the number of Inverters is not quantified as this will be dependent one the Tenderers design. These numbers will then be used to price the Bill and if awarded, used for payments.
11. The completed Bills of Quantities shall detail the unit-rate / Lot / Sum and total amount for Supply and Install respectively for each Item. Tenderers are advised to check their item extensions and total additions since no claim for arithmetical errors will be considered.
    a. “Supply Unit Price” shall include the supply and delivery of all items of material and equipment (plant) to the site including all incidentals necessary for the completion of each Item, plus the profit thereon. Rates shall be exclusive of VAT.
    b. “Install Unit Rate” shall include the cost of all labour, both skilled and unskilled, including supervision and profit required to complete the installation of all material covered by each Item. Rates shall be exclusive of VAT.
12. Section 6 of Bill is specifically included to obtain "Rates Only" prices for items which may be required during the progress of the work, but which are not included in the know quantities of material / labour required. The Rates section will not form part of the Gross Evaluation Amount. If there is a need for the contractor to sort out the building’s internal wiring and separate the essential

loads from the main loads, (or perform any other type of work not part of the tender), then the amount stated in the Rates section will be used to pay the hourly rate of the various employer's staff members.

13. No alteration, erasure or addition is to be made in the text of the Bills of Quantities. Should any erasure or addition be made it will not be recognised but the original wording of the Bills of Quantities will be adhered to.
14. The Engineer will check the completed Bills of Quantities for arithmetical errors, omissions and discrepancies in accordance with the Standard Conditions of Tender.
15. Only major Items have been scheduled but the Tenderer shall nevertheless include for all things he considers necessary whether specified in detail or not to complete the work to specification and in a satisfactory and workmanlike manner, to provide a complete and working system. No extra price will be considered for the provision of materials which should have been allowed to be complete the works unless detailed by the Contractor in the space provided elsewhere in the Specification.
16. Where such equipment is found not to comply with the Specification, the Contractor will be required to provide equipment which does comply, without adjustment to the price in the Bills of Quantities.
17. Where no rates are filled-in by the Tenderer, or the rate is indicated as Nil, it will be assumed that there is no charge for the particular item and that the cost thereof has been included in the other rates provided.
18. The Bills of Quantities shall not be used for ordering purposes. The Contractor shall check and measure the lengths of cables / conductors on site before ordering any of these materials.
19. The quantities and rates included for Daywork shall form part of the evaluation price, but Tenderers shall note that this item must be regarded as provisional and will only be payable to the Contractor if and when a written instruction to this effect has been issued. It will not be included in the Form of Offer.
20. Expenditure in connection with Provisional and Prime Cost Sums and under the Contingency Allowance (if any) shall be solely at the discretion and on the written instruction of the Engineer.
21. An Excel spreadsheet version of the Bill will be made available to Tenderers. The Engineer or the Employer does not take responsibility for any arithmetical or other errors that may occur due to the use of the spreadsheet. The original wording and quantities of the Bills included in the tender document will be adhered. The priced printed version of the Bill may be submitted, however, each page must be initialed by the Tenderer. The Price Summary must be completed by hand and signed in black ink.

The Price Summary Page must include the estimated time required by the Contractor to complete the entire installation in weeks from date of appointment until the date of practical completion. This period must be kept to a minimum and must be agreed with the Employer

Item No	Description	Unit	Qty	Contract or to Quantify	Prices in Rands (VAT excl.)		
					(Supply)* Unit Price	Install Unit Price	Calculated Total
1	2	3	4	5	6	7	8
1	**PRELIMINARY & GENERAL (For all 3 projects)**						
1,1	Preparation of program (Gantt), attending site meetings, general dealing with Engineer and other municipal staff.	Sum	1				
1,2	Preparation of all reports listed in Tender Document and George Standards, such as Progress Reports, Fire Plan, Quarterly & Annual Performance Reports etc.	Sum	1				
1,3	Complete design and approval (by Employer) process, incl. of drawings, corrections, etc.	Sum	1				
1,4	Fixed P's & G's. (To comply with all contractual and legislative requirements.)	Sum	1				
1,5	Time related P's & G's.(To comply with all contractual and legislative requirements.)	Sum	1				
1,6	Compliance with Occupational Health and Safety specification, inclusing submission of a Health and Safety Plan.	Sum	1				
1,7	Identifying and confirming all known services on site including the acquisition of wayleaves and submission of building plans application/s.	Sum	1				
1,8	*Submission to Engineer Progress Reports as per George Standard*						
a)	Monthly progress reports	Each	24				
b)	Quarterly progress reports	Each	8				
c)	Annual Progress reports	Each	2				
A	**SUB-TOTAL 1: Preliminary & General**	**To be carried forward to Price Summary Item, A.1**					
2	**PHASE 1 - 20 kWp + 60 kWh Battery Storage**						
	All cost related for the complete installation and commissioning of the 20 kWp and storage portion of the works as per the Contractor's Design in accordance with the Tender Specifications, drawings and George Standards.						
2,1	**Site Establishment**						
2.1.1	Establishment of facilities on site, including storage, ablutions and latrines, services, tools and equipment, access, Project Notice Board, etc	Sum	1				
2,2	**Major Equipment**						
2.2.1	Photovoltaic Modules complete with connections, protection, mounting structures, etc.	Each		✓			
2.2.2	30 kW Hybrid Inverter/s complete with DC and AC protection, mounting structures, enclosures, etc.	Each		✓			
2.2.3	60 kWh LiFePO4 battery complete with connections, protection, mounting structures, etc. (Freedon Won Lite)	Each		✓			
2.2.4	4m x 2m Container/ compartment for housing the batteries and the inverter/s, complete with ventilation and lighting.	Lot	1				
2,3	**PV Plant DC Reticulation**						
	All cost required for the complete DC reticulation between the PV module and the battery inputs, and to the Inverter/s inputs						
2.3.1	DC Reticulation between modules and hybrid inverter/s, completed with all cabling, ducting, trays, terminations, protection, combiners boxes, fixings, etc.	Lot	1				
2.3.2	Reticulation between batteries and inverter, completed with all cabling, ducting, trays, terminations, protection, combiners boxes, fixings, etc.	Lot	1				
2.3.3	Trenching, backfilling, compaction, danger tape and cable markers (if applicable) from the PV panels strings to the inverter MPPT inputs located inside the warehouse container. All work to be performed by hand.	Lot	1				
2.3.4	Reinstatement of the paving on the parking area after DC cables sleeve laying.	Lot	1				
2,4	**AC Reticulation between Inverter/s and Distribution Boards**						
	All cost required for the complete AC reticulation						

2.4.1	All required AC Reticulation between inverters and the LV boards (PV DB, Main DB and essential load DB) completed with all cabling, ducting, trays, terminations, protection,	Lot	1				
2.4.2	Trenching, backfilling, compaction, danger tape and cable markers (if applicable) as per George Standard. All work to be performed by hand.	Lot	1				
2,5	**AC Connection from Inverter to Main DB**						
	All cost required for the complete AC low-voltage boards and cabling						
2.5.1	AC low-voltage distribution boards (PV DB and Essential DB) complete with all busbars, wiring, terminations, protection, fixings, supports, etc.	Lot	1				
2.5.2	Install, terminate, connect and test 6mm^2 4 core, LV, PVC Copper cable between the Inverter/s and the PV DB and to the Main DB. In addition, an appropriately sized BCEW	m	# # # #				
2.6	*Installation of CBI three-phase 20kA circuit breakers, installed in relevant panel, including busbar connections*						
2.6.1	Appropriately sized Circuit Breaker/s, Isolator/s, Surge Protection devices, and other protective devices as deemed necessary by the contractor.	l	1				
2,7	**Balance of Plant**						
2.7.1	Monitoring and logging system complete with all connections, measuring points, connected to SCADA, etc as per Standard.	Lot	1				
2.7.2	Tariff meter as per George Standards (Landis & Gyr ZMD405CT44)	Lot	1				
2.7.3	Central disconnecting switch or implementation of functionality as per design proposal and George Standards (dead grid safety lock)	Lot	1				
2,8	**Earthing & Lightning Protection**						
2.8.1	Earthing + earthing control for running the PV after grid isolation. (Incl. all earthing material and control equipment.	Lot	1				
2.8.2	Earthing of all PV modules (incl. of down conductors, earth rods and / or earth mat)	Lot	1				
2.8.3	Trenching, backfilling and compaction for earth mat (if necessary)	Lot	1				
2.8.4	Implementation of complete lightning protection for PV Plant	Lot	1				
2,9	**Reinforcement Work on the Mounting Roof Area**						
2.9.1	Remedial work on the carport structure as well as the staff change rooms where the panels will be mounted (to the contractor's satisfaction).	Lot	1				
2,10	**Miscellaneous**						
2.10.1	Labelling for complete installation as per George Standards and Specifications.	Lot	1				
2.10.2	Disposal of surplus or unsuitable material including haulage up to 10km from site (if any)	m^3	5				
2,11	**COMMISSIONING (cold AND warm inclusive)**						
2.11.1	Complete commissioning for the installation - both grid-tied and independent.	Lot	1				
2.11.2	Ass-built drawings of the complete installation	Lot	1				
A	**SUBTOTAL 2: 20kWp PV + 60 kWh Battery Installation**	**To be carried forward to Price Summary Item, A.2**					
3	**PHASE 2 - 4 kWp + 10 kWh BATTERY STORAGE**						
	All cost related for the complete installation and commissioning of the 4 kWp and storage portion of the works as per the Contractor's Design in accordance with the Tender Specifications, drawings and George Standards.						
3,1	**Site Establishment**						
3.1.1	Establishment of facilities on site, including storage, ablutions and latrines, services, tools and equipment, access, Project Notice Board, etc	Sum	1				
3,2	**Civil Works**						
3.2.2	Levelling of site to the Contractor's requirements	Lot	1				
3.2.3	Clearing site of all rubble and excess material at completion.	Lot	1				
3.2.4	Installation of all foundations, including excavations, backfilling, compaction, steel reinforcement, holding down bolts, etc.	no		✓			

3.2.5	Installation of all outdoor steel support structures (hot dipped galvanised & incl. all mis. material such as bolts, nuts, etc. as per Contractor's Structural Engineer's specification). The carport structure shall accommodate four vehicles.	Metric tonnes		✓			
3.3	**Major Equipment**						
3.3.1	Photovoltaic Modules complete with connections, protection, mounting structures, etc.	Each		✓			
3.3.2	8 kW hybrid Inverter/s complete with DC and AC protection, mounting structures, enclosures, etc.	Each		✓			
3.3.3	10 kWh LiFePO4 battery complete with connections, protection, mounting structures, etc (Freedom Won Lite)	Each		✓			
2,3	**PV Plant DC Reticulation**						
	All cost required for the complete DC reticulation between the PV module and the battery inputs, and to the Inverter/s inputs						
2.3.1	DC Reticulation between modules and hybrid inverter/s, completed with all cabling, ducting, trays, terminations, protection, combiners boxes, fixings, etc.	Lot	1				
	Reticulation between batteries and inverter, completed with all cabling, ducting, trays, terminations, protection, combiners boxes, fixings, etc.	Lot	1				
2.3.2	Trenching, backfilling, compaction, danger tape and cable markers for DC cabling if applicable (no cabling above ground) as per George Standard. All work to be performed by hand.	Lot	1				
3.4.3	Import backfill material from remote site for blanket and/or bedding, if required (incl. supplying & transport to site) (Install here = off-load only) - Provisional	m^3	10				
3.4.3	Reinstatement of paving after DC cable sleeve laying from the steel carport structure to the inverter room.	Lot	1				
3,4	**PV Plant AC Reticulation between Inverter/s and Distribution Boards**						
	All cost required for the complete AC low-voltage boards and cabling						
3.4.1	All required AC Reticulation between inverters and Sub distribution and the Main LV board, completed with all cabling, ducting, trays, terminations, protection, fixings, etc.	Lot	1				
3.4.2	Trenching, backfilling, compaction, danger tape and cable markers (if applicable) as per George Standard. All work to be performed by hand.	Lot	1				
3,5	**AC Connection from Inverter to Main DB**						
	All cost required for the complete AC low-voltage boards and cabling						
3.5.1	AC low-voltage distribution boards (PV DB and Essential DB) complete with all busbars, wiring, terminations, protection, fixings, supports, etc.	Lot	1				
3.5.2	Install, terminate, connect and test appropriately sized single phase, LV, PVC Copper cable between the inverter and the PV DB and to the main DB. In addition, appropriately sized BCEW	m	20				
3.5.3	Appropriately sized Circuit Breaker/s, Isolator/s, Surge Protection devices, and other protective devices as deemed necessary by the contractor	Lot	1				
3.6	**Balance of Plant**						
3.6.1	Monitoring and logging system complete with all connections, measuring points, connected to SCADA, etc as per Standard.	Lot	1				
3.6.2	Bidirectional 3 phase four wire meter (Landis & Gyr ZMD405CT44)	Lot	1				
3.6.3	Central disconnecting switch or implementation of functionality as per design proposal and George Standards (dead grid safety lock)	Lot	1				
3.7	**Earthing & Lightning Protection**						
3.7.1	Earthing + earthing control for running the PV after grid isolation. (Incl. all earthing material and control equipment.	Lot	1				
3.7.2	Earthing of all PV modules (incl. of down conductors, earth rods and / or earth mat)	Lot	1				
3.7.3	Trenching, backfilling and compaction for earth mat (if necessary)	Lot	1				
3.7.4	Implementation of complete lightning protection for PV Plant	Lot	1				
3.8	**Miscellaneous**						

3.8.1	Labelling for complete installation as per George Standards and Specifications.	Lot	1				
3.8.2	Disposal of surplus or unsuitable material including haulage up to 10km from site (if any)	m^3	5				
3.8.3	Refurbishment of the inverter room (painting, lighting and ventilation)	Lot	1				
3.9	**COMMISSIONING (cold AND warm inclusive)**						
3.9.1	Complete commissioning for the installation - both grid-tied and independent.	Lot	1				
3.9.2	Ass-built drawings of the complete installation	Lot	1				
A	**SUBTOTAL 3: 4 kWp PV + 10 kWh Battery Installation**	**To be carried forward to Price Summary Item, A.3**					
4	**PHASE 3 - 2 kWp + 10 kWh Battery Storage**						
	All cost related for the complete installation and commissioning of the 2kWp with storage portion of the works as per the Contractor's Design in accordance with the Tender Specifications, drawings and George Standards.						
4,1	**Site Establishment**						
2.1.1	Establishment of facilities on site, including storage, ablutions and latrines, services, tools and equipment, access, etc	Sum	1				
4,2	**Major Equipment**						
4.2.1	Photovoltaic Modules complete with connections, protection, mounting structures, etc.	Each		✓			
4.2.2	5 kW Hybrid Inverter/s complete with DC and AC protection, mounting structures, enclosures, etc.	Each		✓			
4.2.3	10 kWh LiFePO4 battery complete with connections, protection, mounting structures, etc. (Freedon Won Lite brand)	Each		✓			
4,3	**PV Plant DC Reticulation**						
	All cost required for the complete DC reticulation						
4.3.1	DC Reticulation between modules and hybrid inverter/s, completed with all cabling, ducting, trays, terminations, protection, combiners boxes, fixings, etc.	Lot	1				
4.3.2	Reticulation between batteries and inverter, completed with all cabling, ducting, trays, terminations, protection, combiners boxes, fixings, etc.	Lot	1				
4.4	**AC Reticulation between Inverter and Distribution Boards**						
	All cost required for the complete AC reticulation between the Inverter output and the Inverter DB						
4.4.1	All required AC Reticulation between inverters and Sub distribution and the Main LV board, completed with all cabling, ducting, trays, terminations, protection, fixings, etc.	Lot	1				
4.4.2	Trenching, backfilling, compaction, danger tape and cable markers (if applicable) as per George Standard. All work to be performed by hand.	Lot	1				
4,5	**AC Connection from Inverter to PV DB to main DB**						
	All cost required for the complete AC low-voltage boards and						
4.5.1	AC low-voltage distribution board (PV DB) complete with all busbars, wiring, terminations, protection, fixings, supports, etc.	Lot	1				
4.5.2	Install, terminate, connect and test appropriately sized single phase, LV, PVC Copper cable between the Inverter and Sub DB and then from Sub DB to Main DB.	m	10				
4.5.3	Appropriately sized Circuit Breaker/s, Isolator/s, Surge Protection devices, and other protective devices as deemed necessary by the contractor	Lot	1				
4,6	**Balance of Plant**						
4.6.1	Monitoring and logging system complete with all connections, measuring points, connected to SCADA, etc as per Standard.	Lot	1				
4.6.2	Tariff meter as per George Standards (Landis & Gyr ZMD405CT44)	Lot	1				
4.6.3	Central disconnecting switch or implementation of functionality as per design proposal and George Standards (dead grid safety lock)	Lot	1				
4,7	**Earthing & Lightning Protection**						
4.7.1	Earthing + earthing control for running the PV after grid isolation. (Incl. all earthing material and control equipment.	Lot	1				
4.7.2	Earthing of all PV modules (incl. of down conductors, earth rods and / or earth mat)	Lot	1				

4.7.3	Trenching, backfilling and compaction for earth mat (if necessary)	Lot	1				
4.7.4	Implementation of complete lightning protection for PV Plant	Lot	1				
4,80	**Miscellaneous**						
4.8.1	Labelling for complete installation as per George Standards and Specifications.	Lot	1				
4.9	**COMMISSIONING (cold AND warm inclusive)**						
4.9.1	Complete commissioning for the installation - both grid-tied and independent.	Lot	1				
4.9.2	Ass-built drawings of the complete installation	Lot	1				
A	**SUBTOTAL 4: 2 kWp PV + 10 kWh Battery Installation**	**To be carried forward to Price Summary Item, A.4**					
4	**OPERATION & MAINTENANCE (for all 3 plants)**						
	All the activities below shall be for 7 days a week, 365 days a year for 2 years, from the associated Practical Completion date as per the George Standard.						
4,1	Monitoring and Preventative Maintenance of all three PV installations	months	24				
A5	**SUBTOTAL 5: Operation & Maintenance**	**To be carried forward to Price Summary Item, A.5.**					
5	**TRAINING**						
5,1	Training of a maximum of 3 staff during period of maintenance and operation	months	24				
A6	SUBTOTAL 6: Training	**To be carried forward to Price Summary Item, A.6**					
6	**RATES ONLY**						
	The "Rates Only" items below are requested for items/services which may be required during the progress of the work, but which are not included in the know quantities of material / labour required. These will not be included in the total tendered cost, but will be paid separately to a contractor should a need for them arise. Please fill it in.						
6	**DAYWORKS**						
6.1.1	Supervisor	Hour	1				
6.1.2	Skilled worker (Registered Electrician)	Hour	1				
6.1.3	Semi-skilled worker	Hour	1				
6.1.4	Labourer	Hour	1				
6.1.5	Security guard	Hour	1				
			PRICE SUMMARY PAGE				
A	**FORM OFFER PRICE CALCULATION**						
ITEM	**DESCRIPTION**						**PRIZE (ZAR)**
A.1	**SUBTOTAL 1: Preliminary and Generals**						
A.2	**SUBTOTAL 2: 20 kWp PV + 60 kWh Battery Storage**						
A.3	**SUBTOTAL 3: 4 kWp PV + 10 kWh Battery Storage**						
A.4	**SUBTOTAL 4: 2 kWp PV + 10 kWh Battery Storage**						
A.5	**SUBTOTAL 5: 24 Months Operation and Maintenance (for all 3 plants)**						
A.6	**SUBTOTAL 6: Training (3 staff members)**						
A.7	**TOTAL MATERIAL AND LABOUR (excl VAT)**						
	Contingency Sum (10%)						
A.9	**NETT TENDER AMOUNT (excl VAT)**						
A.10	**15% VAT**						
A.11	**GROSS EVALUATION AMOUNT (incl VAT), TO BE CARRIED FORWARD TO FORM OF OFFER AND ACCEPTANCE IN PART C1.1.**						
D	**TENDERER TO INDICATE CONSTRUCTION PERIODS FOR VARIOUS PHASES**						
ITEM	**DESCRIPTION**					**WEEKS CONSTRUCTION FROM DATE OF APPOINTMENT**	
D.1	**Construction Period for Phase 1 - Electrotechnical PV System**					..... Weeks.	
D.2	**Construction Period for Phase 2 - Tourism Building PV System**					..... Weeks.	

D.3	**Construction Period for Phase 3 - Schaapkop PV System**					…….. Weeks.	
	Signature of Tenderer: ….....						
	Date: ….....						

GEORGE MUNICIPALITY

ELECTROTECHNICAL SERVICES DIRECTORATE

INVITATION TO TENDER

PART C3

SCOPE OF WORKS

(SPECIFICATIONS)

EPC FOR A PV PLANTS WITH BATTERY STORAGE AT ELECTROTECH, TOURISM AND SCHAAPKOP SITES

CONTRACT NUMBER: ENG019/2022

OCTOBER 2022

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DEFINITIONS AND ABBREVIATIONS

Acceptance	Means that the goods shall have been accepted by GM having been: ▪ inspected by the Engineer and found to comply with this specification. ▪ deliver, installed and commissioned to the address in George, defined in a purchase order issued by GM; and received and signed for by an authorised employee of GM on its behalf.
Approved	Approved in writing by the Engineer.
Practical Completion	means the *works* have passed the Practical Completion Test and the Facility is accepted for the purposes of Commercial Operation. The *defects period* and O&M Period of 24 months each begins.
Final Completion	means the *works* have passed the Final Acceptance Test and the Facility has demonstrated guaranteed performance expectations and is defect-free. The *defects period* and O&M Period conclude.
Client	George Municipality Electrotechnical Services (GM), local government utility of George, South Africa
Contractor	Contractor appointed to Engineer, Procure and Construct the works as described in this specification
Document	This complete set of bound conditions, specifications, Bill of Quantities and schedules.
Drawings	Drawings issued with the Tender Documentation.
Employer	George Municipality, local government, South Africa
Engineer	The person or persons authorised by GM to carry out inspections during manufacture, prior to or after delivery, of the items covered by this specification and acceptance thereof on behalf of the GM
Facility Meter / Tariff Meter	The logging tariff meter to be installed at the delivery point compliant with SANS 474/NRS 057, which will be used as the reference point for electricity produced in kWh by the *Facility*.
Install	To erect, connect and commission, complete with related accessories.
Marked Up drawings	Drawings clearly indicating with red all changes carried out at the site during the erection and testing works. The changed or cancelled items shall not be deleted by eraser or liquid corrector, but crossed only, in order to keep visible the cancelled part.
Professional Engineer	Professional Engineer registered as a PrEng with the Engineering Council of South Africa (ECSA).
Project Engineer	Same as *Engineer*
PV Facility	The functional and operating unit consisting of the materials, equipment and activities in the works able to generate and export electricity. The PV Facility remains an element of the works until Final Completion.
Site	Electrotechnical Services building in 16 Brick Road, Tourism building in 124 York street and Schaapkop substation in Steinhoff Industrial Park, George indsutria.

Successful Tenderer	The Tenderer appointed as Contractor.
The Works	Complete, functional installation to be constructed/installed in terms of this Document. All Engineering, Procurement and Construction and related activities described in the Scope of Works to deliver a defect-free and operating Solar Photovoltaic (PV) Facility with a design lifetime of 25 years and installed capacity as specified in the Tender documentation and is constructed within the Site Boundaries defined.
ETS	Electrotechnical Services, George Municipality
GM	George Municipality
LV	Low Voltage (230V or 400V)
MV	Medium Voltage (11kV for this project)
O&M	Operation and Maintenance
OSH Act	Occupational Health and Safety Act
RMU	Ring Main Unit
SHEQ	Safety, Health, Environmental and Quality

C3.1 DESCRIPTION OF THE WORKS

1. OVERVIEW OF THE WORKS

The George Municipality Electrotechnical Services Department invites Tenders for the Engineering, Procurement and Construction (EPC) and 24-month Operations and Maintenance (O&M) Contract for solar photovoltaic installations at three municipal properties. The Contract will include training of two George Municipal staff during the O&M period.

The defects and liability period, as well as operations and maintenance will commence after issuing of the Practical Completion Certificate.

Tenderers must allow for all items, whether specified or not, required to complete the installation.

No work will be undertaken by the George Municipality or other third party.

A proposed project program for the project is included in Annexure D.

2. PROJECT DESCRIPTION

2.1. Scope of Contract

The project description below and George Municipality Standard GEOE 004, *PV Plants Turnkey Installations,* provide the full Scope of Work and Specifications for the new PV Plants at the three facilities.

The Contract with the successful tenderer will consist of a standard EPC contract, followed by a separate 24-month operations and maintenance Contract. The O&M contracts will include a Training Program for the George Municipal staff.

The Contractor shall perform all work in accordance with this Tender package and applicable George Municipal Standards. In case of any conflicts between this tender package and any of George Municipality standards and/or the Local Statutory authorities' regulations and safety codes, the Contractor shall refer to the *Engineer* for clarification.

2.2. Scope of Works

The EPC contract will be a turnkey project for the construction of new photovoltaic solar power plants at three municipal sites, complete with all PV modules, inverters, cabling control, protection, safety, SCADA, synchronizing ancillary equipment and ground mounted structures (for one site). Excess power (if any) will be fed back into the George Municipal Electrical Network. The sites and sizes of the installations are as follows:

a. The Electrotechnical Services building – 20 kWp PV Plant with a 60kWh lithium iron phosphate (LiFePO4) battery storage (with at least an 80% Depth of Discharge (DoD)) + a 30kW hybrid Inverter.

b. The Tourism building – 4 kWp PV + 10 kWh LiFePO4 battery storage (with at least an 80%) + an 8kW hybrid Inverter.

c. The Schaapkop substation building – 2 kWp PV + 10 kWh LiFePO4 battery storage (with at least an 80% DoD) + a 5kW hybrid Inverter

    1. Drawings no. JP-667, 668 and 669 indicate the proposed layouts for each of the three systems. The final layouts and designs will however be dependent on the Contractor's design. The Contractor will determine all plant and material sizes and quantities and price accordingly for a fully functional PV plant, in accordance with the George Standard and applicable National and International standards.

    2. All materials supplied shall be new.

    3. The proposed single line diagram shall indicate the entire plant and interface into the facility's low voltage network.

    4. The power measuring point shall be taken at the 400V/230V power input points on the low voltage busbars.

5. The site to be utilised for the new PV Plants is indicated in the drawing layouts.

   For the Electrotechnical building – Roof area of the staff change room and existing carport structure for the installation of the PV panels. The inverter/s, batteries and distribution board to be situated in a 4x2 metre container to be placed inside the warehouse. The container shall have the appropriate ventilation and lighting.

   For the Tourism building – A new carport streel structure shall be constructed in the proposed area indicated in the layout drawings, and the panels mounted on top of it. The carport shall be able to accommodate four (4) vehicles. The Tenderer must include a diagram of the proposed steel structures in their Tender submission. The Tenderer's proposal will have to be approved by the George Municipality before manufacturing of the steel structures can commence. The storage room for the batteries, inverters and distribution board will be indicated at the site meeting. The contractor shall refurbish the room by painting it and then adding lighting and ventilation.

   The Schaapkop substation – the panels shall be mounted on the substation control room's roof area indicated in the layout diagram. The inverter and the batteries shall be housed inside the substation building.

6. The following must be allowed for:

   a) Development of a Construction Work Methodology and Health and Safety Plan, including stage by stage drawings to indicate construction zones, transport zones, etc. The proposed methodology must be agreed with the Project Manager. These drawings shall be placed on the Construction Notice board during each stage of the works.

   b) All construction zones must be clearly demarcated.

7. The inverters shall be IP65 rated for external environments. For those inverters that will be placed outside, a shade cover shall be constructed to provide shielding of the inverters from sunlight.

8. The Contractor will be responsible for a training program of the George Municipal staff. This shall entail the day to day operation and maintenance of the PV plant including the batteries. The training provided shall be structured such that it equips the municipal staff with the necessary skills and knowledge to successfully take over the Operation and Maintenance of the PV systems at the end of the contractor's O&M contract.

9. The Contractor will be responsible for the Security at the site during the Construction phase of the works.

10. No geotechnical survey and soil data are available for the site. A geotechnical survey is not necessary.

11. For the Electrotechnical PV project, the contract shall include the supply and erection of a 4m x 2m container that will house the batteries, the inverters and the PV distribution board. The container shall be erected inside the warehouse as will be shown at the site meeting. For the Tourism building, the PV related equipment shall be housed in the small storage room to be identified on site. The contractor shall refurbish the room by painting it and then adding sufficient ventilation and lighting. Electrical reticulation shall be allowed for to get the DC power from the solar panels to be mounted on the carport structure to the storage room where the rest of the equipment will be located.

12. The average Performance Ratio of each of the PV plants measured or calculated on annual basis shall be at least **75%.** This is a pre-qualifiying requirement and tenderers shall ensure that the PR obtained on their design simulation report complies with this requirement.

13. The Works to be completed, apart from the general requirements of the Contractor and all other tasks required to commission and maintain a working Solar Plant, shall include the following:

    Civil Works

    Setting out as per municipal requirements

    Clearing

    Levelling

    Foundations

    Steel Support Structures (where necessary)

    Trenching

    Major Equipment

- Photovoltaic modules
- Inverters

Electrical System

- DC Reticulation
- Cables
- Ducting / trays
- Termination
- Connection of modules in strings
- Connection of strings to combiner boxes or directly to inverter (as appropriate)
- Low Voltage AC reticulation
- Cables
- Ducting / trays /trenches
- Termination
- Switchboard(s)

Protection devices

- Connection inverters to switchboard
- Connection of switchboard to transformer
- Combiner boxes (if appropriate)

Lightning protection & Earthing

Meteorological Station

Monitoring and communication system

- Sensors
- Cabling
- Modem
- UPS
- Meter

2.3. Engineering, Procurement and Construction

The Contractor's responsibilities for the EPC portion of the works includes:

1. Complete Engineering of Works.
2. Surveying, setting out, clearing and levelling of the Site to the Contractor's satisfaction (as applicable).
3. Purchasing, transportation and offloading of all equipment and materials.
4. Construction, erection, installation, assembling.
5. Testing, commissioning and performance testing.
6. Identifying and remedying defects for a defects period of 36 months after Practical completion.

2.3.1. PV Connection

a. The Contract shall be a turnkey project integrating the PV plant into the existing buildings 400V three phase and 230V single phase electrical network where excess power is fed back into the George Municipal Electrical Network and the tender shall include for all the necessary equipment to control the plant. The PV system shall first charge the batteries before exporting excess power to the municipal grid. The batteries shall be lithium iron phosphate (LiFePO4) and adhere to the battery specifications set out in STD 004 of George PV installations.

b. Particulars of a Distribution System

The nominal system voltages are:

- LV: 400V nominal for a three-phase connection and 230V nominal for a single-phase connection
- MV: 11kV nominal

c. Insulation levels

The impulse insulation requirements for the LV cable and accessories (considered to be exposed installations) are as follows:

- Highest Voltage for Equipment (Um): 600/1000V (r.m.s.)
- Nominal System Voltage (Un): 230/400V (r.m.s.);
- 242/420V at transformer terminals for nominal tap setting.

All equipment, jointing materials, etc., shall be suitably rated for these conditions. The phase rotation is to be checked and maintained through-out the network.

d. System Configuration

The 400V system has the following configuration:

- System Earthing – Solid
- System frequency – 50Hz
- Number of phases – 3
- Phase rotation - ABC

e. Battery Model

Modular Lithium iron phosphate batteries (LiFePO4) - modular

Construction

Modular stackable batteries, designed for smaller residential and light commercial applications with options of 1,2,3, or 4 modules in a tower per system. The following battery specs shall be complied with:

Nominal Capacity	100 – 160 AH
Efficiency	99 %
Self-Discharge	< 1 % per month
Dis-Charge rate	1C
Charge Rate	0.8 to 1C

A C-rate is a measure of the rate at which a battery is charged relative to its maximum capacity.

2.3.2. Steel Support Structures

For the Tourism PV installation, a complete design of the supporting steelwork including concrete foundations on to which the PV array is to be mounted. The carport structure shall provide parking for four vehicles. The design is to be undertaken by an ECSA registered professional Civil/Structural Engineer or Technologist. The tender is to include details of how this will be undertaken as regards design, fabrication and erection.

All supplied steelwork is to be hot dipped galvanised after all cutting and drilling has been undertaken. No damage to the galvanising is to take place after galvanising. Details of the steel protection are to be supplied in the tender. The thickness of the galvanising is specified in George Standard 004.

The structural design must be approved by the George Municipality before manufacture commences.

2.4. Operations and Maintenance

The Contractor shall be responsible for the effective day-to-day monitoring, operating and maintaining of the plant for 24 months after Practical Completion.

For the purposes of Tender, the Bidder shall submit a high-level review of their proposed O&M plan detailing preventative and corrective maintenance procedures and committed response times in Schedule T2.2.26.

2.5. Training Plan

The Contractor is required to develop and effect a training programme for George Municipal staff to assist with maintenance of the PV plant during the O&M period. This shall allow municipal staff to allow municipal staff to perform their own O&M effectively after takeover from the contractor.

For the duration of the O&M Period George Municipal Maintenance staff will assist with basic operations, maintenance and safety related tasks of the facilities. A minimum of two (2) municipal staff will attend the training which shall be for a minimum of 2 hours each time the contractor comes to do quarterly site maintenance. This training should entail tasks such as identifying a faulty string, safely isolating it, replacing a faulty panel, performing visual inspections using a checklist, etc. The purpose of the training is to equip the 3 George municipal staff with sufficient skills and knowledge to be able to perform their own Operation and Maintenance of the PV facilities at the end of the contractor's O&M period.

For the purposes of Tender, the Bidder shall submit a high-level training plan outlining how the staff will be trained in the day-to-day procedures of operating the Facility in Schedule T2 of the returnable documents.

2.6. Quality Assurance Plan

The Contractor shall submit a Quality Assurance Plan (QAP) for the Project Manager's approval. This need not be an ISO 9001 compliant plan, but such certification shall be deemed favourable. The QAP shall detail as a minimum:

- Management philosophy and structure of the business
- Supply chain management
- Subcontractor management philosophy (indicating split of in-house and subcontracting)
- Quality of materials and equipment management
- Staff training and development philosophy
- Project quality standards
- Ethics

For the purposes of Tender, the Bidder shall submit a high-level overview of their QAP in Schedule T2.2.26.

2.7. Complete Engineering of Works

It will be the responsibility of the Contractor to prepare and provide all the designs for the works to comply with the Employer's requirements, which will consist of all Detailed Designs, Engineering and Construction Designs, including all calculations and drawings, for each element of the Works, to the Engineer for their review and approval, prior to the Procurement and/or Construction of any work. This will be at no additional cost to the project or the Client. The Complete Engineering Works will include, but not limited to all civil, structural, mechanical and electrical aspects. The PV facility shall have a design life of 25 years.

Immediately after the starting date, the Contractor shall start with the design of the works and the equipment.

During this design phase of the contract the Contractor is required to hold design review meetings to confirm all Employer requirements and to obtain the *Engineer's* acceptance for all design concepts, design interfaces and specifications to ensure that quality is designed into the final product.

Structural and component design shall be verified and signed by the Contractor's *Professional Engineer* or *Professional Technologist.*

If required by the Employer, the services of an independent third party will be engaged by the Employer to review the Contractor's design and the Contractor must give the necessary co-operation and supply all the

necessary design data as required. The cost of the design review by the third party will be borne by the Employer.

All shop drawings to be presented, discussed and confirmed with the *Engineer* prior to manufacture.

Time required for all the activities associated with the design of the equipment must be allowed for and indicated by the *Contractor* in his programme.

3. PROGRAM AND COMPLETION

3.1. Tender Period

This is a once off contract and will terminate once all the works as stated in the scope of works has been completed to the client's satisfaction and signed off by a registered professional. The EPC Contract is to commence in the 2022/23 financial year.

Tenderers must state in the Summary page of Section C2.2 the completion period in weeks from date of appointment until the date of practical completion. The Construction period must be kept to a minimum and must be agreed with the Employer. The final construction period includes complete installation and commissioning of the PV plant at all the three municipal sites.

The Operation & Maintenance Contracts, in conjunction with the Training Program, will each be for a period of 24 months.

3.2. Construction Program

The Tenderer is to submit his Proposed Construction Programme which proposes the scheduling of tasks necessary to achieve the Milestones by the Key Dates indicated in the Engineer's Preliminary Programme, included in Annexure D.

The Construction Program will be finalised during Contract Negotiations.

4. SITE INFORMATION

4.1. General

Refer to Part C5 for further details pertaining to the three different sites.

4.2. Security

4.2.1.1. Site Security

The Contractor shall provide security services for the duration of the construction works. Two of the three sites have municipal security personnel 24/7, but the Tourism site does not have 24-hour security and the contractor will have to make allowance for that. The Tenderer shall ensure that he inspects the site during the mandatory site meeting and make sufficient allowance to secure the entire site during the works. The Contractor's security personnel will have to liaise with the George Municipal staff.

During the O&M phase of the works, the Employer will be responsible for security at the site.

4.2.1.2. Site Access

There is only one access to the sites, which will be used by George Municipal staff throughout the construction period.

The Municipal Staff's normal working hours are weekdays between 7:30 – 17:00.

4.3. Site Facilities

1. The contractor shall allow on site for a suitable storage facility (e.g., containers).
2. The contractor shall have a portable site office at the Municipality's premises.
3. The Contractor shall supply portable ablution facilities for his team.
4. The Contractor will be responsible for all services required and must include in his tender price.

4.4. Hidden and other services within the site

It will be the responsibility of the *Contractor* to identify all services on site prior to construction.

Refer to George Standard GEOE 004 with regards to wayleaves and the identification of other services on site.

It is assumed that no wayleaves acquisition will be necessary for this project, but it is the responsibility of the contractor to verify that before he commences with work on site.

5. GENERAL SPECIFICATIONS

5.1. Engineer's Drawings

Only proposed layout diagrams for the different sites have been included for this project. It will be the responsibility of the Tenderer to prepare his own designs with layout drawings and line diagrams for approval by the Engineer.

The Contractor shall submit his preliminary design as part of his Tender submission in Schedule T2.2.26 demonstrating adherence to the tender conditions and applicable standards. These drawings shall include:

1. A single line schematic diagram of their proposal showing the size and quantity of materials to be used. Special attention is to be given to earthing arrangements.
2. A drawing showing the proposed layout of the PV arrangement suitable for George Municipality approval of the scheme.

5.2. Project Notice Board

A project notice board for the Electrotechnical Services building shall be provided by the Contractor as part of the contract and erected at the entrance of the Construction Site. The Project Notice Board shall include the Construction Site Layouts per phase (refer to section 2.2).

The wording shall be approved prior to sign writing. The board shall remain in place until the end of the defects liability period at which time it shall be removed by the Contractor.

5.3. Weather Measurements

The measurement of weather during the construction period must be placed at the site.

The following weather measurements must be recorded for each month:

- the cumulative rainfall (mm);
- the number of days with rainfall more than 10mm; and
- the number of days with minimum air temperature less than 0 degree Celsius.

5.4. Materials to be Free issued by Others

It is George Municipality's intention is to supply no free issue items for this contract. However, should the Municipality provide free-issue items, the Contractor shall be responsible for the collection of these materials from the Municipality's stores in Mitchell Street in George, delivery to site and installation thereof.

Service Conditions

Refer to George Electrotechnical Standards, specifically GEOE 002 – Atmospheric Conditions and GEOE 004.

6. - ITEMS REQUIRING SPECIAL ATTENTION

The roofing of the Electrotechnical Services building in which the panels might contain some asbestos and the contractor will have to take caution and ensure his/her staff are wearing the appropriate PPE when carrying out the works on the roof area.

7. LOCAL LABOUR AND LOCAL AUTHORITIES

7.1. Local Labour

It is intended that the project must make maximum possible use of local labour which is presently unemployed in the area of which the project is performed. All unskilled labour shall be from George.

Engagement of local labour might be required through the local ward councillor.

7.2. Liaison with Local Authorities (if necessary)

The Project Engineer will assist the Contractor to liaise with local authorities regarding the following matters:

1. Dealing with traffic (if it is necessary).
5. Locating of existing underground services.
6. Protection of existing services during construction.

It is the contractor's onus to immediately contact all these authorities and to accommodate their involvement in his programme of work. The contractor should also warn the authorities at least 48 hours before the actual work commence. Compensation for delays, losses or accidents will not be considered should the contractor at any time have failed to keep the local authorities informed.

The engineer or employer must immediately be notified, should the contractor experience any problem regarding work, which involves a local authority.

7.3. Community Liaison and Community Relations

In all dealings with the community and workers employed from within the community, the Contractor shall take due cognisance of the character, culture and circumstances of the community involved and shall at all times use his best endeavors to avoid the development of disputes and to foster a spirit of co-operation and harmony towards the project.

The Contractor shall at all times, keep the Engineer fully informed on all matters affecting the contractor and the community, and shall attend all community meetings relating to the project as may be reasonably required by the Engineer. All matters concerning the community shall be discussed and where possible, resolved at such meetings.

8. SITE MEETINGS

If required regular site meetings will be convened soon after acceptance of tender at a time and place to be arranged.

Site meetings will be held at two-week intervals, or longer or shorter as may be necessary, at a time and day of the week to be mutually agreed, for the duration of the Contract.

9. PARTICULARS

Refer to the Conditions of Tender.

C3.2 STATUTORY REQUIREMENTS, SPECIFICATIONS AND STANDARDS

10. STANDARDS AND REFERENCES

10.1. Conditions of Contract

FIDIC General Conditions of Contract (Yellow Book) – Not issued with the Tender Documentation.

FIDIC (GEOE) Particular Conditions of Contract associated with the FIDIC Conditions – Included in Section C1.2

10.2. Applicable Standards

The contract shall be carried out in accordance with George Municipality Standard GEOE 004, *PV Plants Turnkey Installations.*

10.3. Latest Equipment Standards

Equipment offered must comply to the latest relevant standards listed in GEOE-004.

Preference may be given to equipment that complies to later or latest standards. It is therefore essential for Tenderers to state clearly to what SANS and/or international standards their equipment comply.

OHS Inc.
occupational health and safety consultants

Health and Safety Specification In terms of OHS ACT 85 0f 1993

Project: ENG010/2022 ELECTROTECHNICAL SERVICES BUILDING – 20 kWp PV Plant with a 40kWh lithium iron phosphate (LiFePO4) battery storage (with at least an 80% Depth of Discharge (DoD)) + a 30kW hybrid Inverter

For: GEORGE MUNICIPALITY – ELECTROTECHNICAL DIRECTORATE

Project Directory	
Project Client	
Name: **George Municipality** 71 York Street George 6530	Contact Details: 044 801 9111
Designer	
Name: **George Municipality** 71 York Street George 6530	Contact Details: 044 801 9111
OHS	
Name: OHS Inc	Contact Details: 082 7717072 admin@ohsinc.co.za
Other Parties	
Name: George Municipality Electrical Dept	Contact Details: 044 801 9222
Name: George Municipality Water Dept	Contact Details: 044 801 9262
Name: George Municipality Civil Engineering Services	Contact Details: 044 801 9111

Project Details	
Provisional Start Date:	**TBA**
Provisional Completion Date:	**TBA**
Proposed Contract Duration:	**TBA**
Proposed Project Value:	**TBA**
Notification of Construction Work:	**YES**
Construction Work Permit Application:	**N/A**
Prepared by:	**J van Graan**
Date Prepared:	**15 JUNE 2022**

PROJECT HEALTH AND SAFETY SPECIFICATION
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2.3.22 Personal Protective Equipment

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2.3.25 Permits

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2.4.9 General Machinery

2.4.10 Portable Electrical Tools / Explosive Power Tools

2.4.11 High Voltage Electrical Equipment& Electrical Regulations

2.4.12 Public Health and Safety

2.4.13 Night work

2.4.14 Facilities for Safekeeping and Eating Areas (Mess Area) for Workers

2.4.15 Fall Protection

2.4.16 Structures

2.4.17 Lifting Machinery and Tackle, Material Hoist and Cranes

2.5 Occupational Health

Annexure A

- Task Completion Form

Annexure B

- Contractor's Responsible persons

Annexure C

- Other Occupational Health and Safety Specification Requirements

Annexure D

- Safety File requirements, Mandatory Agreement & CR 5(1)(k) Principal Contractor Appointment

1. Purpose

1. The purpose of this document is to provide health and safety information about specific project risks known by the Client, Designer and Client Agent. These risks are applicable to this project and may not necessarily be common knowledge to the Contractor. The Contractor must take this information into account and ensure that their tenders include adequate resources to deal with the matters detailed in this document. Compliance must be ensured by the Contractor and Appointed Sub-Contractor to all relevant legislation. Safeguarding of employees, sub-contractors and other persons affected by the construction activities must be ensured.

2. Reference should be made to the following documentation in conjunction with this safety specification (including existing surveys, drawings and reports):

(a) Engineers Drawings
(b) Designers Input
(c) Tender Documents

References used for the drafting of this specification

OHS Act – Occupational Health and Safety act 85 of 1993 and all regulations promulgated under this act, special reference to Construction Regulations 2014

Electrical Regulations – Under department of Minerals and Energy

COIDA Act - Compensation for Occupational Injuries and Diseases Act

3. Due to potentially dangerous operations being undertaken in construction, there is a possibility of incidents and accident which may lead to injuries or fatalities. In many instances non-compliances to the Occupational Health and Safety Act (OHS Act) has resulted in severe consequences for the parties involved. The Project Client is determined to ensure the highest health and safety standards throughout the Contract.

4. To ensure this The Project Client / Client Agent has prepared and published this document. This document should be used as a guideline for minimum levels of awareness and guidance for health and safety requirements for this Contract. The responsibility for adhering to these requirements rests with the Contractors.

5. Every Employer will provide and maintain, as far as reasonably practicable, a set working environment that is safe and without risk to the health of his employees. OHS Act 8 (1)

6. Compliance with the OHS Act and Regulations will not be limited to this specification and the definitions contained in this document.

7. Tenderers are expected to be conversant with the requirements and effect of health and safety legislation, in particular the Construction Regulations, 2014, and the Occupational Health and Safety Act, 85 of 1993. Provision must be made in the tender submission to comply with all legal requirements.

8. The Contractor's personnel will be responsible implementation all necessary legislative requirements. Document control and record systems associated with the legislation must be kept by the Contractor.

9. This document should be used to assist them Contractor towards achieving compliance with the OHS Act.

10. The Specification will be implemented during construction of the works Project Client / Client Agent has control over.

11. ***The Project Client is committed to ensure compliance to all the relevant legislation regarding Occupational Health and Safety is maintained and no accident occurs.***

12. This document must be used as a means of measuring performance of all parties entering into a contract with the project Client or Contractor in Occupational Health and Safety Standards.

13. The Project Client does not accept any liability which may result from the Contractor failing to comply with the Document; the Contractor remains responsible for achieving the required performance levels.

14. This document forms part of the Contract, and Contractors are required to make it part of their Contracts with Sub-Contractors and Suppliers.

15. The successful Contractor will ensure that a Safety Plan complying with all the relevant legal requirements and this document is compiled and approved by the Client/Client Agent before commencement of Construction.

1.2 PROJECT DETAILS

The Electrotechnical Services building – 20 kWp PV Plant with a 40kWh lithium iron phosphate (LiFePO4) battery storage (with at least an 80% Depth of Discharge (DoD)) + a 30kW hybrid Inverter.

Roof area of the warehouse for the installation of the PV panels. The inverter/s, batteries and distribution board to be situated in a 4x2 metre container to be placed inside the warehouse. The container shall have the appropriate ventilation and lighting.

1.3. EXISTING ENVIRONMENT

Work will be conducted at the Electrotechnical offices Brick Road George, during the installation process the office will be performing their normal day to day business.

The Principal Contractor must ensure that his/her employees stay in their specific area of work and not wonder around on the premises. The Client George Municipality as well as its appointed responsible person retains the right to request any person be removed from site who moves outside the construction area boundaries.

Principal Contractor must ensure all their plant operators, drivers and delivery companies are made aware that George Municipality employees are present at the work site and will be walking around within the boundaries of the facility.

The Principal contractor must ensure the he/she adheres to the requirements of Section 9 of the Occupational Health and Safety Act 85 of 1993 at all times

9. **General duties of employers and self-employed persons to persons other than their employees**

   (1) Every employer shall conduct his undertaking in such a manner as to ensure, as far as is reasonably practicable, that persons other than those in his employment who may be directly affected by his activities are not thereby exposed to hazards to their health or safety.

(2) Every self-employed person shall conduct his undertaking in such a manner as to ensure, as far as is reasonably practicable, that he and other persons who may be directly affected by his activities are not thereby exposed to hazards to their health or safety.

1. Hazards particular to this project Baseline Risk Assessment

1.4 *BASELINE RISK ASSESSMENT*

Significant Risks and Hazards identified by the Client/Designer/Client Agent.

- COVID-19
- George Municipal employees present on site during construction period
- Loading and offloading of equipment and materials.
- Rigging practices
- Use of mobile cranes or Truck mounted cranes
- Working around existing services
- Working close to live electricity
- Working at heights
- Falling objects
- Use of scaffolding
- Use of Construction Plant and Equipment.
- Earthing of electrical equipment and installations
- Noise and Dust.
- Electrical work
- Steel Work
- Steel erection and installation
- Pinch Points
- Hot work & Welding
- Use of Grinders
- Fire.
- Hand tools
- Painting
- Hazardous Substances
- Manual Handling of General Items
- Use of Mobile plant & Equipment
- And any other task that has the potential to cause death, injury or property damages

NOTE:
Please refer to end of Safety Specification for minimum control measures required to address these risks.

The following materials and substances have, or may have, to be used in the works or is present and are identified as potentially posing special health and / or safety hazards during the project. Appropriate measures will need to be specified for their control:

- Asbestos
- Petrol
- Diesel
- Cement
- Sealants and silicones

All the needed PPE and precautions stated in the MSDS must be provided and adhered to when using these materials and gasses.

The following Project Client safety rules and/or requirements are to be observed:

Safety Rules

MANUAL LIFTING	Keep your back straight, Bend the knees, don't reach and lift, Get help for heavy loads
FALLS & FALLING OBJECTS	Look before you step, keep all walk areas clean, stay out from under loads, don't use unsafe ladders,
WORKING WITH ELECTRICITY	Avoid contact with energized electrical circuits, always use insulated tools, always use appropriate insulated rubber gloves and goggles, follow lock out and tag out procedure requirements never work on live electricity
UNSAFE USE OF TOOLS	Inspect regularly, report all defects at once, use the right tool safely, Put it away safely
PROTECTIVE EQUIPMENT	Ensure you use the correct PPE for the job at hand
HOUSEKEEPING	A clean job is a safe job, use waste bins, Pile materials safe and neat, Remove hazardous debris
TEAMWORK	Plan all work with safety - Protect fellow workers

Labour Records

At the end of each week the contractor will provide a written record, in schedule form reflecting the number and description of tradesmen and labourers employed by him and all his sub-contractors on the works each day. The record must also indicate total amount of people on site as well as total hours worked for the week.

Plant Records

At the end of each week the contractor will provide a written record, in schedule form reflecting the number, type and capacity of all plant, excluding hand tools, currently used on the works.

GENERAL PROJECT INFORMATION

The purpose of this section is to provide general health and safety information about construction risks which are applicable to the construction industry as a whole.

The Contractor must take all information in this section into account and ensure that their tenders include adequate resources to deal with the matters detailed below. All relevant risks must be dealt with in compliance with legislation

2. STANDARD OCCUPATIONAL HEALTH AND SAFETY SPECIFICATION

2.1. Scope

1. This Section covers the requirements for eliminating and mitigating incidents and within the Contract. The scope addresses minimum legal compliance, hazard and risk management, promotion of a health and safety culture amongst all parties involved in the project and those affected by the activities taking place.

2. Contractors employed by The Project Client / Project Agent must ensure that the provisions of the specifications are applied both on the site and all off site activities relating to this project.

3. The Contractor must enforce the provisions of these Specifications amongst all subcontractors and suppliers for the project.

2.2 Interpretation

2.2.1 Application

1. The Occupational Health and Safety Specification contains clauses that are applicable to building / construction and impose pro-active controls associated with activities that impact on human health and safety as it relates to plant and machinery. Compliance to the requirements of the Act is in addition to the requirements of the Occupational Health and Safety Specification and form part of the Contractor's responsibility. The Client / Client Agent will monitor that the Contractors compliance with the requirements of the OHS Act.

2.2.2 Definitions

For the purpose of this Occupational Health and Safety Specification following the definitions, hereunder will apply:

Agent
means a competent person who acts as a representative for a client;

Client
means any person for whom construction work is being performed;

Construction Work *(as defined in the Construction Regulations, 2014)* means any work in connection with—

a) the construction, erection, alteration, renovation, repair, demolition or dismantling of or addition to a building or any similar structure; or
b) the construction, erection, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer or water reticulation system; or the moving of earth, clearing of and, the making of excavation, piling, or any similar civil engineering structure or type of work;

Competent person
Means a person who

(a) has in respect of the work or task to be performed the required knowledge, training and experience and, where applicable, qualifications, specific to that work or task: Provided that where appropriate qualifications and training are registered in terms of the provisions of the **National Qualifications Framework Act, 2000 (Act No. 67 of 2000),** those qualifications and that training must be regarded as the required qualifications and training.
(b) Is familiar with the Act and with the applicable regulations made under the Act;

Construction Vehicles
Means a vehicle used as a means of conveyance for transporting persons or material, or persons and material, on and off the construction site for the purposes of performing construction work;

Construction work permit
Means a document issued in terms of regulation 3

Contractor
Means an employer who performs construction work

Electrical contractor
means a person who undertakes to perform electrical installation work on behalf of any other person, but excludes an employee of such first-mentioned person;

Electrical installation
Means any machinery, in or on any premises, used for the transmission of electricity from a point of control to a point of consumption anywhere on the premises, including any article forming part of such an electrical installation irrespective of whether or not it is part of the electrical circuit, but excluding

(a) any machinery of the supplier related to the supply of electricity on the premises;
(b) machinery which transmits electrical energy in communication, control circuits, television or radio circuits;
(c) an electrical installation on a vehicle, vessel, train or aircraft; and
(d) control circuits of 50 V or less between different parts of machinery or system components, forming a unit, that are separately installed and derived from an independent source or an isolating transformer;

Electrical Installation Regulations, 1992
Means the Electrical Installation Regulations, 1992, promulgated by Government Notice No. R. 2920 of 23 October 1992;

Fall protection plan
means a documented plan, which includes and provides for-

(a) all risks relating to working from a fall risk position, considering the nature of work undertaken;
(b) the procedures and methods to be applied in order to eliminate the risk of falling; and
(c) a rescue plan and procedures;

Fall risk
means any potential exposure to falling either from, off or into;

Hazard identification
Means the identification and documenting of existing or expected hazards to health and safety of persons which are normally associated with the type of construction work being executed or to be executed;

Hazard
Means a source of or exposure to danger which may cause injury or damage to persons or property;

Health and safety file
Means a file, or other record containing the information in writing required by these Regulations

Health and Safety Plan
Means a site, activity or project specific document plan in accordance with the client's health and safety specification.

Medical certificate of fitness
Means a certificate contemplated in regulations 7 (8) of the Act

Occupational health practitioner
means an occupational medicine practitioner or a person who holds a qualification in occupational health recognized as such by the South African Medical and Dental Council as referred to in the Medical, Dental and Supplementary Health Service Professions Act, 1974 (Act No. 56 of 1974), or the South African Nursing Council as referred to in the Nursing Act, 1978 (Act No. 50 of 1978);

Principal Contractor
Means an employer appointed by the client to perform construction work

Risk
Means the probability or likelihood that a hazard can result in injury or damage.

Risk assessment
Means a program to determine any risk associated with any hazard at a construction site, in order to identify the steps needed to be taken to remove or control such hazard

Registered person
Means a person registered in terms of
(a) regulation 11; or
(b) regulation 9 of the Electrical Installation Regulations, 1992, as an electrical tester for single phase, an installation electrician or a master installation electrician, as the case may be;

Site
Means the area in the possession of the Contractor for the construction of the works. Where there is no demarcated boundary it will include all adjacent areas, which are reasonably required for the activities for the Contractor;

Temporary works
Means any falsework, formwork, support work, scaffold, shoring or other temporary structure designed to provide support or means of access during construction work.

The Act
Means, unless the context indicates otherwise, the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) and Regulations promulgated there under.

2.3 General Health and Safety Provisions

2.3.1 Notification of Intention to Commence Construction Work

1. A contractor who intends to carry out any construction work other than work contemplated in regulation 3(1), must at least 7 days before that work is to be carried out notify the provincial director in writing in a form similar to Annexure 2 if the intended construction work will—

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

2. A contractor who intends to carry out construction work that involves construction of a single storey dwelling for a client who is going to reside in such dwelling upon completion, must at least 7 days before that work

2.3.2 Assignment of Contractor's Responsible Persons to Supervise Health & Safety on Site

2.3.2.1 Construction Manager

1. A principal contractor must in writing appoint one full-time competent person as the construction manager with the duty of managing all the construction work on a single site, including the duty of ensuring occupational health and safety compliance, and in the absence of the construction manager an alternate must be appointed by the principal contractor.

2. Where the construction manager has not appointed assistant construction managers as contemplated in Construction Regulation 8(2) or, in the opinion of an inspector, a sufficient number of such assistant construction managers have not been appointed, that inspector must direct the construction manager in writing to appoint the number of assistant construction managers indicated by the inspector, and those assistant construction managers must be regarded as having been appointed under Construction Regulation 8(2).

3. No construction manager appointed under Construction Regulation 8(1) 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.

4. A construction manager must in writing appoint construction supervisors responsible for construction activities and ensuring occupational health and safety compliance on the construction site.

5. **Competency requirements** – CV with proof of more than 3 years' experience in the same position, Legal liability, General OHS Act & Regulations, Construction Regulations & HIRA Certificates

2.3.2.2 Assistant Construction Manager

1. A principal contractor must upon having considered the size of the project, in writing appoint one or more assistant construction managers for different sections thereof: Provided that the designation of any such person does not relieve the construction manager of any personal accountability for failing in his or her management duties in terms of this regulation

2. **Competency requirements** – CV with proof of more than 3 years' experience in the same position, Legal liability, General OHS Act & Regulations, Construction Regulations & HIRA Certificates

2.3.2.3 Construction Safety Officer

1. A contractor must, after consultation with the client and 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 to assist in the control of all health and safety related aspects on the site: Provided that, where the question arises as to whether a construction health and safety officer is necessary, the decision of an inspector is decisive.

2. No contractor may appoint a construction health and safety officer to assist in the control of health and safety related aspects on the site unless he or she is reasonably satisfied that the construction health and safety officer that he or she intends to appoint is registered with a statutory body approved by the Chief Inspector and has necessary competencies and resources to assist the contractor.

3. **Competencies required**: SAMTRAC or similar training course with a minimum duration of two weeks not negotiable

Other competencies: COID Act training, Incident Investigation & HIRA training Poof of registration with SACPCMP will be required this means the registration certificate and not proof of application submitted.

2.3.2.4 Construction Supervisor

1. A contractor must, upon having considered the size of the project, in writing appoint one or more competent employees for different sections thereof to assist the construction supervisor contemplated in Construction Regulation 8(7) and every such employee has, to the extent clearly defined by the contractor in the letter of appointment, the same duties as the construction supervisor: Provided that the designation of any such employee does not relieve the construction supervisor of any personal accountability for failing in his or her supervisory duties in terms of this regulation.

2. Where the contractor has not appointed an employee as contemplated in Construction Regulation 8(8), or, in the opinion of an inspector, a sufficient number of such employees have not been appointed, that inspector must instruct the employer to appoint the number of employees indicated by the inspector, and those employees must be regarded as having been appointed under Construction Regulation 8(8).

3. No construction supervisor appointed under Construction Regulation 8(7) may supervise any construction work on or in any construction site other than the site in respect of which he or she has been appointed: Provided that if a sufficient number of competent employees have been appropriately designated under Construction Regulation 8(7) on all the relevant construction sites, the appointed construction supervisor may supervise more than one site.

4. **Competency requirements** – CV with proof of more than 3 years' experience in the same position, Legal liability, General OHS Act & Regulations, Construction Regulations & HIRA Certificates

   The Contractor will submit proof of supervisory appointments and any relevant appointments in writing (as stipulated by the OHS Act), prior to commencement of work

2.3.3 Competency for Contractor's Responsible Persons

1. The Contractor's responsible persons will be competent in health and safety and will have undergone Health and Safety Management Courses.

   Typical courses will include, HIRA, **Legal liability**, Incident Investigation, **Construction regulations 2014** and OHS Act training. Proof must also be provided that the relevant appointed responsible person has experience related to the work that will be conducted

2.3.4 Compensation of Occupational Injuries and Diseases Act 130 of 1993 (COIDACT)

1. The Contractor will submit a letter of good standing with the Compensation Insurer to The Project Client / Client Agent, within 10 working days from receipt of the Letter of Acceptance from The Project Client / Client Agent prior to commencing work on site. The contractor will ensure that he/she remains in good standing with the compensation Commissioner/Insurer for the duration of the project. **" No letter of Good Standing NO WORK"**

2.3.5 Occupational Health and Safety Policy

1. The Contractor will submit a Health and Safety Policy drafted in line with the OHS Act 85 of 1993 section 7 requirements with the Tender, signed by the Chief Executive Officer.

2.3.6 Health and Safety Organogram

1. The Contractor will submit an organogram to the Client/ Client Agent, outlining the Health and Safety site team appointments as required by the OHS Act. ***The organogram must include the legal reference under which each person is appointed as well as the persons contact details (Cell phone number and e-mail address).***

2.3.7 Risk Assessment for construction work (Must include ergonomics as per regulations published December 2019)

1. A contractor must, before the commencement of any construction work and during such construction work, have risk assessments performed by a competent person appointed in writing, which risk assessments form part of the health and safety plan to be applied on the site, and must include—

    (a) the identification of the risks and hazards to which persons may be exposed to;
    (b) an analysis and evaluation of the risks and hazards identified based on a documented method;
    (c) a documented plan and applicable safe work procedures to mitigate, reduce or control the risks and hazards that have been identified;
    (d) a monitoring plan; and
    (e) a review plan.

2. A contractor must ensure that as far as is reasonably practicable, ergonomic related hazards are analyzed, evaluated and addressed in a risk assessment.

3. A contractor must ensure that all employees under his or her control are informed, instructed and trained by a competent person regarding any hazard and the related work procedures and or control measures before any work commences, and thereafter at the times determined in the risk assessment monitoring and review plan of the relevant site.

4. A principal contractor must ensure that all contractors are informed regarding any hazard that is stipulated in the risk assessment before any work commences, and thereafter at the times that may be determined in the risk assessment monitoring and review plan of the relevant site.

5. A contractor must consult with the health and safety committee or, if no health and safety committee exists, with a representative trade union or representative group of employees, on the monitoring and review of the risk assessments of the relevant site.

6. A contractor must ensure that copies of the risk assessments of the relevant site are available on site for inspection by an inspector, the client, the client's agent, any contractor, any employee, a representative trade union, a health and safety representative or any member of the health and safety committee.

7. A contractor must review the relevant risk assessment—

    (a) where changes are effected to the design and or construction that result in a change to the risk profile; or
    (b) when an incident has occurred.

Issue Based Risk Assessment

1. As circumstances and needs arise, separate risk assessment will need to be conducted. An additional risk assessment will need to be conducted when for example:

(a) A new operation introduced onto site
(b) A system for work is changed
(c) After an accident or a “near miss” has occurred

Continuous Risk Assessment

1. This should take place continually, as it forms an integral part of day-to-day management.

2. It should be conducted by frontline supervisors on a **DSTI (Daily Safe task instruction)** on site and it is essential that formal training is provided to enable the said personnel to be efficient in conducting said assessment. The Contractor must ensure that the Risk Assessment identifies the hazards present in work activities on site. This must be followed by an evaluation of the risks involved taking into account those precautions already being taken.

   The contractor must ensure that all employees receive training on the site specific risk assessment and all relevant safe work procedures before any work commences on this project. The client/client representative reserves the right to stop work if this requirement is not adhered to by the contractor.

2.3.8 Health and Safety Representative(s)

1. The Contractor will ensure that a Health and Safety Representative(s) are /is elected for every 20 employees on site and trained to carry out his / her functions. The appointment must be in writing. The Health and Safety Representative will carry out regular inspection, keep records and report to the supervisor to take appropriate action. He / She will attend Health and Safety Committee Meetings. The Health and Safety Representative will be part of the team that will investigate incidents, accidents & non-conformances.

2.3.9 Health and Safety Committee

1. The Contractor will ensure that monthly health and safety meetings are held, and minutes are kept on record. Meetings must be organized and chaired by the Contractor’s Responsible Person. The Contractor will ensure that the *Health and Safety Representative(s)* is/are invited to attend the meeting as observer. Copies of the minutes must be made available to the Client/ Client Agent or Inspector.

2.3.10 Inductions

1. The Contractor will ensure that all employees under his / her control have gone through health and safety induction ***before being allowed to perform any task on site,*** a copy of the induction material must also be available as proof of topics discussed during induction. The Contractor will keep a copy of the attendance register of all his / her employees who attended the induction. The contractor must ensure that as new employees are brought to site during the project they must also undergo inductions before being able to perform any task on site.

2.3.11 Medical certificates of fitness

1. A contractor must ensure that all his or her employees have a valid medical certificate of fitness specific to the construction work to be performed and issued by an occupational health practitioner in the form of Annexure 3 of Construction Regulation 2014. This medical certificate must specifically state that the person is fit for duty and must also highlight any medical restrictions identified. The contractor must keep a detailed register in his safety file for all employees with restrictions and document how the restrictions are being managed.

2. The contractor must place a list that consists of the following information with medical certificates in safety file.

- Name and surname of employee
- Id number of employee
- Job description of employee
- Date medical attended
- Medical restrictions noted on medical certificate (as a result of POPIA act just indicate there are restrictions and how it will be managed)

2.3.12 *Awareness*

1. The Contractor will conduct, toolbox talks once weekly and before any hazardous work takes place. The talks will cover the relevant, daily, activity and an attendance register must be kept and signed by all attendees. A record of the content of the topic will be kept on the site health a safety file.

2.3.13 *Competency*

1. After the Contractor has identified the training to be conducted, based on the Hazard Identification Risk Assessment (HIRA); he / she will send the relevant persons on appropriate courses and keep certificates of training for reference.

2.3.14 General Record Keeping

1. The contractor will keep and maintain Health and Safety records to demonstrate compliance with the Occupational Health and Safety Specification and the Act. The contractor will ensure that all records of incidents, spot fines, training etc. are kept on site. All documents will be available for inspection by The Project Client / Client Agent or Inspectors.

2.3.15 General Inspection, Monitoring and Reporting

1. The Contractor will carry out daily inspections and investigate all incidents and report to The Project Client / Client Agent. The contractor will be required to keep records of all inspections and investigations which were undertaken and any other inspections and investigations by person's authorised to do so.

2.3.16 Internal Audits

1. The contractor's responsible person will conduct monthly Health and Safety Audits to ensure compliance with the OHS Act and Occupational Health and Safety Specification and communicate the findings to the Client Agent on a monthly basis. Records of audits must be kept, and non-conformance reported, investigated and corrective action must be taken to prevent re-occurrence.

2.3.17 External Audits

1. The Project Client / Client Agent will conduct health and safety audits to ensure compliance with the Occupational Health and Safety Specification and any relevant Health & Safety Legislation. All documentation held by the Contractor will be available for inspection.

2. Audits and Inspections may be conducted on an ad hock basis without informing the Contractor.

3. Any findings observed during these audits will be placed on an audit action plan that will show the deviation, the reason for the deviation occurring, the proposed actions that will be taken

to correct the deviation, responsible persons name, proposed close out date, actual closed out date and a signature of the contractor's responsible person confirming the close out.

2.3.18 Emergency Procedures

1. The Contractor will submit a detailed Emergency Procedure for approval by The Project Client / Client Agent prior to commencement on site. The procedure will detail the response plan including the following key personnel:

   (a) List of key personnel,
   (b) Details of emergency services,
   (c) Actions or steps to be taken in the event of the emergency; and
   (d) Information on hazardous materials / situations, including each material's hazardous potential impact or risk on the environment or human and measures to be taken in the event of an accident.

2. Emergency procedures will include, but will not be limited to electrical shock, fire, spills, accidents to employees, use of hazardous substances, etc. The Contractor will advise The Project Client / Client Agent in writing of any on site emergencies, together with a record of action taken, within 24 hours of the emergency occurring. A contact list of all service providers (Fire Department, Ambulance, Police, Medical and Hospital, etc.) must be maintained and available to site personnel.

2.3.19 First Aid Box and First Aid Equipment

1. The Contractor will appoint in writing a First Aider(s). The appointed First Aider(s) are to be sent for accredited first aid training before starting on site, or must be in possession of a valid certificate, of which copies are to be kept on site. The Contractors will provide, on site, First Aid Boxes, adequately stocked at all time, and ensure that the First Aid Box is accessible and fully controlled by a qualified First Aider. In addition, the location of these boxes must be indicated by means of Health and Safety Signage. A picture with the name and contact number of the First Aider on duty must be on displayed in all relevant areas.

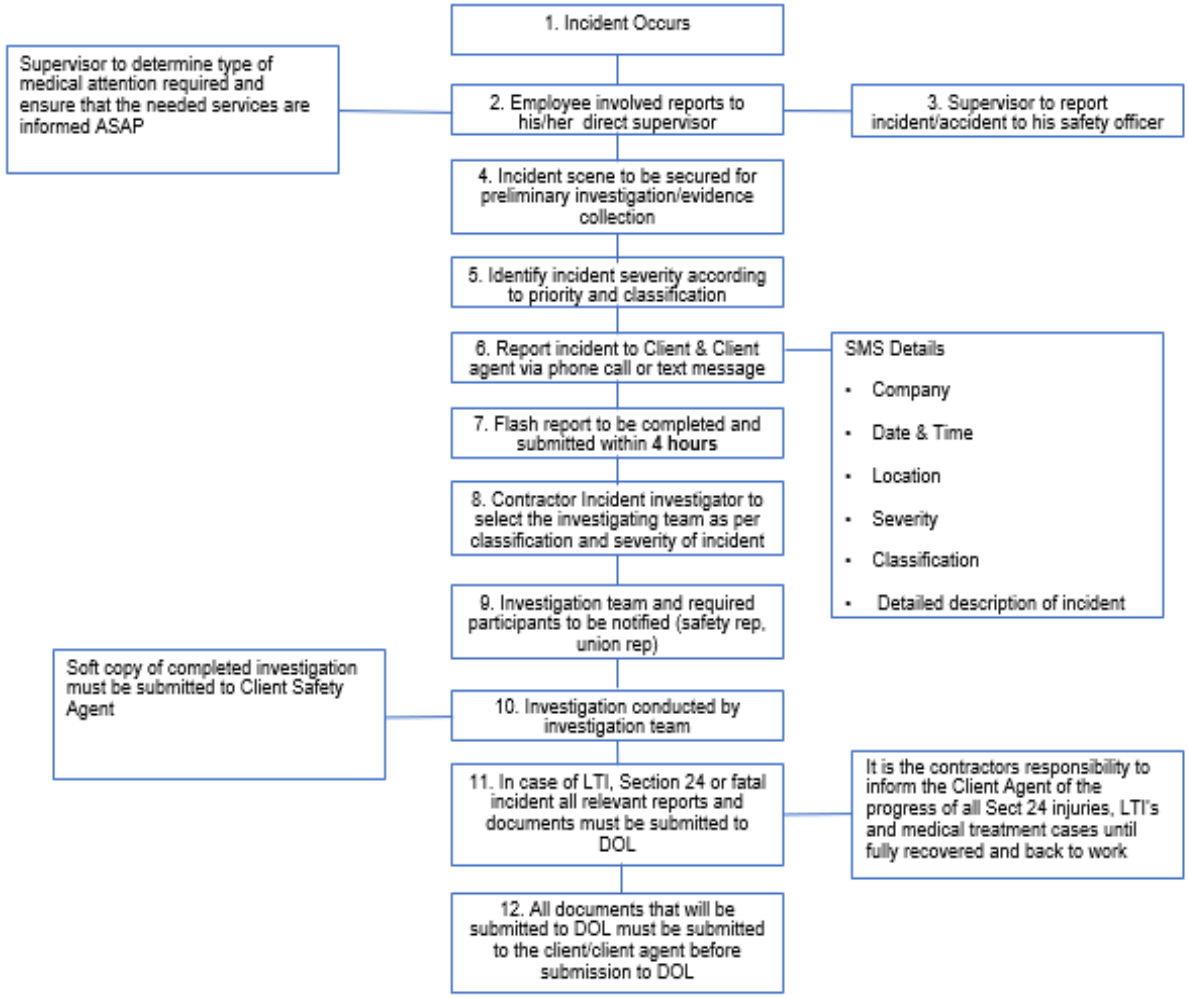
2.3.20 Accident / Incident Reporting and Investigation

1. The Contractor will in addition to the prescribed requirements of the OHS Act investigate, record and report all reportable incidents. The investigations will be conducted by a qualified (Competence certificate required) person or persons who have sufficient The Contractor will in addition to the prescribed requirements of the OHS Act investigate, record and report all reportable incidents. The investigations will be conducted by a qualified ***competent*** person or persons who have sufficient knowledge to carry out an investigation. In the case of a serious injury, meaning one in which a loss of man-hours are experienced exceeding 7 days, an independent investigator must be appointed by the Contractor. All incidents on site must be reported to the Client Agent within 1 hour of occurrence by means of a telephone call or text message via cell phone. A flash report will be completed and forwarded to the Client & Client Agent within four hours of incident occurrence.

   Preliminary investigations must be submitted to the Client agent within three days of incident occurring, the investigation will be reviewed, and the client agent reserves the right to request changes made to the investigation upon agreement with the contractor. In the event of section 24 and LTI investigations a final investigation report will be compiled and submitted to the Client/Client Agent with a detailed action plan outlining precautionary measures that will be taken to prevent reoccurrences as well as any other actions needed and identified during the investigation process.
   The contractor will provide to the Client & Client agent a scanned copy of the full final investigation as well as the following documents.

- Copy of the DSTI
- Copy of the risk assessment at the time of incident as well as a revised risk assessment.
- All appointments and competency certificates of supervision involved as well as injured person.
- Copy of injured person's pre-employment medical
- All medical reports e.g. First medical, follow up medicals as well as final medical and resumption report.
- Annexure 1 report of incident to department of labour
- Detailed action plan addressing all findings made during the investigation
- Proof of all close outs of findings made during the investigation
- Copies of all witness and other statements taken.
- Proof of Incident recall with all employees

Incidents will be managed according to the flow chart bellow



2.3.21 Hazards and Potential Situations Communication

1. The Contractor will immediately notify other Contractors or Sub-contractors of any hazardous or potentially hazardous situations, which may arise during performance of the activities.

2.3.22 Personal Protective Equipment (PPE) and Clothing

1. The Contractor will make provision and keep adequate quantities of SABS approved PPE or clothing on site at all times. These will be analysed by means of the Risk Assessment. The contractor must ensure that a PPE survey is conducted to determine the type of PPE that will be needed and indicate which job category will need what PPE. PPE issue records must also be kept for all PPE issued to employees on site, ensure each employee signs for their PPE. The contractor must also conduct regular PPE inspections of which findings must be noted on an inspection register.

2. The Contractor will clearly outline procedures to be taken when PPE or clothing is:

   (a) Lost or Stolen
   (b) Worn Out or Damaged
   (c) When and where it must be worn or used

2.3.23 Occupational Health and Safety Signage

1. The Contractor will provide adequate on site OHS signage in line with SANS1186. OHS signage will include, but will not be limited to, Construction area, Hard Hat / Helmet Area; Safety Goggles, Safety Shoes to be worn on site; Dust Masks to be worn in areas where there might be exposure to excessive dust; Ear Plugs / Muffs to be worn where there might be exposure over 85 dBa; Gloves; Safety Goggles; Safety Harness, etc. The Contractor will be responsible to maintain the quality and replacement of signage.

2. All work areas to be barricaded and required safety warning signs displayed (Danger Construction area, Do not enter, Only authorised persons allowed etc.)

2.3.24 Consolidated Health and Safety File

1. The Contractor will in accordance with Construction Regulation 7(1)e, hand a consolidated health and safety file to the client on completion of construction work, this must include records of drawings, designs, entry/exit medicals, incident investigations, non-conformances raised or received, risk assessments as well as significant information regarding the construction of the completed structure.

2.3.25 Permits

1. The Contractor will issue a permit for all hazardous or dangerous activities to be carried out during construction. The following is a list of hazardous activities which need a permit:

   (a) Working in Confined Space;
   (b) Use of a Hazardous Chemical Substance, e.g. Asbestos, Lead;
   (c) Use of Explosives and Blasting; and
   (d) Piling.

2.3.26 Contractors

1. The Principal Contractor will ensure that all Sub-contractors under his / her control are complying with the Occupational Health and Safety Specification, requirements by the Act, and any relevant legislation which may relate to the activities directly or indirectly. Each sub-contractor must sign a 37(2) agreement as well as some Construction regulations 7(1)(c)(v) contractor appointment before being allowed to perform any work.

2.4 *Occupational Safety*

2.4.1 Stacking of Materials

1. A contractor must, in addition to compliance with the provisions for the stacking of articles in the General Safety Regulations, 2003, ensure that –

   (a) a competent person is appointed in writing with the duty of supervising all stacking and storage on a construction site;
   (b) adequate storage areas are provided;
   (c) there are demarcated storage areas; and
   (d) storage areas are kept neat and under control.

2.4.2 Housekeeping and General Safeguarding on Construction Sites

1. A contractor must, in addition to compliance with the Environmental Regulations for Workplaces, 1987, promulgated by Government Notice No. R. 2281 of 16 October 1987, ensure that suitable housekeeping is continuously implemented on each construction site, including –

   (a) the proper storage of materials and equipment;
   (b) the removal of scrap, waste and debris at appropriate intervals;
   (c) ensuring that materials required for use, are not placed on the site so as to obstruct means of access to and egress from workplaces and passageways;
   (d) ensuring that materials which are no longer required for use, do not accumulate on and are removed from the site at appropriate intervals;
   (e) ensuring that waste and debris are not disposed of from a high place with a chute, unless the chute complies with the requirements set out in regulation 14(6);
   (f) ensuring that construction sites in built-up areas adjacent to a public way are suitably and sufficiently fenced off and provided with controlled access points to prevent the entry of unauthorized persons; and
   (g) ensuring that a catch platform or net is erected above an entrance or passageway or above a place where persons work or pass under, or fencing off the danger area if work is being performed above such entrance, passageway, or place so as to ensure that all persons are kept safe in the case of danger or possibility of persons being struck by falling objects.

2.4.3 Hazardous Chemical Substances (HCS)

1. In addition to the requirements in the HCS Regulations, the principal contractor must provide proof in the Health and Safety Plan that:

   (a) Material Safety Data Sheets (MSDS's) of the relevant materials / hazardous chemical substances are available prior to use by the contractor. Mention should be made how the principal contractor is going to act according to special/unique requirements made in the relevant MSDS's. All MSDS's will be available for inspection by the agent at all times.
   (b) Exposure monitoring is done according to OESSM and by an Approved Inspection Authority (AIA) and that the medical surveillance programme is based on the outcomes of the exposure monitoring.
   (c) How the relevant HCS's are being/going to be controlled by referring to:
      i. Limiting the amount of HCS
      ii. Limiting the number of employees
      iii. Limiting the period of exposure
      iv. Substituting the HCS
      v. Using engineering controls

vi. Using appropriate written work procedures

(e) The correct PPE is being used.

(f) HCS are stored and transported according to SABS 072 and 0228.

(g) Training with regards to these regulations was given.

2. The H&S plan should make reference to the disposal of hazardous waste on classified sites and the location thereof (where applicable).

3. The First Aider must be made aware of the MSDS and how to treat HCS incidents appropriately.

2.4.4 Noise Induced Hearing Loss

1. Where noise is identified as a hazard the requirements of the NIHL regulations must be complied with and the following must be included / referred to in the Health and Safety Plan. The Contractor must be able to:

(a) Proof of training with regards to these regulations.

(b) That monitoring carried out by an AIA and done according to SABS 083.

(c) Medical surveillance programme is established and maintained for the necessary employees.

(d) Control of noise by means of:

i. Engineering methods considered

ii. Admin control considered

iii. Personal protective equipment considered/decided on

iv. Describe how records are going to be kept for 40 years.

2.4.5 Construction Plant

"Construction Plant" encompasses all types of plant including but not limiting to, cranes, piling frames, boring machines, and excavators, draglines, dewatering equipment and road vehicles with or without lifting equipment.

1. A contractor must ensure that all construction vehicles and mobile plant –

(a) are of an acceptable design and construction;
(b) are maintained in a good working order;
(c) are used in accordance with their design and the intention for which they were designed, having due regard to safety and health;
(d) are operated by a person who -
i. has received appropriate training, is certified competent and in possession of proof of competency and is authorised in writing to operate those construction vehicles and mobile plant;
ii. has a medical certificate of fitness to operate those construction vehicles and mobile plant, issued by an occupational health practitioner in the form of Annexure 3 of Construction Regulation 2014
(e) have safe and suitable means of access and egress;
(f) are properly organized and controlled in any work situation by providing adequate signalling or other control arrangements to guard against the dangers relating to the movement of vehicles and plant, in order to ensure their continued safe operation;
(g) are prevented from falling into excavations, water or any other area lower than the working surface by installing adequate edge protection, which may include guardrails and crash barriers;

(h) are fitted with structures designed to protect the operator from falling material or from being crushed should the vehicle or mobile plant overturn;
(i) are equipped with an acoustic warning device which can be activated by the operator;
(j) are equipped with an automatic acoustic reversing alarm; and
(k) are inspected by the authorised operator or driver on a daily basis using a relevant checklist prior to use and that the findings of such inspection are recorded in a register kept in the construction vehicle or mobile plant.

2. A contractor must ensure that –

(a) no person rides or is required or permitted to ride on a construction vehicle or mobile plant otherwise than in a safe place provided thereon for that purpose;
(b) every construction site is organized in such a way that, as far as is reasonably practicable, pedestrians and vehicles can move safely and without risks to health;
(c) the traffic routes are suitable for the persons, construction vehicles or mobile plant using them, are sufficient in number, in suitable positions and of sufficient size;
(d) every traffic route is, where necessary, indicated by suitable signs;
(e) all construction vehicles and mobile plant left unattended at night, adjacent to a public road in normal use or adjacent to construction areas where work is in progress, have appropriate lights or reflectors, or barricades equipped with appropriate lights or reflectors, in order to identify the location of the vehicles or plant;
(f) all construction vehicles or mobile plant when not in use, have buckets, booms or similar appendages, fully lowered or blocked, controls in a neutral position, motors stopped, wheels chocked, brakes set and ignition secured;
(g) whenever visibility conditions warrant additional lighting, all mobile plant are equipped with at least two headlights and two taillights when in operation;
(h) tools, material and equipment are secured and separated by means of a physical barrier in order to prevent movement when transported in the same compartment with employees;
(i) vehicles used to transport employees have seats firmly secured and adequate for the number of employees to be carried; and
(j) all construction vehicles or mobile plant travelling, working or operating on public roads comply with the requirements of the National Road Traffic Act, 1996.

2.4.6 Pressure Vessels Including Gas Cylinders

1. The Contractor will comply with Pressure Equipment regulations, including:

(a) Providing competency and awareness training to the operators;
(b) Providing PPE or clothing;
(c) Providing and maintain appropriate signage in areas Pressure equipment are
(d) used;
(e) Inspect equipment regularly and keep records of inspections;
(f) Providing appropriate firefighting equipment (Fire Extinguishers).

2.4.7 Fire Extinguishers and Fire Fighting Equipment

1. The Contractor will provide adequate, regularly serviced fire extinguishers located at strategic points on site. The Contractor will keep spare serviced portable fire extinguishers. The Contractor will have adequate persons trained or competent to use the Fire Fighting Equipment (Basic fire fighting training certificate). Safety signage will be posted; indicating locations of fire extinguishers.

2. The contractor will ensure that all plant and machinery used on site is fitted with appropriate fire extinguishers

2.4.8 Hired Plant and Machinery

1. The contractor will ensure that any hired plant and machinery brought to site is safe for use. The necessary requirements as stipulated by the OHS Act as well as those that are stipulated by this Occupational Health and Safety Specification, will apply. Health and Safety Induction is to be conducted with any hire plant or machinery operators and attendance of appropriate toolbox talks ensured. All operators of hired plant or machinery must be in possession of valid operator's certificates and medical certificates of fitness, as per requirement by the OHS Act.

2.4.9 General Machinery

1. The Contractor will comply with the Driven Machinery Regulations, which include inspecting machinery regularly, appointing a competent person to inspect and ensure maintenance, issuing PPE or clothing and training those that use machinery and enforce compliance.

2.4.10 Portable Electrical Tools / Explosive Power Tools

1. A contractor must, in addition to compliance with the Electrical Installation Regulations, 2009, and the Electrical Machinery Regulations, 1988, promulgated by Government Notice No. R. 1593 of 12 August 1988, ensure that –

   (a) before construction commences and during the progress thereof, adequate steps are taken to ascertain the presence of and guard against danger to workers from any electrical cable or apparatus which is under, over or on the site;
   (b) all parts of electrical installations and machinery are of adequate strength to withstand the working conditions on construction sites;
   (c) the control of all temporary electrical installations on the construction site is designated to a competent person who has been appointed in writing for that purpose;
   (d) all temporary electrical installations used by the contractor are inspected at least once a week by a competent person and the inspection findings are recorded in a register kept on the construction site; and
   (e) all electrical machinery is inspected by the authorized operator or user on a daily basis using a relevant checklist prior to use and the inspection findings are recorded in a register kept on the construction site.

2.4.11 High Voltage Electrical Equipment & Electrical Regulations

<u>High Voltage Electrical Equipment</u>

1. The Contractor will ensure that, where the work is under, on or near high-voltage electrical equipment the Electrical Regulations, together with safety instructions (Regulations of the Owner of the Equipment) are complied with.

2. Such equipment includes: -

   - Eskom and the Local Authority equipment
   - The Contractor's own power supply; and
   - Electrical equipment being installed but not yet taken over from a Contractor by The Project Client / Client Agent.

Electrical Regulations

3.1 The employer must take reasonable measures to ensure that all electrical apparatus and electrical reticulation systems are designed, constructed, installed, operated and maintained by a competent person or under the direct supervision of such a competent person

3.2 The employer must take reasonable measures to ensure that no person suffers any electrical shock, thermal burning or electrocution as a result of:

(i) exposure to current flow;
(ii) a person unintentionally coming into contact with exposed parts of any electrical apparatus;
(iii) exposure to thermal effect, overcurrent, short circuit, fault current, earth fault, overvoltage and undervoltage;
(iv) any electrical apparatus failing due to electromagnetic interference from other equipment.
(v) any electrical apparatus being incorrectly selected, installed, operated or maintained;
(vi) any electrical apparatus being placed and protected in such a manner as to allow inadvertent contact with any live portion thereof; and
(vii) any exposure to fires as a result of electrical faults

3.3 The measures contemplated in regulation 3.2 must include measures to ensure that

3.3.1 where the interruption of electrical supply to any equipment could result in a significant risk, such electrical supply can be substituted from another source or network, which can include an emergency supply alternator / generator, for power supply in the event of an interruption to the normal power supply;

3.3.2 an extension of any electrical reticulation system is approved by a competent person (engineer) taking into account the reticulation network and the effect thereon;

3.3.3 only competent persons operate switchgear of machinery where the operation of such machinery poses a significant risk and that such switchgear is protected against unauthorised access and operation;

3.3.4 electrical apparatus and switchgear in substations are installed:

(a) with sufficient clearances to prevent inadvertent contact with live conductors;
(b) in such a manner to prevent environmental conditions leading to such electrical Apparatus and switchgear posing a significant risk to persons;
(c) so as to provide unrestricted clearances around the apparatus or switchgear to enable escape of personnel during normal operation and emergencies;
(d) with an effective means to disconnect the energy source; and
(e) together with means to effectively extinguish any fire in the substation;

3.3.11 all electrical apparatus are clearly marked with the maximum voltage that may be present therein unless such apparatus contains voltages lower than 50 volts;

3.3.12 where electrical apparatus or switchgear is required to be live for the purpose of examination or testing, such examination or testing is done by a competent person2 in the company of a person conversant with the risks of electricity, and both these persons are suitably protected from live contact and flash;

3.3.13 whenever work is to be carried out on electrical apparatus which has been isolated from all sources of supply, effective precautions are taken, by earthing or other means, to electrically discharge such apparatus so as to prevent any conductor or apparatus from being made live while any person is working thereon;

3.3.14 any accessible metallic portion of electric plant or apparatus which, though not normally forming part of an electric circuit, may inadvertently become live, is insulated or connected to earth by a conductor of adequate cross-sectional area capable of withstanding the maximum possible earth fault current condition, so as to prevent any significant risk to persons for the duration that the fault current that may be flowing in the circuit;

3.3.15 all switching operations of medium voltage or higher voltage switchgear are carried out in accordance with a procedure prepared and implemented by the employer; 3.3.16 where any electrical cable is buried in the ground or installed in such a position that mechanical damage may occur, it is protected by an **armouring**;

3.3.20 a competent person2:

(a) examines and tests all new and re-erected electric apparatus and switchgear before it is put into service; and
(b) at least once in every six months thoroughly examines and tests all electrical apparatus for earth continuity and functioning of associated protective devices, except in cases where a continuous earth monitoring system has been installed;

3.3.21 all medium voltage and high voltage switchgear protection devices are tested for correct functioning

(a) on commissioning or after any primary circuit component change which may affect the function of the protection device, by means of primary current injection; and
(b) annually;

3.3.22 the person or persons carrying out the examinations or tests referred to in regulations 3.3.20 and 3.3.21 record the results thereof, and that such results are promptly brought to the attention of the competent person1, who must ensure that the settings comply with the network design criteria to verify the correct setup;

3.3.25 persons carrying out examinations, repairs or other work at elevated positions in close proximity to electrical apparatus are protected from live electrical contact;

3.3.26 no electrical cable trench or duct is left open, uncovered or unprotected, except when persons are working in such trench or duct or where precautions have been taken to prevent persons from inadvertently falling into such trench or duct;

3.3.28 the design and construction of power lines are in accordance with South African Bureau of Standards Code of Practice SANS 10280, 1995. “Overhead power lines for conditions prevailing in South Africa”;

NOTE Normative references in SANS 10280, 1995 are not applicable to the employer

2.4.12 Public Health and Safety

1. The Contractor will ensure that each person visiting a site, as well as surrounding communities, are made aware of the dangers likely to arise from on-site activities and the precautions to be observed to avoid or minimize those dangers. Appropriate health and safety signage will be posted at all times. No visitor will be allowed on site without the permission of the Construction Supervisor or his/her Assistant. All visitors must complete a register, which should include the name, reason for visit and contact detail of said person. Should site offices be erected at the place of work the Contractor will ensure that the site is fenced on all sides with a minimum requirement of 1600 mm Diamond mesh, galvanised fence, this fence must have a gate fitted to ensure security and stop unwanted entrance to site. The gate must be closed at all times and access must be controlled.

2. Both the Project Client / Client Agent and the Contractor have a duty in terms of the OHS Act to do all that is reasonably practicable to prevent members of the public and others being affected by the construction processes to be aware and put preventative measure in place. The public or visitors will go through a brief health and safety induction detailing hazards and risks they may be exposed to and what measures are in place to control these hazards and risks. All visitors must complete a register, which should include the name, reason for visit and contact detail of said person.

2.4.13 Night Work

1. The Contractor will not undertake any night work without prior arrangement and a written permit from The Project Client / Client Agent. The Contractor will ensure that adequate lighting is provided for all night work and failure to do so will result in work being stopped.

2.4.14 Facilities for Safekeeping and Eating Area (Mess Room) for workers

1. There will be a temporary structure to serve as a mess room or eating area.

2.4.15 Fall Protection where applicable

1. A contractor must –

   (a) designate a competent person to be responsible for the preparation of a fall protection plan;
   (b) ensure that the fall protection plan contemplated in paragraph (a) is implemented, amended where and when necessary and maintained as required; and
   (c) take steps to ensure continued adherence to the fall protection plan.

2. A fall protection plan contemplated in Construction Regulation 10(1), must include –

   (a) a risk assessment of all work carried out from a fall risk position and the procedures and methods used to address all the risks identified per location;
   (b) the processes for the evaluation of the employees' medical fitness necessary to work at a fall risk position and the records thereof;
   (c) a programme for the training of employees working from a fall risk position and the records thereof;
   (d) the procedure addressing the inspection, testing and maintenance of all fall protection equipment; and
   (e) a rescue plan detailing the necessary procedure, personnel and suitable equipment required to affect a rescue of a person in the event of a fall incident to ensure that the rescue procedure is implemented immediately following the incident.

3. A contractor must ensure that a construction manager appointed under regulation 8(1) is in possession of the most recently updated version of the fall protection plan.

4. A contractor must ensure that –

(a) all unprotected openings in floors, edges, slabs, hatchways and stairways are adequately guarded, fenced or barricaded or that similar means are used to safeguard any person from falling through such openings;
(b) no person is required to work in a fall risk position, unless such work is performed safely as contemplated in Construction Regulation 10(2);
(c) fall prevention and fall arrest equipment are -
  i. approved as suitable and of sufficient strength for the purpose for which they are being used, having regard to the work being carried out and the load, including any person, they are intended to bear; and
  ii. securely attached to a structure or plant, and the structure or plant and the means of attachment thereto are suitable and of sufficient strength and stability for the purpose of safely supporting the equipment and any person who could fall; and
(d) fall arrest equipment is used only where it is not reasonably practicable to use fall prevention equipment.

5. Where roof work is being performed on a construction site, the contractor must ensure that, in addition to the requirements set out in Construction Regulation 10 (2) and (4), it is indicated in the fall protection plan that –

(a) the roof work has been properly planned;
(b) the roof erectors are competent to carry out the work;
(c) no employee is permitted to work on roofs during inclement weather conditions or if any conditions are hazardous to the health and safety of the employee;
(d) all covers to openings and fragile material are of sufficient strength to withstand any imposed loads;
(e) suitable and sufficient platforms, coverings or other similar means of support have been provided to be used in such a way that the weight of any person passing across or working on or from fragile material is supported; and
(f) suitable and sufficient guard-rails, barriers and toe-boards or other similar means of protection prevent, as far as is reasonably practicable, the fall of any person, material or equipment.

2.4.16 Structures

1. A contractor must ensure that –

(a) 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;
(b) no structure or part of a structure is loaded in a manner which would render it unsafe; and
(c) all drawings pertaining to the design of the relevant structure are kept on site and are available on request to an inspector, other contractors, the client and the client's agent or employee.

2. An owner of a structure must ensure that –

(a) inspections of that structure are carried out periodically by competent persons in order to render the structure safe for continued use;
(b) that the inspections contemplated in paragraph (a) are carried out at least once every six months for the first two years and thereafter yearly;
(c) the structure is maintained in such a manner that it remains safe for continued use;

(d) the records of inspections and maintenance are kept and made available on request to an inspector.

2.4.17 Lifting Machinery and Tackle, Material Hoist and Cranes

1. A contractor must ensure that every material hoist and its tower have been constructed in accordance with the generally accepted technical standards and are strong enough and free from defects.
2. A contractor must ensure that the tower of every material hoist is -
   (a) erected on firm foundations and secured to the structure or braced by steel wire guy ropes, and extends to a distance above the highest landing to allow a clear and unobstructed space of at least 900 millimetres for over travel;
   (b) enclosed on all sides at the bottom, and at all floors where persons are at risk of being struck by moving parts of the hoist, except on the side or sides giving access to the material hoist, with walls or other effective means to a height of at least 2100 millimetres from the ground or floor level; and
   (c) provided with a door or gate at least 2100 millimetres in height at each landing, and that door or gate must be kept closed except when the platform is at rest at such a landing.
3. A contractor must cause -
   (a) the platform of every material hoist to be designed in a manner that it safely contains the loads being conveyed and that the combined mass of the platform and the load does not exceed the designed lifting capacity of the hoist;
   (b) the hoisting rope of every material hoist which has a remote winch to be effectively protected from damage by any external cause to the portion of the hoisting rope between the winch and the tower of the hoist; and
   (c) every material hoist to be provided with an efficient brake capable of holding the platform with its maximum load in any position when power is not being supplied to the hoisting machinery.
4. No contractor may require or permit trucks, barrows or material to be conveyed on the platform of a material hoist and no person may so convey trucks, barrows or material unless those articles are secured or contained in a manner that displacement thereof cannot take place during movement.
5. A contractor must cause a notice, indicating the maximum mass load which may be carried at any one time and the prohibition of persons from riding on the platform of the material hoist, to be affixed around the base of the tower and at each landing.
6. A contractor of a material hoist may not require or permit any person to operate a hoist, unless the person is competent in the operation of that hoist.
7. No contractor may require or permit any person to ride on a material hoist.
8. A contractor must ensure that every material hoist -
   (a) is inspected on daily basis by a competent person appointed in writing by the contractor and such competent person must have the experience pertaining to the erection and maintenance of material hoists or similar machinery;
   (b) inspection contemplated in paragraph (a), includes the determination of the serviceability of the entire material hoist, including guides, ropes and their connections, drums, sheaves or pulleys and all safety devices;
   (c) inspection results are entered and signed in a record book by a competent person, which book must be kept on the premises for that purpose;
   (d) is properly maintained and the maintenance records in this regard are kept on site.
9. A contractor must, in addition to compliance with the Driven Machinery Regulations, 1988 ensure that where tower cranes are used -
   (a) they are designed and erected under the supervision of a competent person;
   (b) a relevant risk assessment and method statement are developed and applied;
   (c) the effects of wind forces on the crane are taken into consideration and that a wind speed device is fitted that provides the operator with an audible warning when the wind speed exceeds the design engineer's specification;

(d) the bases for the tower cranes and tracks for rail-mounted tower cranes are firm, level and secured;
(e) the tower crane operators are competent to carry out the work safely; and
(f) the tower crane operators have a medical certificate of fitness to work in such an environment, issued by an occupational health practitioner in the form of Annexure 3 of Construction Regulation 2014.

2.5 *Occupational Health*

1. Exposure of workers to occupational health hazards and risks are very common in any work environment, especially in construction. The occupational hazards and risks may enter the body in three ways:
   (a) Inhalation e.g. cement dust;
   (b) Ingestion through swallowing;
   (c) Absorption through the skin (pores) e.g. painting or use of thinners.

2. All contractors are to ensure that where employees are exposed to airborne contaminants, pre-employment medicals should be conducted to ensure fitness to work under such conditions.

3. All contractors will be responsible for the full cost of medical treatment that his staff may require; the contractor is therefore required to ensure that all his personnel are medically fit.

4. All Contractors should ensure that Occupational Hygiene surveys are conducted as per the Occupational Health and Safety Act to ensure employees is not exposed to hazards. Risk Assessments should identify areas where surveys are to be conducted.

2.6 COVID-19 (SARS-CoV-19 virus) Workplace Preparedness:

The Principal contractor must ensure compliance to all relevant current COVID-19 regulations

OCCUPATIONAL HEALTH AND SAFETY SPECIFICATION REQUIREMENTS
FOR CONSTRUCTION

ANNEXURE A

Notification of Intention to Commence Construction / Building work	To be completed and logged with the Department of Labour	Before commencement on site
Application Construction work permit	To be submitted 30 days prior to work commencing	Before commencement on site
Assignment of Responsible Person to Manage Building Work	All relevant appointments as per OHS Act	Before commencement on site
Assignment of Responsible Person to Supervise Building Work	All relevant appointments as per OHS Act	Before commencement on site
Medical Certificates of Fitness for all personnel on site	As per specifications and OHS Act	Before commencement on site
Competency for Responsible Persons	As per specifications and OHS Act	Before commencement on site
Compensation of Occupational Injuries and Diseases Act (COIDA) 130 of 1993	COIDA Requirement	Before commencement on site and during construction period
Occupational Health and Safety Policy	Contractor’s Responsibility	At tender stage
Health and Safety Organogram.	Contractor’s Responsibility	Before commencement on site
Health & Safety Representative	Section 17 OHS Act	Submit as soon as there are more than 20 employees on site

Assignment of Contractor's Responsible Persons

ANNEXURE B

The contractor **will** make the following appointments where applicable and ensure that CV's and competency certificates are attached to the relevant appointments* but are not limited to:

Section 16.1 CEO
(Competent Person for OHS) - OHS 16(2)*
Construction Manager CR 8(1)*
Assistant Construction Manager CR 8(2)*
Construction Safety Officer - CR 8(5)*
Construction Work Supervisor - CR 8(7)*
Construction Work Assistant Supervisor - CR 8(8)*
Risk Assessor - CR 9(1)
Competent person to perform risk assessment and procedure training CR 9(3)
Fall Protection Planner CR 10(1)
Construction Vehicle & Mobile Plant Operator - CR23(1)(d)*
Electrical Installations Inspector CR 24(d)
Housekeeping Inspector CR 27
Stacking & Storage Supervisor - CR 28(a)
Fire Equipment Inspector - CR 29(h)
Emergency Coordinator - ER 9
H&S Committee Chairperson - OHS 19 (*where applicable)*
First Aider/s - GSR 3 **(Compulsory)**
Hazardous Chemical Substance Supervisor - HCS Regulations
Health and Safety Representative - OHS 17(1) (*where applicable)*
Incident / Accident Investigator - GAR 9(2)
Responsible Person for Machinery - GMR 2(1)
Lifting Tackle inspector – DMR 18
Lifting Machinery Operator – DMR 18
Portable Electrical Equipment Inspector EMR 10

OTHER Occupational Health and Safety Specification REQUIREMENTS

ANNEXURE C

The contractor will comply and not be limited to the following requirements:

What	When	Output	Reference information
Awareness training Toolbox talks	Twice a week and before hazardous work is carried out	Attendance Register	
DSTI	Daily before work starts	Signed document	
Health and Safety Committee Meetings	Monthly	Minutes signed by the employer (Contractor) Covering: a) Health and Safety Representative Checklist	
Health and Safety Reports	Monthly	Report covering: a) Incidents/Accidents and Investigations b) Non-conformance c) Health and Safety Training d) HIRA Updates e) Internal and External Audits	Incident reporting and investigation for The Project Client / Client Agent & Contractor form
General Inspections	As per Occupational Health and Safety Specification and OHS Act	Report on Occupational Health and Safety Specification and OHS Act compliance: a) Scaffolding b) Lifting Machinery c) Excavations	
General Inspections	Monthly	Covering: a) Firefighting Equipment b) First Aid boxes c) Portable Electrical Equipment d) Ladders e) Vehicle & plant inspections	
Record keeping	Ongoing	Covering: a) General complaints b) Fines c) General incidents d) MSDS e) Surveillance Medicals f) Inspection Register	
Permits	Before commencement with certain activities	As stipulated by the Occupational Health and Safety Specification and the OHS Act / Construction Regulations	

SAFETY FILE REQUIRMENTS

ANNEXURE D

The contractor will comply and not be limited to the following requirements:

Item	Description
1.	OHS Act section 37.2 Agreement & **CR 5(1)(k) Principal Contractor Appointment**
2.	EHS Plan ***(Approved by Client as well as contractor responsible person)***
3.	Contractor Policies ***(As well as proof of communication to employees)***
4.	Scope of Work & ***Letter of award of contract***
5.	Contractor Public Liability Insurance Cover **(Proof of cover and policy number)**
6.	Notification of Construction Work to Department of Labour (Copy) **Stamped by DOL**
7.	Client SHE Specifications ***(Proof of communication to Construction Manager & Supervision)***
8.	Letter of Good Standing with a Licenced Compensation Commissioner (COID)
9.	Organisation Structure ***(Must indicate legal appointment reference, contact number as well as e-mail address where applicable)***
10.	Induction ***(Copy of training material and proof of training)***
11.	Risk Assessments ***(Approved risk assessment by contractor and Agent as well as proof of communication to all employees)***
12.	Baseline risk assessment
13.	Area Emergency Plan site specific ***(Proof of communication to employees)***
14.	All Safe work procedures relevant to tasks that will be performed tasks identified as high-risk activities during risk assessment process
15.	Appointments Letters ***(Copy of legal appointments and competency/CV/Certificates)***
16.	Site Specific Audits and Internal Audits/Inspection Arrangements (Client as well as internal)

Item	Description
17.	Personal Protective Equipment ***(Proof of issue as well as monthly inspections by supervision)***
18.	Workers Welfare Facilities &Waste Management ***(Plot plan and inspections)***
19.	Toolbox Talks ***(Topics and proof of communication)***
20.	Site EHS Meetings Arrangements
21.	Equipment/Tools Inspections Checklist/Registers
22.	Incident Investigations
23.	Medical Surveillance Certificates
24.	Copy of the Act & WCL2 Forms
25.	MSDS'S of all chemicals that will be used on site (16 Point MSDS as required by law)
26.	Fall Protection Plan
27.	COVID-19 Workplace preparedness plan and all relevant registers and inspections

MANDATORY AGREEMENT ON ENVIRONMENTAL, HEALTH AND SAFETY ISSUES

ENTERED INTO AND BETWEEN

GEORGE MUNICIPALITY

(Hereinafter referred to as the "Employer")

and

……

Contractor

Compensation Fund Number: ……..

Whereas the Employer has called for the executing of the following work: **ENG010/2022 ELECTROTECHNICAL SERVICES BUILDING**, and whereas the Contractor undertook to carry out the work and whereas Employer and the Contractor have agreed to regulate the environmental, occupational health and safety responsibilities as between them, now therefore the undersigned agree to:

Section A: Occupational Health and Safety

1) The Contractor warrants that all his and his sub-Contractors' employees are covered in terms of the provisions of the Compensation for Occupational Injuries and Diseases Act 1993, which cover shall remain in force whilst any such employees are present on Employer premises. The Contractor will only allow sub-Contractors on site with the prior written consent of the Employer.

2) The Contractor warrants that it is in possession of Public liability insurance cover and any other insurance cover of that will adequately make provision for any possible losses and/or claims arising from his and/or his sub-Contractors and/or his employees' acts or omissions on Employer premises, which shall remain in force whilst he and/or his sub-Contractor and/or his employees are present on Employer premises or which shall remain in force for the duration of his contractual relationship with the Employer, whichever period is the longer.

3) The Contractor undertakes to ensure that he and/or his sub-Contractors and/or their respective employees will at all times comply with all the requirements of the Occupational Health and Safety Act, Act 85 of 1993 (OHS-Act) and that he is an employer in his own regard. The Contractor (Mandatory) therefore and Employer therefore enter into this agreement by virtue of Section 37(2) of the OHS-Act, without derogating from this general undertaking, also comply with the following conditions:

(a) All work being done will be preceded by hazard identifications and risk assessments and these hazards and risk will eliminated, controlled or mitigated where reasonably practicable.

(b) All work performed on Employer premises must be performed under the close supervision of the Contractor's Supervisors on site. Such supervisors are to be conversant with the hazards associated with any work that the Contractor performs on the stated premises as well as the mitigating and controlling measures to be implemented.

(c) Contractor employees must be medically fit to perform the work they are required to perform. Proof of completed Annexure 3, medical fitness and biological monitoring is to be provided to the Employer authorised representative on request of the Employer. The contractor is specifically but not exclusively referred to: Hazardous Substances Act, Employment Equity Act, Construction Regulations 2014, Hazardous Chemical Substances Regulations, Lead Regulations, Asbestos Regulations, Hazardous Biological Agents Regulations, Noise Induced Hearing Loss Regulations, etc.

(d) The Contractor's Chief Executive Officer shall assume the responsibility in terms of Section 16(1) of the Occupational Health and Safety Act. If the Contractor assigns any duty in terms of Section 16(2), a copy of such written appointment shall immediately be forwarded to the Employer, as well as all other appointments made in terms of the Occupational Health and Safety Act.

(e) The Contractor shall ensure that he familiarizes himself with the requirements of the Occupational Health and Safety Act and that he, his employees and any sub-Contractor comply with its requirements.

(f) The Contractor shall appoint competent employees who shall be trained and conversant on any Occupational Health and Safety aspect pertinent to them or to the work that is to be performed. No employee will be employed on the site by the Contractor, which has not been employed for at least six months prior to the contract commencing in a similar position by the Contractor.

(g) The Contractor shall strictly enforce discipline regarding Occupational Health and Safety.

(h) The Contractor shall ensure that his employees are issued and use the required Personal Protective Equipment (PPE). PPE will only be used as a last resort where other mitigating measures are not reasonably practicable.

(i) Safe work procedures shall be implemented and enforced; all employees shall be made conversant with the contents of these practices.

(j) No unsafe or illegal equipment/machinery, personal protective equipment and/or articles shall be used on Employer premises.

(k) Those incidents and accidents mentioned in the Occupational Health and Safety Act shall be reported by the Contractor to the Department of Labour as well as to the Employer. The Employer shall further be provided with copies of any written documentation relating to any incident.

(l) All employees of the Contractor shall be made conversant with work-related hazards and procedures to mitigate or eliminate these hazards.

(m) The Contractor warrants that he shall act as a professional in his field of expertise and has identified all hazards and risks associated with the work to be performed.

(n) The Employer and Contractor hereby obtains an interest in the issue of any investigation or formal inquiry conducted in terms of the Occupational Health and Safety Act pertaining to any incident involving the Contractor and/or his employees and/or his sub-Contractor/s.

(o) No use shall be made of any Employer machinery/article/substance or personal protective equipment without written approval and without ensuring prior and during use it is in a proper condition and as such will not cause any risk to the health and safety of any person.

(p) Work for which the issuing of a permit is required shall not be performed prior to the obtaining of a duly completed and approved permit.

(q) No alcohol or other intoxicating substance shall be allowed on the Employer's premises. Anyone suspected of being under the influence of alcohol or any other intoxicating substance (including medicines) shall not be allowed on the premises.

(r) Full co-operation shall be given if and when the Employer's employees inquire into occupational health and safety issues.

(s) The Contractor will cease dangerous or unsafe work immediately when requested to do so by the Employer or its representatives. The onus still remains on the contractor to enforce health and safety practices.

(t) The Contractor confirms that he has been informed that he must report to the Employer management (in writing) anything that he deems to be unhealthy and/or unsafe. He has informed his employees and/or sub-Contractors in this regard.

(u) The Contractor warrants that he shall not endanger the health and safety of Employer employees, members of the surrounding community and/or visitors in any way whilst performing any work on Employer premises.

(v) The Contractor undertakes to reimburse the Employer for all medical costs incurred relating to any of the Contractor's employees.

(w) Should the contractor be performing “construction work” as defined in the Construction Regulations 2014 of the OHS-Act, the contractor will therefore ensure full compliance with said regulations

Section B: General and Environmental legal compliance

1) The Contractor will ensure compliance to all environmental legislation.
2) The Contractor undertakes to comply with all labour related legislation while performing work for the Employer.
3) The Contractor will be accountable and liable for all fines, penalties and civil action arising out of his and his employee’s, contractor’s or agent’s acts and omissions. The Contractor will hold the Employer harmless against any such claims or actions.

Section C: Special conditions

1) This agreement shall remain in force for the complete duration of the specified work done for the Employer unless revoked in writing.
2) The Contractor representative shall be bound *in solidum (jointly and severally)* in terms of this agreement.
3) The Contractor undertakes to adhere to all the Employer's rules and regulations as well as all guidelines and other addendums that may be annexed hereto. The Contractor will ensure that all his employees are conversant with these annexures, where applicable.
4) "*Employer Premises*" in this agreement will include Client premises.
5) The Employer retains the right to stop any work deemed dangerous in regard to the health and safety of employees, Client representatives, public or visitors. Work may also be stopped as a result of legal noncompliance's observed during audits, the contractor will be responsible for any damages and costs suffered as a result of work stoppages.

Date	
Place	
Signed by: **Client:** _____	Mr. _____
Date	
Place	
Signed by contractor or his authorized representative:	Mr. _____

Notes

1. Initial each page and annexures
2. Verify all corporate entity names and site them correctly
3. Verify insurances and COIDA
4. Verify signatory authority
5. Keep original
6. Initial where amended or writing added
7. To be signed before commercial agreement
8. Ensure commercial contract do not override this agreement.

APPOINTMENT AS THE PRINCIPAL CONTRACTOR OF CONSTRUCTION WORK IN TERMS OF CONSTRUCTION REGULATION 5(1)(k) OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, (85 OF 1993) AS AMENDED

NAME OF CLIENT: GOERGE MUNICIPALITY

IN TERMS OF THE ABOVE-MENTIONED ACT:

I/WE ..... (FOR EMPLOYER) having been appointed to ensure full
Manager-Section
compliance with the OHSA and Regulations, hereby appoint you.....
Full name
On behalf of……..as Principal Contractor of Construction Work in

terms of the Construction Regulation 5(1)(k). The appointment is for the following project: ***ENG010/2022***

ELECTROTECHNICAL SERVICES BUILDING

YOUR RESPONSIBILITIES ARE TO:

1. Comply with all the duties imposed on a Principal Contractor by the Construction Regulations.
2. Supervise all Construction work on the premises in accordance with CR 5(1)(k).
3. Ensure compliance with the health and safety specifications prescribed by the client or his agent for this project.
4. Ensure compliance with all the requirements of the National Building Regulations.
5. Ensure that all contractors appointed by yourself, and reporting to you, comply with the requirements as stipulated in the Construction Regulations.
6. Ensure that information and specifications to carry out work safely are communicated to all contractors appointed and reporting to you.
7. To ensure that all records, registers, and documentation are maintained and that all persons appointed to carry out tasks are competent and possess the necessary resources to complete their tasks effectively and in such manner that the health and safety of persons are not compromised.
8. Report to the client as per the agreed safety plan on all deviations and progress.

This appointment will become effective on the date of acceptance thereof and will be valid until completion of the construction work.

Please confirm your acceptance of this appointment by signing and returning to me the duplicate copy of this letter.

Signature: .....
Manager (for employer)

Designation: .....

Date: .....

ACCEPTANCE

I..... understand the implications of the appointment and confirm my acceptance of this appointment. I have studied the relevant sections of the Act and Regulations and understand what is required of me.

Signed:..... **Date: .....**

BASELINE RISK ASSESSMENT

	TASK	HAZARD/RISK	MINIMUM CONTROL MEASURES
1.	Electrical Commissioning	Electric shock	• Contractor to comply with permits/wayleaves to work issued by Client • Correct personal protective equipment to be worn by employees to prevent electric shock • Trained appointed First aider available on site at all times • Only registered competent, trained and appointed persons may decommission or commission electrical equipment
2.	Electric Tools and Electrical Installations	Electric shock Fire	• Electric tools and installations to be in safe condition • Inspect electric tools daily before use and monthly by competent person • Do not use electric tools in wet/damp conditions • Use correct protective equipment for working with or on electricity • Electrical installations register must be maintained by competent person after each inspection
3.	Working close to live electricity (Lock out & Tag out Procedure)	Electrical shock	• Ensure that wayleaves are obtained for work to be conducted • Wayleave must always be available on site . • Contractor must comply to wayleave requirements. • Contractor must not move past barriers installed by the client and stay clear of danger areas • Lockout and tagout procedure implemented
4.	Working at heights	Personnel falling form height Falling debris Those beneath being injured	• All persons working at heights must have attended working at heights training and have the required competence certificate • All persons working et heights must receive training on the fall protection plan • All safety harnesses must be inspected by the user before each use and monthly by a competent person all findings noted on an inspection register

			• All defective equipment must be tagged and removed from service and work area. • All persons working at heights must always wear full body safety harness , ensure 100% hook up • All fall arrest equipment to be correctly stored and maintained
5.	Skin cable with hacksaw and / or cable knife	Sub-standard knives or saws used to skin cables Leaving knife blade exposed or unattended Using blunt blades on knives or hacksaws Failure to wear eye protection while using cable knives or saws.	• Wear appropriate PPE - Cut Resistant Gloves. • Ensure that blades are kept sharp and in a good condition. • Blunt blades requires more force and is more likely to slip and cause injury. • Always cut away from your body. • Only Skilled and Semi-skilled electricians will be allowed to use cable knives • Ensure that tools and equipment are inspected prior to use. • Ensure that blades are changed whenever it starts to tear instead of cut. • Wear appropriate PPE – Eye Protection. • Never use cable knifes as a screwdriver or tin opener or any other purpose
6.	Use of Mobile Cranes		• Only trained competent/certified appointed employees to operate cranes. • All cranes must be inspected daily before use by the operator • Crane may not be used if derivations are noted during daily inspections • Mobile crane compliance certificates as per DMR must be current and up to date. • No safety devices shall be bypassed • Crane must be setup on even surface on stable compacted surface. • Ground where crane will be positioned shall be inspected for safe use and to determine how solid it is before the crane is positioned. • Area where crane will be used must be barricaded to prevent unauthorised access. • Only competent person to give hand signals to crane operator.

			• Load lifted with crane may not exceed 80% of the crane SWL. • Never exceed crane slew radius • Crane hook must always be centred with the load. • Operator must not talk on cell phone while operating crane. • Crane must not be used close to overhead powerlines without documented approved pre planning plans signed by user and client and owner of overhead powerlines. • Supervisor must be present at all times when using any crane.
7.	Use of Construction Plant and Equipment.	Plant failure, damage to equipment, property damage, injury, death	• Only use trained and experienced operators. • All equipment to be checked before use. • Plant to be placed on maintenance schedule, load test, certifications and visual inspection as per OHS Act. • Flagmen to accompany all mobile plant & equipment in work areas. • Inexperienced operators to work under supervision of experienced personnel. • Mobile plant to operate in barricaded areas and/or personnel to evacuate work areas close to mobile plant and equipment in operation. • Ground operating conditions to be checked by operator and foreman • High visibility clothing to be worn by all site personnel, audible warning systems when moving backwards, visible warning lights when in operation for all mobile plant. Spotters to be used where necessary.
8.	Earthing of electrical equipment and installations	Fatality, electrical shock	• Ensure that all installations and equipment used are earthed correctly. • Test equipment and installation to ensure that earthing is correct
9.	Noise and Dust.	Breathing in dust can cause long term health problems, noise can damage hearing	• Hearing protection, signage indicating high noise zones, regular noise level tests and/or testing as per OHS Act and or when required • Wear dust masks or respiratory masks

			• Dampen down and minimise dust where possible.
10.	Manual Labour loosening and fastening of items.	Injuries to hands and muscles	• Use correct tool for the job at hand • When using spanners work away from your body • Where possible use ring spanners when tightening bolts. • Do not work in uncomfortable positions.
11.	Manual Handling of General Items	Muscular skeletal injuries if the load is too heavy or awkward Operative falling/ tripping Contamination from the substance being carried Fall of material being carried	• Personnel should be aware of safe manual handling techniques • Personnel to wear Personal Protective Equipment when carrying items, e.g. safety footwear and gloves. • Awareness training for correct lifting method, use legs and not your back • Ensure good housekeeping to eliminate tripping/fall hazards. • Employee to get assistance if load is too heavy- team lift if necessary. • Utilise mechanical lifting and carrying aids where possible. • Personnel to ensure access equipment, ladders will take weight of employee and load being carried. • Personnel to ensure item being carried is properly bonded or is not liable to break apart whilst being manually handled
12.	Working with hands	Hand Injuries	• Always wear gloves when working with hands. • Keep hands clear of pinch or crushing areas. • When cutting with Stanley knife cut away from your body. • Always ensure your hands are protected from injuries when using them.
13.	Overhead Services (Working near)	Contact with live services causing injury to personnel Damage caused to services	• Look First! Check the area for overhead power lines before bringing in equipment such as cranes, backhoes, and boom trucks. • Use a signaller if equipment or its load is closer than one boom length to overhead power lines. • Maintain the minimum distance from power lines **750 to 150,000 volts – 3 meters**

			More than 150,000 to 250,000 volts – 4.5 meters **More than 250,000 volts – 6 meters** • Where contact is a danger, get the utility to insulate the lines. • Should contact occur stay in the machine. Generally, the safest course is to stay in the cab and remain calm. Don't touch the equipment and the ground at the same time. If you do, the current will make YOU its path to the ground. The results can be fatal. • Wear the correct personal protective clothing • Ensure height of plant/vehicles does not compromise or exceed clearance levels for overhead services
15.	Plant or Vehicles and Equipment Operation	Workers injured by passing traffic Road users and pedestrians at risk from plant operation Noise	• Implement traffic protection measures • Trained and competent operators must be used • Check plant and vehicles on daily basis before use and record inspections. Maintain vehicles in safe condition. • Medical certificates of fitness required for construction plant. • Crossing of road by construction vehicles or machines must be limited to the practical minimum • Plant and vehicles must be fitted with amber rotating beacons and reverse alarms. • Wear appropriate protective clothing/equipment, e.g. goggles, gloves, ear defenders, etc. as appropriate.
16.	Use of ladders		• Inspect ladder before use and area where ladder is needed • Ladder to be numbered and registered. • Replace all defective ladders. • Determine work to be done and length of ladder needed. • Use ladders specifically designed for electrical work • Good supervision. • Good communication between all parties. • 3 Point contact while climbing up or down a ladder. • No tools or any loose items in hands while climbing.

			• Only one person on ladder at a time. • Ladder to be secured to the structure or kept in position by a second person • Make sure the ladder is long enough, never climb past second last rung of ladder
17.	Use of Grinders	Personnel can sustain injuries when moving parts are properly protected.	• All grinders must be inspected before use by the user. • Grinder to be inspected monthly by a competent person and finding noted on an inspection register. • Use grinding discs for grinding and cutting discs for cutting. • Check all discs before use. And ensure correct RPM and type of disk for activity being done, consult manufacturer's instructions for correct information • Use correct PPE face shield & safety goggles, gloves, safety shoes and overalls. • Ensure grinder is unplugged before changing discs.

18.	Rigging & slinging practices	Falling material Crushing by materials Hand injuries to the slinger Toppling crane	• Use ONLY trained and experienced personnel. ALL LIFTING AREAS WILL BE BARRICADED TO ALLOW ONLY AUTHORISED PERSONNEL. • Cranes to be checked and all statutory tests and checks to be current. All lifting tackle to be • checked before use by the user and quarterly by a competent person and statutory documentation to be current. SWL on all lifting machines and tackle to be visible and adhered to. • Rigging shall only be done by competent and trained employees. • Ensure inspection have been carried out • Ensure (SWL) is clearly visible on all lifting tackle used • Ensure items being lifted are hooked up correctly and load centred with. • Be aware that there should be a minimum clearance of 600mm between any slewing parts of a crane and any fixed installation to prevent being trapped. • Good communication at all times between crane operator and person in control of lifting activity.
19.	Loading & Offloading	Property damage Pinch, cuts and bruises to employees. Falling of tools, loads and equipment. Serious injuries/fatality. Minor to serious hand and finger injuries.	• Ensure area identified for offloading is even and ground conditions stable. • Area must be barricaded and no unauthorised entry allowed • Performing manual loading/offloading comply to manual handling procedure. • Ensure loads are hooked correctly when offloading with mobile crane. • Only use certified lifting equipment. • Only competent person to perform rigging and slinging • No person allowed under suspended loads. • Keep hands away from loads, never place hands under loads when being placed on a surface. • Never exceed crane or lifting tackle SWL.

20.	Fire.	Injuries to workers, pedestrians, residents, road users, damage to property through fire	• No littering on site which could become fire hazard, maintain site in clean condition. • No fires to be lit on site. Always have a serviced fire extinguisher at hand . • No smoking or naked flame near flammable substances • Ensure proper storage/use of Petrol/diesel/flammable substances – post warning notices
21.	Flammable Liquids and Gases (Use of)	Fire Explosion	• No littering on site which could become fire hazard, maintain site in clean condition. • Always have a working fire extinguisher at hand . • No smoking or naked flame near flammable substances or in unauthorised areas • Ensure proper storage/use of Petrol/diesel/flammable substances – post warning notices • Equipment must be in good condition, maintained • Personnel using substances must be trained in safe use and risks
22.	Hand tools	Injuries caused by use of hand tool Impact with the tool Falls due to access problems Contamination with substance being worked	• Inspect hand tools daily before use and complete inspection registers • Use the tool according to manufactures specifications • Tool is in good order and suitably sharp • Personnel must be instructed in tool usage and tool safely • Lighting is sufficient • Access is safe, working platform is secure, leading edge is guarded • Operative is wearing all necessary PPE • No homemade tools allowed on site
23.	Hazardous Substances	Injuries to workers through use of hazardous substances, e.g. injuries to eyes, skin, etc.	• Use substances in accordance with (MSDS) data sheet, particularly reference protective clothing required (example: gloves, goggles, etc.) • Regular inspection of all HCS containers must be conducted. • Any defects or damaged containers must be reported to immediate supervision.

			• First aider trained in regards to MSDS requirements
24.	Line of fire	Injuries	• Never stand in front of a person using power tools (Grinders) • Unsure at least two meter gap between employees using picks to perform trenching • Never stand in front of a person using a hammer.
25.	Pinch pointes	Amputation of fingers injuries to fingers	• Always wear gloves • Keep hands clear from pinch point and crushing areas • Use guide ropes to guide loads
26.	Oil Spills (Environmental requirements)	Contamination of environment	• Ensure all plant used on site do not leak oil • Place drip trays under mobile plant when not in use. • Clean oil and diesel spills immediately when observed • Ensure spill kit available on site at all times
27.	Ergonomics	Strains on muscles, joints and nerves	• Make sure that the body is not compromised at all in the work place • Ensure your body position and posture is conducive to comfort and that you have minimal distraction from physical discomfort. • This correct use of the body in the workplace is simply called 'correct ergonomics'.
28.	Housekeeping	Minor to Serious injuries Damage to property Fatality Slip trips and falls	• Equipment shall be stacked properly in a safe place. • All tripping hazards shall be removed from working site. • Designated walkways to be used. • Full waste containers to be emptied on regular basis. • All waste generated to be placed in bins or bags.
29	Personal Protective Equipment	Injuries or health conditions	• All employees must be issued with the required PPE as identified in risk assessment • All employees to be trained in the use, maintenance and limitations of PPE • Regular PPE inspections conducted by supervision • Damaged PPE must be replaced immediately

30.	Management Of Change	Fatality, serious injuries or property damage	• Each operation to specify and define responsibility of each person involved and responsible for Management of Change. • The description shall also identify the specific documents (i.e. standards, codes of practice, process designs, inspection and approval notices, legislative requirements, etc.) that provide the operational or project engineering basis for changes. • These and every document involved in the change should be attached, if they are not part of a readily accessible standard / procedure. • Details of communications regarding the specific changes must be kept. • Shall be implemented to ensure the change management process is comprehensively managed
31.	Stacking & storage	Injuries and property damage	• Dedicated stacking and storage areas to be identified and used. • Walk ways to be kept clear. • Hazardous chemicals to be stored as per OHS Act and MSDS requirements. • No combustible and flammable material to be stored in same area. Articles shall not be stacked higher than three times the shortest base of the article. Secure materials and equipment.
32	Use of Scaffolding	Unsafe scaffolding Serious injuries / property damage// fatalities	• Scaffold erected according to SANS 10085 and inspected by competent Scaffolding Supervisor/inspector on a daily basis • Safe to work tag (green tag) to be displayed and signed daily by the Scaffolding Supervisor/inspector. • Stop work if scaffold or platform is unsafe / verify that kick boards around entire platform are safe and secure • Toe boards shall be installed on all permanent and temporary edge protection. • No working on wet scaffold platforms. • Safety harnesses to be worn and tied off above 2 m.

			• Scaffold users to do pre-inspections on the scaffold and report any deviation to the supervisor to correct before use. • All employees working at heights must have • received training from SAQA Accredited Company Unit Standard 229998
33	Hot Work & Welding	Defective welding machine Flammable substances Wearing incorrect P.P.E Fires Hot welding slag Welding fumes Improper earthing	Welding aprons, spats, welding helmet, leather gloves, overalls, and yoke will be worn when performing welding. Only use P.P.E that is practical for the task performed The work area will be free from debris and combustible material Fire extinguishers will be placed at least 3m away from the welding area Welding slag spatter will be minimised by means of welding screens and/ or fire blankets The welding area will always be well ventilated Artificial ventilation will be provided where natural airflow is absent. Welding screens will be installed around all welding areas Ensure that the welding piece is at a comfortable height Ensure to take stretch breaks when needed Ensure that welding cables and earth cables is routed neatly out of walkways No cables will be allowed to be coiled, or run through water The earth clamp will be placed as close as possible to the welding piece Earth cables, clamps and lugs will be inspected before and during welding operations Only trained and certified welders will be doing welding operations on site All welding machines will be earthed, externally A fire extinguisher will be placed in the facility, at least 3 meters away
34	Working in areas accessed by members of the public	Injuries and property damages, civil claims	All work areas must be clearly barricaded and warning notices displayed. Members of the public must under no circumstances be allowed access to the work site. Work to be done in such a manner that it does not endanger members of public.

OHS Inc.
occupational health and safety consultants

Health and Safety Specification In terms of OHS ACT 85 0f 1993

Project: ENG019/2022 SCHAAPKOP SUBSTATION SITUATED STEINHOFF INDUSTRIAL PARK - 1 kWp PV + 2 kWh battery storage

For: GEORGE MUNICIPALITY – ELECTROTECHNICAL DIRECTORATE

Project Directory	
Project Client	
Name: **George Municipality** 71 York Street George 6530	Contact Details: 044 801 9111
Designer	
Name: **George Municipality** 71 York Street George 6530	Contact Details: 044 801 9111
OHS	
Name: OHS Inc	Contact Details: 082 7717072 admin@ohsinc.co.za
Other Parties	
Name: George Municipality Electrical Dept	Contact Details: 044 801 9222
Name: George Municipality Water Dept	Contact Details: 044 801 9262
Name: George Municipality Civil Engineering Services	Contact Details: 044 801 9111

Project Details	
Provisional Start Date:	**TBA**
Provisional Completion Date:	**TBA**
Proposed Contract Duration:	**TBA**
Proposed Project Value:	**TBA**
Notification of Construction Work:	**YES**
Construction Work Permit Application:	**N/A**
Prepared by:	**J van Graan**
Date Prepared:	**15 JUNE 2022**

PROJECT HEALTH AND SAFETY SPECIFICATION
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- Safety File requirements, Mandatory Agreement & CR 5(1)(k) Principal Contractor Appointment

1. Purpose

1. The purpose of this document is to provide health and safety information about specific project risks known by the Client, Designer and Client Agent. These risks are applicable to this project and may not necessarily be common knowledge to the Contractor. The Contractor must take this information into account and ensure that their tenders include adequate resources to deal with the matters detailed in this document. Compliance must be ensured by the Contractor and Appointed Sub-Contractor to all relevant legislation. Safeguarding of employees, sub-contractors and other persons affected by the construction activities must be ensured.

2. Reference should be made to the following documentation in conjunction with this safety specification (including existing surveys, drawings and reports):

(a) Engineers Drawings
(b) Designers Input
(c) Tender Documents

References used for the drafting of this specification

OHS Act – Occupational Health and Safety act 85 of 1993 and all regulations promulgated under this act, special reference to Construction Regulations 2014

Electrical Regulations – Under department of Minerals and Energy

COIDA Act - Compensation for Occupational Injuries and Diseases Act

3. Due to potentially dangerous operations being undertaken in construction, there is a possibility of incidents and accident which may lead to injuries or fatalities. In many instances non-compliances to the Occupational Health and Safety Act (OHS Act) has resulted in severe consequences for the parties involved. The Project Client is determined to ensure the highest health and safety standards throughout the Contract.

4. To ensure this The Project Client / Client Agent has prepared and published this document. This document should be used as a guideline for minimum levels of awareness and guidance for health and safety requirements for this Contract. The responsibility for adhering to these requirements rests with the Contractors.

5. Every Employer will provide and maintain, as far as reasonably practicable, a set working environment that is safe and without risk to the health of his employees. OHS Act 8 (1)

6. Compliance with the OHS Act and Regulations will not be limited to this specification and the definitions contained in this document.

7. Tenderers are expected to be conversant with the requirements and effect of health and safety legislation, in particular the Construction Regulations, 2014, and the Occupational Health and Safety Act, 85 of 1993. Provision must be made in the tender submission to comply with all legal requirements.

8. The Contractor's personnel will be responsible implementation all necessary legislative requirements. Document control and record systems associated with the legislation must be kept by the Contractor.

9. This document should be used to assist them Contractor towards achieving compliance with the OHS Act.

10. The Specification will be implemented during construction of the works Project Client / Client Agent has control over.

11. ***The Project Client is committed to ensure compliance to all the relevant legislation regarding Occupational Health and Safety is maintained and no accident occurs.***

12. This document must be used as a means of measuring performance of all parties entering into a contract with the project Client or Contractor in Occupational Health and Safety Standards.

13. The Project Client does not accept any liability which may result from the Contractor failing to comply with the Document; the Contractor remains responsible for achieving the required performance levels.

14. This document forms part of the Contract, and Contractors are required to make it part of their Contracts with Sub-Contractors and Suppliers.

15. The successful Contractor will ensure that a Safety Plan complying with all the relevant legal requirements and this document is compiled and approved by the Client/Client Agent before commencement of Construction.

1.2 PROJECT DETAILS

This is a small installation to supply backup power for the comms. The panels will be placed on top of the substation switching budling highlighted in blue.

1.3. EXISTING ENVIRONMENT

Work will be conducted at the Schaapkop Substation Steinhoff Industrial Park George, during the installation process the substation will be active.

The Principal Contractor must ensure that his/her employees stay in their specific area of work and not wonder around on the premises. The Client George Municipality as well as its appointed responsible person retains the right to request any person be removed from site who moves outside the construction area boundaries.

The Principal contractor must ensure the he/she adheres to the requirements of Section 9 of the Occupational Health and Safety Act 85 of 1993 at all times

9. **General duties of employers and self-employed persons to persons other than their employees**

(1) Every employer shall conduct his undertaking in such a manner as to ensure, as far as is reasonably practicable, that persons other than those in his employment who may be directly affected by his activities are not thereby exposed to hazards to their health or safety.

(2) Every self-employed person shall conduct his undertaking in such a manner as to ensure, as far as is reasonably practicable, that he and other persons who may be directly affected by his activities are not thereby exposed to hazards to their health or safety.

1. Hazards particular to this project Baseline Risk Assessment

1.4 *BASELINE RISK ASSESSMENT*

Significant Risks and Hazards identified by the Client/Designer/Client Agent.

- COVID-19
- George Municipal employees present on site during construction period
- Loading and offloading of equipment and materials.
- Rigging practices
- Use of mobile cranes or Truck mounted cranes
- Working around existing services
- Working close to live electricity
- Working in live substation
- Working at heights
- Falling objects
- Use of scaffolding
- Use of Construction Plant and Equipment.
- Earthing of electrical equipment and installations
- Lockout and Tagout
- Noise and Dust.
- Electrical work
- Steel Work
- Steel erection and installation
- Pinch Points
- Hot work & Welding
- Use of Grinders
- Use of ladders
- Fire.
- Hand tools
- Painting
- Hazardous Substances
- Manual Handling of General Items
- Use of Mobile plant & Equipment
- And any other task that has the potential to cause death, injury or property damages

NOTE:
Please refer to end of Safety Specification for minimum control measures required to address these risks.

The following materials and substances have, or may have, to be used in the works or is present and are identified as potentially posing special health and / or safety hazards during the project. Appropriate measures will need to be specified for their control:

- Asbestos
- Petrol
- Diesel
- Cement
- Sealants and silicones

All the needed PPE and precautions stated in the MSDS must be provided and adhered to when using these materials and gasses.

The following Project Client safety rules and/or requirements are to be observed:

Safety Rules

MANUAL LIFTING	Keep your back straight, Bend the knees, don't reach and lift, Get help for heavy loads
FALLS & FALLING OBJECTS	Look before you step, keep all walk areas clean, stay out from under loads, don't use unsafe ladders,
WORKING WITH ELECTRICITY	Avoid contact with energized electrical circuits, always use insulated tools, always use appropriate insulated rubber gloves and goggles, follow lock out and tag out procedure requirements never work on live electricity
UNSAFE USE OF TOOLS	Inspect regularly, report all defects at once, use the right tool safely, Put it away safely
PROTECTIVE EQUIPMENT	Ensure you use the correct PPE for the job at hand
HOUSEKEEPING	A clean job is a safe job, use waste bins, Pile materials safe and neat, Remove hazardous debris
TEAMWORK	Plan all work with safety - Protect fellow workers

Labour Records

At the end of each week the contractor will provide a written record, in schedule form reflecting the number and description of tradesmen and labourers employed by him and all his sub-contractors on the works each day. The record must also indicate total amount of people on site as well as total hours worked for the week.

Plant Records

At the end of each week the contractor will provide a written record, in schedule form reflecting the number, type and capacity of all plant, excluding hand tools, currently used on the works.

GENERAL PROJECT INFORMATION

The purpose of this section is to provide general health and safety information about construction risks which are applicable to the construction industry as a whole.

The Contractor must take all information in this section into account and ensure that their tenders include adequate resources to deal with the matters detailed below. All relevant risks must be dealt with in compliance with legislation

2. STANDARD OCCUPATIONAL HEALTH AND SAFETY SPECIFICATION

2.1. Scope

1. This Section covers the requirements for eliminating and mitigating incidents and within the Contract. The scope addresses minimum legal compliance, hazard and risk management, promotion of a health and safety culture amongst all parties involved in the project and those affected by the activities taking place.

2. Contractors employed by The Project Client / Project Agent must ensure that the provisions of the specifications are applied both on the site and all off site activities relating to this project.

3. The Contractor must enforce the provisions of these Specifications amongst all subcontractors and suppliers for the project.

2.2 Interpretation

2.2.1 Application

1. The Occupational Health and Safety Specification contains clauses that are applicable to building / construction and impose pro-active controls associated with activities that impact on human health and safety as it relates to plant and machinery. Compliance to the requirements of the Act is in addition to the requirements of the Occupational Health and Safety Specification and form part of the Contractor's responsibility. The Client / Client Agent will monitor that the Contractors compliance with the requirements of the OHS Act.

2.2.2 Definitions

For the purpose of this Occupational Health and Safety Specification following the definitions, hereunder will apply:

Agent
means a competent person who acts as a representative for a client;

Client
means any person for whom construction work is being performed;

Construction Work *(as defined in the Construction Regulations, 2014)* means any work in connection with—

a) the construction, erection, alteration, renovation, repair, demolition or dismantling of or addition to a building or any similar structure; or
b) the construction, erection, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer or water reticulation system; or the moving of earth, clearing of and, the making of excavation, piling, or any similar civil engineering structure or type of work;

Competent person
Means a person who

(a) has in respect of the work or task to be performed the required knowledge, training and experience and, where applicable, qualifications, specific to that work or task: Provided that where appropriate qualifications and training are registered in terms of the provisions of the **National Qualifications Framework Act, 2000 (Act No. 67 of 2000),** those qualifications and that training must be regarded as the required qualifications and training.

(b) Is familiar with the Act and with the applicable regulations made under the Act;

Construction Vehicles
Means a vehicle used as a means of conveyance for transporting persons or material, or persons and material, on and off the construction site for the purposes of performing construction work;

Contractor
Means an employer who performs construction work

Electrical contractor
means a person who undertakes to perform electrical installation work on behalf of any other person, but excludes an employee of such first-mentioned person;

Electrical installation
Means any machinery, in or on any premises, used for the transmission of electricity from a point of control to a point of consumption anywhere on the premises, including any article forming part of such an electrical installation irrespective of whether or not it is part of the electrical circuit, but excluding

(a) any machinery of the supplier related to the supply of electricity on the premises;
(b) machinery which transmits electrical energy in communication, control circuits, television or radio circuits;
(c) an electrical installation on a vehicle, vessel, train or aircraft; and
(d) control circuits of 50 V or less between different parts of machinery or system components, forming a unit, that are separately installed and derived from an independent source or an isolating transformer;

Electrical Installation Regulations, 1992
Means the Electrical Installation Regulations, 1992, promulgated by Government Notice No. R. 2920 of 23 October 1992;

Fall protection plan
means a documented plan, which includes and provides for-

(a) all risks relating to working from a fall risk position, considering the nature of work undertaken;
(b) the procedures and methods to be applied in order to eliminate the risk of falling; and
(c) a rescue plan and procedures;

Fall risk
means any potential exposure to falling either from, off or into;

Hazard identification
Means the identification and documenting of existing or expected hazards to health and safety of persons which are normally associated with the type of construction work being executed or to be executed;

Hazard
Means a source of or exposure to danger which may cause injury or damage to persons or property;

Health and safety file
Means a file, or other record containing the information in writing required by these Regulations

Health and Safety Plan
Means a site, activity or project specific document plan in accordance with the client's health and safety specification.

Medical certificate of fitness
Means a certificate contemplated in regulations 7 (8) of the Act

Occupational health practitioner
means an occupational medicine practitioner or a person who holds a qualification in occupational health recognized as such by the South African Medical and Dental Council as referred to in the Medical, Dental and Supplementary Health Service Professions Act, 1974 (Act No. 56 of 1974), or the South African Nursing Council as referred to in the Nursing Act, 1978 (Act No. 50 of 1978);

Principal Contractor
Means an employer appointed by the client to perform construction work

Risk
Means the probability or likelihood that a hazard can result in injury or damage.

Risk assessment
Means a program to determine any risk associated with any hazard at a construction site, in order to identify the steps needed to be taken to remove or control such hazard

Registered person
Means a person registered in terms of
(a) regulation 11; or
(b) regulation 9 of the Electrical Installation Regulations, 1992, as an electrical tester for single phase, an installation electrician or a master installation electrician, as the case may be;

Site
Means the area in the possession of the Contractor for the construction of the works. Where there is no demarcated boundary it will include all adjacent areas, which are reasonably required for the activities for the Contractor;

Temporary works
Means any falsework, formwork, support work, scaffold, shoring or other temporary structure designed to provide support or means of access during construction work.

The Act
Means, unless the context indicates otherwise, the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) and Regulations promulgated there under.

2.3 General Health and Safety Provisions

2.3.1 Notification of Intention to Commence Construction Work

1. A contractor who intends to carry out any construction work other than work contemplated in regulation 3(1), must at least 7 days before that work is to be carried out notify the provincial director in writing in a form similar to Annexure 2 if the intended construction work will—

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

2. A contractor who intends to carry out construction work that involves construction of a single storey dwelling for a client who is going to reside in such dwelling upon completion, must at least 7 days before that work

2.3.2 Assignment of Contractor's Responsible Persons to Supervise Health & Safety on Site

2.3.2.1 Construction Manager

1. A principal contractor must in writing appoint one full-time competent person as the construction manager with the duty of managing all the construction work on a single site, including the duty of ensuring occupational health and safety compliance, and in the absence of the construction manager an alternate must be appointed by the principal contractor.

2. Where the construction manager has not appointed assistant construction managers as contemplated in Construction Regulation 8(2) or, in the opinion of an inspector, a sufficient number of such assistant construction managers have not been appointed, that inspector must direct the construction manager in writing to appoint the number of assistant construction managers indicated by the inspector, and those assistant construction managers must be regarded as having been appointed under Construction Regulation 8(2).

3. No construction manager appointed under Construction Regulation 8(1) 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.

4. A construction manager must in writing appoint construction supervisors responsible for construction activities and ensuring occupational health and safety compliance on the construction site.

5. **Competency requirements** – CV with proof of more than 3 years' experience in the same position, Legal liability, General OHS Act & Regulations, Construction Regulations & HIRA Certificates

2.3.2.2 Assistant Construction Manager

1. A principal contractor must upon having considered the size of the project, in writing appoint one or more assistant construction managers for different sections thereof: Provided that the designation of any such person does not relieve the construction manager of any personal accountability for failing in his or her management duties in terms of this regulation

2. **Competency requirements** – CV with proof of more than 3 years' experience in the same position, Legal liability, General OHS Act & Regulations, Construction Regulations & HIRA Certificates

2.3.2.3 Construction Safety Officer

1. A contractor must, after consultation with the client and 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 to assist in the control of all health and safety related aspects on the site: Provided that, where the question arises as to whether a construction health and safety officer is necessary, the decision of an inspector is decisive.

2. No contractor may appoint a construction health and safety officer to assist in the control of health and safety related aspects on the site unless he or she is reasonably satisfied that the construction health and safety officer that he or she intends to appoint is registered with a statutory body approved by the Chief Inspector and has necessary competencies and resources to assist the contractor.

3. **Competencies required**: SAMTRAC or similar training course with a minimum duration of two weeks not negotiable

   Other competencies: COID Act training, Incident Investigation & HIRA training Poof of registration with SACPCMP will be required this means the registration certificate and not proof of application submitted.

2.3.2.4 Construction Supervisor

1. A contractor must, upon having considered the size of the project, in writing appoint one or more competent employees for different sections thereof to assist the construction supervisor contemplated in Construction Regulation 8(7) and every such employee has, to the extent clearly defined by the contractor in the letter of appointment, the same duties as the construction supervisor: Provided that the designation of any such employee does not relieve the construction supervisor of any personal accountability for failing in his or her supervisory duties in terms of this regulation.

2. Where the contractor has not appointed an employee as contemplated in Construction Regulation 8(8), or, in the opinion of an inspector, a sufficient number of such employees have not been appointed, that inspector must instruct the employer to appoint the number of employees indicated by the inspector, and those employees must be regarded as having been appointed under Construction Regulation 8(8).

3. No construction supervisor appointed under Construction Regulation 8(7) may supervise any construction work on or in any construction site other than the site in respect of which he or she has been appointed: Provided that if a sufficient number of competent employees have been appropriately designated under Construction Regulation 8(7) on all the relevant construction sites, the appointed construction supervisor may supervise more than one site.

4. **Competency requirements** – CV with proof of more than 3 years' experience in the same position, Legal liability, General OHS Act & Regulations, Construction Regulations & HIRA Certificates

   The Contractor will submit proof of supervisory appointments and any relevant appointments in writing (as stipulated by the OHS Act), prior to commencement of work

2.3.3 Competency for Contractor's Responsible Persons

1. The Contractor's responsible persons will be competent in health and safety and will have undergone Health and Safety Management Courses.

   Typical courses will include, HIRA, **Legal liability**, Incident Investigation, **Construction regulations 2014** and OHS Act training. Proof must also be provided that the relevant appointed responsible person has experience related to the work that will be conducted

2.3.4 Compensation of Occupational Injuries and Diseases Act 130 of 1993 (COIDACT)

1. The Contractor will submit a letter of good standing with the Compensation Insurer to The Project Client / Client Agent, within 10 working days from receipt of the Letter of Acceptance from The Project Client / Client Agent prior to commencing work on site. The contractor will ensure that he/she remains in good standing with the compensation Commissioner/Insurer for the duration of the project. **" No letter of Good Standing NO WORK"**

2.3.5 Occupational Health and Safety Policy

1. The Contractor will submit a Health and Safety Policy drafted in line with the OHS Act 85 of 1993 section 7 requirements with the Tender, signed by the Chief Executive Officer.

2.3.6 Health and Safety Organogram

1. The Contractor will submit an organogram to the Client/ Client Agent, outlining the Health and Safety site team appointments as required by the OHS Act. ***The organogram must include the legal reference under which each person is appointed as well as the persons contact details (Cell phone number and e-mail address).***

2.3.7 Risk Assessment for construction work (Must include ergonomics as per regulations published December 2019)

1. A contractor must, before the commencement of any construction work and during such construction work, have risk assessments performed by a competent person appointed in writing, which risk assessments form part of the health and safety plan to be applied on the site, and must include—

    (a) the identification of the risks and hazards to which persons may be exposed to;
    (b) an analysis and evaluation of the risks and hazards identified based on a documented method;
    (c) a documented plan and applicable safe work procedures to mitigate, reduce or control the risks and hazards that have been identified;
    (d) a monitoring plan; and
    (e) a review plan.

2. A contractor must ensure that as far as is reasonably practicable, ergonomic related hazards are analyzed, evaluated and addressed in a risk assessment.

3. A contractor must ensure that all employees under his or her control are informed, instructed and trained by a competent person regarding any hazard and the related work procedures and or control measures before any work commences, and thereafter at the times determined in the risk assessment monitoring and review plan of the relevant site.

4. A principal contractor must ensure that all contractors are informed regarding any hazard that is stipulated in the risk assessment before any work commences, and thereafter at the times that may be determined in the risk assessment monitoring and review plan of the relevant site.

5. A contractor must consult with the health and safety committee or, if no health and safety committee exists, with a representative trade union or representative group of employees, on the monitoring and review of the risk assessments of the relevant site.

6. A contractor must ensure that copies of the risk assessments of the relevant site are available on site for inspection by an inspector, the client, the client's agent, any contractor, any employee, a representative trade union, a health and safety representative or any member of the health and safety committee.

7. A contractor must review the relevant risk assessment—

    (a) where changes are effected to the design and or construction that result in a change to the risk profile; or
    (b) when an incident has occurred.

Issue Based Risk Assessment

1. As circumstances and needs arise, separate risk assessment will need to be conducted. An additional risk assessment will need to be conducted when for example:

   (a) A new operation introduced onto site
   (b) A system for work is changed
   (c) After an accident or a “near miss” has occurred

Continuous Risk Assessment

1. This should take place continually, as it forms an integral part of day-to-day management.

2. It should be conducted by frontline supervisors on a **DSTI (Daily Safe task instruction)** on site and it is essential that formal training is provided to enable the said personnel to be efficient in conducting said assessment. The Contractor must ensure that the Risk Assessment identifies the hazards present in work activities on site. This must be followed by an evaluation of the risks involved taking into account those precautions already being taken.

   The contractor must ensure that all employees receive training on the site specific risk assessment and all relevant safe work procedures before any work commences on this project. The client/client representative reserves the right to stop work if this requirement is not adhered to by the contractor.

2.3.8 Health and Safety Representative(s)

1. The Contractor will ensure that a Health and Safety Representative(s) are /is elected for every 20 employees on site and trained to carry out his / her functions. The appointment must be in writing. The Health and Safety Representative will carry out regular inspection, keep records and report to the supervisor to take appropriate action. He / She will attend Health and Safety Committee Meetings. The Health and Safety Representative will be part of the team that will investigate incidents, accidents & non-conformances.

2.3.9 Health and Safety Committee

1. The Contractor will ensure that monthly health and safety meetings are held, and minutes are kept on record. Meetings must be organized and chaired by the Contractor’s Responsible Person. The Contractor will ensure that the *Health and Safety Representative(s)* is/are invited to attend the meeting as observer. Copies of the minutes must be made available to the Client/ Client Agent or Inspector.

2.3.10 Inductions

1. The Contractor will ensure that all employees under his / her control have gone through health and safety induction ***before being allowed to perform any task on site,*** a copy of the induction material must also be available as proof of topics discussed during induction. The Contractor will keep a copy of the attendance register of all his / her employees who attended the induction. The contractor must ensure that as new employees are brought to site during the project they must also undergo inductions before being able to perform any task on site.

2.3.11 Medical certificates of fitness

1. A contractor must ensure that all his or her employees have a valid medical certificate of fitness specific to the construction work to be performed and issued by an occupational health practitioner in the form of Annexure 3 of Construction Regulation 2014. This medical

certificate must specifically state that the person is fit for duty and must also highlight any medical restrictions identified. The contractor must keep a detailed register in his safety file for all employees with restrictions and document how the restrictions are being managed.

2. The contractor must place a list that consists of the following information with medical certificates in safety file.

- Name and surname of employee
- Id number of employee
- Job description of employee
- Date medical attended
- Medical restrictions noted on medical certificate (as a result of POPIA act just indicate there are restrictions and how it will be managed)

2.3.12 *Awareness*

1. The Contractor will conduct, toolbox talks once weekly and before any hazardous work takes place. The talks will cover the relevant, daily, activity and an attendance register must be kept and signed by all attendees. A record of the content of the topic will be kept on the site health a safety file.

2.3.13 *Competency*

1. After the Contractor has identified the training to be conducted, based on the Hazard Identification Risk Assessment (HIRA); he / she will send the relevant persons on appropriate courses and keep certificates of training for reference.

2.3.14 General Record Keeping

1. The contractor will keep and maintain Health and Safety records to demonstrate compliance with the Occupational Health and Safety Specification and the Act. The contractor will ensure that all records of incidents, spot fines, training etc. are kept on site. All documents will be available for inspection by The Project Client / Client Agent or Inspectors.

2.3.15 General Inspection, Monitoring and Reporting

1. The Contractor will carry out daily inspections and investigate all incidents and report to The Project Client / Client Agent. The contractor will be required to keep records of all inspections and investigations which were undertaken and any other inspections and investigations by person's authorised to do so.

2.3.16 Internal Audits

1. The contractor's responsible person will conduct monthly Health and Safety Audits to ensure compliance with the OHS Act and Occupational Health and Safety Specification and communicate the findings to the Client Agent on a monthly basis. Records of audits must be kept, and non-conformance reported, investigated and corrective action must be taken to prevent re-occurrence.

2.3.17 External Audits

1. The Project Client / Client Agent will conduct health and safety audits to ensure compliance with the Occupational Health and Safety Specification and any relevant Health & Safety Legislation. All documentation held by the Contractor will be available for inspection.

2. Audits and Inspections may be conducted on an ad hock basis without informing the Contractor.

3. Any findings observed during these audits will be placed on an audit action plan that will show the deviation, the reason for the deviation occurring, the proposed actions that will be taken to correct the deviation, responsible persons name, proposed close out date, actual closed out date and a signature of the contractor's responsible person confirming the close out.

2.3.18 Emergency Procedures

1. The Contractor will submit a detailed Emergency Procedure for approval by The Project Client / Client Agent prior to commencement on site. The procedure will detail the response plan including the following key personnel:

   (a) List of key personnel,
   (b) Details of emergency services,
   (c) Actions or steps to be taken in the event of the emergency; and
   (d) Information on hazardous materials / situations, including each material's hazardous potential impact or risk on the environment or human and measures to be taken in the event of an accident.

2. Emergency procedures will include, but will not be limited to electrical shock, fire, spills, accidents to employees, use of hazardous substances, etc. The Contractor will advise The Project Client / Client Agent in writing of any on site emergencies, together with a record of action taken, within 24 hours of the emergency occurring. A contact list of all service providers (Fire Department, Ambulance, Police, Medical and Hospital, etc.) must be maintained and available to site personnel.

2.3.19 First Aid Box and First Aid Equipment

1. The Contractor will appoint in writing a First Aider(s). The appointed First Aider(s) are to be sent for accredited first aid training before starting on site, or must be in possession of a valid certificate, of which copies are to be kept on site. The Contractors will provide, on site, First Aid Boxes, adequately stocked at all time, and ensure that the First Aid Box is accessible and fully controlled by a qualified First Aider. In addition, the location of these boxes must be indicated by means of Health and Safety Signage. A picture with the name and contact number of the First Aider on duty must be on displayed in all relevant areas.

2.3.20 Accident / Incident Reporting and Investigation

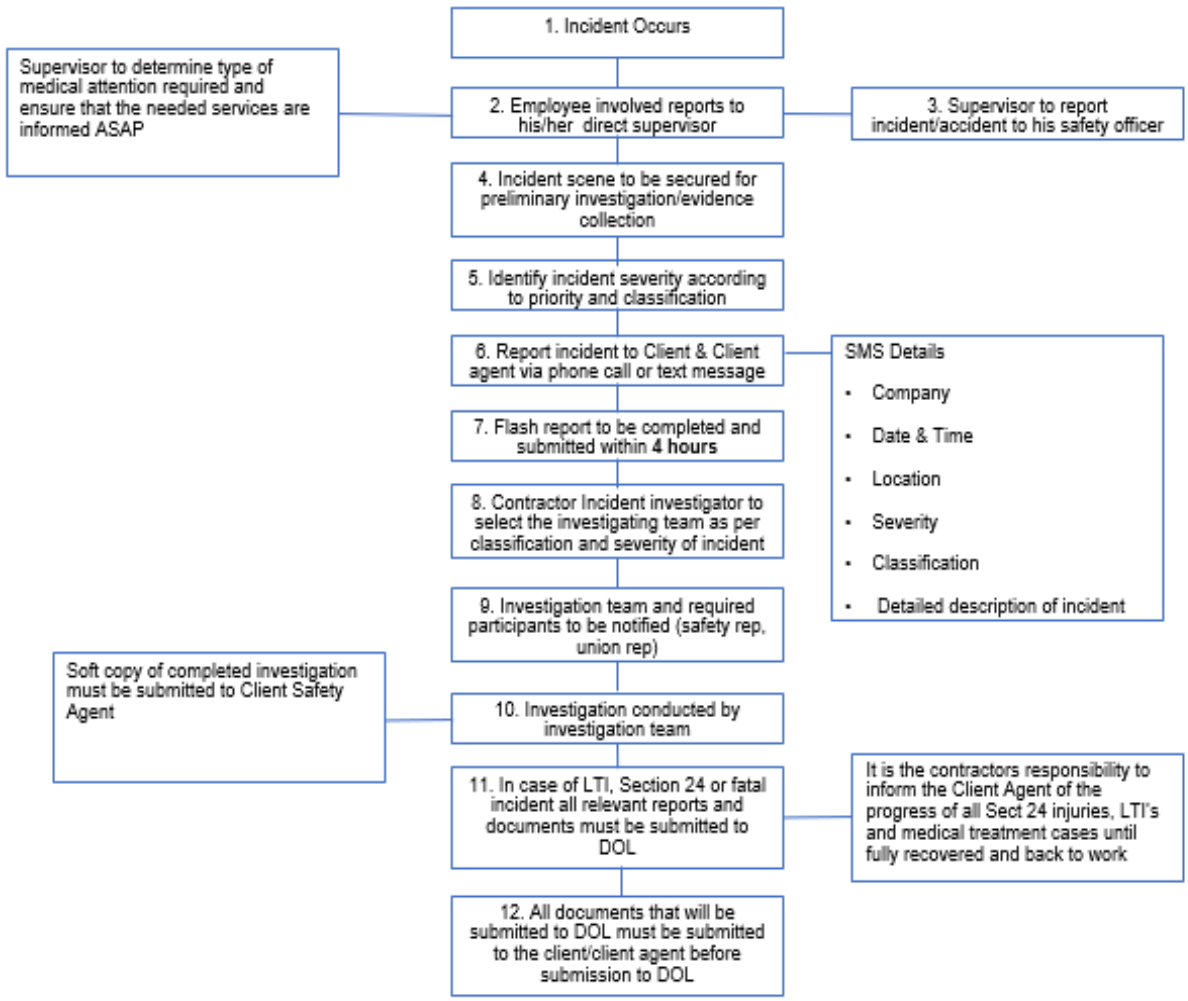
1. The Contractor will in addition to the prescribed requirements of the OHS Act investigate, record and report all reportable incidents. The investigations will be conducted by a qualified (Competence certificate required) person or persons who have sufficient The Contractor will in addition to the prescribed requirements of the OHS Act investigate, record and report all reportable incidents. The investigations will be conducted by a qualified ***competent*** person or persons who have sufficient knowledge to carry out an investigation. In the case of a serious injury, meaning one in which a loss of man-hours are experienced exceeding 7 days, an independent investigator must be appointed by the Contractor. All incidents on site must be reported to the Client Agent within 1 hour of occurrence by means of a telephone call or text message via cell phone. A flash report will be completed and forwarded to the Client & Client Agent within four hours of incident occurrence.

   Preliminary investigations must be submitted to the Client agent within three days of incident occurring, the investigation will be reviewed, and the client agent reserves the right to request changes made to the investigation upon agreement with the contractor. In the event of section 24 and LTI investigations a final investigation report will be compiled and submitted to the Client/Client Agent with a detailed action plan outlining precautionary measures that

will be taken to prevent reoccurrences as well as any other actions needed and identified during the investigation process.
The contractor will provide to the Client & Client agent a scanned copy of the full final investigation as well as the following documents.

- Copy of the DSTI
- Copy of the risk assessment at the time of incident as well as a revised risk assessment.
- All appointments and competency certificates of supervision involved as well as injured person.
- Copy of injured person's pre-employment medical
- All medical reports e.g. First medical, follow up medicals as well as final medical and resumption report.
- Annexure 1 report of incident to department of labour
- Detailed action plan addressing all findings made during the investigation
- Proof of all close outs of findings made during the investigation
- Copies of all witness and other statements taken.
- Proof of Incident recall with all employees

Incidents will be managed according to the flow chart bellow



2.3.21 Hazards and Potential Situations Communication

1. The Contractor will immediately notify other Contractors or Sub-contractors of any hazardous or potentially hazardous situations, which may arise during performance of the activities.

2.3.22 Personal Protective Equipment (PPE) and Clothing

1. The Contractor will make provision and keep adequate quantities of SABS approved PPE or clothing on site at all times. These will be analysed by means of the Risk Assessment. The contractor must ensure that a PPE survey is conducted to determine the type of PPE that will be needed and indicate which job category will need what PPE. PPE issue records must also be kept for all PPE issued to employees on site, ensure each employee signs for their PPE. The contractor must also conduct regular PPE inspections of which findings must be noted on an inspection register.

2. The Contractor will clearly outline procedures to be taken when PPE or clothing is:

   (a) Lost or Stolen
   (b) Worn Out or Damaged
   (c) When and where it must be worn or used

2.3.23 Occupational Health and Safety Signage

1. The Contractor will provide adequate on site OHS signage in line with SANS1186. OHS signage will include, but will not be limited to, Construction area, Hard Hat / Helmet Area; Safety Goggles, Safety Shoes to be worn on site; Dust Masks to be worn in areas where there might be exposure to excessive dust; Ear Plugs / Muffs to be worn where there might be exposure over 85 dBa; Gloves; Safety Goggles; Safety Harness, etc. The Contractor will be responsible to maintain the quality and replacement of signage.

2. All work areas to be barricaded and required safety warning signs displayed (Danger Construction area, Do not enter, Only authorised persons allowed etc.)

2.3.24 Consolidated Health and Safety File

1. The Contractor will in accordance with Construction Regulation 7(1)e, hand a consolidated health and safety file to the client on completion of construction work, this must include records of drawings, designs, entry/exit medicals, incident investigations, non-conformances raised or received, risk assessments as well as significant information regarding the construction of the completed structure.

2.3.25 Permits

1. The Contractor will issue a permit for all hazardous or dangerous activities to be carried out during construction. The following is a list of hazardous activities which need a permit:

   (a) Working in Confined Space;
   (b) Use of a Hazardous Chemical Substance, e.g. Asbestos, Lead;
   (c) Use of Explosives and Blasting; and
   (d) Piling.

2.3.26 Contractors

1. The Principal Contractor will ensure that all Sub-contractors under his / her control are complying with the Occupational Health and Safety Specification, requirements by the Act, and any relevant legislation which may relate to the activities directly or indirectly. Each sub-contractor must sign a 37(2) agreement as well as some Construction regulations 7(1)(c)(v) contractor appointment before being allowed to perform any work.

2.4 *Occupational Safety*

2.4.1 Stacking of Materials

1. A contractor must, in addition to compliance with the provisions for the stacking of articles in the General Safety Regulations, 2003, ensure that –

   (a) a competent person is appointed in writing with the duty of supervising all stacking and storage on a construction site;
   (b) adequate storage areas are provided;
   (c) there are demarcated storage areas; and
   (d) storage areas are kept neat and under control.

2.4.2 Housekeeping and General Safeguarding on Construction Sites

1. A contractor must, in addition to compliance with the Environmental Regulations for Workplaces, 1987, promulgated by Government Notice No. R. 2281 of 16 October 1987, ensure that suitable housekeeping is continuously implemented on each construction site, including –

   (a) the proper storage of materials and equipment;
   (b) the removal of scrap, waste and debris at appropriate intervals;
   (c) ensuring that materials required for use, are not placed on the site so as to obstruct means of access to and egress from workplaces and passageways;
   (d) ensuring that materials which are no longer required for use, do not accumulate on and are removed from the site at appropriate intervals;
   (e) ensuring that waste and debris are not disposed of from a high place with a chute, unless the chute complies with the requirements set out in regulation 14(6);
   (f) ensuring that construction sites in built-up areas adjacent to a public way are suitably and sufficiently fenced off and provided with controlled access points to prevent the entry of unauthorized persons; and
   (g) ensuring that a catch platform or net is erected above an entrance or passageway or above a place where persons work or pass under, or fencing off the danger area if work is being performed above such entrance, passageway, or place so as to ensure that all persons are kept safe in the case of danger or possibility of persons being struck by falling objects.

2.4.3 Hazardous Chemical Substances (HCS)

1. In addition to the requirements in the HCS Regulations, the principal contractor must provide proof in the Health and Safety Plan that:

   (a) Material Safety Data Sheets (MSDS's) of the relevant materials / hazardous chemical substances are available prior to use by the contractor. Mention should be made how the principal contractor is going to act according to special/unique requirements made in the relevant MSDS's. All MSDS's will be available for inspection by the agent at all times.
   (b) Exposure monitoring is done according to OESSM and by an Approved Inspection Authority (AIA) and that the medical surveillance programme is based on the outcomes of the exposure monitoring.
   (c) How the relevant HCS's are being/going to be controlled by referring to:
      i. Limiting the amount of HCS
      ii. Limiting the number of employees
      iii. Limiting the period of exposure
      iv. Substituting the HCS
      v. Using engineering controls

vi. Using appropriate written work procedures

(e) The correct PPE is being used.

(f) HCS are stored and transported according to SABS 072 and 0228.

(g) Training with regards to these regulations was given.

2. The H&S plan should make reference to the disposal of hazardous waste on classified sites and the location thereof (where applicable).

3. The First Aider must be made aware of the MSDS and how to treat HCS incidents appropriately.

2.4.4 Noise Induced Hearing Loss

1. Where noise is identified as a hazard the requirements of the NIHL regulations must be complied with and the following must be included / referred to in the Health and Safety Plan. The Contractor must be able to:

(a) Proof of training with regards to these regulations.

(b) That monitoring carried out by an AIA and done according to SABS 083.

(c) Medical surveillance programme is established and maintained for the necessary employees.

(d) Control of noise by means of:

i. Engineering methods considered

ii. Admin control considered

iii. Personal protective equipment considered/decided on

iv. Describe how records are going to be kept for 40 years.

2.4.5 Construction Plant

"Construction Plant" encompasses all types of plant including but not limiting to, cranes, piling frames, boring machines, and excavators, draglines, dewatering equipment and road vehicles with or without lifting equipment.

1. A contractor must ensure that all construction vehicles and mobile plant –

(a) are of an acceptable design and construction;
(b) are maintained in a good working order;
(c) are used in accordance with their design and the intention for which they were designed, having due regard to safety and health;
(d) are operated by a person who -
i. has received appropriate training, is certified competent and in possession of proof of competency and is authorised in writing to operate those construction vehicles and mobile plant;
ii. has a medical certificate of fitness to operate those construction vehicles and mobile plant, issued by an occupational health practitioner in the form of Annexure 3 of Construction Regulation 2014
(e) have safe and suitable means of access and egress;
(f) are properly organized and controlled in any work situation by providing adequate signalling or other control arrangements to guard against the dangers relating to the movement of vehicles and plant, in order to ensure their continued safe operation;
(g) are prevented from falling into excavations, water or any other area lower than the working surface by installing adequate edge protection, which may include guardrails and crash barriers;

(h) are fitted with structures designed to protect the operator from falling material or from being crushed should the vehicle or mobile plant overturn;
(i) are equipped with an acoustic warning device which can be activated by the operator;
(j) are equipped with an automatic acoustic reversing alarm; and
(k) are inspected by the authorised operator or driver on a daily basis using a relevant checklist prior to use and that the findings of such inspection are recorded in a register kept in the construction vehicle or mobile plant.

2. A contractor must ensure that –

(a) no person rides or is required or permitted to ride on a construction vehicle or mobile plant otherwise than in a safe place provided thereon for that purpose;
(b) every construction site is organized in such a way that, as far as is reasonably practicable, pedestrians and vehicles can move safely and without risks to health;
(c) the traffic routes are suitable for the persons, construction vehicles or mobile plant using them, are sufficient in number, in suitable positions and of sufficient size;
(d) every traffic route is, where necessary, indicated by suitable signs;
(e) all construction vehicles and mobile plant left unattended at night, adjacent to a public road in normal use or adjacent to construction areas where work is in progress, have appropriate lights or reflectors, or barricades equipped with appropriate lights or reflectors, in order to identify the location of the vehicles or plant;
(f) all construction vehicles or mobile plant when not in use, have buckets, booms or similar appendages, fully lowered or blocked, controls in a neutral position, motors stopped, wheels chocked, brakes set and ignition secured;
(g) whenever visibility conditions warrant additional lighting, all mobile plant are equipped with at least two headlights and two taillights when in operation;
(h) tools, material and equipment are secured and separated by means of a physical barrier in order to prevent movement when transported in the same compartment with employees;
(i) vehicles used to transport employees have seats firmly secured and adequate for the number of employees to be carried; and
(j) all construction vehicles or mobile plant travelling, working or operating on public roads comply with the requirements of the National Road Traffic Act, 1996.

2.4.6 Pressure Vessels Including Gas Cylinders

1. The Contractor will comply with Pressure Equipment regulations, including:

(a) Providing competency and awareness training to the operators;
(b) Providing PPE or clothing;
(c) Providing and maintain appropriate signage in areas Pressure equipment are
(d) used;
(e) Inspect equipment regularly and keep records of inspections;
(f) Providing appropriate firefighting equipment (Fire Extinguishers).

2.4.7 Fire Extinguishers and Fire Fighting Equipment

1. The Contractor will provide adequate, regularly serviced fire extinguishers located at strategic points on site. The Contractor will keep spare serviced portable fire extinguishers. The Contractor will have adequate persons trained or competent to use the Fire Fighting Equipment (Basic fire fighting training certificate). Safety signage will be posted; indicating locations of fire extinguishers.

2. The contractor will ensure that all plant and machinery used on site is fitted with appropriate fire extinguishers

2.4.8 Hired Plant and Machinery

1. The contractor will ensure that any hired plant and machinery brought to site is safe for use. The necessary requirements as stipulated by the OHS Act as well as those that are stipulated by this Occupational Health and Safety Specification, will apply. Health and Safety Induction is to be conducted with any hire plant or machinery operators and attendance of appropriate toolbox talks ensured. All operators of hired plant or machinery must be in possession of valid operator's certificates and medical certificates of fitness, as per requirement by the OHS Act.

2.4.9 General Machinery

1. The Contractor will comply with the Driven Machinery Regulations, which include inspecting machinery regularly, appointing a competent person to inspect and ensure maintenance, issuing PPE or clothing and training those that use machinery and enforce compliance.

2.4.10 Portable Electrical Tools / Explosive Power Tools

1. A contractor must, in addition to compliance with the Electrical Installation Regulations, 2009, and the Electrical Machinery Regulations, 1988, promulgated by Government Notice No. R. 1593 of 12 August 1988, ensure that –

   (a) before construction commences and during the progress thereof, adequate steps are taken to ascertain the presence of and guard against danger to workers from any electrical cable or apparatus which is under, over or on the site;
   (b) all parts of electrical installations and machinery are of adequate strength to withstand the working conditions on construction sites;
   (c) the control of all temporary electrical installations on the construction site is designated to a competent person who has been appointed in writing for that purpose;
   (d) all temporary electrical installations used by the contractor are inspected at least once a week by a competent person and the inspection findings are recorded in a register kept on the construction site; and
   (e) all electrical machinery is inspected by the authorized operator or user on a daily basis using a relevant checklist prior to use and the inspection findings are recorded in a register kept on the construction site.

2.4.11 High Voltage Electrical Equipment & Electrical Regulations

<u>High Voltage Electrical Equipment</u>

1. The Contractor will ensure that, where the work is under, on or near high-voltage electrical equipment the Electrical Regulations, together with safety instructions (Regulations of the Owner of the Equipment) are complied with.

2. Such equipment includes: -

   - Eskom and the Local Authority equipment
   - The Contractor's own power supply; and
   - Electrical equipment being installed but not yet taken over from a Contractor by The Project Client / Client Agent.

<u>Electrical Regulations</u>

3.1 The employer must take reasonable measures to ensure that all electrical apparatus and electrical reticulation systems are designed, constructed, installed, operated and maintained by a competent person or under the direct supervision of such a competent person

3.2 The employer must take reasonable measures to ensure that no person suffers any electrical shock, thermal burning or electrocution as a result of:

(i) exposure to current flow;
(ii) a person unintentionally coming into contact with exposed parts of any electrical apparatus;
(iii) exposure to thermal effect, overcurrent, short circuit, fault current, earth fault, overvoltage and undervoltage;
(iv) any electrical apparatus failing due to electromagnetic interference from other equipment.
(v) any electrical apparatus being incorrectly selected, installed, operated or maintained;
(vi) any electrical apparatus being placed and protected in such a manner as to allow inadvertent contact with any live portion thereof; and
(vii) any exposure to fires as a result of electrical faults

3.3 The measures contemplated in regulation 3.2 must include measures to ensure that

3.3.1 where the interruption of electrical supply to any equipment could result in a significant risk, such electrical supply can be substituted from another source or network, which can include an emergency supply alternator / generator, for power supply in the event of an interruption to the normal power supply;

3.3.2 an extension of any electrical reticulation system is approved by a competent person (engineer) taking into account the reticulation network and the effect thereon;

3.3.3 only competent persons operate switchgear of machinery where the operation of such machinery poses a significant risk and that such switchgear is protected against unauthorised access and operation;

3.3.4 electrical apparatus and switchgear in substations are installed:

(a) with sufficient clearances to prevent inadvertent contact with live conductors;
(b) in such a manner to prevent environmental conditions leading to such electrical Apparatus and switchgear posing a significant risk to persons;
(c) so as to provide unrestricted clearances around the apparatus or switchgear to enable escape of personnel during normal operation and emergencies;
(d) with an effective means to disconnect the energy source; and
(e) together with means to effectively extinguish any fire in the substation;

3.3.11 all electrical apparatus are clearly marked with the maximum voltage that may be present therein unless such apparatus contains voltages lower than 50 volts;

3.3.12 where electrical apparatus or switchgear is required to be live for the purpose of examination or testing, such examination or testing is done by a competent person2 in the company of a person conversant with the risks of electricity, and both these persons are suitably protected from live contact and flash;

3.3.13 whenever work is to be carried out on electrical apparatus which has been isolated from all sources of supply, effective precautions are taken, by earthing or other means, to electrically discharge such apparatus so as to prevent any conductor or apparatus from being made live while any person is working thereon;

3.3.14 any accessible metallic portion of electric plant or apparatus which, though not normally forming part of an electric circuit, may inadvertently become live, is insulated or connected to earth by a conductor of adequate cross-sectional area capable of withstanding the maximum possible earth fault current condition, so as to prevent any significant risk to persons for the duration that the fault current that may be flowing in the circuit;

3.3.15 all switching operations of medium voltage or higher voltage switchgear are carried out in accordance with a procedure prepared and implemented by the employer; 3.3.16 where any electrical cable is buried in the ground or installed in such a position that mechanical damage may occur, it is protected by an **armouring**;

3.3.20 a competent person2:

(a) examines and tests all new and re-erected electric apparatus and switchgear before it is put into service; and
(b) at least once in every six months thoroughly examines and tests all electrical apparatus for earth continuity and functioning of associated protective devices, except in cases where a continuous earth monitoring system has been installed;

3.3.21 all medium voltage and high voltage switchgear protection devices are tested for correct functioning

(a) on commissioning or after any primary circuit component change which may affect the function of the protection device, by means of primary current injection; and
(b) annually;

3.3.22 the person or persons carrying out the examinations or tests referred to in regulations 3.3.20 and 3.3.21 record the results thereof, and that such results are promptly brought to the attention of the competent person1, who must ensure that the settings comply with the network design criteria to verify the correct setup;

3.3.25 persons carrying out examinations, repairs or other work at elevated positions in close proximity to electrical apparatus are protected from live electrical contact;

3.3.26 no electrical cable trench or duct is left open, uncovered or unprotected, except when persons are working in such trench or duct or where precautions have been taken to prevent persons from inadvertently falling into such trench or duct;

3.3.28 the design and construction of power lines are in accordance with South African Bureau of Standards Code of Practice SANS 10280, 1995. “Overhead power lines for conditions prevailing in South Africa”;

NOTE Normative references in SANS 10280, 1995 are not applicable to the employer

2.4.12 Public Health and Safety

1. The Contractor will ensure that each person visiting a site, as well as surrounding communities, are made aware of the dangers likely to arise from on-site activities and the precautions to be observed to avoid or minimize those dangers. Appropriate health and safety signage will be posted at all times. No visitor will be allowed on site without the permission of the Construction

Supervisor or his/her Assistant. All visitors must complete a register, which should include the name, reason for visit and contact detail of said person. Should site offices be erected at the place of work the Contractor will ensure that the site is fenced on all sides with a minimum requirement of 1600 mm Diamond mesh, galvanised fence, this fence must have a gate fitted to ensure security and stop unwanted entrance to site. The gate must be closed at all times and access must be controlled.

2. Both the Project Client / Client Agent and the Contractor have a duty in terms of the OHS Act to do all that is reasonably practicable to prevent members of the public and others being affected by the construction processes to be aware and put preventative measure in place. The public or visitors will go through a brief health and safety induction detailing hazards and risks they may be exposed to and what measures are in place to control these hazards and risks. All visitors must complete a register, which should include the name, reason for visit and contact detail of said person.

2.4.13 Night Work

1. The Contractor will not undertake any night work without prior arrangement and a written permit from The Project Client / Client Agent. The Contractor will ensure that adequate lighting is provided for all night work and failure to do so will result in work being stopped.

2.4.14 Facilities for Safekeeping and Eating Area (Mess Room) for workers

1. There will be a temporary structure to serve as a mess room or eating area.

2.4.15 Fall Protection where applicable

1. A contractor must –

   (a) designate a competent person to be responsible for the preparation of a fall protection plan;
   (b) ensure that the fall protection plan contemplated in paragraph (a) is implemented, amended where and when necessary and maintained as required; and
   (c) take steps to ensure continued adherence to the fall protection plan.

2. A fall protection plan contemplated in Construction Regulation 10(1), must include –

   (a) a risk assessment of all work carried out from a fall risk position and the procedures and methods used to address all the risks identified per location;
   (b) the processes for the evaluation of the employees' medical fitness necessary to work at a fall risk position and the records thereof;
   (c) a programme for the training of employees working from a fall risk position and the records thereof;
   (d) the procedure addressing the inspection, testing and maintenance of all fall protection equipment; and
   (e) a rescue plan detailing the necessary procedure, personnel and suitable equipment required to affect a rescue of a person in the event of a fall incident to ensure that the rescue procedure is implemented immediately following the incident.

3. A contractor must ensure that a construction manager appointed under regulation 8(1) is in possession of the most recently updated version of the fall protection plan.

4. A contractor must ensure that –

   (a) all unprotected openings in floors, edges, slabs, hatchways and stairways are adequately guarded, fenced or barricaded or that similar means are used to safeguard any person from falling through such openings;

(b) no person is required to work in a fall risk position, unless such work is performed safely as contemplated in Construction Regulation 10(2);
(c) fall prevention and fall arrest equipment are -
  i. approved as suitable and of sufficient strength for the purpose for which they are being used, having regard to the work being carried out and the load, including any person, they are intended to bear; and
  ii. securely attached to a structure or plant, and the structure or plant and the means of attachment thereto are suitable and of sufficient strength and stability for the purpose of safely supporting the equipment and any person who could fall; and
(d) fall arrest equipment is used only where it is not reasonably practicable to use fall prevention equipment.

5. Where roof work is being performed on a construction site, the contractor must ensure that, in addition to the requirements set out in Construction Regulation 10 (2) and (4), it is indicated in the fall protection plan that –

(a) the roof work has been properly planned;
(b) the roof erectors are competent to carry out the work;
(c) no employee is permitted to work on roofs during inclement weather conditions or if any conditions are hazardous to the health and safety of the employee;
(d) all covers to openings and fragile material are of sufficient strength to withstand any imposed loads;
(e) suitable and sufficient platforms, coverings or other similar means of support have been provided to be used in such a way that the weight of any person passing across or working on or from fragile material is supported; and
(f) suitable and sufficient guard-rails, barriers and toe-boards or other similar means of protection prevent, as far as is reasonably practicable, the fall of any person, material or equipment.

2.4.16 Structures

1. A contractor must ensure that –

(a) 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;
(b) no structure or part of a structure is loaded in a manner which would render it unsafe; and
(c) all drawings pertaining to the design of the relevant structure are kept on site and are available on request to an inspector, other contractors, the client and the client's agent or employee.

2. An owner of a structure must ensure that –

(a) inspections of that structure are carried out periodically by competent persons in order to render the structure safe for continued use;
(b) that the inspections contemplated in paragraph (a) are carried out at least once every six months for the first two years and thereafter yearly;
(c) the structure is maintained in such a manner that it remains safe for continued use;
(d) the records of inspections and maintenance are kept and made available on request to an inspector.

2.4.17 Lifting Machinery and Tackle, Material Hoist and Cranes

1. A contractor must ensure that every material hoist and its tower have been constructed in accordance with the generally accepted technical standards and are strong enough and free from defects.
2. A contractor must ensure that the tower of every material hoist is -
   (a) erected on firm foundations and secured to the structure or braced by steel wire guy ropes, and extends to a distance above the highest landing to allow a clear and unobstructed space of at least 900 millimetres for over travel;
   (b) enclosed on all sides at the bottom, and at all floors where persons are at risk of being struck by moving parts of the hoist, except on the side or sides giving access to the material hoist, with walls or other effective means to a height of at least 2100 millimetres from the ground or floor level; and
   (c) provided with a door or gate at least 2100 millimetres in height at each landing, and that door or gate must be kept closed except when the platform is at rest at such a landing.
3. A contractor must cause -
   (a) the platform of every material hoist to be designed in a manner that it safely contains the loads being conveyed and that the combined mass of the platform and the load does not exceed the designed lifting capacity of the hoist;
   (b) the hoisting rope of every material hoist which has a remote winch to be effectively protected from damage by any external cause to the portion of the hoisting rope between the winch and the tower of the hoist; and
   (c) every material hoist to be provided with an efficient brake capable of holding the platform with its maximum load in any position when power is not being supplied to the hoisting machinery.
4. No contractor may require or permit trucks, barrows or material to be conveyed on the platform of a material hoist and no person may so convey trucks, barrows or material unless those articles are secured or contained in a manner that displacement thereof cannot take place during movement.
5. A contractor must cause a notice, indicating the maximum mass load which may be carried at any one time and the prohibition of persons from riding on the platform of the material hoist, to be affixed around the base of the tower and at each landing.
6. A contractor of a material hoist may not require or permit any person to operate a hoist, unless the person is competent in the operation of that hoist.
7. No contractor may require or permit any person to ride on a material hoist.
8. A contractor must ensure that every material hoist -
   (a) is inspected on daily basis by a competent person appointed in writing by the contractor and such competent person must have the experience pertaining to the erection and maintenance of material hoists or similar machinery;
   (b) inspection contemplated in paragraph (a), includes the determination of the serviceability of the entire material hoist, including guides, ropes and their connections, drums, sheaves or pulleys and all safety devices;
   (c) inspection results are entered and signed in a record book by a competent person, which book must be kept on the premises for that purpose;
   (d) is properly maintained and the maintenance records in this regard are kept on site.
9. A contractor must, in addition to compliance with the Driven Machinery Regulations, 1988 ensure that where tower cranes are used -
   (a) they are designed and erected under the supervision of a competent person;
   (b) a relevant risk assessment and method statement are developed and applied;
   (c) the effects of wind forces on the crane are taken into consideration and that a wind speed device is fitted that provides the operator with an audible warning when the wind speed exceeds the design engineer's specification;
   (d) the bases for the tower cranes and tracks for rail-mounted tower cranes are firm, level and secured;
   (e) the tower crane operators are competent to carry out the work safely; and

(f) the tower crane operators have a medical certificate of fitness to work in such an environment, issued by an occupational health practitioner in the form of Annexure 3 of Construction Regulation 2014.

2.5 *Occupational Health*

1. Exposure of workers to occupational health hazards and risks are very common in any work environment, especially in construction. The occupational hazards and risks may enter the body in three ways:
   (a) Inhalation e.g. cement dust;
   (b) Ingestion through swallowing;
   (c) Absorption through the skin (pores) e.g. painting or use of thinners.

2. All contractors are to ensure that where employees are exposed to airborne contaminants, pre-employment medicals should be conducted to ensure fitness to work under such conditions.

3. All contractors will be responsible for the full cost of medical treatment that his staff may require; the contractor is therefore required to ensure that all his personnel are medically fit.

4. All Contractors should ensure that Occupational Hygiene surveys are conducted as per the Occupational Health and Safety Act to ensure employees is not exposed to hazards. Risk Assessments should identify areas where surveys are to be conducted.

2.6 COVID-19 (SARS-CoV-19 virus) Workplace Preparedness:

The Principal contractor must ensure compliance to all relevant current COVID-19 regulations

OCCUPATIONAL HEALTH AND SAFETY SPECIFICATION REQUIREMENTS
FOR CONSTRUCTION

ANNEXURE A

Notification of Intention to Commence Construction / Building work	To be completed and logged with the Department of Labour	Before commencement on site
Application Construction work permit	To be submitted 30 days prior to work commencing	Before commencement on site
Assignment of Responsible Person to Manage Building Work	All relevant appointments as per OHS Act	Before commencement on site
Assignment of Responsible Person to Supervise Building Work	All relevant appointments as per OHS Act	Before commencement on site
Medical Certificates of Fitness for all personnel on site	As per specifications and OHS Act	Before commencement on site
Competency for Responsible Persons	As per specifications and OHS Act	Before commencement on site
Compensation of Occupational Injuries and Diseases Act (COIDA) 130 of 1993	COIDA Requirement	Before commencement on site and during construction period
Occupational Health and Safety Policy	Contractor’s Responsibility	At tender stage
Health and Safety Organogram.	Contractor’s Responsibility	Before commencement on site
Health & Safety Representative	Section 17 OHS Act	Submit as soon as there are more than 20 employees on site

Assignment of Contractor's Responsible Persons

ANNEXURE B

The contractor **will** make the following appointments where applicable and ensure that CV's and competency certificates are attached to the relevant appointments* but are not limited to:

Section 16.1 CEO
(Competent Person for OHS) - OHS 16(2)*
Construction Manager CR 8(1)*
Assistant Construction Manager CR 8(2)*
Construction Safety Officer - CR 8(5)*
Construction Work Supervisor - CR 8(7)*
Construction Work Assistant Supervisor - CR 8(8)*
Risk Assessor - CR 9(1)
Competent person to perform risk assessment and procedure training CR 9(3)
Fall Protection Planner CR 10(1)
Construction Vehicle & Mobile Plant Operator - CR23(1)(d)*
Electrical Installations Inspector CR 24(d)
Housekeeping Inspector CR 27
Stacking & Storage Supervisor - CR 28(a)
Fire Equipment Inspector - CR 29(h)
Emergency Coordinator - ER 9
H&S Committee Chairperson - OHS 19 (*where applicable)*
First Aider/s - GSR 3 **(Compulsory)**
Hazardous Chemical Substance Supervisor - HCS Regulations
Health and Safety Representative - OHS 17(1) (*where applicable)*
Incident / Accident Investigator - GAR 9(2)
Responsible Person for Machinery - GMR 2(1)
Lifting Tackle inspector – DMR 18
Lifting Machinery Operator – DMR 18
Portable Electrical Equipment Inspector EMR 10

OTHER Occupational Health and Safety Specification REQUIREMENTS

ANNEXURE C

The contractor will comply and not be limited to the following requirements:

What	When	Output	Reference information
Awareness training Toolbox talks	Twice a week and before hazardous work is carried out	Attendance Register	
DSTI	Daily before work starts	Signed document	
Health and Safety Committee Meetings	Monthly	Minutes signed by the employer (Contractor) Covering: a) Health and Safety Representative Checklist	
Health and Safety Reports	Monthly	Report covering: a) Incidents/Accidents and Investigations b) Non-conformance c) Health and Safety Training d) HIRA Updates e) Internal and External Audits	Incident reporting and investigation for The Project Client / Client Agent & Contractor form
General Inspections	As per Occupational Health and Safety Specification and OHS Act	Report on Occupational Health and Safety Specification and OHS Act compliance: a) Scaffolding b) Lifting Machinery c) Excavations	
General Inspections	Monthly	Covering: a) Firefighting Equipment b) First Aid boxes c) Portable Electrical Equipment d) Ladders e) Vehicle & plant inspections	
Record keeping	Ongoing	Covering: a) General complaints b) Fines c) General incidents d) MSDS e) Surveillance Medicals f) Inspection Register	
Permits	Before commencement with certain activities	As stipulated by the Occupational Health and Safety Specification and the OHS Act / Construction Regulations	

SAFETY FILE REQUIRMENTS

ANNEXURE D

The contractor will comply and not be limited to the following requirements:

Item	Description
1.	OHS Act section 37.2 Agreement & **CR 5(1)(k) Principal Contractor Appointment**
2.	EHS Plan ***(Approved by Client as well as contractor responsible person)***
3.	Contractor Policies ***(As well as proof of communication to employees)***
4.	Scope of Work & ***Letter of award of contract***
5.	Contractor Public Liability Insurance Cover **(Proof of cover and policy number)**
6.	Notification of Construction Work to Department of Labour (Copy) **Stamped by DOL**
7.	Client SHE Specifications ***(Proof of communication to Construction Manager & Supervision)***
8.	Letter of Good Standing with a Licenced Compensation Commissioner (COID)
9.	Organisation Structure ***(Must indicate legal appointment reference, contact number as well as e-mail address where applicable)***
10.	Induction ***(Copy of training material and proof of training)***
11.	Risk Assessments ***(Approved risk assessment by contractor and Agent as well as proof of communication to all employees)***
12.	Baseline risk assessment
13.	Area Emergency Plan site specific ***(Proof of communication to employees)***
14.	All Safe work procedures relevant to tasks that will be performed tasks identified as high-risk activities during risk assessment process
15.	Appointments Letters ***(Copy of legal appointments and competency/CV/Certificates)***
16.	Site Specific Audits and Internal Audits/Inspection Arrangements (Client as well as internal)

Item	Description
17.	Personal Protective Equipment ***(Proof of issue as well as monthly inspections by supervision)***
18.	Workers Welfare Facilities &Waste Management ***(Plot plan and inspections)***
19.	Toolbox Talks ***(Topics and proof of communication)***
20.	Site EHS Meetings Arrangements
21.	Equipment/Tools Inspections Checklist/Registers
22.	Incident Investigations
23.	Medical Surveillance Certificates
24.	Copy of the Act & WCL2 Forms
25.	MSDS'S of all chemicals that will be used on site (16 Point MSDS as required by law)
26.	Fall Protection Plan
27.	COVID-19 Workplace preparedness plan and all relevant registers and inspections

MANDATORY AGREEMENT ON ENVIRONMENTAL, HEALTH AND SAFETY ISSUES

ENTERED INTO AND BETWEEN

GEORGE MUNICIPALITY

(Hereinafter referred to as the "Employer")

and

……

Contractor

Compensation Fund Number: ……..

Whereas the Employer has called for the executing of the following work: **ENG010/2022 SCHAAPKOP SUBSTATION SITUATED STEINHOFF INDUSTRIAL PARK - 1 kWp PV + 2 kWh battery storage**, and whereas the Contractor undertook to carry out the work and whereas Employer and the Contractor have agreed to regulate the environmental, occupational health and safety responsibilities as between them, now therefore the undersigned agree to:

Section A: Occupational Health and Safety

1) The Contractor warrants that all his and his sub-Contractors' employees are covered in terms of the provisions of the Compensation for Occupational Injuries and Diseases Act 1993, which cover shall remain in force whilst any such employees are present on Employer premises. The Contractor will only allow sub-Contractors on site with the prior written consent of the Employer.

2) The Contractor warrants that it is in possession of Public liability insurance cover and any other insurance cover of that will adequately make provision for any possible losses and/or claims arising from his and/or his sub-Contractors and/or his employees' acts or omissions on Employer premises, which shall remain in force whilst he and/or his sub-Contractor and/or his employees are present on Employer premises or which shall remain in force for the duration of his contractual relationship with the Employer, whichever period is the longer.

3) The Contractor undertakes to ensure that he and/or his sub-Contractors and/or their respective employees will at all times comply with all the requirements of the Occupational Health and Safety Act, Act 85 of 1993 (OHS-Act) and that he is an employer in his own regard. The Contractor (Mandatory) therefore and Employer therefore enter into this agreement by virtue of Section 37(2) of the OHS-Act, without derogating from this general undertaking, also comply with the following conditions:

(a) All work being done will be preceded by hazard identifications and risk assessments and these hazards and risk will eliminated, controlled or mitigated where reasonably practicable.

(b) All work performed on Employer premises must be performed under the close supervision of the Contractor’s Supervisors on site. Such supervisors are to be conversant with the hazards associated with any work that the Contractor performs on the stated premises as well as the mitigating and controlling measures to be implemented.

(c) Contractor employees must be medically fit to perform the work they are required to perform. Proof of completed Annexure 3, medical fitness and biological monitoring is to be provided to the Employer authorised representative on request of the Employer. The contractor is specifically but not exclusively referred to: Hazardous Substances Act, Employment Equity Act, Construction Regulations 2014, Hazardous Chemical Substances Regulations, Lead Regulations, Asbestos Regulations, Hazardous Biological Agents Regulations, Noise Induced Hearing Loss Regulations, etc.

(d) The Contractor's Chief Executive Officer shall assume the responsibility in terms of Section 16(1) of the Occupational Health and Safety Act. If the Contractor assigns any duty in terms of Section 16(2), a copy of such written appointment shall immediately be forwarded to the Employer, as well as all other appointments made in terms of the Occupational Health and Safety Act.

(e) The Contractor shall ensure that he familiarizes himself with the requirements of the Occupational Health and Safety Act and that he, his employees and any sub-Contractor comply with its requirements.

(f) The Contractor shall appoint competent employees who shall be trained and conversant on any Occupational Health and Safety aspect pertinent to them or to the work that is to be performed. No employee will be employed on the site by the Contractor, which has not been employed for at least six months prior to the contract commencing in a similar position by the Contractor.

(g) The Contractor shall strictly enforce discipline regarding Occupational Health and Safety.

(h) The Contractor shall ensure that his employees are issued and use the required Personal Protective Equipment (PPE). PPE will only be used as a last resort where other mitigating measures are not reasonably practicable.

(i) Safe work procedures shall be implemented and enforced; all employees shall be made conversant with the contents of these practices.

(j) No unsafe or illegal equipment/machinery, personal protective equipment and/or articles shall be used on Employer premises.

(k) Those incidents and accidents mentioned in the Occupational Health and Safety Act shall be reported by the Contractor to the Department of Labour as well as to the Employer. The Employer shall further be provided with copies of any written documentation relating to any incident.

(l) All employees of the Contractor shall be made conversant with work-related hazards and procedures to mitigate or eliminate these hazards.

(m) The Contractor warrants that he shall act as a professional in his field of expertise and has identified all hazards and risks associated with the work to be performed.

(n) The Employer and Contractor hereby obtains an interest in the issue of any investigation or formal inquiry conducted in terms of the Occupational Health and Safety Act pertaining to any incident involving the Contractor and/or his employees and/or his sub-Contractor/s.

(o) No use shall be made of any Employer machinery/article/substance or personal protective equipment without written approval and without ensuring prior and during use it is in a proper condition and as such will not cause any risk to the health and safety of any person.

(p) Work for which the issuing of a permit is required shall not be performed prior to the obtaining of a duly completed and approved permit.

(q) No alcohol or other intoxicating substance shall be allowed on the Employer's premises. Anyone suspected of being under the influence of alcohol or any other intoxicating substance (including medicines) shall not be allowed on the premises.

(r) Full co-operation shall be given if and when the Employer's employees inquire into occupational health and safety issues.

(s) The Contractor will cease dangerous or unsafe work immediately when requested to do so by the Employer or its representatives. The onus still remains on the contractor to enforce health and safety practices.

(t) The Contractor confirms that he has been informed that he must report to the Employer management (in writing) anything that he deems to be unhealthy and/or unsafe. He has informed his employees and/or sub-Contractors in this regard.

(u) The Contractor warrants that he shall not endanger the health and safety of Employer employees, members of the surrounding community and/or visitors in any way whilst performing any work on Employer premises.

(v) The Contractor undertakes to reimburse the Employer for all medical costs incurred relating to any of the Contractor's employees.

(w) Should the contractor be performing “construction work” as defined in the Construction Regulations 2014 of the OHS-Act, the contractor will therefore ensure full compliance with said regulations

Section B: General and Environmental legal compliance

1) The Contractor will ensure compliance to all environmental legislation.
2) The Contractor undertakes to comply with all labour related legislation while performing work for the Employer.
3) The Contractor will be accountable and liable for all fines, penalties and civil action arising out of his and his employee’s, contractor’s or agent’s acts and omissions. The Contractor will hold the Employer harmless against any such claims or actions.

Section C: Special conditions

1) This agreement shall remain in force for the complete duration of the specified work done for the Employer unless revoked in writing.
2) The Contractor representative shall be bound *in solidum (jointly and severally)* in terms of this agreement.
3) The Contractor undertakes to adhere to all the Employer's rules and regulations as well as all guidelines and other addendums that may be annexed hereto. The Contractor will ensure that all his employees are conversant with these annexures, where applicable.
4) "*Employer Premises*" in this agreement will include Client premises.
5) The Employer retains the right to stop any work deemed dangerous in regard to the health and safety of employees, Client representatives, public or visitors. Work may also be stopped as a result of legal noncompliance's observed during audits, the contractor will be responsible for any damages and costs suffered as a result of work stoppages.

Date	
Place	
Signed by: **Client:** _____	Mr. _____
Date	
Place	
Signed by contractor or his authorized representative:	Mr. _____

Notes

1. Initial each page and annexures
2. Verify all corporate entity names and site them correctly
3. Verify insurances and COIDA
4. Verify signatory authority
5. Keep original
6. Initial where amended or writing added
7. To be signed before commercial agreement
8. Ensure commercial contract do not override this agreement.

APPOINTMENT AS THE PRINCIPAL CONTRACTOR OF CONSTRUCTION WORK IN TERMS OF CONSTRUCTION REGULATION 5(1)(k) OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, (85 OF 1993) AS AMENDED

NAME OF CLIENT: GOERGE MUNICIPALITY

IN TERMS OF THE ABOVE-MENTIONED ACT:

I/WE ..... (FOR EMPLOYER) having been appointed to ensure full
Manager-Section
compliance with the OHSA and Regulations, hereby appoint you.....
Full name
On behalf of……..as Principal Contractor of Construction Work in

terms of the Construction Regulation 5(1)(k). The appointment is for the following project: ***ENG010/2022***

SCHAAPKOP SUBSTATION SITUATED STEINHOFF INDUSTRIAL PARK - 1 kWp PV + 2 kWh

battery storage

YOUR RESPONSIBILITIES ARE TO:

1. Comply with all the duties imposed on a Principal Contractor by the Construction Regulations.
2. Supervise all Construction work on the premises in accordance with CR 5(1)(k).
3. Ensure compliance with the health and safety specifications prescribed by the client or his agent for this project.
4. Ensure compliance with all the requirements of the National Building Regulations.
5. Ensure that all contractors appointed by yourself, and reporting to you, comply with the requirements as stipulated in the Construction Regulations.
6. Ensure that information and specifications to carry out work safely are communicated to all contractors appointed and reporting to you.
7. To ensure that all records, registers, and documentation are maintained and that all persons appointed to carry out tasks are competent and possess the necessary resources to complete their tasks effectively and in such manner that the health and safety of persons are not compromised.
8. Report to the client as per the agreed safety plan on all deviations and progress.

This appointment will become effective on the date of acceptance thereof and will be valid until completion of the construction work.

Please confirm your acceptance of this appointment by signing and returning to me the duplicate copy of this letter.

Signature: .....
Manager (for employer)

Designation: .....

Date: .....

ACCEPTANCE

I..... understand the implications of the appointment and confirm my acceptance of this appointment. I have studied the relevant sections of the Act and Regulations and understand what is required of me.

Signed:..... **Date: .....**

BASELINE RISK ASSESSMENT

	TASK	HAZARD/RISK	MINIMUM CONTROL MEASURES
1.	Electrical Commissioning	Electric shock	• Contractor to comply with permits/wayleaves to work issued by Client • Correct personal protective equipment to be worn by employees to prevent electric shock • Trained appointed First aider available on site at all times • Only registered competent, trained and appointed persons may decommission or commission electrical equipment
2.	Electric Tools and Electrical Installations	Electric shock Fire	• Electric tools and installations to be in safe condition • Inspect electric tools daily before use and monthly by competent person • Do not use electric tools in wet/damp conditions • Use correct protective equipment for working with or on electricity • Electrical installations register must be maintained by competent person after each inspection
3.	Working close to live electricity (Lock out & Tag out Procedure)	Electrical shock	• Ensure that wayleaves are obtained for work to be conducted • Wayleave must always be available on site . • Contractor must comply to wayleave requirements. • Contractor must not move past barriers installed by the client and stay clear of danger areas • Lockout and tagout procedure implemented
4.	Working at heights	Personnel falling form height Falling debris Those beneath being injured	• All persons working at heights must have attended working at heights training and have the required competence certificate • All persons working et heights must receive training on the fall protection plan • All safety harnesses must be inspected by the user before each use and monthly by a competent person all findings noted on an inspection register

			• All defective equipment must be tagged and removed from service and work area. • All persons working at heights must always wear full body safety harness , ensure 100% hook up • All fall arrest equipment to be correctly stored and maintained
5.	Skin cable with hacksaw and / or cable knife	Sub-standard knives or saws used to skin cables Leaving knife blade exposed or unattended Using blunt blades on knives or hacksaws Failure to wear eye protection while using cable knives or saws.	• Wear appropriate PPE - Cut Resistant Gloves. • Ensure that blades are kept sharp and in a good condition. • Blunt blades requires more force and is more likely to slip and cause injury. • Always cut away from your body. • Only Skilled and Semi-skilled electricians will be allowed to use cable knives • Ensure that tools and equipment are inspected prior to use. • Ensure that blades are changed whenever it starts to tear instead of cut. • Wear appropriate PPE – Eye Protection. • Never use cable knifes as a screwdriver or tin opener or any other purpose
6.	Use of Mobile Cranes		• Only trained competent/certified appointed employees to operate cranes. • All cranes must be inspected daily before use by the operator • Crane may not be used if derivations are noted during daily inspections • Mobile crane compliance certificates as per DMR must be current and up to date. • No safety devices shall be bypassed • Crane must be setup on even surface on stable compacted surface. • Ground where crane will be positioned shall be inspected for safe use and to determine how solid it is before the crane is positioned. • Area where crane will be used must be barricaded to prevent unauthorised access. • Only competent person to give hand signals to crane operator.

			• Load lifted with crane may not exceed 80% of the crane SWL. • Never exceed crane slew radius • Crane hook must always be centred with the load. • Operator must not talk on cell phone while operating crane. • Crane must not be used close to overhead powerlines without documented approved pre planning plans signed by user and client and owner of overhead powerlines. • Supervisor must be present at all times when using any crane.
7.	Use of Construction Plant and Equipment.	Plant failure, damage to equipment, property damage, injury, death	• Only use trained and experienced operators. • All equipment to be checked before use. • Plant to be placed on maintenance schedule, load test, certifications and visual inspection as per OHS Act. • Flagmen to accompany all mobile plant & equipment in work areas. • Inexperienced operators to work under supervision of experienced personnel. • Mobile plant to operate in barricaded areas and/or personnel to evacuate work areas close to mobile plant and equipment in operation. • Ground operating conditions to be checked by operator and foreman • High visibility clothing to be worn by all site personnel, audible warning systems when moving backwards, visible warning lights when in operation for all mobile plant. Spotters to be used where necessary.
8.	Earthing of electrical equipment and installations	Fatality, electrical shock	• Ensure that all installations and equipment used are earthed correctly. • Test equipment and installation to ensure that earthing is correct
9.	Noise and Dust.	Breathing in dust can cause long term health problems, noise can damage hearing	• Hearing protection, signage indicating high noise zones, regular noise level tests and/or testing as per OHS Act and or when required • Wear dust masks or respiratory masks

			• Dampen down and minimise dust where possible.
10.	Manual Labour loosening and fastening of items.	Injuries to hands and muscles	• Use correct tool for the job at hand • When using spanners work away from your body • Where possible use ring spanners when tightening bolts. • Do not work in uncomfortable positions.
11.	Manual Handling of General Items	Muscular skeletal injuries if the load is too heavy or awkward Operative falling/ tripping Contamination from the substance being carried Fall of material being carried	• Personnel should be aware of safe manual handling techniques • Personnel to wear Personal Protective Equipment when carrying items, e.g. safety footwear and gloves. • Awareness training for correct lifting method, use legs and not your back • Ensure good housekeeping to eliminate tripping/fall hazards. • Employee to get assistance if load is too heavy- team lift if necessary. • Utilise mechanical lifting and carrying aids where possible. • Personnel to ensure access equipment, ladders will take weight of employee and load being carried. • Personnel to ensure item being carried is properly bonded or is not liable to break apart whilst being manually handled
12.	Working with hands	Hand Injuries	• Always wear gloves when working with hands. • Keep hands clear of pinch or crushing areas. • When cutting with Stanley knife cut away from your body. • Always ensure your hands are protected from injuries when using them.
13.	Overhead Services (Working near)	Contact with live services causing injury to personnel Damage caused to services	• Look First! Check the area for overhead power lines before bringing in equipment such as cranes, backhoes, and boom trucks. • Use a signaller if equipment or its load is closer than one boom length to overhead power lines. • Maintain the minimum distance from power lines **750 to 150,000 volts – 3 meters**

			More than 150,000 to 250,000 volts – 4.5 meters **More than 250,000 volts – 6 meters** • Where contact is a danger, get the utility to insulate the lines. • Should contact occur stay in the machine. Generally, the safest course is to stay in the cab and remain calm. Don't touch the equipment and the ground at the same time. If you do, the current will make YOU its path to the ground. The results can be fatal. • Wear the correct personal protective clothing • Ensure height of plant/vehicles does not compromise or exceed clearance levels for overhead services
15.	Plant or Vehicles and Equipment Operation	Workers injured by passing traffic Road users and pedestrians at risk from plant operation Noise	• Implement traffic protection measures • Trained and competent operators must be used • Check plant and vehicles on daily basis before use and record inspections. Maintain vehicles in safe condition. • Medical certificates of fitness required for construction plant. • Crossing of road by construction vehicles or machines must be limited to the practical minimum • Plant and vehicles must be fitted with amber rotating beacons and reverse alarms. • Wear appropriate protective clothing/equipment, e.g. goggles, gloves, ear defenders, etc. as appropriate.
16.	Use of ladders		• Inspect ladder before use and area where ladder is needed • Ladder to be numbered and registered. • Replace all defective ladders. • Determine work to be done and length of ladder needed. • Use ladders specifically designed for electrical work • Good supervision. • Good communication between all parties. • 3 Point contact while climbing up or down a ladder. • No tools or any loose items in hands while climbing.

			• Only one person on ladder at a time. • Ladder to be secured to the structure or kept in position by a second person • Make sure the ladder is long enough, never climb past second last rung of ladder
17.	Use of Grinders	Personnel can sustain injuries when moving parts are properly protected.	• All grinders must be inspected before use by the user. • Grinder to be inspected monthly by a competent person and finding noted on an inspection register. • Use grinding discs for grinding and cutting discs for cutting. • Check all discs before use. And ensure correct RPM and type of disk for activity being done, consult manufacturer's instructions for correct information • Use correct PPE face shield & safety goggles, gloves, safety shoes and overalls. • Ensure grinder is unplugged before changing discs.

18.	Rigging & slinging practices	Falling material Crushing by materials Hand injuries to the slinger Toppling crane	• Use ONLY trained and experienced personnel. ALL LIFTING AREAS WILL BE BARRICADED TO ALLOW ONLY AUTHORISED PERSONNEL. • Cranes to be checked and all statutory tests and checks to be current. All lifting tackle to be • checked before use by the user and quarterly by a competent person and statutory documentation to be current. SWL on all lifting machines and tackle to be visible and adhered to. • Rigging shall only be done by competent and trained employees. • Ensure inspection have been carried out • Ensure (SWL) is clearly visible on all lifting tackle used • Ensure items being lifted are hooked up correctly and load centred with. • Be aware that there should be a minimum clearance of 600mm between any slewing parts of a crane and any fixed installation to prevent being trapped. • Good communication at all times between crane operator and person in control of lifting activity.
19.	Loading & Offloading	Property damage Pinch, cuts and bruises to employees. Falling of tools, loads and equipment. Serious injuries/fatality. Minor to serious hand and finger injuries.	• Ensure area identified for offloading is even and ground conditions stable. • Area must be barricaded and no unauthorised entry allowed • Performing manual loading/offloading comply to manual handling procedure. • Ensure loads are hooked correctly when offloading with mobile crane. • Only use certified lifting equipment. • Only competent person to perform rigging and slinging • No person allowed under suspended loads. • Keep hands away from loads, never place hands under loads when being placed on a surface. • Never exceed crane or lifting tackle SWL.

20.	Fire.	Injuries to workers, pedestrians, residents, road users, damage to property through fire	• No littering on site which could become fire hazard, maintain site in clean condition. • No fires to be lit on site. Always have a serviced fire extinguisher at hand . • No smoking or naked flame near flammable substances • Ensure proper storage/use of Petrol/diesel/flammable substances – post warning notices
21.	Flammable Liquids and Gases (Use of)	Fire Explosion	• No littering on site which could become fire hazard, maintain site in clean condition. • Always have a working fire extinguisher at hand . • No smoking or naked flame near flammable substances or in unauthorised areas • Ensure proper storage/use of Petrol/diesel/flammable substances – post warning notices • Equipment must be in good condition, maintained • Personnel using substances must be trained in safe use and risks
22.	Hand tools	Injuries caused by use of hand tool Impact with the tool Falls due to access problems Contamination with substance being worked	• Inspect hand tools daily before use and complete inspection registers • Use the tool according to manufactures specifications • Tool is in good order and suitably sharp • Personnel must be instructed in tool usage and tool safely • Lighting is sufficient • Access is safe, working platform is secure, leading edge is guarded • Operative is wearing all necessary PPE • No homemade tools allowed on site
23.	Hazardous Substances	Injuries to workers through use of hazardous substances, e.g. injuries to eyes, skin, etc.	• Use substances in accordance with (MSDS) data sheet, particularly reference protective clothing required (example: gloves, goggles, etc.) • Regular inspection of all HCS containers must be conducted. • Any defects or damaged containers must be reported to immediate supervision.

			• First aider trained in regards to MSDS requirements
24.	Line of fire	Injuries	• Never stand in front of a person using power tools (Grinders) • Unsure at least two meter gap between employees using picks to perform trenching • Never stand in front of a person using a hammer.
25.	Pinch pointes	Amputation of fingers injuries to fingers	• Always wear gloves • Keep hands clear from pinch point and crushing areas • Use guide ropes to guide loads
26.	Oil Spills (Environmental requirements)	Contamination of environment	• Ensure all plant used on site do not leak oil • Place drip trays under mobile plant when not in use. • Clean oil and diesel spills immediately when observed • Ensure spill kit available on site at all times
27.	Ergonomics	Strains on muscles, joints and nerves	• Make sure that the body is not compromised at all in the work place • Ensure your body position and posture is conducive to comfort and that you have minimal distraction from physical discomfort. • This correct use of the body in the workplace is simply called 'correct ergonomics'.
28.	Housekeeping	Minor to Serious injuries Damage to property Fatality Slip trips and falls	• Equipment shall be stacked properly in a safe place. • All tripping hazards shall be removed from working site. • Designated walkways to be used. • Full waste containers to be emptied on regular basis. • All waste generated to be placed in bins or bags.
29	Personal Protective Equipment	Injuries or health conditions	• All employees must be issued with the required PPE as identified in risk assessment • All employees to be trained in the use, maintenance and limitations of PPE • Regular PPE inspections conducted by supervision • Damaged PPE must be replaced immediately

30.	Management Of Change	Fatality, serious injuries or property damage	• Each operation to specify and define responsibility of each person involved and responsible for Management of Change. • The description shall also identify the specific documents (i.e. standards, codes of practice, process designs, inspection and approval notices, legislative requirements, etc.) that provide the operational or project engineering basis for changes. • These and every document involved in the change should be attached, if they are not part of a readily accessible standard / procedure. • Details of communications regarding the specific changes must be kept. • Shall be implemented to ensure the change management process is comprehensively managed
31.	Stacking & storage	Injuries and property damage	• Dedicated stacking and storage areas to be identified and used. • Walk ways to be kept clear. • Hazardous chemicals to be stored as per OHS Act and MSDS requirements. • No combustible and flammable material to be stored in same area. Articles shall not be stacked higher than three times the shortest base of the article. Secure materials and equipment.
32	Use of Scaffolding	Unsafe scaffolding Serious injuries / property damage// fatalities	• Scaffold erected according to SANS 10085 and inspected by competent Scaffolding Supervisor/inspector on a daily basis • Safe to work tag (green tag) to be displayed and signed daily by the Scaffolding Supervisor/inspector. • Stop work if scaffold or platform is unsafe / verify that kick boards around entire platform are safe and secure • Toe boards shall be installed on all permanent and temporary edge protection. • No working on wet scaffold platforms. • Safety harnesses to be worn and tied off above 2 m.

			• Scaffold users to do pre-inspections on the scaffold and report any deviation to the supervisor to correct before use. • All employees working at heights must have • received training from SAQA Accredited Company Unit Standard 229998
33	Hot Work & Welding	Defective welding machine Flammable substances Wearing incorrect P.P.E Fires Hot welding slag Welding fumes Improper earthing	Welding aprons, spats, welding helmet, leather gloves, overalls, and yoke will be worn when performing welding. Only use P.P.E that is practical for the task performed The work area will be free from debris and combustible material Fire extinguishers will be placed at least 3m away from the welding area Welding slag spatter will be minimised by means of welding screens and/ or fire blankets The welding area will always be well ventilated Artificial ventilation will be provided where natural airflow is absent. Welding screens will be installed around all welding areas Ensure that the welding piece is at a comfortable height Ensure to take stretch breaks when needed Ensure that welding cables and earth cables is routed neatly out of walkways No cables will be allowed to be coiled, or run through water The earth clamp will be placed as close as possible to the welding piece Earth cables, clamps and lugs will be inspected before and during welding operations Only trained and certified welders will be doing welding operations on site All welding machines will be earthed, externally A fire extinguisher will be placed in the facility, at least 3 meters away
34	Working in areas accessed by members of the public	Injuries and property damages, civil claims	All work areas must be clearly barricaded and warning notices displayed. Members of the public must under no circumstances be allowed access to the work site. Work to be done in such a manner that it does not endanger

OHS Inc.
occupational health and safety consultants

Health and Safety Specification In terms of OHS ACT 85 0f 1993

Project: ENG019/2022 TOURISM BUILDING 124 YORK STREET - 4 kWp PV + 10 kWh BATTEREY STORAGE

For: GEORGE MUNICIPALITY – ELECTROTECHNICAL DIRECTORATE

Project Directory	
Project Client	
Name: **George Municipality** 71 York Street George 6530	Contact Details: 044 801 9111
Designer	
Name: **George Municipality** 71 York Street George 6530	Contact Details: 044 801 9111
OHS	
Name: OHS Inc	Contact Details: 082 7717072 admin@ohsinc.co.za
Other Parties	
Name: George Municipality Electrical Dept	Contact Details: 044 801 9222
Name: George Municipality Water Dept	Contact Details: 044 801 9262
Name: George Municipality Civil Engineering Services	Contact Details: 044 801 9111

Project Details	
Provisional Start Date:	**TBA**
Provisional Completion Date:	**TBA**
Proposed Contract Duration:	**TBA**
Proposed Project Value:	**TBA**
Notification of Construction Work:	**YES**
Construction Work Permit Application:	**N/A**
Prepared by:	**J van Graan**
Date Prepared:	**15 JUNE 2022**

PROJECT HEALTH AND SAFETY SPECIFICATION
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- Other Occupational Health and Safety Specification Requirements

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- Safety File requirements, Mandatory Agreement & CR 5(1)(k) Principal Contractor Appointment

1. Purpose

1. The purpose of this document is to provide health and safety information about specific project risks known by the Client, Designer and Client Agent. These risks are applicable to this project and may not necessarily be common knowledge to the Contractor. The Contractor must take this information into account and ensure that their tenders include adequate resources to deal with the matters detailed in this document. Compliance must be ensured by the Contractor and Appointed Sub-Contractor to all relevant legislation. Safeguarding of employees, sub-contractors and other persons affected by the construction activities must be ensured.

2. Reference should be made to the following documentation in conjunction with this safety specification (including existing surveys, drawings and reports):

(a) Engineers Drawings
(b) Designers Input
(c) Tender Documents

References used for the drafting of this specification

OHS Act – Occupational Health and Safety act 85 of 1993 and all regulations promulgated under this act, special reference to Construction Regulations 2014

Electrical Regulations – Under department of Minerals and Energy

COIDA Act - Compensation for Occupational Injuries and Diseases Act

3. Due to potentially dangerous operations being undertaken in construction, there is a possibility of incidents and accident which may lead to injuries or fatalities. In many instances non-compliances to the Occupational Health and Safety Act (OHS Act) has resulted in severe consequences for the parties involved. The Project Client is determined to ensure the highest health and safety standards throughout the Contract.

4. To ensure this The Project Client / Client Agent has prepared and published this document. This document should be used as a guideline for minimum levels of awareness and guidance for health and safety requirements for this Contract. The responsibility for adhering to these requirements rests with the Contractors.

5. Every Employer will provide and maintain, as far as reasonably practicable, a set working environment that is safe and without risk to the health of his employees. OHS Act 8 (1)

6. Compliance with the OHS Act and Regulations will not be limited to this specification and the definitions contained in this document.

7. Tenderers are expected to be conversant with the requirements and effect of health and safety legislation, in particular the Construction Regulations, 2014, and the Occupational Health and Safety Act, 85 of 1993. Provision must be made in the tender submission to comply with all legal requirements.

8. The Contractor's personnel will be responsible implementation all necessary legislative requirements. Document control and record systems associated with the legislation must be kept by the Contractor.

9. This document should be used to assist them Contractor towards achieving compliance with the OHS Act.

10. The Specification will be implemented during construction of the works Project Client / Client Agent has control over.

11. ***The Project Client is committed to ensure compliance to all the relevant legislation regarding Occupational Health and Safety is maintained and no accident occurs.***

12. This document must be used as a means of measuring performance of all parties entering into a contract with the project Client or Contractor in Occupational Health and Safety Standards.

13. The Project Client does not accept any liability which may result from the Contractor failing to comply with the Document; the Contractor remains responsible for achieving the required performance levels.

14. This document forms part of the Contract, and Contractors are required to make it part of their Contracts with Sub-Contractors and Suppliers.

15. The successful Contractor will ensure that a Safety Plan complying with all the relevant legal requirements and this document is compiled and approved by the Client/Client Agent before commencement of Construction.

1.2 PROJECT DETAILS

This project involves the installation of a small carport to accommodate about 3 vehicles and the panels that will be mounted on the carport structure similar to the Civic centre. Area in picture marked in purple indicates where carport must be erected.

1.3. EXISTING ENVIRONMENT

Work will be conducted at the Tourism Building York Street George, during the installation process the office will be performing their normal day to day business.

The Principal Contractor must ensure that his/her employees stay in their specific area of work and not wonder around on the premises. The Client George Municipality as well as its

appointed responsible person retains the right to request any person be removed from site who moves outside the construction area boundaries.

Principal Contractor must ensure all their plant operators, drivers and delivery companies are made aware that George Municipality employees are present at the work site and will be walking around within the boundaries of the facility.

The Principal contractor must ensure the he/she adheres to the requirements of Section 9 of the Occupational Health and Safety Act 85 of 1993 at all times

9. **General duties of employers and self-employed persons to persons other than their employees**

(1) Every employer shall conduct his undertaking in such a manner as to ensure, as far as is reasonably practicable, that persons other than those in his employment who may be directly affected by his activities are not thereby exposed to hazards to their health or safety.

(2) Every self-employed person shall conduct his undertaking in such a manner as to ensure, as far as is reasonably practicable, that he and other persons who may be directly affected by his activities are not thereby exposed to hazards to their health or safety.

1. Hazards particular to this project Baseline Risk Assessment

1.4 *BASELINE RISK ASSESSMENT*

Significant Risks and Hazards identified by the Client/Designer/Client Agent.

- COVID-19
- George Municipal employees present on site during construction period
- Loading and offloading of equipment and materials.
- Rigging practices
- Use of mobile cranes or Truck mounted cranes
- Working around existing services
- Working close to live electricity
- Working at heights
- Falling objects
- Use of scaffolding
- Use of Construction Plant and Equipment.
- Earthing of electrical equipment and installations
- Noise and Dust.
- Electrical work
- Steel Work
- Steel erection and installation
- Pinch Points
- Hot work & Welding
- Use of Grinders
- Fire.
- Hand tools
- Painting
- Hazardous Substances
- Manual Handling of General Items
- Use of Mobile plant & Equipment
- And any other task that has the potential to cause death, injury or property damages

NOTE:
Please refer to end of Safety Specification for minimum control measures required to address these risks.

The following materials and substances have, or may have, to be used in the works or is present and are identified as potentially posing special health and / or safety hazards during the project. Appropriate measures will need to be specified for their control:

- Asbestos
- Petrol
- Diesel
- Cement
- Sealants and silicones

All the needed PPE and precautions stated in the MSDS must be provided and adhered to when using these materials and gasses.

The following Project Client safety rules and/or requirements are to be observed:

Safety Rules

MANUAL LIFTING	Keep your back straight, Bend the knees, don't reach and lift, Get help for heavy loads
FALLS & FALLING OBJECTS	Look before you step, keep all walk areas clean, stay out from under loads, don't use unsafe ladders,
WORKING WITH ELECTRICITY	Avoid contact with energized electrical circuits, always use insulated tools, always use appropriate insulated rubber gloves and goggles, follow lock out and tag out procedure requirements never work on live electricity
UNSAFE USE OF TOOLS	Inspect regularly, report all defects at once, use the right tool safely, Put it away safely
PROTECTIVE EQUIPMENT	Ensure you use the correct PPE for the job at hand
HOUSEKEEPING	A clean job is a safe job, use waste bins, Pile materials safe and neat, Remove hazardous debris
TEAMWORK	Plan all work with safety - Protect fellow workers

Labour Records

At the end of each week the contractor will provide a written record, in schedule form reflecting the number and description of tradesmen and labourers employed by him and all his sub-contractors on the works each day. The record must also indicate total amount of people on site as well as total hours worked for the week.

Plant Records

At the end of each week the contractor will provide a written record, in schedule form reflecting the number, type and capacity of all plant, excluding hand tools, currently used on the works.

GENERAL PROJECT INFORMATION

The purpose of this section is to provide general health and safety information about construction risks which are applicable to the construction industry as a whole.

The Contractor must take all information in this section into account and ensure that their tenders include adequate resources to deal with the matters detailed below. All relevant risks must be dealt with in compliance with legislation

2. STANDARD OCCUPATIONAL HEALTH AND SAFETY SPECIFICATION

2.1. Scope

1. This Section covers the requirements for eliminating and mitigating incidents and within the Contract. The scope addresses minimum legal compliance, hazard and risk management, promotion of a health and safety culture amongst all parties involved in the project and those affected by the activities taking place.

2. Contractors employed by The Project Client / Project Agent must ensure that the provisions of the specifications are applied both on the site and all off site activities relating to this project.

3. The Contractor must enforce the provisions of these Specifications amongst all subcontractors and suppliers for the project.

2.2 Interpretation

2.2.1 Application

1. The Occupational Health and Safety Specification contains clauses that are applicable to building / construction and impose pro-active controls associated with activities that impact on human health and safety as it relates to plant and machinery. Compliance to the requirements of the Act is in addition to the requirements of the Occupational Health and Safety Specification and form part of the Contractor's responsibility. The Client / Client Agent will monitor that the Contractors compliance with the requirements of the OHS Act.

2.2.2 Definitions

For the purpose of this Occupational Health and Safety Specification following the definitions, hereunder will apply:

Agent
means a competent person who acts as a representative for a client;

Client
means any person for whom construction work is being performed;

Construction Work *(as defined in the Construction Regulations, 2014)* means any work in connection with—

a) the construction, erection, alteration, renovation, repair, demolition or dismantling of or addition to a building or any similar structure; or
b) the construction, erection, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer or water reticulation system; or the moving of earth, clearing of and, the making of excavation, piling, or any similar civil engineering structure or type of work;

Competent person
Means a person who

(a) has in respect of the work or task to be performed the required knowledge, training and experience and, where applicable, qualifications, specific to that work or task: Provided that where appropriate qualifications and training are registered in terms of the provisions of the **National Qualifications Framework Act, 2000 (Act No. 67 of 2000),** those qualifications and that training must be regarded as the required qualifications and training.
(b) Is familiar with the Act and with the applicable regulations made under the Act;

Construction Vehicles
Means a vehicle used as a means of conveyance for transporting persons or material, or persons and material, on and off the construction site for the purposes of performing construction work;

Construction work permit
Means a document issued in terms of regulation 3

Contractor
Means an employer who performs construction work

Electrical contractor
means a person who undertakes to perform electrical installation work on behalf of any other person, but excludes an employee of such first-mentioned person;

Electrical installation
Means any machinery, in or on any premises, used for the transmission of electricity from a point of control to a point of consumption anywhere on the premises, including any article forming part of such an electrical installation irrespective of whether or not it is part of the electrical circuit, but excluding

(a) any machinery of the supplier related to the supply of electricity on the premises;
(b) machinery which transmits electrical energy in communication, control circuits, television or radio circuits;
(c) an electrical installation on a vehicle, vessel, train or aircraft; and
(d) control circuits of 50 V or less between different parts of machinery or system components, forming a unit, that are separately installed and derived from an independent source or an isolating transformer;

Electrical Installation Regulations, 1992
Means the Electrical Installation Regulations, 1992, promulgated by Government Notice No. R. 2920 of 23 October 1992;

Fall protection plan
means a documented plan, which includes and provides for-

(a) all risks relating to working from a fall risk position, considering the nature of work undertaken;
(b) the procedures and methods to be applied in order to eliminate the risk of falling; and
(c) a rescue plan and procedures;

Fall risk
means any potential exposure to falling either from, off or into;

Hazard identification
Means the identification and documenting of existing or expected hazards to health and safety of persons which are normally associated with the type of construction work being executed or to be executed;

Hazard
Means a source of or exposure to danger which may cause injury or damage to persons or property;

Health and safety file
Means a file, or other record containing the information in writing required by these Regulations

Health and Safety Plan
Means a site, activity or project specific document plan in accordance with the client's health and safety specification.

Medical certificate of fitness
Means a certificate contemplated in regulations 7 (8) of the Act

Occupational health practitioner
means an occupational medicine practitioner or a person who holds a qualification in occupational health recognized as such by the South African Medical and Dental Council as referred to in the Medical, Dental and Supplementary Health Service Professions Act, 1974 (Act No. 56 of 1974), or the South African Nursing Council as referred to in the Nursing Act, 1978 (Act No. 50 of 1978);

Principal Contractor
Means an employer appointed by the client to perform construction work

Risk
Means the probability or likelihood that a hazard can result in injury or damage.

Risk assessment
Means a program to determine any risk associated with any hazard at a construction site, in order to identify the steps needed to be taken to remove or control such hazard

Registered person
Means a person registered in terms of
(a) regulation 11; or
(b) regulation 9 of the Electrical Installation Regulations, 1992, as an electrical tester for single phase, an installation electrician or a master installation electrician, as the case may be;

Site
Means the area in the possession of the Contractor for the construction of the works. Where there is no demarcated boundary it will include all adjacent areas, which are reasonably required for the activities for the Contractor;

Temporary works
Means any falsework, formwork, support work, scaffold, shoring or other temporary structure designed to provide support or means of access during construction work.

The Act
Means, unless the context indicates otherwise, the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) and Regulations promulgated there under.

2.3 General Health and Safety Provisions

2.3.1 Notification of Intention to Commence Construction Work

1. A contractor who intends to carry out any construction work other than work contemplated in regulation 3(1), must at least 7 days before that work is to be carried out notify the provincial director in writing in a form similar to Annexure 2 if the intended construction work will—

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

2. A contractor who intends to carry out construction work that involves construction of a single storey dwelling for a client who is going to reside in such dwelling upon completion, must at least 7 days before that work

2.3.2 Assignment of Contractor's Responsible Persons to Supervise Health & Safety on Site

2.3.2.1 Construction Manager

1. A principal contractor must in writing appoint one full-time competent person as the construction manager with the duty of managing all the construction work on a single site, including the duty of ensuring occupational health and safety compliance, and in the absence of the construction manager an alternate must be appointed by the principal contractor.

2. Where the construction manager has not appointed assistant construction managers as contemplated in Construction Regulation 8(2) or, in the opinion of an inspector, a sufficient number of such assistant construction managers have not been appointed, that inspector must direct the construction manager in writing to appoint the number of assistant construction managers indicated by the inspector, and those assistant construction managers must be regarded as having been appointed under Construction Regulation 8(2).

3. No construction manager appointed under Construction Regulation 8(1) 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.

4. A construction manager must in writing appoint construction supervisors responsible for construction activities and ensuring occupational health and safety compliance on the construction site.

5. **Competency requirements** – CV with proof of more than 3 years' experience in the same position, Legal liability, General OHS Act & Regulations, Construction Regulations & HIRA Certificates

2.3.2.2 Assistant Construction Manager

1. A principal contractor must upon having considered the size of the project, in writing appoint one or more assistant construction managers for different sections thereof: Provided that the designation of any such person does not relieve the construction manager of any personal accountability for failing in his or her management duties in terms of this regulation

2. **Competency requirements** – CV with proof of more than 3 years' experience in the same position, Legal liability, General OHS Act & Regulations, Construction Regulations & HIRA Certificates

2.3.2.3 Construction Safety Officer

1. A contractor must, after consultation with the client and 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 to assist in the control of all health and safety related aspects on the site: Provided that, where the question arises as to whether a construction health and safety officer is necessary, the decision of an inspector is decisive.

2. No contractor may appoint a construction health and safety officer to assist in the control of health and safety related aspects on the site unless he or she is reasonably satisfied that the construction health and safety officer that he or she intends to appoint is registered with a statutory body approved by the Chief Inspector and has necessary competencies and resources to assist the contractor.

3. **Competencies required**: SAMTRAC or similar training course with a minimum duration of two weeks not negotiable

   Other competencies: COID Act training, Incident Investigation & HIRA training Poof of registration with SACPCMP will be required this means the registration certificate and not proof of application submitted.

2.3.2.4 Construction Supervisor

1. A contractor must, upon having considered the size of the project, in writing appoint one or more competent employees for different sections thereof to assist the construction supervisor contemplated in Construction Regulation 8(7) and every such employee has, to the extent clearly defined by the contractor in the letter of appointment, the same duties as the construction supervisor: Provided that the designation of any such employee does not relieve the construction supervisor of any personal accountability for failing in his or her supervisory duties in terms of this regulation.

2. Where the contractor has not appointed an employee as contemplated in Construction Regulation 8(8), or, in the opinion of an inspector, a sufficient number of such employees have not been appointed, that inspector must instruct the employer to appoint the number of employees indicated by the inspector, and those employees must be regarded as having been appointed under Construction Regulation 8(8).

3. No construction supervisor appointed under Construction Regulation 8(7) may supervise any construction work on or in any construction site other than the site in respect of which he or she has been appointed: Provided that if a sufficient number of competent employees have been appropriately designated under Construction Regulation 8(7) on all the relevant construction sites, the appointed construction supervisor may supervise more than one site.

4. **Competency requirements** – CV with proof of more than 3 years' experience in the same position, Legal liability, General OHS Act & Regulations, Construction Regulations & HIRA Certificates

   The Contractor will submit proof of supervisory appointments and any relevant appointments in writing (as stipulated by the OHS Act), prior to commencement of work

2.3.3 Competency for Contractor's Responsible Persons

1. The Contractor's responsible persons will be competent in health and safety and will have undergone Health and Safety Management Courses.

Typical courses will include, HIRA, **Legal liability**, Incident Investigation, **Construction regulations 2014** and OHS Act training. Proof must also be provided that the relevant appointed responsible person has experience related to the work that will be conducted

2.3.4 Compensation of Occupational Injuries and Diseases Act 130 of 1993 (COIDACT)

1. The Contractor will submit a letter of good standing with the Compensation Insurer to The Project Client / Client Agent, within 10 working days from receipt of the Letter of Acceptance from The Project Client / Client Agent prior to commencing work on site. The contractor will ensure that he/she remains in good standing with the compensation Commissioner/Insurer for the duration of the project. **" No letter of Good Standing NO WORK"**

2.3.5 Occupational Health and Safety Policy

1. The Contractor will submit a Health and Safety Policy drafted in line with the OHS Act 85 of 1993 section 7 requirements with the Tender, signed by the Chief Executive Officer.

2.3.6 Health and Safety Organogram

1. The Contractor will submit an organogram to the Client/ Client Agent, outlining the Health and Safety site team appointments as required by the OHS Act. ***The organogram must include the legal reference under which each person is appointed as well as the persons contact details (Cell phone number and e-mail address).***

2.3.7 Risk Assessment for construction work (Must include ergonomics as per regulations published December 2019)

1. A contractor must, before the commencement of any construction work and during such construction work, have risk assessments performed by a competent person appointed in writing, which risk assessments form part of the health and safety plan to be applied on the site, and must include—

   (a) the identification of the risks and hazards to which persons may be exposed to;
   (b) an analysis and evaluation of the risks and hazards identified based on a documented method;
   (c) a documented plan and applicable safe work procedures to mitigate, reduce or control the risks and hazards that have been identified;
   (d) a monitoring plan; and
   (e) a review plan.

2. A contractor must ensure that as far as is reasonably practicable, ergonomic related hazards are analyzed, evaluated and addressed in a risk assessment.

3. A contractor must ensure that all employees under his or her control are informed, instructed and trained by a competent person regarding any hazard and the related work procedures and or control measures before any work commences, and thereafter at the times determined in the risk assessment monitoring and review plan of the relevant site.

4. A principal contractor must ensure that all contractors are informed regarding any hazard that is stipulated in the risk assessment before any work commences, and thereafter at the times that may be determined in the risk assessment monitoring and review plan of the relevant site.

5. A contractor must consult with the health and safety committee or, if no health and safety committee exists, with a representative trade union or representative group of employees, on the monitoring and review of the risk assessments of the relevant site.

6. A contractor must ensure that copies of the risk assessments of the relevant site are available on site for inspection by an inspector, the client, the client's agent, any contractor, any employee, a representative trade union, a health and safety representative or any member of the health and safety committee.

7. A contractor must review the relevant risk assessment—

   (a) where changes are effected to the design and or construction that result in a change to the risk profile; or
   (b) when an incident has occurred.

Issue Based Risk Assessment

1. As circumstances and needs arise, separate risk assessment will need to be conducted. An additional risk assessment will need to be conducted when for example:

   (a) A new operation introduced onto site
   (b) A system for work is changed
   (c) After an accident or a "near miss" has occurred

Continuous Risk Assessment

1. This should take place continually, as it forms an integral part of day-to-day management.

2. It should be conducted by frontline supervisors on a **DSTI (Daily Safe task instruction)** on site and it is essential that formal training is provided to enable the said personnel to be efficient in conducting said assessment. The Contractor must ensure that the Risk Assessment identifies the hazards present in work activities on site. This must be followed by an evaluation of the risks involved taking into account those precautions already being taken.

   The contractor must ensure that all employees receive training on the site specific risk assessment and all relevant safe work procedures before any work commences on this project. The client/client representative reserves the right to stop work if this requirement is not adhered to by the contractor.

2.3.8 Health and Safety Representative(s)

1. The Contractor will ensure that a Health and Safety Representative(s) are /is elected for every 20 employees on site and trained to carry out his / her functions. The appointment must be in writing. The Health and Safety Representative will carry out regular inspection, keep records and report to the supervisor to take appropriate action. He / She will attend Health and Safety Committee Meetings. The Health and Safety Representative will be part of the team that will investigate incidents, accidents & non-conformances.

2.3.9 Health and Safety Committee

1. The Contractor will ensure that monthly health and safety meetings are held, and minutes are kept on record. Meetings must be organized and chaired by the Contractor's Responsible Person. The Contractor will ensure that the *Health and Safety Representative(s)* is/are invited to attend the meeting as observer. Copies of the minutes must be made available to the Client/ Client Agent or Inspector.

2.3.10 Inductions

1. The Contractor will ensure that all employees under his / her control have gone through health and safety induction ***before being allowed to perform any task on site,*** a copy of the induction material must also be available as proof of topics discussed during induction. The Contractor will keep a copy of the attendance register of all his / her employees who attended the induction. The contractor must ensure that as new employees are brought to site during the project they must also undergo inductions before being able to perform any task on site.

2.3.11 Medical certificates of fitness

1. A contractor must ensure that all his or her employees have a valid medical certificate of fitness specific to the construction work to be performed and issued by an occupational health practitioner in the form of Annexure 3 of Construction Regulation 2014. This medical certificate must specifically state that the person is fit for duty and must also highlight any medical restrictions identified. The contractor must keep a detailed register in his safety file for all employees with restrictions and document how the restrictions are being managed.

2. The contractor must place a list that consists of the following information with medical certificates in safety file.

    - Name and surname of employee
    - Id number of employee
    - Job description of employee
    - Date medical attended
    - Medical restrictions noted on medical certificate (as a result of POPIA act just indicate there are restrictions and how it will be managed)

2.3.12 ***Awareness***

1. The Contractor will conduct, toolbox talks once weekly and before any hazardous work takes place. The talks will cover the relevant, daily, activity and an attendance register must be kept and signed by all attendees. A record of the content of the topic will be kept on the site health a safety file.

2.3.13 ***Competency***

1. After the Contractor has identified the training to be conducted, based on the Hazard Identification Risk Assessment (HIRA); he / she will send the relevant persons on appropriate courses and keep certificates of training for reference.

2.3.14 General Record Keeping

1. The contractor will keep and maintain Health and Safety records to demonstrate compliance with the Occupational Health and Safety Specification and the Act. The contractor will ensure that all records of incidents, spot fines, training etc. are kept on site. All documents will be available for inspection by The Project Client / Client Agent or Inspectors.

2.3.15 General Inspection, Monitoring and Reporting

1. The Contractor will carry out daily inspections and investigate all incidents and report to The Project Client / Client Agent. The contractor will be required to keep records of all inspections and investigations which were undertaken and any other inspections and investigations by person’s authorised to do so.

2.3.16 Internal Audits

1. The contractor's responsible person will conduct monthly Health and Safety Audits to ensure compliance with the OHS Act and Occupational Health and Safety Specification and communicate the findings to the Client Agent on a monthly basis. Records of audits must be kept, and non-conformance reported, investigated and corrective action must be taken to prevent re-occurrence.

2.3.17 External Audits

1. The Project Client / Client Agent will conduct health and safety audits to ensure compliance with the Occupational Health and Safety Specification and any relevant Health & Safety Legislation. All documentation held by the Contractor will be available for inspection.

2. Audits and Inspections may be conducted on an ad hock basis without informing the Contractor.

3. Any findings observed during these audits will be placed on an audit action plan that will show the deviation, the reason for the deviation occurring, the proposed actions that will be taken to correct the deviation, responsible persons name, proposed close out date, actual closed out date and a signature of the contractor's responsible person confirming the close out.

2.3.18 Emergency Procedures

1. The Contractor will submit a detailed Emergency Procedure for approval by The Project Client / Client Agent prior to commencement on site. The procedure will detail the response plan including the following key personnel:

   (a) List of key personnel,
   (b) Details of emergency services,
   (c) Actions or steps to be taken in the event of the emergency; and
   (d) Information on hazardous materials / situations, including each material's hazardous potential impact or risk on the environment or human and measures to be taken in the event of an accident.

2. Emergency procedures will include, but will not be limited to electrical shock, fire, spills, accidents to employees, use of hazardous substances, etc. The Contractor will advise The Project Client / Client Agent in writing of any on site emergencies, together with a record of action taken, within 24 hours of the emergency occurring. A contact list of all service providers (Fire Department, Ambulance, Police, Medical and Hospital, etc.) must be maintained and available to site personnel.

2.3.19 First Aid Box and First Aid Equipment

1. The Contractor will appoint in writing a First Aider(s). The appointed First Aider(s) are to be sent for accredited first aid training before starting on site, or must be in possession of a valid certificate, of which copies are to be kept on site. The Contractors will provide, on site, First Aid Boxes, adequately stocked at all time, and ensure that the First Aid Box is accessible and fully controlled by a qualified First Aider. In addition, the location of these boxes must be indicated by means of Health and Safety Signage. A picture with the name and contact number of the First Aider on duty must be on displayed in all relevant areas.

2.3.20 Accident / Incident Reporting and Investigation

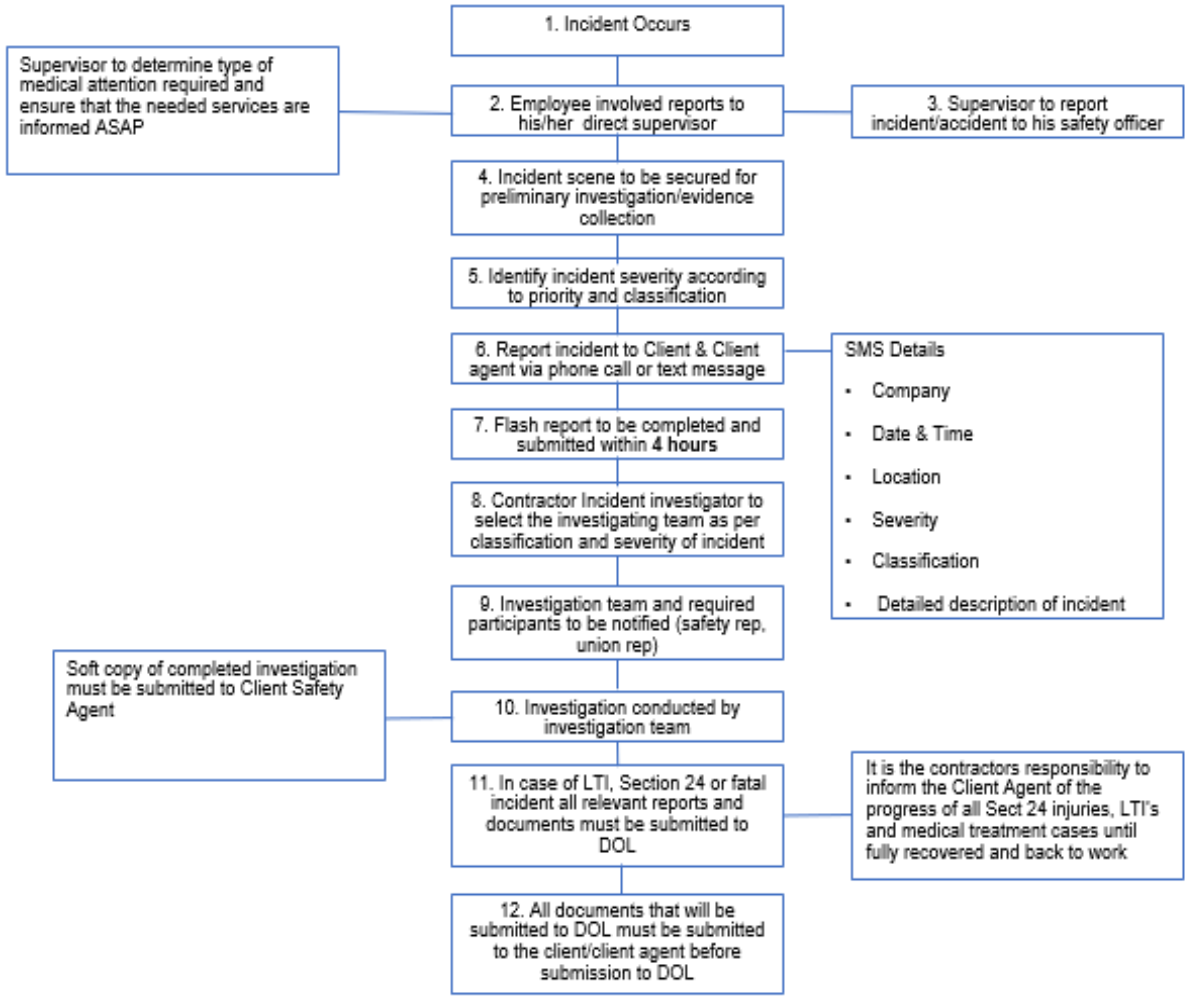
1. The Contractor will in addition to the prescribed requirements of the OHS Act investigate, record and report all reportable incidents. The investigations will be conducted by a qualified

(Competence certificate required) person or persons who have sufficient The Contractor will in addition to the prescribed requirements of the OHS Act investigate, record and report all reportable incidents. The investigations will be conducted by a qualified ***competent*** person or persons who have sufficient knowledge to carry out an investigation. In the case of a serious injury, meaning one in which a loss of man-hours are experienced exceeding 7 days, an independent investigator must be appointed by the Contractor. All incidents on site must be reported to the Client Agent within 1 hour of occurrence by means of a telephone call or text message via cell phone. A flash report will be completed and forwarded to the Client & Client Agent within four hours of incident occurrence.

Preliminary investigations must be submitted to the Client agent within three days of incident occurring, the investigation will be reviewed, and the client agent reserves the right to request changes made to the investigation upon agreement with the contractor. In the event of section 24 and LTI investigations a final investigation report will be compiled and submitted to the Client/Client Agent with a detailed action plan outlining precautionary measures that will be taken to prevent reoccurrences as well as any other actions needed and identified during the investigation process.
The contractor will provide to the Client & Client agent a scanned copy of the full final investigation as well as the following documents.

- Copy of the DSTI
- Copy of the risk assessment at the time of incident as well as a revised risk assessment.
- All appointments and competency certificates of supervision involved as well as injured person.
- Copy of injured person's pre-employment medical
- All medical reports e.g. First medical, follow up medicals as well as final medical and resumption report.
- Annexure 1 report of incident to department of labour
- Detailed action plan addressing all findings made during the investigation
- Proof of all close outs of findings made during the investigation
- Copies of all witness and other statements taken.
- Proof of Incident recall with all employees

Incidents will be managed according to the flow chart bellow



2.3.21 Hazards and Potential Situations Communication

1. The Contractor will immediately notify other Contractors or Sub-contractors of any hazardous or potentially hazardous situations, which may arise during performance of the activities.

2.3.22 Personal Protective Equipment (PPE) and Clothing

1. The Contractor will make provision and keep adequate quantities of SABS approved PPE or clothing on site at all times. These will be analysed by means of the Risk Assessment. The contractor must ensure that a PPE survey is conducted to determine the type of PPE that will be needed and indicate which job category will need what PPE. PPE issue records must also be kept for all PPE issued to employees on site, ensure each employee signs for their PPE. The contractor must also conduct regular PPE inspections of which findings must be noted on an inspection register.

2. The Contractor will clearly outline procedures to be taken when PPE or clothing is:

   (a) Lost or Stolen
   (b) Worn Out or Damaged
   (c) When and where it must be worn or used

2.3.23 Occupational Health and Safety Signage

1. The Contractor will provide adequate on site OHS signage in line with SANS1186. OHS signage will include, but will not be limited to, Construction area, Hard Hat / Helmet Area; Safety Goggles, Safety Shoes to be worn on site; Dust Masks to be worn in areas where there might be exposure to excessive dust; Ear Plugs / Muffs to be worn where there might be exposure over 85 dBa; Gloves; Safety Goggles; Safety Harness, etc. The Contractor will be responsible to maintain the quality and replacement of signage.

2. All work areas to be barricaded and required safety warning signs displayed (Danger Construction area, Do not enter, Only authorised persons allowed etc.)

2.3.24 Consolidated Health and Safety File

1. The Contractor will in accordance with Construction Regulation 7(1)e, hand a consolidated health and safety file to the client on completion of construction work, this must include records of drawings, designs, entry/exit medicals, incident investigations, non-conformances raised or received, risk assessments as well as significant information regarding the construction of the completed structure.

2.3.25 Permits

1. The Contractor will issue a permit for all hazardous or dangerous activities to be carried out during construction. The following is a list of hazardous activities which need a permit:

   (a) Working in Confined Space;
   (b) Use of a Hazardous Chemical Substance, e.g. Asbestos, Lead;
   (c) Use of Explosives and Blasting; and
   (d) Piling.

2.3.26 Contractors

1. The Principal Contractor will ensure that all Sub-contractors under his / her control are complying with the Occupational Health and Safety Specification, requirements by the Act, and any relevant legislation which may relate to the activities directly or indirectly. Each sub-contractor must sign a 37(2) agreement as well as some Construction regulations 7(1)(c)(v) contractor appointment before being allowed to perform any work.

2.4 *Occupational Safety*

2.4.1 Stacking of Materials

1. A contractor must, in addition to compliance with the provisions for the stacking of articles in the General Safety Regulations, 2003, ensure that –

   (a) a competent person is appointed in writing with the duty of supervising all stacking and storage on a construction site;
   (b) adequate storage areas are provided;
   (c) there are demarcated storage areas; and
   (d) storage areas are kept neat and under control.

2.4.2 Housekeeping and General Safeguarding on Construction Sites

1. A contractor must, in addition to compliance with the Environmental Regulations for Workplaces, 1987, promulgated by Government Notice No. R. 2281 of 16 October 1987,

ensure that suitable housekeeping is continuously implemented on each construction site, including –

(a) the proper storage of materials and equipment;
(b) the removal of scrap, waste and debris at appropriate intervals;
(c) ensuring that materials required for use, are not placed on the site so as to obstruct means of access to and egress from workplaces and passageways;
(d) ensuring that materials which are no longer required for use, do not accumulate on and are removed from the site at appropriate intervals;
(e) ensuring that waste and debris are not disposed of from a high place with a chute, unless the chute complies with the requirements set out in regulation 14(6);
(f) ensuring that construction sites in built-up areas adjacent to a public way are suitably and sufficiently fenced off and provided with controlled access points to prevent the entry of unauthorized persons; and
(g) ensuring that a catch platform or net is erected above an entrance or passageway or above a place where persons work or pass under, or fencing off the danger area if work is being performed above such entrance, passageway, or place so as to ensure that all persons are kept safe in the case of danger or possibility of persons being struck by falling objects.

2.4.3 Hazardous Chemical Substances (HCS)

1. In addition to the requirements in the HCS Regulations, the principal contractor must provide proof in the Health and Safety Plan that:

(a) Material Safety Data Sheets (MSDS's) of the relevant materials / hazardous chemical substances are available prior to use by the contractor. Mention should be made how the principal contractor is going to act according to special/unique requirements made in the relevant MSDS's. All MSDS's will be available for inspection by the agent at all times.
(b) Exposure monitoring is done according to OESSM and by an Approved Inspection Authority (AIA) and that the medical surveillance programme is based on the outcomes of the exposure monitoring.
(c) How the relevant HCS's are being/going to be controlled by referring to:
    i. Limiting the amount of HCS
    ii. Limiting the number of employees
    iii. Limiting the period of exposure
    iv. Substituting the HCS
    v. Using engineering controls
    vi. Using appropriate written work procedures
(e) The correct PPE is being used.
(f) HCS are stored and transported according to SABS 072 and 0228.
(g) Training with regards to these regulations was given.

2. The H&S plan should make reference to the disposal of hazardous waste on classified sites and the location thereof (where applicable).

3. The First Aider must be made aware of the MSDS and how to treat HCS incidents appropriately.

2.4.4 Noise Induced Hearing Loss

1. Where noise is identified as a hazard the requirements of the NIHL regulations must be complied with and the following must be included / referred to in the Health and Safety Plan. The Contractor must be able to:

(a) Proof of training with regards to these regulations.
(b) That monitoring carried out by an AIA and done according to SABS 083.
(c) Medical surveillance programme is established and maintained for the necessary employees.
(d) Control of noise by means of:
    i. Engineering methods considered
    ii. Admin control considered
    iii. Personal protective equipment considered/decided on
    iv. Describe how records are going to be kept for 40 years.

2.4.5 Construction Plant

"Construction Plant" encompasses all types of plant including but not limiting to, cranes, piling frames, boring machines, and excavators, draglines, dewatering equipment and road vehicles with or without lifting equipment.

1. A contractor must ensure that all construction vehicles and mobile plant –

(a) are of an acceptable design and construction;
(b) are maintained in a good working order;
(c) are used in accordance with their design and the intention for which they were designed, having due regard to safety and health;
(d) are operated by a person who -
    i. has received appropriate training, is certified competent and in possession of proof of competency and is authorised in writing to operate those construction vehicles and mobile plant;
    ii. has a medical certificate of fitness to operate those construction vehicles and mobile plant, issued by an occupational health practitioner in the form of Annexure 3 of Construction Regulation 2014
(e) have safe and suitable means of access and egress;
(f) are properly organized and controlled in any work situation by providing adequate signalling or other control arrangements to guard against the dangers relating to the movement of vehicles and plant, in order to ensure their continued safe operation;
(g) are prevented from falling into excavations, water or any other area lower than the working surface by installing adequate edge protection, which may include guardrails and crash barriers;
(h) are fitted with structures designed to protect the operator from falling material or from being crushed should the vehicle or mobile plant overturn;
(i) are equipped with an acoustic warning device which can be activated by the operator;
(j) are equipped with an automatic acoustic reversing alarm; and
(k) are inspected by the authorised operator or driver on a daily basis using a relevant checklist prior to use and that the findings of such inspection are recorded in a register kept in the construction vehicle or mobile plant.

2. A contractor must ensure that –

(a) no person rides or is required or permitted to ride on a construction vehicle or mobile plant otherwise than in a safe place provided thereon for that purpose;
(b) every construction site is organized in such a way that, as far as is reasonably practicable, pedestrians and vehicles can move safely and without risks to health;
(c) the traffic routes are suitable for the persons, construction vehicles or mobile plant using them, are sufficient in number, in suitable positions and of sufficient size;
(d) every traffic route is, where necessary, indicated by suitable signs;

(e) all construction vehicles and mobile plant left unattended at night, adjacent to a public road in normal use or adjacent to construction areas where work is in progress, have appropriate lights or reflectors, or barricades equipped with appropriate lights or reflectors, in order to identify the location of the vehicles or plant;
(f) all construction vehicles or mobile plant when not in use, have buckets, booms or similar appendages, fully lowered or blocked, controls in a neutral position, motors stopped, wheels chocked, brakes set and ignition secured;
(g) whenever visibility conditions warrant additional lighting, all mobile plant are equipped with at least two headlights and two taillights when in operation;
(h) tools, material and equipment are secured and separated by means of a physical barrier in order to prevent movement when transported in the same compartment with employees;
(i) vehicles used to transport employees have seats firmly secured and adequate for the number of employees to be carried; and
(j) all construction vehicles or mobile plant travelling, working or operating on public roads comply with the requirements of the National Road Traffic Act, 1996.

2.4.6 Pressure Vessels Including Gas Cylinders

1. The Contractor will comply with Pressure Equipment regulations, including:

(a) Providing competency and awareness training to the operators;
(b) Providing PPE or clothing;
(c) Providing and maintain appropriate signage in areas Pressure equipment are
(d) used;
(e) Inspect equipment regularly and keep records of inspections;
(f) Providing appropriate firefighting equipment (Fire Extinguishers).

2.4.7 Fire Extinguishers and Fire Fighting Equipment

1. The Contractor will provide adequate, regularly serviced fire extinguishers located at strategic points on site. The Contractor will keep spare serviced portable fire extinguishers. The Contractor will have adequate persons trained or competent to use the Fire Fighting Equipment (Basic fire fighting training certificate). Safety signage will be posted; indicating locations of fire extinguishers.

2. The contractor will ensure that all plant and machinery used on site is fitted with appropriate fire extinguishers

2.4.8 Hired Plant and Machinery

1. The contractor will ensure that any hired plant and machinery brought to site is safe for use. The necessary requirements as stipulated by the OHS Act as well as those that are stipulated by this Occupational Health and Safety Specification, will apply. Health and Safety Induction is to be conducted with any hire plant or machinery operators and attendance of appropriate toolbox talks ensured. All operators of hired plant or machinery must be in possession of valid operator's certificates and medical certificates of fitness, as per requirement by the OHS Act.

2.4.9 General Machinery

1. The Contractor will comply with the Driven Machinery Regulations, which include inspecting machinery regularly, appointing a competent person to inspect and ensure maintenance, issuing PPE or clothing and training those that use machinery and enforce compliance.

2.4.10 Portable Electrical Tools / Explosive Power Tools

1. A contractor must, in addition to compliance with the Electrical Installation Regulations, 2009, and the Electrical Machinery Regulations, 1988, promulgated by Government Notice No. R. 1593 of 12 August 1988, ensure that –

   (a) before construction commences and during the progress thereof, adequate steps are taken to ascertain the presence of and guard against danger to workers from any electrical cable or apparatus which is under, over or on the site;
   (b) all parts of electrical installations and machinery are of adequate strength to withstand the working conditions on construction sites;
   (c) the control of all temporary electrical installations on the construction site is designated to a competent person who has been appointed in writing for that purpose;
   (d) all temporary electrical installations used by the contractor are inspected at least once a week by a competent person and the inspection findings are recorded in a register kept on the construction site; and
   (e) all electrical machinery is inspected by the authorized operator or user on a daily basis using a relevant checklist prior to use and the inspection findings are recorded in a register kept on the construction site.

2.4.11 High Voltage Electrical Equipment & Electrical Regulations

High Voltage Electrical Equipment

1. The Contractor will ensure that, where the work is under, on or near high-voltage electrical equipment the Electrical Regulations, together with safety instructions (Regulations of the Owner of the Equipment) are complied with.

2. Such equipment includes: -

   - Eskom and the Local Authority equipment
   - The Contractor's own power supply; and
   - Electrical equipment being installed but not yet taken over from a Contractor by The Project Client / Client Agent.

Electrical Regulations

3.1 The employer must take reasonable measures to ensure that all electrical apparatus and electrical reticulation systems are designed, constructed, installed, operated and maintained by a competent person or under the direct supervision of such a competent person

3.2 The employer must take reasonable measures to ensure that no person suffers any electrical shock, thermal burning or electrocution as a result of:

   (i) exposure to current flow;
   (ii) a person unintentionally coming into contact with exposed parts of any electrical apparatus;
   (iii) exposure to thermal effect, overcurrent, short circuit, fault current, earth fault, overvoltage and undervoltage;
   (iv) any electrical apparatus failing due to electromagnetic interference from other equipment.
   (v) any electrical apparatus being incorrectly selected, installed, operated or maintained;
   (vi) any electrical apparatus being placed and protected in such a manner as to allow inadvertent contact with any live portion thereof; and
   (vii) any exposure to fires as a result of electrical faults

3.3 The measures contemplated in regulation 3.2 must include measures to ensure that

3.3.1 where the interruption of electrical supply to any equipment could result in a significant risk, such electrical supply can be substituted from another source or network, which can include an emergency supply alternator / generator, for power supply in the event of an interruption to the normal power supply;

3.3.2 an extension of any electrical reticulation system is approved by a competent person (engineer) taking into account the reticulation network and the effect thereon;

3.3.3 only competent persons operate switchgear of machinery where the operation of such machinery poses a significant risk and that such switchgear is protected against unauthorised access and operation;

3.3.4 electrical apparatus and switchgear in substations are installed:

(a) with sufficient clearances to prevent inadvertent contact with live conductors;
(b) in such a manner to prevent environmental conditions leading to such electrical Apparatus and switchgear posing a significant risk to persons;
(c) so as to provide unrestricted clearances around the apparatus or switchgear to enable escape of personnel during normal operation and emergencies;
(d) with an effective means to disconnect the energy source; and
(e) together with means to effectively extinguish any fire in the substation;

3.3.11 all electrical apparatus are clearly marked with the maximum voltage that may be present therein unless such apparatus contains voltages lower than 50 volts;

3.3.12 where electrical apparatus or switchgear is required to be live for the purpose of examination or testing, such examination or testing is done by a competent person2 in the company of a person conversant with the risks of electricity, and both these persons are suitably protected from live contact and flash;

3.3.13 whenever work is to be carried out on electrical apparatus which has been isolated from all sources of supply, effective precautions are taken, by earthing or other means, to electrically discharge such apparatus so as to prevent any conductor or apparatus from being made live while any person is working thereon;

3.3.14 any accessible metallic portion of electric plant or apparatus which, though not normally forming part of an electric circuit, may inadvertently become live, is insulated or connected to earth by a conductor of adequate cross-sectional area capable of withstanding the maximum possible earth fault current condition, so as to prevent any significant risk to persons for the duration that the fault current that may be flowing in the circuit;

3.3.15 all switching operations of medium voltage or higher voltage switchgear are carried out in accordance with a procedure prepared and implemented by the employer; 3.3.16 where any electrical cable is buried in the ground or installed in such a position that mechanical damage may occur, it is protected by an **armouring**;

3.3.20 a competent person2:

(a) examines and tests all new and re-erected electric apparatus and switchgear before it is put into service; and

(b) at least once in every six months thoroughly examines and tests all electrical apparatus for earth continuity and functioning of associated protective devices, except in cases where a continuous earth monitoring system has been installed;

3.3.21 all medium voltage and high voltage switchgear protection devices are tested for correct functioning

(a) on commissioning or after any primary circuit component change which may affect the function of the protection device, by means of primary current injection; and
(b) annually;

3.3.22 the person or persons carrying out the examinations or tests referred to in regulations 3.3.20 and 3.3.21 record the results thereof, and that such results are promptly brought to the attention of the competent person1, who must ensure that the settings comply with the network design criteria to verify the correct setup;

3.3.25 persons carrying out examinations, repairs or other work at elevated positions in close proximity to electrical apparatus are protected from live electrical contact;

3.3.26 no electrical cable trench or duct is left open, uncovered or unprotected, except when persons are working in such trench or duct or where precautions have been taken to prevent persons from inadvertently falling into such trench or duct;

3.3.28 the design and construction of power lines are in accordance with South African Bureau of Standards Code of Practice SANS 10280, 1995. “Overhead power lines for conditions prevailing in South Africa”;

NOTE Normative references in SANS 10280, 1995 are not applicable to the employer

2.4.12 Public Health and Safety

1. The Contractor will ensure that each person visiting a site, as well as surrounding communities, are made aware of the dangers likely to arise from on-site activities and the precautions to be observed to avoid or minimize those dangers. Appropriate health and safety signage will be posted at all times. No visitor will be allowed on site without the permission of the Construction Supervisor or his/her Assistant. All visitors must complete a register, which should include the name, reason for visit and contact detail of said person. Should site offices be erected at the place of work the Contractor will ensure that the site is fenced on all sides with a minimum requirement of 1600 mm Diamond mesh, galvanised fence, this fence must have a gate fitted to ensure security and stop unwanted entrance to site. The gate must be closed at all times and access must be controlled.

2. Both the Project Client / Client Agent and the Contractor have a duty in terms of the OHS Act to do all that is reasonably practicable to prevent members of the public and others being affected by the construction processes to be aware and put preventative measure in place. The public or visitors will go through a brief health and safety induction detailing hazards and risks they may be exposed to and what measures are in place to control these hazards and risks. All visitors must complete a register, which should include the name, reason for visit and contact detail of said person.

2.4.13 Night Work

1. The Contractor will not undertake any night work without prior arrangement and a written permit from The Project Client / Client Agent. The Contractor will ensure that adequate lighting is provided for all night work and failure to do so will result in work being stopped.

2.4.14 Facilities for Safekeeping and Eating Area (Mess Room) for workers

1. There will be a temporary structure to serve as a mess room or eating area.

2.4.15 Fall Protection where applicable

1. A contractor must –

   (a) designate a competent person to be responsible for the preparation of a fall protection plan;
   (b) ensure that the fall protection plan contemplated in paragraph (a) is implemented, amended where and when necessary and maintained as required; and
   (c) take steps to ensure continued adherence to the fall protection plan.

2. A fall protection plan contemplated in Construction Regulation 10(1), must include –

   (a) a risk assessment of all work carried out from a fall risk position and the procedures and methods used to address all the risks identified per location;
   (b) the processes for the evaluation of the employees' medical fitness necessary to work at a fall risk position and the records thereof;
   (c) a programme for the training of employees working from a fall risk position and the records thereof;
   (d) the procedure addressing the inspection, testing and maintenance of all fall protection equipment; and
   (e) a rescue plan detailing the necessary procedure, personnel and suitable equipment required to affect a rescue of a person in the event of a fall incident to ensure that the rescue procedure is implemented immediately following the incident.

3. A contractor must ensure that a construction manager appointed under regulation 8(1) is in possession of the most recently updated version of the fall protection plan.

4. A contractor must ensure that –

   (a) all unprotected openings in floors, edges, slabs, hatchways and stairways are adequately guarded, fenced or barricaded or that similar means are used to safeguard any person from falling through such openings;
   (b) no person is required to work in a fall risk position, unless such work is performed safely as contemplated in Construction Regulation 10(2);
   (c) fall prevention and fall arrest equipment are -
      i. approved as suitable and of sufficient strength for the purpose for which they are being used, having regard to the work being carried out and the load, including any person, they are intended to bear; and
      ii. securely attached to a structure or plant, and the structure or plant and the means of attachment thereto are suitable and of sufficient strength and stability for the purpose of safely supporting the equipment and any person who could fall; and
   (d) fall arrest equipment is used only where it is not reasonably practicable to use fall prevention equipment.

5. Where roof work is being performed on a construction site, the contractor must ensure that, in addition to the requirements set out in Construction Regulation 10 (2) and (4), it is indicated in the fall protection plan that –

   (a) the roof work has been properly planned;
   (b) the roof erectors are competent to carry out the work;
   (c) no employee is permitted to work on roofs during inclement weather conditions or if any conditions are hazardous to the health and safety of the employee;
   (d) all covers to openings and fragile material are of sufficient strength to withstand any imposed loads;
   (e) suitable and sufficient platforms, coverings or other similar means of support have been provided to be used in such a way that the weight of any person passing across or working on or from fragile material is supported; and
   (f) suitable and sufficient guard-rails, barriers and toe-boards or other similar means of protection prevent, as far as is reasonably practicable, the fall of any person, material or equipment.

2.4.16 Structures

1. A contractor must ensure that –

   (a) 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;
   (b) no structure or part of a structure is loaded in a manner which would render it unsafe; and
   (c) all drawings pertaining to the design of the relevant structure are kept on site and are available on request to an inspector, other contractors, the client and the client's agent or employee.

2. An owner of a structure must ensure that –

   (a) inspections of that structure are carried out periodically by competent persons in order to render the structure safe for continued use;
   (b) that the inspections contemplated in paragraph (a) are carried out at least once every six months for the first two years and thereafter yearly;
   (c) the structure is maintained in such a manner that it remains safe for continued use;
   (d) the records of inspections and maintenance are kept and made available on request to an inspector.

2.4.17 Lifting Machinery and Tackle, Material Hoist and Cranes

1. A contractor must ensure that every material hoist and its tower have been constructed in accordance with the generally accepted technical standards and are strong enough and free from defects.
2. A contractor must ensure that the tower of every material hoist is -
   (a) erected on firm foundations and secured to the structure or braced by steel wire guy ropes, and extends to a distance above the highest landing to allow a clear and unobstructed space of at least 900 millimetres for over travel;
   (b) enclosed on all sides at the bottom, and at all floors where persons are at risk of being struck by moving parts of the hoist, except on the side or sides giving access to the material hoist, with walls or other effective means to a height of at least 2100 millimetres from the ground or floor level; and
   (c) provided with a door or gate at least 2100 millimetres in height at each landing, and that door or gate must be kept closed except when the platform is at rest at such a landing.
3. A contractor must cause -

(a) the platform of every material hoist to be designed in a manner that it safely contains the loads being conveyed and that the combined mass of the platform and the load does not exceed the designed lifting capacity of the hoist;
(b) the hoisting rope of every material hoist which has a remote winch to be effectively protected from damage by any external cause to the portion of the hoisting rope between the winch and the tower of the hoist; and
(c) every material hoist to be provided with an efficient brake capable of holding the platform with its maximum load in any position when power is not being supplied to the hoisting machinery.

4. No contractor may require or permit trucks, barrows or material to be conveyed on the platform of a material hoist and no person may so convey trucks, barrows or material unless those articles are secured or contained in a manner that displacement thereof cannot take place during movement.
5. A contractor must cause a notice, indicating the maximum mass load which may be carried at any one time and the prohibition of persons from riding on the platform of the material hoist, to be affixed around the base of the tower and at each landing.
6. A contractor of a material hoist may not require or permit any person to operate a hoist, unless the person is competent in the operation of that hoist.
7. No contractor may require or permit any person to ride on a material hoist.
8. A contractor must ensure that every material hoist -
   (a) is inspected on daily basis by a competent person appointed in writing by the contractor and such competent person must have the experience pertaining to the erection and maintenance of material hoists or similar machinery;
   (b) inspection contemplated in paragraph (a), includes the determination of the serviceability of the entire material hoist, including guides, ropes and their connections, drums, sheaves or pulleys and all safety devices;
   (c) inspection results are entered and signed in a record book by a competent person, which book must be kept on the premises for that purpose;
   (d) is properly maintained and the maintenance records in this regard are kept on site.
9. A contractor must, in addition to compliance with the Driven Machinery Regulations, 1988 ensure that where tower cranes are used -
   (a) they are designed and erected under the supervision of a competent person;
   (b) a relevant risk assessment and method statement are developed and applied;
   (c) the effects of wind forces on the crane are taken into consideration and that a wind speed device is fitted that provides the operator with an audible warning when the wind speed exceeds the design engineer's specification;
   (d) the bases for the tower cranes and tracks for rail-mounted tower cranes are firm, level and secured;
   (e) the tower crane operators are competent to carry out the work safely; and
   (f) the tower crane operators have a medical certificate of fitness to work in such an environment, issued by an occupational health practitioner in the form of Annexure 3 of Construction Regulation 2014.

2.5 *Occupational Health*

1. Exposure of workers to occupational health hazards and risks are very common in any work environment, especially in construction. The occupational hazards and risks may enter the body in three ways:
   (a) Inhalation e.g. cement dust;
   (b) Ingestion through swallowing;
   (c) Absorption through the skin (pores) e.g. painting or use of thinners.

2. All contractors are to ensure that where employees are exposed to airborne contaminants, pre-employment medicals should be conducted to ensure fitness to work under such conditions.

3. All contractors will be responsible for the full cost of medical treatment that his staff may require; the contractor is therefore required to ensure that all his personnel are medically fit.

4. All Contractors should ensure that Occupational Hygiene surveys are conducted as per the Occupational Health and Safety Act to ensure employees is not exposed to hazards. Risk Assessments should identify areas where surveys are to be conducted.

2.6 COVID-19 (SARS-CoV-19 virus) Workplace Preparedness:

The Principal contractor must ensure compliance to all relevant current COVID-19 regulations

OCCUPATIONAL HEALTH AND SAFETY SPECIFICATION REQUIREMENTS
FOR CONSTRUCTION

ANNEXURE A

Notification of Intention to Commence Construction / Building work	To be completed and logged with the Department of Labour	Before commencement on site
Application Construction work permit	To be submitted 30 days prior to work commencing	Before commencement on site
Assignment of Responsible Person to Manage Building Work	All relevant appointments as per OHS Act	Before commencement on site
Assignment of Responsible Person to Supervise Building Work	All relevant appointments as per OHS Act	Before commencement on site
Medical Certificates of Fitness for all personnel on site	As per specifications and OHS Act	Before commencement on site
Competency for Responsible Persons	As per specifications and OHS Act	Before commencement on site
Compensation of Occupational Injuries and Diseases Act (COIDA) 130 of 1993	COIDA Requirement	Before commencement on site and during construction period
Occupational Health and Safety Policy	Contractor’s Responsibility	At tender stage
Health and Safety Organogram.	Contractor’s Responsibility	Before commencement on site
Health & Safety Representative	Section 17 OHS Act	Submit as soon as there are more than 20 employees on site

Assignment of Contractor's Responsible Persons

ANNEXURE B

The contractor **will** make the following appointments where applicable and ensure that CV's and competency certificates are attached to the relevant appointments* but are not limited to:

Section 16.1 CEO
(Competent Person for OHS) - OHS 16(2)*
Construction Manager CR 8(1)*
Assistant Construction Manager CR 8(2)*
Construction Safety Officer - CR 8(5)*
Construction Work Supervisor - CR 8(7)*
Construction Work Assistant Supervisor - CR 8(8)*
Risk Assessor - CR 9(1)
Competent person to perform risk assessment and procedure training CR 9(3)
Fall Protection Planner CR 10(1)
Construction Vehicle & Mobile Plant Operator - CR23(1)(d)*
Electrical Installations Inspector CR 24(d)
Housekeeping Inspector CR 27
Stacking & Storage Supervisor - CR 28(a)
Fire Equipment Inspector - CR 29(h)
Emergency Coordinator - ER 9
H&S Committee Chairperson - OHS 19 (*where applicable)*
First Aider/s - GSR 3 **(Compulsory)**
Hazardous Chemical Substance Supervisor - HCS Regulations
Health and Safety Representative - OHS 17(1) (*where applicable)*
Incident / Accident Investigator - GAR 9(2)
Responsible Person for Machinery - GMR 2(1)
Lifting Tackle inspector – DMR 18
Lifting Machinery Operator – DMR 18
Portable Electrical Equipment Inspector EMR 10

OTHER Occupational Health and Safety Specification REQUIREMENTS

ANNEXURE C

The contractor will comply and not be limited to the following requirements:

What	When	Output	Reference information
Awareness training Toolbox talks	Twice a week and before hazardous work is carried out	Attendance Register	
DSTI	Daily before work starts	Signed document	
Health and Safety Committee Meetings	Monthly	Minutes signed by the employer (Contractor) Covering: a) Health and Safety Representative Checklist	
Health and Safety Reports	Monthly	Report covering: a) Incidents/Accidents and Investigations b) Non-conformance c) Health and Safety Training d) HIRA Updates e) Internal and External Audits	Incident reporting and investigation for The Project Client / Client Agent & Contractor form
General Inspections	As per Occupational Health and Safety Specification and OHS Act	Report on Occupational Health and Safety Specification and OHS Act compliance: a) Scaffolding b) Lifting Machinery c) Excavations	
General Inspections	Monthly	Covering: a) Firefighting Equipment b) First Aid boxes c) Portable Electrical Equipment d) Ladders e) Vehicle & plant inspections	
Record keeping	Ongoing	Covering: a) General complaints b) Fines c) General incidents d) MSDS e) Surveillance Medicals f) Inspection Register	
Permits	Before commencement with certain activities	As stipulated by the Occupational Health and Safety Specification and the OHS Act / Construction Regulations	

SAFETY FILE REQUIRMENTS

ANNEXURE D

The contractor will comply and not be limited to the following requirements:

Item	Description
1.	OHS Act section 37.2 Agreement & **CR 5(1)(k) Principal Contractor Appointment**
2.	EHS Plan ***(Approved by Client as well as contractor responsible person)***
3.	Contractor Policies ***(As well as proof of communication to employees)***
4.	Scope of Work & ***Letter of award of contract***
5.	Contractor Public Liability Insurance Cover **(Proof of cover and policy number)**
6.	Notification of Construction Work to Department of Labour (Copy) **Stamped by DOL**
7.	Client SHE Specifications ***(Proof of communication to Construction Manager & Supervision)***
8.	Letter of Good Standing with a Licenced Compensation Commissioner (COID)
9.	Organisation Structure ***(Must indicate legal appointment reference, contact number as well as e-mail address where applicable)***
10.	Induction ***(Copy of training material and proof of training)***
11.	Risk Assessments ***(Approved risk assessment by contractor and Agent as well as proof of communication to all employees)***
12.	Baseline risk assessment
13.	Area Emergency Plan site specific ***(Proof of communication to employees)***
14.	All Safe work procedures relevant to tasks that will be performed tasks identified as high-risk activities during risk assessment process
15.	Appointments Letters ***(Copy of legal appointments and competency/CV/Certificates)***
16.	Site Specific Audits and Internal Audits/Inspection Arrangements (Client as well as internal)

Item	Description
17.	Personal Protective Equipment ***(Proof of issue as well as monthly inspections by supervision)***
18.	Workers Welfare Facilities &Waste Management ***(Plot plan and inspections)***
19.	Toolbox Talks ***(Topics and proof of communication)***
20.	Site EHS Meetings Arrangements
21.	Equipment/Tools Inspections Checklist/Registers
22.	Incident Investigations
23.	Medical Surveillance Certificates
24.	Copy of the Act & WCL2 Forms
25.	MSDS'S of all chemicals that will be used on site (16 Point MSDS as required by law)
26.	Fall Protection Plan
27.	COVID-19 Workplace preparedness plan and all relevant registers and inspections

MANDATORY AGREEMENT ON ENVIRONMENTAL, HEALTH AND SAFETY ISSUES

ENTERED INTO AND BETWEEN

GEORGE MUNICIPALITY

(Hereinafter referred to as the "Employer")

and

……

Contractor

Compensation Fund Number: ……..

Whereas the Employer has called for the executing of the following work: **TOURISM BUILDING 124 YORK STREET - 4 kWp PV + 10 kWh BATTEREY STORAGE**, and whereas the Contractor undertook to carry out the work and whereas Employer and the Contractor have agreed to regulate the environmental, occupational health and safety responsibilities as between them, now therefore the undersigned agree to:

Section A: Occupational Health and Safety

1) The Contractor warrants that all his and his sub-Contractors' employees are covered in terms of the provisions of the Compensation for Occupational Injuries and Diseases Act 1993, which cover shall remain in force whilst any such employees are present on Employer premises. The Contractor will only allow sub-Contractors on site with the prior written consent of the Employer.

2) The Contractor warrants that it is in possession of Public liability insurance cover and any other insurance cover of that will adequately make provision for any possible losses and/or claims arising from his and/or his sub-Contractors and/or his employees' acts or omissions on Employer premises, which shall remain in force whilst he and/or his sub-Contractor and/or his employees are present on Employer premises or which shall remain in force for the duration of his contractual relationship with the Employer, whichever period is the longer.

3) The Contractor undertakes to ensure that he and/or his sub-Contractors and/or their respective employees will at all times comply with all the requirements of the Occupational Health and Safety Act, Act 85 of 1993 (OHS-Act) and that he is an employer in his own regard. The Contractor (Mandatory) therefore and Employer therefore enter into this agreement by virtue of Section 37(2) of the OHS-Act, without derogating from this general undertaking, also comply with the following conditions:

(a) All work being done will be preceded by hazard identifications and risk assessments and these hazards and risk will eliminated, controlled or mitigated where reasonably practicable.

(b) All work performed on Employer premises must be performed under the close supervision of the Contractor's Supervisors on site. Such supervisors are to be conversant with the hazards associated with any work that the Contractor performs on the stated premises as well as the mitigating and controlling measures to be implemented.

(c) Contractor employees must be medically fit to perform the work they are required to perform. Proof of completed Annexure 3, medical fitness and biological monitoring is to be provided to the Employer authorised representative on request of the Employer. The contractor is specifically but not exclusively referred to: Hazardous Substances Act, Employment Equity Act, Construction Regulations 2014, Hazardous Chemical Substances Regulations, Lead Regulations, Asbestos Regulations, Hazardous Biological Agents Regulations, Noise Induced Hearing Loss Regulations, etc.

(d) The Contractor's Chief Executive Officer shall assume the responsibility in terms of Section 16(1) of the Occupational Health and Safety Act. If the Contractor assigns any duty in terms of Section 16(2), a copy of such written appointment shall immediately be forwarded to the Employer, as well as all other appointments made in terms of the Occupational Health and Safety Act.

(e) The Contractor shall ensure that he familiarizes himself with the requirements of the Occupational Health and Safety Act and that he, his employees and any sub-Contractor comply with its requirements.

(f) The Contractor shall appoint competent employees who shall be trained and conversant on any Occupational Health and Safety aspect pertinent to them or to the work that is to be performed. No employee will be employed on the site by the Contractor, which has not been employed for at least six months prior to the contract commencing in a similar position by the Contractor.

(g) The Contractor shall strictly enforce discipline regarding Occupational Health and Safety.

(h) The Contractor shall ensure that his employees are issued and use the required Personal Protective Equipment (PPE). PPE will only be used as a last resort where other mitigating measures are not reasonably practicable.

(i) Safe work procedures shall be implemented and enforced; all employees shall be made conversant with the contents of these practices.

(j) No unsafe or illegal equipment/machinery, personal protective equipment and/or articles shall be used on Employer premises.

(k) Those incidents and accidents mentioned in the Occupational Health and Safety Act shall be reported by the Contractor to the Department of Labour as well as to the Employer. The Employer shall further be provided with copies of any written documentation relating to any incident.

(l) All employees of the Contractor shall be made conversant with work-related hazards and procedures to mitigate or eliminate these hazards.

(m) The Contractor warrants that he shall act as a professional in his field of expertise and has identified all hazards and risks associated with the work to be performed.

(n) The Employer and Contractor hereby obtains an interest in the issue of any investigation or formal inquiry conducted in terms of the Occupational Health and Safety Act pertaining to any incident involving the Contractor and/or his employees and/or his sub-Contractor/s.

(o) No use shall be made of any Employer machinery/article/substance or personal protective equipment without written approval and without ensuring prior and during use it is in a proper condition and as such will not cause any risk to the health and safety of any person.

(p) Work for which the issuing of a permit is required shall not be performed prior to the obtaining of a duly completed and approved permit.

(q) No alcohol or other intoxicating substance shall be allowed on the Employer's premises. Anyone suspected of being under the influence of alcohol or any other intoxicating substance (including medicines) shall not be allowed on the premises.

(r) Full co-operation shall be given if and when the Employer's employees inquire into occupational health and safety issues.

(s) The Contractor will cease dangerous or unsafe work immediately when requested to do so by the Employer or its representatives. The onus still remains on the contractor to enforce health and safety practices.

(t) The Contractor confirms that he has been informed that he must report to the Employer management (in writing) anything that he deems to be unhealthy and/or unsafe. He has informed his employees and/or sub-Contractors in this regard.

(u) The Contractor warrants that he shall not endanger the health and safety of Employer employees, members of the surrounding community and/or visitors in any way whilst performing any work on Employer premises.

(v) The Contractor undertakes to reimburse the Employer for all medical costs incurred relating to any of the Contractor's employees.

(w) Should the contractor be performing “construction work” as defined in the Construction Regulations 2014 of the OHS-Act, the contractor will therefore ensure full compliance with said regulations

Section B: General and Environmental legal compliance

1) The Contractor will ensure compliance to all environmental legislation.
2) The Contractor undertakes to comply with all labour related legislation while performing work for the Employer.
3) The Contractor will be accountable and liable for all fines, penalties and civil action arising out of his and his employee’s, contractor’s or agent’s acts and omissions. The Contractor will hold the Employer harmless against any such claims or actions.

Section C: Special conditions

1) This agreement shall remain in force for the complete duration of the specified work done for the Employer unless revoked in writing.
2) The Contractor representative shall be bound *in solidum (jointly and severally)* in terms of this agreement.
3) The Contractor undertakes to adhere to all the Employer's rules and regulations as well as all guidelines and other addendums that may be annexed hereto. The Contractor will ensure that all his employees are conversant with these annexures, where applicable.
4) "*Employer Premises*" in this agreement will include Client premises.
5) The Employer retains the right to stop any work deemed dangerous in regard to the health and safety of employees, Client representatives, public or visitors. Work may also be stopped as a result of legal noncompliance's observed during audits, the contractor will be responsible for any damages and costs suffered as a result of work stoppages.

Date	
Place	
Signed by: **Client:** _____	Mr. _____
Date	
Place	
Signed by contractor or his authorized representative:	Mr. _____

Notes

1. Initial each page and annexures
2. Verify all corporate entity names and site them correctly
3. Verify insurances and COIDA
4. Verify signatory authority
5. Keep original
6. Initial where amended or writing added
7. To be signed before commercial agreement
8. Ensure commercial contract do not override this agreement.

APPOINTMENT AS THE PRINCIPAL CONTRACTOR OF CONSTRUCTION WORK IN TERMS OF CONSTRUCTION REGULATION 5(1)(k) OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, (85 OF 1993) AS AMENDED

NAME OF CLIENT: GOERGE MUNICIPALITY

IN TERMS OF THE ABOVE-MENTIONED ACT:

I/WE ..... (FOR EMPLOYER) having been appointed to ensure full
Manager-Section
compliance with the OHSA and Regulations, hereby appoint you.....
Full name
On behalf of……..as Principal Contractor of Construction Work in

terms of the Construction Regulation 5(1)(k). The appointment is for the following project: ***TOURISM***

BUILDING 124 YORK STREET - 4 kWp PV + 10 kWh BATTEREY STORAGE

YOUR RESPONSIBILITIES ARE TO:

1. Comply with all the duties imposed on a Principal Contractor by the Construction Regulations.
2. Supervise all Construction work on the premises in accordance with CR 5(1)(k).
3. Ensure compliance with the health and safety specifications prescribed by the client or his agent for this project.
4. Ensure compliance with all the requirements of the National Building Regulations.
5. Ensure that all contractors appointed by yourself, and reporting to you, comply with the requirements as stipulated in the Construction Regulations.
6. Ensure that information and specifications to carry out work safely are communicated to all contractors appointed and reporting to you.
7. To ensure that all records, registers, and documentation are maintained and that all persons appointed to carry out tasks are competent and possess the necessary resources to complete their tasks effectively and in such manner that the health and safety of persons are not compromised.
8. Report to the client as per the agreed safety plan on all deviations and progress.

This appointment will become effective on the date of acceptance thereof and will be valid until completion of the construction work.

Please confirm your acceptance of this appointment by signing and returning to me the duplicate copy of this letter.

Signature: .....
Manager (for employer)

Designation: .....

Date: .....

ACCEPTANCE

I..... understand the implications of the appointment and confirm my acceptance of this appointment. I have studied the relevant sections of the Act and Regulations and understand what is required of me.

Signed:..... **Date: .....**

BASELINE RISK ASSESSMENT

	TASK	HAZARD/RISK	MINIMUM CONTROL MEASURES
1.	Electrical Commissioning	Electric shock	• Contractor to comply with permits/wayleaves to work issued by Client • Correct personal protective equipment to be worn by employees to prevent electric shock • Trained appointed First aider available on site at all times • Only registered competent, trained and appointed persons may decommission or commission electrical equipment
2.	Electric Tools and Electrical Installations	Electric shock Fire	• Electric tools and installations to be in safe condition • Inspect electric tools daily before use and monthly by competent person • Do not use electric tools in wet/damp conditions • Use correct protective equipment for working with or on electricity • Electrical installations register must be maintained by competent person after each inspection
3.	Working close to live electricity (Lock out & Tag out Procedure)	Electrical shock	• Ensure that wayleaves are obtained for work to be conducted • Wayleave must always be available on site . • Contractor must comply to wayleave requirements. • Contractor must not move past barriers installed by the client and stay clear of danger areas • Lockout and tagout procedure implemented
4.	Working at heights	Personnel falling form height Falling debris Those beneath being injured	• All persons working at heights must have attended working at heights training and have the required competence certificate • All persons working et heights must receive training on the fall protection plan • All safety harnesses must be inspected by the user before each use and monthly by a competent person all findings noted on an inspection register

			• All defective equipment must be tagged and removed from service and work area. • All persons working at heights must always wear full body safety harness , ensure 100% hook up • All fall arrest equipment to be correctly stored and maintained
5.	Skin cable with hacksaw and / or cable knife	Sub-standard knives or saws used to skin cables Leaving knife blade exposed or unattended Using blunt blades on knives or hacksaws Failure to wear eye protection while using cable knives or saws.	• Wear appropriate PPE - Cut Resistant Gloves. • Ensure that blades are kept sharp and in a good condition. • Blunt blades requires more force and is more likely to slip and cause injury. • Always cut away from your body. • Only Skilled and Semi-skilled electricians will be allowed to use cable knives • Ensure that tools and equipment are inspected prior to use. • Ensure that blades are changed whenever it starts to tear instead of cut. • Wear appropriate PPE – Eye Protection. • Never use cable knifes as a screwdriver or tin opener or any other purpose
6.	Use of Mobile Cranes		• Only trained competent/certified appointed employees to operate cranes. • All cranes must be inspected daily before use by the operator • Crane may not be used if derivations are noted during daily inspections • Mobile crane compliance certificates as per DMR must be current and up to date. • No safety devices shall be bypassed • Crane must be setup on even surface on stable compacted surface. • Ground where crane will be positioned shall be inspected for safe use and to determine how solid it is before the crane is positioned. • Area where crane will be used must be barricaded to prevent unauthorised access. • Only competent person to give hand signals to crane operator.

			• Load lifted with crane may not exceed 80% of the crane SWL. • Never exceed crane slew radius • Crane hook must always be centred with the load. • Operator must not talk on cell phone while operating crane. • Crane must not be used close to overhead powerlines without documented approved pre planning plans signed by user and client and owner of overhead powerlines. • Supervisor must be present at all times when using any crane.
7.	Use of Construction Plant and Equipment.	Plant failure, damage to equipment, property damage, injury, death	• Only use trained and experienced operators. • All equipment to be checked before use. • Plant to be placed on maintenance schedule, load test, certifications and visual inspection as per OHS Act. • Flagmen to accompany all mobile plant & equipment in work areas. • Inexperienced operators to work under supervision of experienced personnel. • Mobile plant to operate in barricaded areas and/or personnel to evacuate work areas close to mobile plant and equipment in operation. • Ground operating conditions to be checked by operator and foreman • High visibility clothing to be worn by all site personnel, audible warning systems when moving backwards, visible warning lights when in operation for all mobile plant. Spotters to be used where necessary.
8.	Earthing of electrical equipment and installations	Fatality, electrical shock	• Ensure that all installations and equipment used are earthed correctly. • Test equipment and installation to ensure that earthing is correct
9.	Noise and Dust.	Breathing in dust can cause long term health problems, noise can damage hearing	• Hearing protection, signage indicating high noise zones, regular noise level tests and/or testing as per OHS Act and or when required • Wear dust masks or respiratory masks

			• Dampen down and minimise dust where possible.
10.	Manual Labour loosening and fastening of items.	Injuries to hands and muscles	• Use correct tool for the job at hand • When using spanners work away from your body • Where possible use ring spanners when tightening bolts. • Do not work in uncomfortable positions.
11.	Manual Handling of General Items	Muscular skeletal injuries if the load is too heavy or awkward Operative falling/ tripping Contamination from the substance being carried Fall of material being carried	• Personnel should be aware of safe manual handling techniques • Personnel to wear Personal Protective Equipment when carrying items, e.g. safety footwear and gloves. • Awareness training for correct lifting method, use legs and not your back • Ensure good housekeeping to eliminate tripping/fall hazards. • Employee to get assistance if load is too heavy- team lift if necessary. • Utilise mechanical lifting and carrying aids where possible. • Personnel to ensure access equipment, ladders will take weight of employee and load being carried. • Personnel to ensure item being carried is properly bonded or is not liable to break apart whilst being manually handled
12.	Working with hands	Hand Injuries	• Always wear gloves when working with hands. • Keep hands clear of pinch or crushing areas. • When cutting with Stanley knife cut away from your body. • Always ensure your hands are protected from injuries when using them.
13.	Overhead Services (Working near)	Contact with live services causing injury to personnel Damage caused to services	• Look First! Check the area for overhead power lines before bringing in equipment such as cranes, backhoes, and boom trucks. • Use a signaller if equipment or its load is closer than one boom length to overhead power lines. • Maintain the minimum distance from power lines **750 to 150,000 volts – 3 meters**

			More than 150,000 to 250,000 volts – 4.5 meters **More than 250,000 volts – 6 meters** • Where contact is a danger, get the utility to insulate the lines. • Should contact occur stay in the machine. Generally, the safest course is to stay in the cab and remain calm. Don't touch the equipment and the ground at the same time. If you do, the current will make YOU its path to the ground. The results can be fatal. • Wear the correct personal protective clothing • Ensure height of plant/vehicles does not compromise or exceed clearance levels for overhead services
15.	Plant or Vehicles and Equipment Operation	Workers injured by passing traffic Road users and pedestrians at risk from plant operation Noise	• Implement traffic protection measures • Trained and competent operators must be used • Check plant and vehicles on daily basis before use and record inspections. Maintain vehicles in safe condition. • Medical certificates of fitness required for construction plant. • Crossing of road by construction vehicles or machines must be limited to the practical minimum • Plant and vehicles must be fitted with amber rotating beacons and reverse alarms. • Wear appropriate protective clothing/equipment, e.g. goggles, gloves, ear defenders, etc. as appropriate.
16.	Use of ladders		• Inspect ladder before use and area where ladder is needed • Ladder to be numbered and registered. • Replace all defective ladders. • Determine work to be done and length of ladder needed. • Use ladders specifically designed for electrical work • Good supervision. • Good communication between all parties. • 3 Point contact while climbing up or down a ladder. • No tools or any loose items in hands while climbing.

			• Only one person on ladder at a time. • Ladder to be secured to the structure or kept in position by a second person • Make sure the ladder is long enough, never climb past second last rung of ladder
17.	Use of Grinders	Personnel can sustain injuries when moving parts are properly protected.	• All grinders must be inspected before use by the user. • Grinder to be inspected monthly by a competent person and finding noted on an inspection register. • Use grinding discs for grinding and cutting discs for cutting. • Check all discs before use. And ensure correct RPM and type of disk for activity being done, consult manufacturer's instructions for correct information • Use correct PPE face shield & safety goggles, gloves, safety shoes and overalls. • Ensure grinder is unplugged before changing discs.

18.	Rigging & slinging practices	Falling material Crushing by materials Hand injuries to the slinger Toppling crane	• Use ONLY trained and experienced personnel. ALL LIFTING AREAS WILL BE BARRICADED TO ALLOW ONLY AUTHORISED PERSONNEL. • Cranes to be checked and all statutory tests and checks to be current. All lifting tackle to be • checked before use by the user and quarterly by a competent person and statutory documentation to be current. SWL on all lifting machines and tackle to be visible and adhered to. • Rigging shall only be done by competent and trained employees. • Ensure inspection have been carried out • Ensure (SWL) is clearly visible on all lifting tackle used • Ensure items being lifted are hooked up correctly and load centred with. • Be aware that there should be a minimum clearance of 600mm between any slewing parts of a crane and any fixed installation to prevent being trapped. • Good communication at all times between crane operator and person in control of lifting activity.
19.	Loading & Offloading	Property damage Pinch, cuts and bruises to employees. Falling of tools, loads and equipment. Serious injuries/fatality. Minor to serious hand and finger injuries.	• Ensure area identified for offloading is even and ground conditions stable. • Area must be barricaded and no unauthorised entry allowed • Performing manual loading/offloading comply to manual handling procedure. • Ensure loads are hooked correctly when offloading with mobile crane. • Only use certified lifting equipment. • Only competent person to perform rigging and slinging • No person allowed under suspended loads. • Keep hands away from loads, never place hands under loads when being placed on a surface. • Never exceed crane or lifting tackle SWL.

20.	Fire.	Injuries to workers, pedestrians, residents, road users, damage to property through fire	• No littering on site which could become fire hazard, maintain site in clean condition. • No fires to be lit on site. Always have a serviced fire extinguisher at hand . • No smoking or naked flame near flammable substances • Ensure proper storage/use of Petrol/diesel/flammable substances – post warning notices
21.	Flammable Liquids and Gases (Use of)	Fire Explosion	• No littering on site which could become fire hazard, maintain site in clean condition. • Always have a working fire extinguisher at hand . • No smoking or naked flame near flammable substances or in unauthorised areas • Ensure proper storage/use of Petrol/diesel/flammable substances – post warning notices • Equipment must be in good condition, maintained • Personnel using substances must be trained in safe use and risks
22.	Hand tools	Injuries caused by use of hand tool Impact with the tool Falls due to access problems Contamination with substance being worked	• Inspect hand tools daily before use and complete inspection registers • Use the tool according to manufactures specifications • Tool is in good order and suitably sharp • Personnel must be instructed in tool usage and tool safely • Lighting is sufficient • Access is safe, working platform is secure, leading edge is guarded • Operative is wearing all necessary PPE • No homemade tools allowed on site
23.	Hazardous Substances	Injuries to workers through use of hazardous substances, e.g. injuries to eyes, skin, etc.	• Use substances in accordance with (MSDS) data sheet, particularly reference protective clothing required (example: gloves, goggles, etc.) • Regular inspection of all HCS containers must be conducted. • Any defects or damaged containers must be reported to immediate supervision.

			• First aider trained in regards to MSDS requirements
24.	Line of fire	Injuries	• Never stand in front of a person using power tools (Grinders) • Unsure at least two meter gap between employees using picks to perform trenching • Never stand in front of a person using a hammer.
25.	Pinch pointes	Amputation of fingers injuries to fingers	• Always wear gloves • Keep hands clear from pinch point and crushing areas • Use guide ropes to guide loads
26.	Oil Spills (Environmental requirements)	Contamination of environment	• Ensure all plant used on site do not leak oil • Place drip trays under mobile plant when not in use. • Clean oil and diesel spills immediately when observed • Ensure spill kit available on site at all times
27.	Ergonomics	Strains on muscles, joints and nerves	• Make sure that the body is not compromised at all in the work place • Ensure your body position and posture is conducive to comfort and that you have minimal distraction from physical discomfort. • This correct use of the body in the workplace is simply called 'correct ergonomics'.
28.	Housekeeping	Minor to Serious injuries Damage to property Fatality Slip trips and falls	• Equipment shall be stacked properly in a safe place. • All tripping hazards shall be removed from working site. • Designated walkways to be used. • Full waste containers to be emptied on regular basis. • All waste generated to be placed in bins or bags.
29	Personal Protective Equipment	Injuries or health conditions	• All employees must be issued with the required PPE as identified in risk assessment • All employees to be trained in the use, maintenance and limitations of PPE • Regular PPE inspections conducted by supervision • Damaged PPE must be replaced immediately

30.	Management Of Change	Fatality, serious injuries or property damage	• Each operation to specify and define responsibility of each person involved and responsible for Management of Change. • The description shall also identify the specific documents (i.e. standards, codes of practice, process designs, inspection and approval notices, legislative requirements, etc.) that provide the operational or project engineering basis for changes. • These and every document involved in the change should be attached, if they are not part of a readily accessible standard / procedure. • Details of communications regarding the specific changes must be kept. • Shall be implemented to ensure the change management process is comprehensively managed
31.	Stacking & storage	Injuries and property damage	• Dedicated stacking and storage areas to be identified and used. • Walk ways to be kept clear. • Hazardous chemicals to be stored as per OHS Act and MSDS requirements. • No combustible and flammable material to be stored in same area. Articles shall not be stacked higher than three times the shortest base of the article. Secure materials and equipment.
32	Use of Scaffolding	Unsafe scaffolding Serious injuries / property damage// fatalities	• Scaffold erected according to SANS 10085 and inspected by competent Scaffolding Supervisor/inspector on a daily basis • Safe to work tag (green tag) to be displayed and signed daily by the Scaffolding Supervisor/inspector. • Stop work if scaffold or platform is unsafe / verify that kick boards around entire platform are safe and secure • Toe boards shall be installed on all permanent and temporary edge protection. • No working on wet scaffold platforms. • Safety harnesses to be worn and tied off above 2 m.

			• Scaffold users to do pre-inspections on the scaffold and report any deviation to the supervisor to correct before use. • All employees working at heights must have • received training from SAQA Accredited Company Unit Standard 229998
33	Hot Work & Welding	Defective welding machine Flammable substances Wearing incorrect P.P.E Fires Hot welding slag Welding fumes Improper earthing	Welding aprons, spats, welding helmet, leather gloves, overalls, and yoke will be worn when performing welding. Only use P.P.E that is practical for the task performed The work area will be free from debris and combustible material Fire extinguishers will be placed at least 3m away from the welding area Welding slag spatter will be minimised by means of welding screens and/ or fire blankets The welding area will always be well ventilated Artificial ventilation will be provided where natural airflow is absent. Welding screens will be installed around all welding areas Ensure that the welding piece is at a comfortable height Ensure to take stretch breaks when needed Ensure that welding cables and earth cables is routed neatly out of walkways No cables will be allowed to be coiled, or run through water The earth clamp will be placed as close as possible to the welding piece Earth cables, clamps and lugs will be inspected before and during welding operations Only trained and certified welders will be doing welding operations on site All welding machines will be earthed, externally A fire extinguisher will be placed in the facility, at least 3 meters away
34	Working in areas accessed by members of the public	Injuries and property damages, civil claims	All work areas must be clearly barricaded and warning notices displayed. Members of the public must under no circumstances be allowed access to the work site. Work to be done in such a manner that it does not endanger

GEORGE MUNICIPALITY

ELECTROTECHNICAL SERVICES DIRECTORATE

INVITATION TO TENDER

PART C5

SITE INFORMATION

EPC FOR A PV PLANTS WITH BATTERY STORAGE AT ELECTROTECH, TOURISM AND SCHAAPKOP SITES

CONTRACT NUMBER: ENG 019/2022

PART C5 SITE INFORMATION

1. GENERAL

The GPS Coordinates for each of the three sites is given below:

a. Electrotechnical Services building – 33 58' 39'' S and 22 27' 54'' E

b. Tourism building – 33 57 23 S and 22 27' 33'' E

c. Schaapkop substation – 33 59' 44'' S and 22 27' 15'' E

George Electrotechnical Services Standard GEOE 002 shall apply.

For the Electrotechnical building – Roof area of the staff change rooms and the nearby two vehicle carport for the installation of the PV panels. The installation roof areas will have to be reinforced to the contractor's satisfaction before panels are mounted. The inverter/s, batteries and distribution board to be situated in a 4x2 metre container/compartment to be placed inside the warehouse. The container shall have the appropriate ventilation and lighting. Refer to drawing layout JP667

For the Tourism building – A new carport streel structure shall be constructed in the proposed area indicated in the layout drawing, and the panels mounted on top of it. The carport shall be able to accommodate four (4) vehicles. The Tenderer must include a diagram of the proposed steel structures in their Tender submission. There is paving on the parking area where the carport structure will be erected, as well as on the cable route from the carport structure to the inverter room. The paving shall be reinstated after cable laying and structural erection. The storage room for the batteries, inverters and distribution board will be indicated at the site meeting. The contractor shall refurbish the room by painting it and then adding lighting and ventilation. Refer to layout JP668.

The Schaapkop substation – the panels shall be mounted on the substation control room's roof area indicated in the layout diagram. The inverter and the batteries shall be housed inside the substation building. Refer to layout JP669.

No trees, bushes, etc. may be damaged and/or removed before approved by the Engineer.

2. SECURITY

2.1.1. Site Security

Two of the three facilities (Electrotech and Schaapkop substation) currently have access control and a security guard stationed at the entrance to the facility. However, the contractor must organise and pay for his security to be stationed at their specific site at night to guard their storage facilities.

2.1.2. Site Access

There is only one access to the sites, which will be used by George Municipal staff.

The Municipal Staff's normal working hours are weekdays between 7:30 – 17:00.

2.2. Site Facilities

1. No site facilities are currently available. The contractor shall hire a mobile toilet for his staff.
2. Electricity supply – a 230V electricity supply point will be provided for the contractor at either a minisub or a kiosk and he will be expected to rent out a temporary prepayment meter from the municipality and install it at the supply point so he can purchase electricity for his use. It is the responsibility of the contractor to get the power from the supply point to where he wants to use it. Alternatively, the contractor can bring his own diesel generator on site to use for his electricity needs.
3. Water supply – a water supply point will be provided (tap) and it shall be the contractor's responsibility to get the water from the supply point to where he wants to use it.

2.3. Hidden and other services within the site

Printouts of the existing services have been included as wayleaves in Annexure E of this tender for tender purposes. However, it is the contractor's responsibility to confirm all services and apply for wayleaves of necessary, prior to commencement of the works.

ID	Task Description	Duration	Start Date	End Date
	EPC FOR THREE PV PLANTS WITH STORAGE AT ELECTROTECH, TOURISM AND SCHAAPKOP			
1	**Commercial**			
A	Letter of Acceptance Signed		23/01/2023	
B	Kick off Meeting			
C	Health and Safety File Submission			
D	Approval of Health and Safety			
2	**Designs – PV Plant Review and Approval (for all 3 sites)**			
A	Electrical Single line diagrams design			
B	Steel Structures design (for the Tourism PV)			
C	Control and Monitoring System			
D	Design Review Meeting			
E	Client Approval			
3	**Procurement**			
A	Mounting system, manufacturing of steel structures			
B	PV Modules			
C	Inverters (on the CoCT certified inverter list)			
D	DC and AC Cables			
E	PV Combiner Boxes			
F	Submission of shop drawings			
4	**Construction (for all 3 sites)**			
A	Site Establishment			
5	**Civil Works**			

A	Trenching, backfilling and installation of cable sleeves			
B	Installation of main LV cables sleeves			
6	**Mechanical installation**			
A	Installation of mounting system			
7	**Electrical installation**			
A	Installation of PV Modules			
B	Installation of DC strings			
C	Installation of inverters and DC/AC connections			
D	Earthing and Lightning Protection			
8	**Control and Monitoring System**			
A	Installation of PV DB/s with Control and Monitoring system			
B	Connection of comms cables and testing			
9	**Connection to Existing Supply**			
A	Preliminary changeover date			
B	Electrical tests			
C	Completed CoC/Quality Checks			
10	**Test and Commissioning**			
A	Visual Inspection and Rectifying Snags			
B	Commissioning			
C	Performance Monitoring			
11	**Removal of Site Establishment**			
A	Removal of Site Establishment after project completion			
B	Disposal of surplus unsuitable material including haulage up to 10km from site			
12	Practical Completion			

GEORGE MUNICIPALITY

ELECTROTECHNICAL SERVICES

GEOE STANDARD NUMBER: 002

CLIMATE, ATMOSPHERIC AND EVIRONMENTAL CONDITIONS

REV – 0 **OCTOBER 2022**

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INDEX TO GEOE STANDARD NUMBER 002

CLIMATE, ATMOSPHERIC AND ENVIRONMENTAL CONDITIONS

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ELECTROTECHNICAL SERVICES

GEOE STANDARD NUMBER 002

CLIMATE, ATMOSPHERIC AND ENVIRONMENTAL CONDITIONS

1. INTRODUCTION

This standard is aimed at ensuring that all electrical and related assets installed within the George Municipal area, comply with the same climate, atmospheric and environmental conditions. It also allows for the free movement of equipment between George and Uniondale without the fear of changed altitude and similar factors.

2. STANDARDS AND REFERENCES:

SANS 60317 : Insulated Bushings for alternating voltages above 1,000V

SANS 10313 : The Protection of Structures against Lightning

SANS 10160 : The General Procedures and Loadings to be adopted in the Design of Buildings

3. POLLUTION LEVEL

The atmosphere is harsh and corrosive being salt-laden at the sea coast. The pollution level is classified as ***extreme***, as defined by SABS 1035.

4. ALTITUDE

Altitude : $\leq$ 1000m.

5. DESIGN TEMPERATURES

Minimum temperature : -5^{o}C

Maximum temperature : 40^{o}C

Daily Average Temperature : 25^{o}C

6. HUMIDITY

Minimum : 10%

Maximum : 95%

7. WIND

The ***regional basic*** wind speed shall be taken as **40 m/s** as listed in SABS 0160. The design wind pressure shall be calculated using the values given in Tables 1 and 2 of GEOE Standard 003.

8. LIGHTNING

The ground flash density (isokeraunic level) in the area of installation is 1.5 / km^2/ year as listed in SANS 10313.

Although this is a low density for South Africa, severe lightning storms do occur and where applicable, allowance shall be made to protect equipment against lightning damage.

9. ICE

No provision needs to be made for ice loadings.

10. TERRAIN

For design purposes the terrain shall be classified, in terms of SANS 10160, in the categories as set out in Tables 9.1(a) and 9.1(b) of Section 9.

11. Rainfall

Mean annual rainfall for George is on average 700mm.

GEORGE MUNICIPALITY

ELECTROTECHNICAL SERVICES

GEOE STANDARD NUMBER 002

CLIMATE, ATMOSPHERIC AND ENVIRONMENTAL CONDITIONS

AMENDMENT SHEET

[LAST NUMBERED PAGE(S) OF STANDARD]

REV NO.	DETAILS	AUTHOR	DATE OF REVISION / ISSUE
0	Original First Issue	PG	October 2019

GEORGE MUNICIPALITY

ELECTROTECHNICAL SERVICES

GEOE STANDARD NUMBER: 003

SAFETY FACTORS AND OTHER PRINCIPLES APPLICABLE TO STRUCTURAL DESIGN

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ELECTROTECHNICAL SERVICES

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ELECTROTECHNICAL SERVICES

GEOE STANDARD NUMBER 003

SAFETY FACTORS AND OTHER PRINCIPLES APPLICABLE TO STRUCTURAL DESIGN

1. INTRODUCTION

This standard is aimed at ensuring that all structural designs relevant to electrical installations within the George Municipality area of supply, conform to the same standards.

2. STANDARDS AND REFERENCES:

Act 85 of 1993	:	Occupational Health and Safety Act
SANS 1431: 2007	:	Weldable Structural Steels
SANS 10160: 1989	:	The General Procedures and Loadings to be adopted in the Design of Buildings
SANS 10162:	:	The Structural Use of Steel (all relevant parts)
SANS 10225: 1991	:	The Design and Construction of Lighting Masts
SANS 10280: 2001	:	Code of Practice for Overhead Power Lines for Conditions prevailing in South Africa
BS 5950 (Parts 1-9)	:	Structural use of Steelwork in Building (parts as applicable to the design in question e.g. specification for materials, rolled and welded sections, design of cold formed thin gauge sections etc.)
BS 7354	:	Code of Practice for the design of High Voltage Open Terminal Stations
IEC 865	:	Short Circuit Currents – Calculation of Effects

3. ATMOSPHERIC CONDITIONS

The atmospheric conditions described in GEOE Standard 002 shall apply.

4. MAXIMUM WORKING LOAD FOR A SUPPORT STRUCTURE

The assumed maximum working load shall be the combined simultaneous loading due to short-circuit current, wind loading, dead weight and conductor tension.

5. SHORT-CIRCUIT FORCES

Short-circuit forces shall be determined in accordance with the latest revision of IEC 865.

6. WIND FORCES

The wind pressure and force coefficients shall be calculated using Tables 1 and 2 on pages 6 and 7.

7. DEAD WEIGHT OF A SUPPORT STRUCTURE / FOUNDATION

The ***dead weight*** shall be the vertical loading of the conductors, insulators and equipment supported by the structures and the structures themselves.

8. CONDUCTOR TENSION LOADING ON SUBSTATION YARD STRUCTURES

The tensioning load of both substation yard conductors and incoming line conductors shall be considered. The reference temperature to be used for maximum tension conditions is –5^{o}C.

In the absence of detail on the incoming lines (between the termination tower and the landing gantry), the every day temperature (15^{o}C) tension of each incoming conductor (including earth wire) shall be assumed as 4 500 Newtons.

Landing gantries shall be able to accommodate a variation in approach angle of up to 30^{o} laterally and 20^{o} vertically.

9. SAFETY FACTORS

As a minimum requirement, the safety factors prescribed by the Electrical Machinery Regulations, of the OHS – Act, shall be used, as shown in Table 3 on page 8.

Where it is considered appropriate to use design conditions set out in any other Codes, which are at variance with the OHS Act, a relaxation of the OHS Act design conditions will have to be obtained from the Chief Inspector of Machinery.

Alternative design conditions might provide less stringent design criteria, but will also result in a reduction of the associated safety margins. Whether the reduction is significant, requires a professional judgement by a competent person, as defined in the OHS Act.

The clamps / connectors shall be able to withstand all design forces with a safety factor of 2,5. No slipping shall occur at this force.

10. GENERAL

The design of the structures shall be such that under the assumed maximum working loads, the deflection in the structures will not exceed the limits as specified by SABS 0160 and SABS 0162, nor shall this deflection disturb the alignment of the apparatus supported.

The ratio of unsupported length of compression members to their least radius of gyration shall not exceed 120 for main members or 200 for bracing members.

The calculated tension / compression stress of any member of the completed structure resulting from the assumed maximum working load shall not exceed 40% of the elastic limit / crippling strength of that member (i.e. safety factor of 2,5).

TABLE 1 – SUMMARY OF MINIMUM ALLOWABLE WIND LOADING PARAMETERS FOR ELECTRICAL STRUCTURES IN NMBM AREA

Structure Type	Type of Structure (Description)	*RBWS (V) m/s	Mean Return Period (yrs)	Mean Return Factor (k_r)	Terrain Category	Structure Class	Altitude Factor (k_p)	Windspeed Multiplier (kz)	Free Stream Velocity Pressure (qz) in N/m^2	Velocity Pressure values in N/m^2 (Pa) to be used (q_z)
1	Single Storey Building up to 5m high (Substations)	40	50	1	2	A and B	0.6<kp<0.56	0.92	kp x (kz x V x kr)^2	791.7 / 758.37
2	Boundary walls not exceeding 2.7m above ground level	40	50	1	2	B	0.6<kp<0.56	0.92	kp x (kz x V x kr)^2	758.37
3	Lattice Steel support structures inside substation yards up to 5m high	40	50	1	2	B	0.6<kp<0.56	0.92	kp x (kz x V x kr)^2	758.37
4	I & H beam support structures inside substation yards up to 5m high	40	50	1	2	B	0.6<kp<0.56	0.92	kp x (kz x V x kr)^2	758.37
5	Round, hexagonal and octahedral single pole towers for transmission lines up to 50m high	40	50	1	2	A	0.6<kp<0.56	1.16	kp x (kz x V x kr)^2	1205.65
6	Lattice steel towers for transmission lines up to 50m high	40	100	1.05	1	B	0.6<kp<0.56	1.21	kp x (kz x V x kr)^2	1446.29
7	Lightning masts inside substation yard up to 15m high (lattice structure)	40	50	1	2	B	0.6<kp<0.56	1.02	kp x (kz x V x kr)^2	932.19
8	Security Lighting masts up to 50m high	40	50	1	2	A	0.6<kp<0.56	1.16	kp x (kz x V x kr)^2	1205.65
9	Conductor Spans 2 – 250m	32	n/a	n/a	n/a	n/a	n/a	n/a		1170Pa @ 15°C
										0 Pa @ -5°C

*** RBWS = Regional basic wind speed**

TABLE 2 – SUMMARY (cont.) OF MINIMUM ALLOWABLE WIND LOADING PARAMETERS FOR ELECTRICAL STRUCTURES IN NMBM AREA

Structure Type	Type of Structure (Description)	Applicable Standard	Pressure Coefficient Cpe	Internal Pressure Coefficient Cpi	Force Coefficient Cf	Gust Coefficient Cg	Force (N)
1	Single storey building up to 5m high	SANS 10160:1989 – Tables 6 & 7	-0.7/+0.7	+0.2/+0,02	Cpe – Cpi	Inclusive in kz by virtue of structure class	Cf x qz x Ae
2	Boundary wall not exceeding 2,7m above ground level	SANS 10160:1989 – Table 16	n/a	n/a	1.4	Inclusive in kz by virtue of structure class	Cf x qz x Ae
3	Lattice steel supports inside substation yards up to 5m high	SABS 10160:1989 – Tables 19, 20 & 21	n/a	n/a	Lattice towers-flat members Cf = 2,7 (square plan) and equilateral = 2. Square towers, rounded members Cf = 1,7. Equilateral triangular towers rounded members Cf = 1,1	Inclusive in kz by virtue of structure class	Cf x qz x Ae
4	I & H beam supports inside substation yards up to 5m high	SANS 10160:1989 – Table 17	n/a	n/a	Single frames-flat members Cf = 1,9 and Circular members Cf = 0,5	Inclusive in kz by virtue of structure class	Cf x qz x Ae
5	Round, Hexagonal and Octahedral supports for transmission lines up to 50m high	SANS 10160:1989 – Table 14	Table 14 SABS 0160 h = height and d = diameter of structure	n/a	Cpe – Cpi	Inclusive in kz by virtue of structure class	(qz x (sum of Cpex) x Aex from 0 to 180^{o})
6	Lattice steel supports for transmission lines up to 50m high	SANS 10160:1989 – Table 19	n/a	n/a	Lattice square tower-flat member Cf = 3,4	Inclusive in kz by virtue of structure class	Cf x qz x Ae
7	Lightning masts inside substation yard up to 15m high (lattice structure)	SANS 10160:1989 – Table 19	n/a	n/a	Lattice tower-flat members Square plan Cf = 2,8 Equilateral Cf = 2,1	Inclusive in kz by virtue of structure class	Cf x qz x Ae
8	Security lighting masts up to 50m high	SANS1 0225 – Table 4	n/a	n/a	Cfz = 1	Cg = 4,36	Cf x qz x Ae x Cg
9	Conductor Spans 2 – 250m	SANS 10280 & OHS Act	n/a	n/a	0,6	Cg = 0,6	DWP x d x L1 x K x Cg**

**** DWP is the design wind pressure, d is the diameter of wire, L1 is the wind span, K is the shape factor = 0,6**

TABLE 3 – SUMMARY OF FACTORS OF SAFETY (FoS)

Structure Type Reference is made to Table 15	Type of Structure	Applicable Code of Practice	*Material Characteristics*					Partial Load Factor of Safety (FoS)	*FoS*		% Diff of Partial Load FoS on OSH Act FoS	
			Type / Grade	Characteristic Strength Mpa	Ultimate Tensile Strength (UTS) Mpa	*Allowable Mpa*			*OSH ACT*		Type Tested	*UTS*
						Tension	Bending		Type Tested	*UTS*	$\frac{A-B}{B} \times 100$	$\frac{A-C}{C} \times 100$
								A	*B*	*C*		
3,4 and 6	Steel Lattice Structures	SANS 10162 – 1: 2005	43 (t – 40mm)	fy = 250	430	155	165	2.77	2.5	2.5	10.8	10.8
			300W (t – 40mm)	fy = 300	450/620	185	195	2.43/3.35	2.5	2.5	2.43/3.35	2.43/3.35
5 and 8	Solid Dawn Steel Poles	SANS 10162 – 1: 2005	43 (t – 40mm)	fy = 250	430	155	165	2.77	2	2.5	38.5	10.8
7	Welded Poles	SANS 10162 – 1: 2005	43 (t – 40mm)	fy = 250	430	155	165	2.77	2.2	2.5	25.9	10.8
1 and 2	Steel Reinforcement	SANS 10100 – 1: 1992	Mild Steel – Hot Rolled up to 10mm (t)	fy = 250	430	165	n/a	2.6	2.5	2.5	4	4
			High Yield – Hot Rolled up to 10 to 40mm (t)	fy = 450	542	247.5	n/a	2.2	2.5	2.5	-12	-12
9	Stay Wires	SANS 10100 – 1: 1992	Hard drawn steel wire 0 – 12mm (t)	fy = 485	1400/1700	636	n/a	2.2/2.67	2.5	2.5	-12.43/6.8	-12.43/6.8
1 and 2	Reinforced Concrete Spun Poles	SANS 10100 – 1: 1992	F_{cu} = 30 Mpa*	13.4	30	n/a	n/a	2.24	2.4	3.5	-6.67	-36
1 and 2	Mechanical Reinforced Concrete Structures	SANS 10100 – 1: 1992	F_{cu} = 30 Mpa*	13.4	30	n/a	n/a	2.24	2.5	3.5	-10.4	-36
1 and 2	Other Concrete Structures	SANS 0100 – 1: 1992	F_{cu} = 30 Mpa*	13.4	30	n/a	n/a	2.24	2.75	3.75	-18.54	-40.3
9	Wooden Members not continuous loaded	SANS 10163 – 1: 2003	Grade 6**	n/a	13.87	3.8	6	3.65	3.5	4.4	4.29	-17.05
9	Wooden continuous Loading***	SANS 10163 – 1: 2003	Grade 6**	n/a	13.87	2.55	4	5.48	5.5	6.75	-0.36	-18.87

***** Used Fcu as 30 Mpa as an example

****** Grade 6 timber used as an example

******* Post disaster stability assumed to be 1.5 times acceptable daily risk

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SAFETY FACTORS AND OTHER PRINCIPLES APPLICABLE TO STRUCTURAL DESIGN

AMENDMENT SHEET

[LAST NUMBERED PAGE(S) OF STANDARD]

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GEORGE
THE CITY FOR ALL REASONS

GEORGE MUNICIPALITY

ELECTROTECHNICAL SERVICES

GEOE STANDARD NUMBER: 004

PV PLANTS – TURN-KEY INSTALLATIONS

REV – 0 **OCTOBER 2019**

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DEFINITIONS AND ABREVIATIONS

Acceptance	Means that the goods shall have been accepted by GM having been: ▪ inspected by the Engineer and found to comply with this specification; ▪ deliver, installed and commissioned to the address in George, defined in a purchase order issued by GM; and received and signed for by an authorised employee of GM on it's behalf.
Approved	Approved in writing by the Engineer.
Practical Completion	means the *works* have passed the Practical Completion Test and the Facility is accepted for the purposes of Commercial Operation. The *defects period* and O&M Period of 36 months each begins.
Final Completion	means the *works* have passed the Final Acceptance Test and the Facility has demonstrated guaranteed performance expectations and is defect-free. The *defects period* and O&M Period conclude.
Client	George Municipality Electrotechnical Services (GM), local government utility of George, South Africa
Contractor	Contractor appointed to Engineer, Procure and Construct the works as described in this specification
Document	This complete set of bound conditions, specifications, Bill of Quantities and schedules.
Drawings	Drawings issued with the Tender Documentation.
Employer	George Municipality, local government, South Africa
Engineer	The person or persons authorised by GM to carry out inspections during manufacture, prior to or after delivery, of the items covered by this specification and acceptance thereof on behalf of the GM and responsible to approve all designs.
Facility Meter / Tariff Meter	The logging tariff meter to be installed at the delivery point compliant with SANS 474/NRS 057, which will be used as the reference point for electricity produced in kWh by the *Facility*.
Install	To erect, connect and commission, complete with related accessories.
Marked Up drawings	Drawings clearly indicating with red all changes carried out at the site during the erection and testing works. The changed or cancelled items shall not be deleted by eraser or liquid corrector, but crossed only, in order to keep visible the cancelled part.
Practical Completion	means the *works* have passed the Practical Completion Test and the Facility is accepted for the purposes of Commercial Operation. The *defects period* and O&M Period of each begins. Upon the Practical Completion, the Engineer will issue the *Taking Over Certificate* as discussed in the Conditions of Contract.
Professional Engineer	Professional Engineer registered as a PrEng with the Engineering Council of South Africa (ECSA).
Project Engineer	Same as *Engineer*
Project Manager	The person or persons authorised by GM to manage the project on behalf of GM Electrotechnical Services
PV Facility	The functional and operating unit consisting of the materials, equipment and activities in the works able to generate and export electricity. The PV Facility remains an element of the works until Final Completion.
Site	The construction site where the new PV Plant will be constructed.

Successful Tenderer	The Tenderer appointed as Contractor.
The Works	Complete, functional installation to be constructed/installed in terms of this Document. All Engineering, Procurement and Construction and related activities described in the Scope of Works to deliver a defect-free and operating Solar Photovoltaic (PV) Facility with a design lifetime of 25 years and installed capacity as specified in the Tender documentation and is constructed within the Site Boundaries defined.
ETS	Electrotechnical Services, George Municipality
GM	George Municipality
LV	Low Voltage (230V or 400V)
MV	Medium Voltage (11kV for this project)
O&M	Operation and Maintenance
OSH Act	Occupational Health and Safety Act
RMU	Ring Main Unit
SHEQ	Safety, Health, Environmental and Quality

1. INTRODUCTION

This standard George Municipality specification covers the Engineering, Procurement and Construction (EPC) as well as Operation and Maintenance of a ground mounted photovoltaic solar power facility complete with all groundwork, steelworks, inverter, control, protection, safety, SCADA and synchronizing ancillary equipment. A grid-tied circuit breaker may form part of the Contract if called for by the Scope of Works. The Contract therefore allows for a complete, all-inclusive solution to the point of energizing and post-energization tests and safety checks.

1.1. Engineering, Procurement and Construction

The Contractor's Scope of Work includes:

1. surveying, setting out, clearing and levelling of the Site to the *Contractor's* satisfaction;
2. design, detailed drawings, design sign offs, as-built sign offs and certifications;
3. purchasing, transportation and offloading of all equipment and materials.
4. construction, erection, installation, assembling.
5. testing, commissioning and performance testing.
6. identifying and remedying defects for a defects period of 36 months after Practical completion.

1.2. Operations and Maintenance

The Contractor shall be responsible for the effective day-to-day monitoring, operating and maintaining of the plant for 36 months after Practical Completion. Refer to Section 9.

1.3. Training

The Contractor is required to develop and effect a training programme for George Municipal staff for the duration of the O&M period to assist with basic operations, maintenance and safety related tasks of the Facility.

2. STANDARDS AND REFERENCES

2.1. Conditions of Contract

FIDIC General Conditions of Contract (Yellow Book)

FIDIC (GEOE) Particular Conditions of Contract associated with the FIDIC Conditions.

2.2. Standards and Codes of Practice

All hardware and/or material required for the complete PV Installation, refer to section 4.1, shall comply with the relevant SANS standards. Should SANS standards not be available for a particular element or piece of hardware, the following national and/or international standards shall be complied with and in this sequence of preference:

- NRS
- IEC
- BS
- DIN (If available in English)

The following non-exhaustive list of documents contain provisions that, whether referenced in the text or not, constitute requirements of this specification. The latest revision will be applicable. It is the responsibility of the Solar PV Contractor to be familiar with these and other standards.

Note that the National equivalent of IEC standards are generally the same but may include specific variations to be considered. Information on currently valid national standards can be obtained from the South African Bureau of Standards.

Reference to a particular standard or recommendation in this specification does not relieve the manufacturer of the necessity of the work complying with other relevant standards or recommendations.

George Standards	**Std**	**CoP**	**Rev.**	**Rev. Date**
Climate, Atmospheric and Environmental Conditions	002		00	Oct 2019
Safety and other Principles applicable to Structural Design	003		00	Oct 2019
Trenching, backfilling & Foundations for Outdoor Electrical Equipment	005		00	Oct 2019

No.	**National and International Standards and Guidelines**
	South African Grid Code.
IEEE80	IEEE Guide for Safety in AC Substation Grounding
NRS -097-2-1	Code for Grid Connection of Embedded Generators
NRS-052-2-2	Photovoltaic Systems for use in individual homes, schools and clinics
NRS 060:2005	Code of practice for clearances for electrical systems
SANS 121	Hot dip galvanized coatings on fabricated iron and steel articles - Specifications and test methods
SANS (NRS) 048	Electricity Supply – Quality of Supply
SANS 474 / NRS 057	Code of Practice for Electricity Metering
SANS 555	Unused and reclaimed mineral insulating oils for transformers and switchgear
SANS 1019	Standard voltages, currents and insulation levels for electricity supply.
SANS 1431	Structural Steel
SANS 1507	Electric cables with extruded solid dielectric insulation for fixed installations (300/500 V to 1 900/3 300 V)
SANS 1700	Bolts and Nuts
SANS 3448	Industrial liquid lubricants - ISO viscosity classification
SANS-10142-1	The Wiring of Premises – Low Voltage Installations
SANS 10199	The design and installation of earth electrodes
SANS 10292	Earthing of low-voltage (LV) distribution systems
SANS 10313	Protection against lightning - Physical damage to structures and life hazard
SANS 60529	Degrees of protection provided by enclosures (IP Code).
SANS (IEC) 62305	Protection against lightning
IEC 60904 – 3	Photovoltaic devices – Measurements principles for terrestrial photovoltaic solar devices with reference spectral irradiance data
IEC 61173	Overvoltage protection for photovoltaic power generating systems Guide
IEC 61215	Crystalline silicon terrestrial photovoltaic modules – Design and type approval
IEC 61646	Thin-film terrestrial photovoltaic (PV) modules - Design qualification and type approval.
IEC 61724	Photovoltaic system performance
IEC 61730 – 1	Photovoltaic module safety qualification – Requirements for Construction
IEC 61730 – 2	Photovoltaic module safety qualification – Requirements for Testing

Should there be conflict between the Specifications and the Drawings then sections shall be considered in the following order of priority:

- Bill of Quantities
- Drawings
- Project Specification
- Standard Municipal Specifications

Should the Contractor note an inconsistency between the Project Specification and Drawings he shall be responsible for notifying the Engineer and obtaining clarification or instructions prior to installing equipment.

3. CONTRACTUAL

3.1. Variation of Contract Price

This clause does not deal with Rate of Exchange or "CPA based on SEIFSA indices" variations. It deals with price variations based on final quantities.

The general principle is that the Contractor shall be paid for final quantities used or installed, i.e. it is a re-measurable contract.

3.1.1. Trenching and Backfilling of Cable Trenches

Danger tape shall be placed above cables laid directly in soil at a safe pick-able distance above the cable.

3.1.2. Backfilling Excavations / Imported Material

The price of backfilling shall cover backfilling by using local excavated material or imported material. It excludes the cost of the imported material itself.

3.2. Contract Price Adjustment (CPA)

Refer to Clause 13.8 of the Conditions of Contract.

3.3. Rates of Exchange (ROE)

Refer to Clause 13.8 of the Conditions of Contract.

3.4. CPA And ROE Not Subject to Retention

Claims for Contract Price Adjustment and Rate of Exchange shall not be subject to retention to simplify invoicing and the approval thereof.

3.5. Schedule of Rates (Part C2.2)

3.5.1. Rates Only, Dayworks & Miscellaneous

Rates Only, Dayworks and Miscellaneous items shall only be used when instructions to that regard have been issued by the Employer. Rates for other items shall be all inclusive. E.g. the rate for installing outdoor PV Modules, shall be inclusive of all transport, forklifts, etc. Items 18 & 19 shall not be used to cover those items.

3.6. Variation Orders

1. The tenderer must include, as part of each tendered installation rate, the cost of all labour relevant to that rate as well as a pro-rata cost covering general supervision. Therefore, no claims for Dayworks

Labour will be allowed for work performed which is already covered by tendered installation rates. Any item not listed in the Bill of Quantities must be claimed as a Variation Order.

2. Each Variation Order must be negotiated with the Engineer before installation.
3. The Engineer must issue a written Variation Order for each item before installation.
4. Dayworks claims for payment must be claimed separately from normal contract claims.
5. The Engineer will not be obliged to pay claims for Dayworks or Variation Orders where advance written consent is not obtained by the Contractor.
6. The Contractor shall note that all variation orders issued to him must be fully priced and returned to the Engineer within two weeks of the date of issue indicated on the variation orders.
7. Should this requirement not be complied with, and no correspondence is received by the Engineer within the specified time-period giving good and fair reason why the Contractor has failed to submit fully priced variation orders, the Engineer will price the variation orders without reference to the Contractor and the price thus calculated will be taken as final and no further correspondence will be entered into.
8. When the Contract is based upon a Schedule of Quantities, approximate Schedule of Quantities, or Schedule of Prices with approximate quantities, the value of all alterations, additions or omissions shall be ascertained by measurement and valuation in accordance with the net rates of prices for similar work in the Schedules.
9. Where the nett rates or prices in the Schedules do not apply or it is not practicable to deduce nett rates or prices, the said value shall be agreed upon between the Engineer and the Contractor if reasonably possible before the commencement of the alterations or additions and where the valuation of the alterations and additions cannot be ascertained by measurement or the value thereof ascertained or agreed upon as aforesaid then the value of the work shall be based on the value of the materials used and labour employed thereon at daywork rates.
10. All work to be performed during normal working hours. Any work performed after hours, weekends or public holidays is at the discretion of the Contractor and no additional reimbursement will be paid.

3.7. Transport Claims

1. Tenderers must allow for and include, in each installation rate, an amount which will cover their cost of transportation of labour, equipment and material to and from the relevant project site. No additional transport claims will be allowed.
1. Material supplied by George Municipality must normally be collected either at the municipal stores in Mitchell Street or at the offices of the Electrical Engineer in Brick Street.

3.8. Employer's Specific Requirements in the Annexures of Part T2 Of Invitation to Tender Forms Part of this Specification

The detail listed under "Requirements" in the Schedule Particulars and Guarantees of Part T2 of this Invitation to Tender, form part of the Contract Specification and shall in all respects be interpreted as such. For example, where the Conditions of Contract refer to the Contract Specification, the "Requirements" columns in Part T2 shall be understood to be part of the Contract Specification.

3.9. Contract to Cover All Work

This contract shall cover all work required for the complete and successful operation of the PV plant and the grid integration thereof. Although the Contract excludes SCADA communication to a remote point, it includes all provisions required for future SCADA indication (analogue and binary) and control. Should work be required that involves rates (for either equipment or labour) not covered by Part C2.2, it does not mean that such work is excluded from the Contract. Such rates shall be built into other rates to allow for a complete solution.

3.10. Programme

3.10.1. Preliminary Program

The Contractor is to submit a Preliminary Programme as the appropriate schedule in the Invitation to Tender which proposes the scheduling of tasks necessary to achieve the Milestones by the Key Dates provided in the Contract Data.

3.10.2. Construction Program

The Contractor is to submit his programme of works to the Engineer not later than 14 days after the Contractor has been provided with an order.

The Contractor shall consider all aspects regarding the conditions on site, access, transportation, restricted working space, the availability of material, delivery dates, machines and labour during the tender stage and the compiling of a construction programme. Provision shall be made in the programme for the annual Contractor's holiday as well as two rain days per month.

The programme is subject to the Engineers approval and remains so for the duration of the contract. Should it be required, the Engineer may instruct the Contractor to adjust his programme accordingly to suit other activities.

Should the programme require to be revised due to the contractor falling behind his programme, he shall produce a revised programme showing how he intends to regain lost time to ensure completion of the Works within the time for completion as defined in the General Conditions of Contract or within any granted extension of time. Any proposal to increase the tempo of work must be accompanied by providing more labour and plant on Site, or by using the available labour and plant in a more efficient manner.

Failure on the part of the Contractor to submit the agreed deliverables according to the programme or revised programmes shall be sufficient reason for the Engineer to take steps as provided for in the General Conditions of Contract.

The approval by the Engineer of any programme shall have no contractual bearing apart from the requirement that the Contractor undertakes to carry out the work in accordance with the programme to the satisfaction of the Engineer. It shall not limit the right of the Engineer to instruct the Contractor to vary the programme should circumstances make this necessary.

4. THE WORKS

4.1. Works Definition

The Works to be completed, apart from the general requirements of the Contractor and all other tasks required to commission and maintain a working Solar Plant, shall include the following:

1. Civil Works
    a) Setting out
    b) Clearing
    c) Levelling
    d) Foundations
    e) Steel Support Structures
    f) Trenching
2. Major Equipment
    a) Photovoltaic modules
    b) Inverters
3. Electrical System
    a) DC Reticulation

i) Cables
ii) Ducting / trays
iii) Termination
iv) Connection of modules in strings
v) Connection of strings to combiner boxes or directly to inverter (as appropriate)

b) Low Voltage AC reticulation
i) Cables
ii) Ducting / trays /trenches
iii) Termination
iv) Switchboard(s)
v) Protection devices
vi) Connection inverters to switchboard
vii) Connection of switchboard to transformer

4. Combiner boxes (if appropriate)
5. Lightning protection & Earthing
6. Meteorological Station
7. Monitoring and communication system
   a) Sensors
   b) Cabling
   c) Modem
   d) UPS
   e) Meter
8. Perimeter fence

The Contractor shall inform the Project Manager of any additional items required.

4.2. Engineering and Design

The Contractor shall be responsible for the detailed designs. The Contractor assumes full liability for the design.

The Contractor shall submit his designs to the Employer's Project Manager for review and comment prior to procurement and construction of the PV Facility.

4.3. Procurement

The Contractor shall be responsible for the procurement, transportation, offloading and care and custody of all equipment, materials and consumables as well as procuring of services required to complete the Works.

In addition, the Contractor shall procure (and maintain for the duration of the O&M period) spare parts sufficient to maintain a Facility adequately. The Contractor shall ensure that spare parts inventory is fully stocked at the end of the O&M period.

4.4. Site Establishment

The Contractor shall supply all temporary tools, equipment, vehicles, materials, consumables, machinery, infrastructure, professional services and labour required to set-out, clear, level and establish the site.

4.5. Clearing, Levelling and Geotechnical Survey

The Contractor is responsible to remove trees, vegetation and all other obstructions from site.

If the site requires further levelling to the Contractor's specifications, the Contractor will be required to level the site to his satisfaction. The Contractor must allow for this cost in his tendered price.

The Contractor will be responsible for geotechnical surveys of the site once appointed.

4.6. Construction

The Contractor shall supply all temporary tools, equipment, vehicles, materials, consumables, machinery, infrastructure, professional services and labour required for the construction of the Works.

The Contractor shall comply with the Occupational Health Act (85 of 1993) and its regulations as applicable. The Contractor shall have a Health and Safety officer present throughout the duration of the construction period.

Section 7 of this standard provide further details of the Construction works.

4.7. Commissioning

The Contractor shall supply all equipment and tools necessary to commission and test the Facility according to the Tests defined in this Works Information, refer to Section 8.

5. GENERAL DESIGN CRITERIA

5.1. Grid Tied Connection

The Contract shall be a turn key project integrating the PV plant into the existing building 400V electrical network through a Grid Tied system where excess power is fed back into the George Municipal Electrical Network Grid and the tender shall include for all the necessary equipment to control the plant.

5.2. Particulars of Distribution System

5.2.1. Nominal System Voltages

The nominal system voltages are:

- LV : 400V nominal;
- MV: 11kV nominal

5.2.2. Insulation Levels

The impulse insulation requirements for the LV cable and accessories (considered to be exposed installations) are as follows:

- Highest Voltage for Equipment (Um): 600/1000V (r.m.s.)
- Nominal System Voltage (Un): 230/400V (r.m.s.);
- 242/420V at transformer terminals for nominal tap setting.

All equipment, jointing materials, etc., shall be suitably rated for these conditions. The phase rotation is to be checked and maintained through-out the network.

5.2.3. System Configuration

The 11kV system has the following configuration:

- System Earthing – NER

- System frequency – 50Hz
- Number of phases – 3
- Phase rotation - ABC

The 400V system has the following configuration:

- System Earthing – Solid
- System frequency – 50Hz
- Number of phases – 3
- Phase rotation - ABC

5.3. Applicable Legislation for Design and Layout of Equipment

The Contractor shall ensure that the design and layout of the equipment to be supplied and / or installed under this contract is such that, in all conditions, is in full compliance with local and international standards related to electrical works and specifically PV works (where local codes are insufficient) and that it complies fully with the Regulations promulgated in terms of the Occupational Health and Safety Act (85 of 1993) and the latest amendments. A list of minimum applicable standards is provided in Section 2.

The PV facility shall have a design life of 25 years.

Where equipment installed under this contract is to be positioned in the proximity of existing equipment, structures or plant, the contractor shall establish beyond any doubt that the said Regulations shall not be contravened by virtue of this proximity during the erection and testing periods and in the final operating conditions. Any queries in this regard must be submitted, in writing, to the Engineer.

5.4. Atmospheric and Environmental Conditions

The entire installation and every component thereof shall be designed, manufactured and installed for long and trouble-free operation under the atmospheric and environmental conditions outlined in GEOE Standards 002 and 003. Specific attention must be given to the wind speed / pressure.

5.5. Safety Factors and Other Principles Applicable to Mechanical Strength Calculations

Outdoor electrical equipment, its support structures and foundations shall, as a minimum standard, be designed based on the safety and other factors outlined in GEOE Standard 003.

5.6. Design Team and Project Manager

Designs, drawings, etc, shall be checked, approved and signed by an ECSA registered professional engineer with at least five years relevant experience (i.e. on grid connected PV installations) following registration.

The Employer's minimum requirements for professional staff shall include:

- A Professional Engineer in electrical engineering;
- A Professional Engineer in structural engineering to design the support structures for the new PV Installation;
- Engineer or Technician with Solar PV GreenCard qualification.
- Suitable experience Project Manager, which will be permanently based on South Africa.

The project manager assigned to this project shall be approved by the employer.

5.7. Drawings and Documentation

5.7.1. General

Design drawings prepared by the Contractor, shall be approved by the Employer prior to manufacture and construction. Drawings shall be categorised as follows with the categories and revisions clearly indicated on drawings:

- Draft (There could be multiple draft revisions);
- Construction (When a draft has been approved for construction);
- As-built;
- As-commissioned.

5.7.2. Dimensions on Employer's Drawings to be Verified

The Contractor shall verify dimensions on George Municipality drawings issued by the Employer's Drawing Office BEFORE using it for design or other project related purposes.

5.7.3. Submission of First Set of Drawings for Comment to be Complete

The successful tenderer shall not submit any drawings whatsoever, before a complete set of drawings for all equipment to be supplied and relevant existing equipment has been produced, checked and cross-referenced. He shall make sure that **ALL** circuits, page referrals, cross references, item numbers (according to the item list), drawing numbers, page numbers, revision numbers and ferrule numbers are correct.

The successful tenderer's project manager shall be responsible for the above. Once he is satisfied that all the above has been checked in fine detail, the drawings shall be submitted to the Employer for comment. Tenderers shall allow in their submission for at least one visit to George for the purpose of discussing drawings.

5.7.4. Building Plans

The successful Tenderer shall be responsible for submitting Building Plans to the George Municipality's Town Planning Department for approval of the proposed structures. The Tenderer make the necessary allowance for the submission and approval of Building Plans in his Tender price and program.

5.7.5. Construction Drawings

The Engineer shall be furnished with three complete sets of all Construction drawings required for the successful construction of the substation at least 25 working days before any construction starts.

The drawings, which shall have been previously approved by the Engineer, shall be signed by the professional team covered in Section 5.6

5.7.6. As-Built Drawings and Project Files

As the work progresses, the Contractor shall keep an accurate record of any variation or deviation from the original Drawings provided by the Engineer. The actual position of all equipment as installed on site shall be noted on the Drawings. This must be coordinated with the project engineer.

It is required that the progress "As Built" documentation be handed to the Engineer with the monthly claim. No claims will be certified unless the engineer is in possession of these drawings and applicable certificates.

Within 14 (fourteen) days after the completion of the project by the Contractor, marked-up "AS BUILT" drawings and documents must be handed over to the Engineer. The following must be provided:

1. As-built drawings showing all joint positions and accurate position of the cable, relative to boundaries, shall be produced for all cable routes.
2. The completed cable installation and test certificate, cable accessory installation instructions and quality control check sheets shall be kept for quality control purposes and stored with the project file.
3. Testing and Provision of Test Certificates for all cables.

The Contract will not be accepted as complete nor the guarantee period commence until all the as-built documentation have been supplied to the satisfaction of the Engineer.

The Certificate of Completion and final invoice will not be issued unless these "As Built" drawings have been submitted to the Engineer.

5.8. Design Calculations to be Made Available Upon Request

Design calculations shall be available to back-up the supply of any supporting structures and foundations. Although the designs need not be unique for this specific application, they shall prove that the structures/foundations are of sufficient strength to carry the maximum expected load for this application.

The calculations shall be made available at the request of the Engineer.

5.9. Progress Reports

For the time period between the appointment of the successful tenderer and commencement of erection on site, monthly progress reports shall be submitted to update the Employer on progress. The reports shall be submitted by the working day nearest to the 15 of each month and shall cover progress up to the end of the preceding month.

Once Construction Works commences, the minutes of the Site Meetings can be used as Progress Reports.

6. TECHNICAL SPECIFICATIONS AND REQUIREMENTS

6.1. Civil and Structural Works

Civils works shall be in accordance with SANS 1200.

6.1.1. Foundations

Foundations/footings/plinths shall be designed and installed for all equipment to be erected outside.

6.1.2. Soil Type

The site's soil conditions are unknown. Tenderers shall have to perform a geotechnical survey of the site as stipulated in Section 4.5 and then take actual soil conditions, slope, bearing capacity of the soil, etc into consideration with their designs.

6.1.3. Supporting Structures

The design, construction and erection of supporting structures shall be done taking all factors listed in GEOE Standards 002 and 003 (Climate and Safety Factors) into consideration. The structural design must be approved by the George Municipality before manufacture commences.

Support structures shall be hot-dipped galvanised (heavy duty), suitable for a corrosive coastal environment.

6.2. Major Equipment

6.2.1. Photovoltaic Modules

6.2.1.1. Technical requirements

The Contractor is allowed to use the following photovoltaic module technologies:

- Monocrystalline silicon
- Polycrystalline silicon
- Thin film

The PV plant shall however only consist of one type of module and all modules shall have the same rated power.

Crystalline silicon modules are required to be IEC 61215 certified, thin film modules are required to be IEC 61646 certified. Detailed specification sheets and certificates of compliance to these standards are to be provided. **The Contractor may use locally assembled modules on condition that proof of these certifications specific to the local assembly facility can be provided.**

In addition, the modules shall feature the following qualities:

- Normal Operating Cell Temperature (NOCT) is at maximum 46°C with a tolerance of ±2°C.
- The panel operating temperature range is to be at least -10 to 85°C.
- The temperature coefficients for power is to be at least -0.45%/°C (i.e. >= -0.45%/°C)
- All modules are required to have a positive output tolerance.
- Modules shall have anti-reflective coating

6.2.1.2. Flash Tests

A comprehensive IV flash test report for each PV module procured shall be provided to the Project Manager in Excel format prior to commencement of construction (this is not required for tender). The data must have the following information:

- Product name and number (external and internal)
- The test condition the measurement is carried out
- Serial number of the tested panel, including which panels are in which shipping containers and pallets
- Power at maximum power point (Pmpp)
- Voltage at MPP (Vmpp)
- Current at MPP (Impp)
- Fill factor
- Open circuit voltage (Voc)
- Short circuit current (Isc)
- Panel surface temperature (measured by temperature sensor, corrected and uncorrected if possible)

This information shall be provided by latest two (2) weeks prior to the arrival of PV modules on the Site.

6.2.1.3. Installation

The Contractor is responsible for the installation of modules according to the manufacturer's specifications. The PV module installation manual must be provided as part of the as-built documentation. The manual shall contain all the necessary requirements and specifications for proper module installations such as (but not limited to):

- Types of mounting structures including physical requirements for securing mechanisms (screws, clamps, dimensions, tightening force, locations) and useful information such as recommended mounting types, recommended spacing to guarantee sufficient air circulation, restrictions to certain environments etc.
- Mechanical and electrical configuration guidelines (landscape, portrait, string and array sizing, grounding etc.).
- Earthing requirements.

6.2.1.4. Guarantees and Warranties

Modules shall carry a defect warranty of at least 5 years and a linear 25 year performance guarantee of 80%.

The warranties offered by the module manufacturer shall be transferrable to the Employer. Other terms and conditions for warranties transferability must be clearly defined.

The sales agreement with the module manufacturer shall clearly define the claiming procedure of defective modules, the required additional specific independent party involvement and any other conditions that might influence the honouring of the warranty and guarantee.

6.2.2. Inverters

6.2.2.1. Technical Requirements

The Contractor may make use of Central or String inverters.

The Inverters shall be type tested in terms of NRS 097-2-1 and comply with safety requirements according to IEC 62109 and feature anti-islanding according to IEC 62116.

The selection of inverters shall be based on the PV installation design and functional requirements, including the integration requirements into the PV system and the compatibility to the selected PV modules for the installations.

The inverter supplier must approve the stringing chosen for the project. Inverters must be designed for PV application and include:

- At least one MPP tracker
- A display showing the faults and the performances
- An advanced system to allow power control and efficiency (maximum efficiency) must be at least 97% (excluding transformer)
- Remote monitoring and control capabilities
- Isolation fault detection
- Anti-islanding
- Ability to start and stop function automatically
- Variable power factor setting
- The ratio of the input DC power to output AC power must be between 80% and 120% at STC
- The MPP voltages of the strings are to be verified to lie in the MPP voltage range of the inverter for temperatures between 0°C and 70°C. The maximum inverter input voltage is not to be exceeded at temperatures of -10°C.
- An IP protection class of at least 54 is required for outdoor mounting and an IP grade of at least 21 is required for indoor mounting of the inverters
- If inverters are installed outdoors must have to be protected from direct sunlight
- The inverter requires an external DC switch

In cases where applicable, there may special grounding requirements for inverters. These are stipulated by the PV module manufacturer. In such cases, it is the Contractor’s responsibility to notify the Project Manager and implement these requirements.

6.2.2.2. Guarantees and Warranties

Inverters shall have a warranty of at least 10 years. The contract sales agreement with the inverter manufacturer shall clearly define the claiming procedure of defect inverters or parts. The required testing, independent verification requirements and any other conditions that might influence the honouring of the warranties.

Any extension and the full scope of that extension to the standard limited warranty that is included in the price should be indicated clearly.

The conditions which void the warranties shall be clearly stated.

The warranties offered by the Inverter manufacturers shall be transferrable to the Employer. Other terms and conditions for warranties transferability must be clearly defined.

6.3. Balance of Plant

6.3.1. Cabling

6.3.1.1. General

All cabling shall be installed in accordance with manufacturers' requirements and to meet the design conditions used in the sizing calculations. The following must be noted:

- The combined cable DC and AC losses shall not exceed 3%.
- AC and DC circuits shall not be mixed in a single multi-core cable.
- The exposed section of all multi-core cables in outdoor yards between ground level and entry into gland plates, shall be supported by hot-dipped galvanized wire mesh supports or approved similar.
- Inside buildings the same logic applies. Power cables could be laid directly in substation trenches, but control wiring, where applicable, shall be secured on mesh support, galvanized trays, or similar.
- No overhead wiring is permitted.
- Cable entry through the roof/wall structure shall be performed without damaging the function of the roof/wall or its insulation.
- No part of cables shall be exposed to direct sunlight.
- Cables shall not be permanently fixed through the use of plastic cable ties.

6.3.1.2. DC cables

The DC cables of the PV installation must have the following characteristics as minimum:

- Cables used outside shall be UV resistant and ozone protected
- Cables should have Class II rating for insulation
- Cables must be rated for temperatures from -10°C to +90°C. This requirement is also applicable to all materials used in the installation (such as cable conduits).
- The cable shall be made of double insulated component and shall have a minimal life span of 25 years.
- Cables shall comply with SANS 1507 and TÜV 2 Pfg 1169
- All DC solar cable shall be halogen free, flame resistant & fire retardant
- Cables shall be terminated with MC4 connectors
- The cable bending radius shall be at minimum four times the cable diameter or as specified by manufacturer, if different.
- Cables have to be sized to allow a current up to 1.25 Isc and up to 1.2 Voc

Cables must be dimensioned according to appropriate National or International standards. All calculations for sizing of cables must be provided to the Engineer for approval, indicating measures taken to prevent short-circuit-induced current.

Combined DC cable losses are to be less than 2% at Standard Test Conditions.

The following must be adhered to for the installation of the cables:

- The cable return path should follow the same way to avoid induction loops.
- Appropriate standards, such as Norm CEI 82-25, should be followed regarding arrangement of cables and cables trays.

6.3.1.3. Low Voltage AC cables

The low voltage AC cables of the PV installation must have the following characteristics as minimum:

- All low voltage AC cables shall be 600/1000V low voltage armoured cables consisting of PVC insulated conductors, PVC bedding, galvanised steel wire and PVC sheath with solid aluminium conductors or stranded copper conductors;

- All cable construction shall be according to SANS 1507;
- All AC cables shall be suitable for direct buried (armoured) or ducted installation;
- All joints and terminations be completed and tested in accordance with the manufacturer's recommendations; and
- AC cables are to be terminated in suitable lugs.

Cable terminations must be the following:

- Kiosk with a gland plate – install captive cone type glands, with neoprene washer between gland shoulder and the entry hole of equipment and rubber shroud.
- Kiosk with Unistrut rail – install galvanised or stainless-steel Q-clamp, and cable breakout boot above the clamp to seal the cable end. PVC outer sheath to be stripped so that clamp secures and properly earths cable armouring.

6.3.2. Meteorological station

The Contractor will procure and install suitable weather monitoring station as per the manufacturer's requirements. The system shall feature meteorological equipment consisting of at least:

- 1x horizontal secondary-standard pyranometer
- 1x secondary-standard pyranometer in plane with the tracker
- Ambient temperature
- Module temperature
- Wind speed

The following are optional:

- Ambient pressure (optional)
- Relative Humidity (optional)

All instruments shall have valid calibration certificates and shall re-calibrated (or replaced with calibrated units every two years) for the duration of the O&M period.

6.3.3. Monitoring system

The PV Plant shall include a surveillance system that enables live monitoring and logging, as well as data transfer to the Electrotechnical Services Scada System. The main standard applicable for the Monitoring System is the IEC 61724.

The following must be adhered to:

- A logging tariff meter (Facility Meter) is to be installed at the delivery point compliant with SANS 474/NRS 057. The meter should be integrated into the monitoring system.
- The recorder shall have a valid calibration certificate from an approved SA calibration laboratory.
- The monitoring system must be designed and implemented in such a way to have a lifetime of 25 years.
- The monitoring system is to continuously measure and record meteorological data, electrical parameters and status of the PV plant components. Updated conglomerated data is to be available online at least every 15 minutes. The norm specifies that the sampling frequency should be at least one minute for the parameters varying directly with the sunlight and up to 10 minutes is allowed for the other parameters (e.g. temperature).
- The monitoring system shall feature a UPS with 24-hour capacity to continue monitoring in times of grid outage.
- The monitoring system shall have an online platform with different levels of access control.

The minimum data to be monitored are:

- DC current and voltage at the inverter input, per string
- Inverter behaviour
- DC current and voltage input
- Output active and reactive power
- Phase voltage and current
- Grid frequency
- Grid status
- Energy output
- Alarms and faults
- Module temperature
- Ambient temperature
- Irradiation
- Wind speed (if applicable)
- Energy output at the meter
- Status of the equipment (protection devices, inverters etc.)

6.3.4. Central Disconnecting Device

The installation shall include a “Central Disconnecting Device” as discussed in NRS 097-2-1, i.e. *a separate device that disconnects all phases and neutral of the embedded generator or group of generators operating in parallel with the utility network from the network in response to an out-of-bounds condition.*

6.3.5. Lightning Protection and Earthing

6.3.5.1. Overview

The Contractor is to conduct a risk mitigation study of lightning damage as per SANS 10313 and IEC 62305 and implement a sufficient Lightning Protection System (LPS).

Earthing shall comply with SANS 10142 Parts 1 (LV) and 2 (MV), SANS 10292 and SANS 10199.

All structures, enclosures, PV modules and cabinets shall be earthed appropriately.

6.3.5.2. Earth Electrode (Mat)

The earth electrode shall be designed to protect man and equipment against power frequency and DC faults, as well as lightning.

The Contractor shall verify the following criteria theoretically for the electrode, using the actual earth resistivity values he obtained from site:

- Earth resistance;
- Step Voltage and;
- Touch Voltage.

Should any of the above criteria not comply with IEEE80, the electrode shall be extended until the criteria is met.

In the case of a new substation, the Contractor shall design the new earth mat to meet IEEE80 criteria.

6.3.5.3. Selection of Lightning and Surge Arresters

Surge and lightning arresters shall be selected in a manner taking the specific design, geographic area and soil conditions into consideration.

6.3.6. Protection and Control

The protection and switching methodology shall be determined by the Contractor's proposed design and technology but the Contractor shall at least design a DC and AC protection system which shall take care of earth faults, overcurrent and overload scenario's anywhere on the new system, both in grid-tied and islanded operating conditions.

Overcurrent and overvoltage devices shall be required on the DC and AC sides. Switchgear used in any switchboards shall comply with SANS (IEC) 60947 and SANS (IEC) 62271 for MV.

6.3.7. Relays

Only numerical relays shall be supplied.

Relays (IED's) and/or the tariff meters could be used for the provision of the SCADA functionality as specified elsewhere. This must however be confirmed with the Engineer.

6.3.8. Outdoor Marshalling Boxes

If outdoor marshalling boxes are used, they shall be hot-dipped galvanized (heavy duty), 3CR12 or stainless steel. Boxes shall be vermin proofed and allow for padlocks as per the George Standard (shank diameter = mm).

6.3.9. Fire Protection

Inverters and cables shall be located to meet all the fire safety requirements, following the general guidelines given in ASTM (Standard guide for fire prevention for photovoltaic panels, modules, and systems). A document containing information about the PV Plant and how to respond in case of fire shall be delivered to the local fire department. Any special requirement from the fire department shall be satisfied.

6.3.10. Miscellaneous

6.3.10.1. Bolts and Nuts

Bolts and nuts shall comply in all respects with the current edition of SANS 1700.

The bolts, nuts and washers used on outdoor galvanised steelwork shall be hot-dip galvanised.

All bolts or studs shall project through the nuts, but this projection shall not exceed 10 mm.

6.3.10.2. Labels

All equipment and cables to be supplied under this contract shall be provided with clear and concise descriptive labelling describing the function and the circuit number of the apparatus concerned. The labels shall be securely fixed to the equipment with screws or pop-rivets.

The Contractor will include labelling requirements of NRS097-2-1.

The indoor equipment, such as control cubicles, shall be labelled at the back and front, indicating the circuits controlled.

Each string pair's conductors shall be labelled for easy identification.

Strings layout diagram shall be mounted at the low voltage kiosk, with string/mppt/inverter relationships clearly indicated.

Each fuse, link, protection relay, switch, control handle, control relay and indicator lamp shall be labelled to indicate its function.

Complete particulars of instrument transformers and lightning arresters must be engraved or stamped on permanent weatherproof labels.

The manufacturer's details of switchgear, such as rating, type, serial number, etc, shall be engraved or stamped on a permanent weatherproof label.

6.3.11. Fillings

6.3.11.1. OIL

New oil shall be supplied on this contract for all equipment required to be oil-filled. Re-refined oil will not be accepted.

Insulating oil shall comply with the current editions of SANS 555 and shall be passed through a filter before use.

Lubricating oil shall comply with the current edition of SANS 3448.

6.3.11.2. SF6 GAS

New sulphur hexafluoride (SF6) gas shall be supplied in all equipment designed for the use of SF6.

SF6 gas shall comply with the recommendations of IEC Publication No 376.

6.3.12. Spares

Where spares have been specified, all spare parts or materials containing electrical insulation shall be delivered in approved cases suitable for storing such parts over a considerable period without deterioration due to climatic conditions or other causes.

6.3.13. Special Tools

Where special tools (including computer software) are required for effecting adjustments, for dismantling purposes, for testing or for maintenance, a full kit of such tools shall be provided.

The cost of the special tools shall be deemed to have been included in the price of the device for which they are required, unless specially listed.

These tools are not to be used during erection.

6.4. Equipment Supplied by Others

The Employer shall have the right to supply certain items for a Project via other channels of his choice. Should this happen, the equipment supplied by others shall clearly be communicated with the Contractor at the Launching meeting.

Should no reference be made to material supplied by others at the Launching Meeting, the Contractor shall assume that all material be supplied, installed and commissioned under this Contract.

6.5. Base Material Standards

6.5.1. Aluminium and Aluminium Alloys

Aluminium, if used, shall be of the highest purity commercially obtainable.

Aluminium and aluminium alloy castings shall be free from porosity.

6.5.2. Dissimilar Metals

Dissimilar metals shall not be used in contact with each other. Bi-metal lugs or alternative methods approved by the Engineer shall be used to avoid contact of dissimilar metals.

6.6. Equipment Finishing

6.6.1. Galvanising

All ferrous material shall be galvanised to SANS 121. A minimum thickness of 0,063 mm of zinc is required.

6.6.2. Painting

6.6.2.1. General

Only indoor equipment shall be painted.

The material shall be completely shaped, cut, drilled, counter-sunk, welded, etc, before any paintwork commences.

6.6.2.2. Painting of Non-Galvanised Steelwork

Cubicles which contain wiring and other apparatus and are assembled in the works shall receive the external-finishing coat of paint in the works.

Before painting, the parts shall be thoroughly cleaned by sand or shot-blasting or metal brushes and acid bathed to remove all traces of rust, scale or grease.

Immediately after cleaning, all rough surfaces shall be smoothed.

The paint finish shall be powder coat at a minimum thickness of 80 microns. White chassis plates shall be supplied.

7. CONSTRUCTION AND GENERAL REQUIREMENTS DURING THE WORKS

7.1. Preliminaries and General

1. The Contractor shall allow for his own preliminaries and/or overhead costs as required for the execution of the contract. These preliminaries and/or overhead responsibilities of the contractor includes, inter alia:
   a) All contractual requirements.
   b) Appropriate supervision of the works for duration of construction.
   c) Company and head office overhead costs.
   d) Insurance during the works.
   e) Site rehabilitation and removal of all facilities established on site after his work is completed.
   f) On site safety training of all staff.
   g) All transport related costs.
   h) Provision for repair to damaged concealed services.
   i) All other fixed-charge items.

2. The Contractor shall allow for the following additional items:
   a) Compliance with Occupational Health and Safety Act (Act 85 of 1993) and its regulations and with the Client's Health and Safety Specification.
   b) Establishment of facilities on site such as plant, sheds, water, electricity, lighting, communication, ablutions, security (e.g. fencing), etc. if required under the scope of work.
   c) A marked-up set of As-Built Drawings in scaled hard copies. Refer to chapter 5.7.4.

7.2. Live Substation Work

The project needs to be integrated with a live 400V system. The contractor shall only use competent staff for this part of the project.

Integration of the PV plant with the network shall be done outside normal office hours and prices shall include for this.

7.3. Application for a shut down

Should the Contractor need to work on a live section of the network or if any switching of existing power supplies is required, he shall arrange the same with the Engineer, at least 2 weeks in advance.

The following shall be noted:

1. The Contractor shall not perform work on any portion of a network until such portions have been isolated and earthed.
2. The Contractor shall establish their requirements regarding advance notice, permits to work, etc., at the beginning of the contract and shall comply with these requirements.
3. Notification of power outage to existing consumers must be delivered at least 2 days in advance.
4. Obtain the Supply Interruption notices from Planning Dept. and distribute them to consumers affected.
5. Once the system has been isolated the Contractor shall request a written "Work Permit" from the Responsible Person, which shall be completed in duplicate.
6. The original "Work Permit" shall be retained by the Contractor until completion of his work. Upon completion of the work, the Contractor shall sign a statement to this effect.
7. He shall hand this statement, as well as the used "Work Permit" to the Responsible Person, to enable the latter to re-energise the relevant portion/portions of the network.

7.4. Line, Level, Squareness, Plumb

The centre lines of all equipment to be erected shall be in line, level, perpendicular and plumb as applicable.

The top of all foundations/footings/plinths shall be at the same level unless a slope in the

site surface is such that this is impractical. In such cases, as few as possible changes in

level shall apply and the Engineer's approval in writing shall be obtained before implementation.

7.5. Trenching, Cable Laying and Backfilling

Trenching, cable laying and backfilling shall be done in accordance with the relevant sections of GEO Standard 005. Coordination with George Electrotechnical Services will be required to notify them timeously when specific trenches will be completed for the installation of electrical cables.

All auxiliary and power cables shall be installed such that no bend is visible above ground, excavations shall be of such a depth to accommodate the bend beneath ground level. The cables shall be perfectly vertical between the equipment and ground.

Auxiliary cables shall be supported by suitably sized galvanised cable tray between all outdoor equipment and ground.

The first joint and first end shall be witnessed and approved by the Engineer, after which he shall give permission in writing that the contractor can proceed with further ends/joints.

7.6. Cable Terminations

Cables shall be made off using high quality, weather-resistant cable glands. Wires shall be properly lugged with appropriate tools prior to fixing. No more than 2 wires shall be used at any termination point.

7.7. Services

This section must be read on conjunction with George Standard GEO 005, *Trenching and Backfilling.*

7.7.1. Hidden and Other Services Within the Site

Wayleaves for the cable routes and new structure must be applied for by the *Contractor*. A Stakeholder's Kick-off Meeting will be required with the relevant affected parties, before commencement of work along the route. There may be additional requirements to comply with, which must be agreed to with the Stakeholders, as stipulated in the wayleave documentation.

In the event of discrepancies between physical conditions and the information on drawings, the Contractor shall notify the Project Engineer immediately if the physical condition found on site is such that the deviation from the drawing requires a change in the design of the works or results in possible compensation events.

7.7.2. Damage to Other Services

The Contractor shall assume full responsibility in the event where he or any person in his service is directly or indirectly responsible for any damages caused to other services already installed (water, sewerage, storm water, roads, surveyors' pegs, etc.). Any such damage shall immediately be reported to the Engineer.

The Contractor shall be held fully responsible for the repair of such damage to the satisfaction of the Engineer. The costs for the repair of such damage shall be borne by the Contractor. Claims by the Contractor in this connection will be not be considered.

Should any portion of the works in terms of this Contract, for which the Contractor is responsible, be damaged by other Contractors, the Contractor shall repair such damage at the tendered rate and shall submit full details of such damage to the Engineer so that he can recover such costs from the responsible party. This repair work may only be done on the written instruction from the Engineer. The contractor shall make provision for a full scan of the area to determine the position of services in the area.

7.7.3. Services for own use

Public services and infrastructures are limited. The Contractor shall arrange for all services on site such as water, electricity and telephone connection and shall bear all costs involved, including the cost of supply.

7.8. Installation Requirements

The Contractor shall at all times observe the manufacturer's recommendations as regards the packing and unpacking, loading and offloading, storage, lashing down, transporting, lifting, positioning or laying, installing, terminating, jointing, bending, testing and commissioning of cable and equipment.

Upon completion of the Works the Contractor shall make good any damage or disturbance to buildings, installations, finished surfaces (such as those paved or gravelled), lawns, drains and other services which he or his employees may have caused during execution of the Works. He shall keep the Site tidy and shall remove from the Site all rubble and litter resulting from his construction work.

7.9. General Specifications

7.9.1. Project Notice Board

A Project Notice board is required.

7.9.2. Clerk of Works

In cases where a Clerk of Works is appointed to the Project the Contractor shall afford him every facility for the performance of his duty. When the Clerk of Works is appointed on an "ad hoc" basis the Contractor shall arrange to meet him at specific times, to avoid unnecessary interruption of his other duties.

7.9.3. Storage and Accommodation

It shall be the responsibility of the Contractor to arrange a site for stacking and storing his plant, and for other activities necessary in connection with the execution of the Works.

7.9.4. Contractor's Representative

Immediately after the successful Tenderer is advised that his tender is to be accepted and before a formal contract may have been entered, he shall designate a senior member of his staff to be his Contractor's representative.

Such representative shall be an experienced electrician/technician/engineer, who will be resident close to the site of the Works and shall be competent and duly authorised to co-ordinate the work in the Contractor's office, and between his office and the Site, as well as to maintain liaison with the Employer, Engineer and other parties, to attend progress meetings and generally to represent the Contractor on all aspects of his Contract.

In particular, the representative shall attend at the office of the Engineer as and when required, and shall collaborate with him in finalising the drawings of the Works as a whole, so far as the installation which forms the subject of this Contract, is concerned.

7.9.5. Attending for Measurement

The Contractor, or his Representative shall, from time to time, when required on reasonable notice by the Engineer, attend at the Works to take jointly with the Engineer's Representative any measurements of the work executed that may be necessary for preparing the final account. Any such measurements when ascertained and any differences arising thereon, shall be duly recorded in the manner required by the Engineer.

The Contractor shall, without extra charge, provide assistance with every appliance and other thing necessary for measuring the work.

If the Contractor's Representative fails to attend when so required, the Engineer's Representative shall have power to proceed by himself to take such measurements and to prepare the final account, and in that case any decision of the Engineer shall be final and conclusive.

7.9.6. Guarantee

It will be expected from the Contractor to correct poor workmanship at no cost to the Employer. Fair wear and tear will be taken into account during the inspections.

If any defects are not remedied within a reasonable time, the Employer shall report poor workmanship during the Evaluation of the Service Provider process to the Municipal Supply Chain Department.

7.10. Security

7.10.1. Site Security

The Contractor shall provide security services for the duration of construction. The Employer's staff shall be provided with a complete list of Contractor's Staff (including subcontractors' staff) and the Contractor's Project Manager shall inform security about expected activities, especially by Others (e.g. for deliveries of materials or equipment). The Employer's staff shall be identified in the project kick-off meeting.

7.10.2. Site Access

All *Contractor's* staff requiring regular access to the *site* will require access permits and valid identification. The *Contractor* shall submit to the *Employer* a full list of all staff (including subcontractors) who will access the *site*.

Once a permit is in-hand, *Contractor's* staff and Subcontractors' staff may access the site freely weekdays between 7:30 – 17:00. Access outside of these times and on weekends and public holidays will require prior arrangement with the Project Manager.

7.11. Environmental Management

The Contractor is responsible for the removal of all waste from the site. This includes vegetation cleared, rubble, packaging etc.

No trees, bushes, etc. may be damaged and/or removed before approved by the Engineer.

8. TESTING AND COMMISSIONING

8.1. Equipment Tests

8.1.1. General

All testing shall be arranged to represent the working conditions as closely as possible.

The Employer reserves the right to appoint a representative to inspect the equipment at any stage of the manufacture and to be present at any of the tests required. Such inspection shall not relieve the contractor of his responsibility for meeting all the requirements of the specification and it shall not prevent subsequent rejection if such material or equipment is later found to be defective.

The contractor shall give at least one week's notice of the date on which the equipment will be ready for testing/factory inspection, in order that the Engineer may arrange for the presence of a witness, if deemed necessary.

Copies of test certificates (in English) showing the results of all routine and type tests performed shall be supplied to the Council.

8.1.2. Type Tests

The equipment shall be type tested in accordance with the latest edition of the relevant SABS Specification, BS Specification or IEC Recommendation with which it is required to comply.

8.1.3. Circuit Breakers

The operating characteristics of circuit breakers, which are dependent on the pressure/density of a gas for operation and/or insulation, shall be tested at the pressure/density that would normally cause a lockout.

8.1.4. Routine and Sample Tests

The equipment shall be tested as routine or by a sampling method in accordance with the latest edition of the relevant SABS Specification, BS Specification, or IEC Recommendation with which it is required to comply.

8.1.5. Galvanising Test

The quality of the galvanising shall be tested in accordance with SANS 121.

8.2. Final Commissioning

8.2.1. General

The *Contractor* shall be responsible for the final commissioning of the plant and the integration with the grid by conducting tests to evidence achievement of the completion milestones. The Supervisor may conduct his own tests and inspections, request additional tests of the *Contractor* or supervise tests conducted by the *Contractor*, without casing unnecessary delay and subject to due notice.

The *Contractor* shall compile checklists of their tests and inspections for the *Project Manager*'s approval.

8.2.2. Mechanical Completion Test

The purpose of the Mechanical Completion Test (MAT) is to ensure that all parts of the Facility have been physically completed and installed correctly and according to the As-built documents.

The checks shall be compiled for each section of the Works as defined in the Works Definition (Section 4.1) focusing on physical installation, connection and compatibility and safety.

8.2.3. Grid Connection Test

The purpose of the Grid Completion Test (GCT) is to ensure safe energisation and synchronisation with the grid.

The *Contractor* shall be responsible for all pre-commissioning and commissioning tests. Unless otherwise stated prior to commencement of the tests, Eskom's Distribution Standard for Interconnection for Embedded Generation (DST 34-1765) shall be followed.

It shall be confirmed as a minimum that following are acceptable:

- Insulation resistance of all components
- String Voc, ISc, Vmpp and Impp are as expected
- String I-V curves are as expected
- Thermographic imaging detects no hot-spots on modules, combiner boxes and switchboards
- All inverters are functional and export power
- Power factor settings are correct
- Isolation switches are effective
- Protection devices are correctly calibrated, set and operating
- Communications are functional (internally and externally to Monitoring System)
- Alarms and signals are function correctly
- Meteorological station is functioning
- Monitoring system is functioning and remotely accessible
- Monitoring system UPS is functioning

8.2.4. Provisional Acceptance Test

The purpose of the Provisional Acceptance Test (PAT) is to confirm the correct functioning and operation of the PV Facility. These tests shall commence once Mechanical Completion has been achieved and the Grid Connection Tests are passed. The tests consist of:

- Performance Ratio (PR) Test of the entire Facility to confirm quality of design, construction and correct operation. The Contractor shall be required to guarantee a 3 (three) year average performance ratio (as entered in the Financial Model).
- Visual Inspection to confirm quality of materials and construction and confirm the plant is defect free for the purposes of commercial operation
- Functional Test to confirm correct operation not directly related to performance

8.2.4.1. PAT PR Test

8.2.4.1.1 Methodology

The PAT PR shall be calculated considering:

1. The PR shall be measured in accordance with IEC 61724 with the exception that Global Horizontal Irradiation shall serve as the reference as measured by the calibrated secondary-standard pyranometer and not Global Inclined Irradiation. Equations are provided in Appendix A of this Standard.
2. The Facility Meter shall be the reference point for electricity produced in kWh.
3. Data shall be measured in 15 minute intervals.
4. The Facility has demonstrated 5 consecutive days of operations.
5. Only data deemed to be Admissible shall be used in the calculation.
6. The PAT PR shall meet or exceed the 3-year average PR.

8.2.4.1.2 Admissible data

Data is considered to be Admissible when:

1. The Facility is 100% available.
2. The average Global Horizontal Irradiation during the 15 minute interval is greater than 400 W/m^2.

3. It is free of obvious error, irregularities or anomalies (at the *Supervisor's* discretion).

8.2.4.1.3 Extension of testing

1. There shall be at least 3 hours of Admissible data per day else that day is excluded entirely, and PAT is extended by an additional day.
2. If the minimum threshold of Admissible data cannot be achieved solely due to the average Global Horizontal Irradiation being less than 400W/m² then testing may be extended up to a maximum of 5 days. If the maximum extension is reached and the minimum threshold of Admissible Data has not been achieved, the *Project Manager* may either:
   a) Accept the PAT PR based on the lesser amount of Admissible Data or;
   b) Choose to reduce the average irradiation threshold to 300W/m² and calculate the PAT PR on the increased number of Admissible data.
3. If the minimum threshold of Admissible data cannot be achieved due to Unavailability of the Facility, regardless of the irradiation, then PAT shall be extended indefinitely until 5 consecutive days of Admissible Data are achieved.

8.2.4.1.4 Stopping and Restarting of PAT

1. If, for any reasons beyond the *Contractor*'s control, the Facility or part thereof becomes unable to operate then the PAT shall be suspended until proper operation resumes and the *Contractor* may resume with the PAT until the required 5 consecutive days of operation have been achieved.
2. The *Contractor* shall notify the *Project Manager* of any such suspensions and resumptions and maintain a log of the causes of such events.
3. If, after the occurrence of such a suspensive event, the *Contractor* can reasonably justify the likely occurrence of repeat events within the next 5 days, the *Contractor* may request permission from the *Project Manager* to discontinue the PAT.
4. If the Project Manger accepts the justification, he grants the *Contractor* permission to discontinue the PAT else instructs the *Contractor* to continue.
5. If the PAT is discontinued, the *Project Manager* and *Contractor* agree on the Date to begin a new PAT.

8.2.4.2. Certificate of Practical Completion

At the completion of a successful PAT, the *Project Manager* issues the *Contractor* with a Certificate of Practical Completion. This signifies the commencement of the *defects period*.

8.2.5. Intermediate Acceptance Testing

The purpose of intermediate acceptance (IAT) testing is to detect early poor performance and performance impacting defects during the *defects period.* The Contractor shall conduct the following at the end of the 1st and 2nd years of operations:

- Annual Performance Ratio (PR) Test as per the FAT methodology of the entire Facility to confirm long-term quality of design, construction and correct operation against guarantees
- Visual Inspection to confirm wear and tear are within acceptable limits and not attributable to defects
- Functional Test to confirm correct long-term operation not directly related to performance

This shall be conducted simultaneously with the major annual O&M preventative maintenance activities to minimise impact on performance.

8.2.6. Final Acceptance Test

The purpose of the Final Acceptance Test (FAT) is to confirm that the Facility has functioned and operated consistently with expectations and guarantees during the *Defects period*. The tests will consist of the following to confirm the Facility is defect free:

- Performance Ratio (PR) Test of the entire Facility to confirm long-term quality of design, construction and correct operation against guarantees
- Visual Inspection to confirm wear and tear are within acceptable limits and not attributable to defects

- Functional Test to confirm correct long-term operation not directly related to performance

8.2.6.1. FAT PR Test

The PR shall be measured in accordance with IEC 61724 with the exception that Global Horizontal Irradiation shall serve as the reference as measured by the calibrated secondary-standard pyranometer and not Global Inclined Irradiation. The Facility Meter shall be the reference point for electricity produced in kWh. Equations are provided in Appendix A.

The FAT PR shall be calculated considering:

1. 36 months of data measured at intervals of 15 minutes from the time of the Practical Completion is achieved.
2. Periods of Facility unavailability shall be treated as periods of low performance in PR calculations.
3. Admissible data is that deemed to be free of obvious error, irregularities or anomalies
4. Periods of unavailability related to grid instability or Force Majeure shall be excluded from PR calculations;
5. The FAT PR shall be compared to the 3-year average guaranteed PR;
6. Liquidated Damages for low performance are as stated in the Financial Model

8.2.6.2. Certificate of Final Completion

At the completion of a successful FAT, the *Project Manager* issues the *Contractor* with a Certificate of Final Completion. This signifies the end of the *defects period*.

9. OPERATIONS AND MAINTENANCE PERIOD

9.1. Faults During Maintenance

As per the Conditions of Contract.

9.2. General

The *Contractor* shall develop an O&M plan to manage his obligations in delivery the guaranteed performance in the O&M Period. A preliminary plan must be submitted with the Tender in the appropriate Schedule. The *Contractor*'s minimum Scope of Work shall include the following tasks bearing in mind the obligation to work cooperatively with George Municipal Staff in effecting the Training Plan.

9.3. Monitoring

1. The *Contractor* commits to remotely monitor the Facility for 7 days a week, 365 days a year within hours where Global Horizontal Irradiation exceeds 50 W/m².
2. The *Contractor* maintains a log of all anomalies, faults, failures, safety incidents, maintenance interventions and status of the spares list.
3. The goal of the monitoring is to remotely identify and troubleshoot faults, failures, incidents and anomalies and to coordinate the intervention with George Municipal Staff (once suitably trained) prior to launching a corrective maintenance intervention.
4. The *Contractor* compiles monthly, quarterly and annual performance reports indicating achieved vs expected and guaranteed performance and trends in performance.

9.4. Preventative Maintenance

The following is a minimum prescribed list of activities and frequencies. Should the equipment manufacture require an increased frequency of interventions then those shall supersede those proposed.

Component / Area	Type of activity	Description	Frequency
Site	Vegetation control	Cutting of grass	Quarterly or as required
	Rodent control	Extermination of rodents	Quarterly or as required
Module	Cleaning	Cleaning module of dust and debris	Quarterly
	Visual	Damage to frame, hot spots, browning, delamination etc. backsheet undamaged, junction box damaged, Cables damaged, tightness of modules clamps and screws	Bi-annually in year 1 thereafter annually
Cables	Visual	Signs of damage, exposure to sharp edges	Annually
Inverters	Visual / nonintrusive cleaning	Display is functioning, vents are clean, no signs of damage, mounted firmly, noises, fans are working, excessive heat, cables are connected correctly	Bi-annually in year 1 thereafter annually
	Testing / intrusive cleaning	Thermographic imagery, earthing, check state of fuses, internal cleaning of vents and fans, clean PCBs and heatsinks Measure AC/DC conversion efficiency	Annually
Combiner boxes	Visual / nonintrusive cleaning	Door seal condition, handle / lock operates correctly, safety signage, signs of overheating or sparks, condition of cables, connections	Bi-annually
	Testing / intrusive cleaning	Thermographic imagery, insulation resistance, earthing, stat of fuses and SPDs, String IV testing, Voc, Isc, Vmpp Impp.	Annual
Switchboards	Visual / nonintrusive cleaning	Door seal condition, handle / lock operates, safety signage , signs of overheating or sparks, condition of cables, connections signs of moisture	Bi-annually
	Testing / intrusive cleaning	State of circuit breakers, SPDS, insulation resistance, thermographic imagery	Annually
Transformer (if applicable)	Visual / nonintrusive cleaning	Signs of damage, corrosion, leakage, condition of cables and glands, oil level, noise, signs of moisture	Bi-annually
	Testing / intrusive cleaning	State of tab changer, cleaning of radiator, cooler, tightening of connections, state of cables connections, earthing	Annually
RMU	Visual / nonintrusive cleaning	Sign of corrosion, signs of loose connections, signs of moisture	Bi-annually

(if applicable)	Testing / intrusive cleaning	Check SF6 pressure, clean cabinets, check cable connections, functioning of isolators, earthing, thermographic imagery, check CTs VTs	Annually
Metrological station	Visual / nonintrusive cleaning	Cleaning of instruments, check instruments for damage	Monthly
	Testing / intrusive cleaning	Recalibration of instruments / replacement with calibrated instruments	Every two years
Monitoring system	Visual / nonintrusive cleaning	Inspect meter, inspect cables, antennae, clean housings	Annually
	Testing / intrusive cleaning	Test comms protocols, test UPS, remove onsite data for permanent backup	Annually

9.5. Corrective Maintenance

1. Any fault, failure, defect, anomaly or incident arising that cannot be resolved remotely by the *Contractor* shall require a corrective intervention;
2. In such events, the *Contractor* notifies the *Project Manager* as soon as he becomes aware of such an issue;
3. The *Contractor* notifies *Project Manager* within the current Business Day or at the beginning of the next Business Day if it is weekend or public holiday of:
   a) The nature of the fault
   b) The measures taken to correct or troubleshoot it remotely iii. The intended plan of action when on *site*
4. The *Contractor* shall then attempt to rectify the fault within 1 (one) Business Day;
5. If the *Contractor* is unable to remedy the fault within the allowed time, he shall notify the *Project Manager* and submit a binding plan to correct the fault for the *Project Manager*'s approval;
6. These events shall be considered as Facility Unavailability;
7. If the *Contractor* identifies, with reasonable evidence, that the fault was caused by the action of Others or Force Majeure then they shall be deemed to be excluded from Facility Unavailability;
8. If a fault is found to be a Defect claimable under a valid equipment warranty, the *Contractor* shall undertake the warranty claim proceedings on the *Employer*'s behalf;
9. Following the resolution of fault or remedying of a defect, the *Contractor* shall compile a report detailing the nature of the problem, the actions taken to correct it, the likelihood of reoccurrence and recommendations on a strategy to prevent reoccurrence;

9.6. Reporting

The *Contractor* shall compile quarterly reports of preventative and corrective maintenance activities occurring in that period describing the activities conducted, faults / defects identified and remedied and actions taken to prevent further faults / defects. The time taken, costs incurred and spares used shall be stated. The report shall describe scheduled maintenance visits to occur in the next period.

10. TRAINING PROGRAM

The *Contractor* is required to develop and effect a training programme for George Municipal Maintenance staff for the duration of the O&M Period. George Municipal's staff will assist with basic operations, maintenance and safety related tasks of the Facility. The Staff will be a maximum of 8 staff members over the period.

The vision of the training is to allow George Municipal staff:

- to assist the *Contractor* in basic O&M activities and thereby reducing call-out time for minor interventions, fault-finding and troubleshooting;
- to demonstrate the Facility; and
- to operate the plant beyond the *Contractor*'s O&M period.

The Training Programme shall encompass, at least:

- The basic concepts and technology of Solar PV technology
- The purpose and functionality of the equipment installed in the Facility
- Safety procedures for working in and around the Facility
- The basic operating and control procedures of the Facility
- Basic fault-finding and troubleshooting
- Replacement of minor parts (e.g. fuses)
- How to monitor, interpret and report performance

The knowledge transfer shall be through a phased approach beginning with the staff shadowing the *Contractor* during maintenance visits and eventually the *Contractor* supervising the staff while they conduct the inspections, tests and interventions. These phases shall be adopted on a quarterly basis with a review of the activities and key learnings arising in that quarter.

11. ITEMS REQUIRING SPECIAL ATTENTION

11.1. Free-Issue of Material

If George Municipality free-issue material as indicated in the BOQ, it will be the responsibility of the contractor to collect the free-issue material from the municipality. The cables are stored within a 5km radius from the Electrotechnical Services Department in Brick Road.

It will be the Contractors responsibility to include all costs associated with collecting, transporting and off-loading free-issue material. Damage to this material, once collected from the George Municipality, will be for the cost of the Contractor.

11.2. Resources, Tools and Transport

The Contractor shall provide all the necessary manpower, tools / devices and transport to gain access to and undertake the various aspects of the work.

It is expected that the Contractor will be able to rely on support from his workshop or other subcontracted suppliers, transportation / engineering companies, etc whenever the need arises, and reliance shall not be made on the Municipality to supply, or lend the necessary tools or vehicles to undertake any of the work.

However, should the required expertise or resources be available in-house the Municipality reserves the right to assist with certain aspects of the work to limit costs.

11.3. Local Labour and Local Authorities

11.3.1. Local Labour

It is George Municipality's intention that construction projects make maximum possible use of local labour which is presently unemployed in the area of which the project is performed. All unskilled labour shall be from George.

Engagement of local labour might be required through the local ward councillor.

11.3.2. Liaison with Local Authorities

The Project Engineer will assist the Contractor to liaise with local authorities regarding the following matters:

1. Dealing with traffic.
2. Locating of existing underground services.
3. Protection of existing services during construction.

It is the contractor's onus to immediately contact all relevant authorities and to accommodate their involvement in his programme of work. The contractor should also warn the authorities at least 48 hours before the actual work commence. Compensation for delays, losses or accidents will not be considered should the contractor at any time have failed to keep the local authorities informed.

The engineer or employer must immediately be notified, should the contractor experience any problem regarding work, which involves a local authority.

11.3.3. Community Liaison and Community Relations

In all dealings with the community and workers employed from within the community, the Contractor shall take due cognisance of the character, culture and circumstances of the community involved and shall at all times use his best endeavours to avoid the development of disputes and to foster a spirit of co-operation and harmony towards the project.

The Contractor shall always, keep the Engineer fully informed on all matters affecting the contractor and the community, and shall attend all community meetings relating to the project as may be reasonably required by the Engineer. All matters concerning the community shall be discussed and where possible, resolved at such meetings.

12. LEGISLATION AND OBLIGATIONS OF THE CONTRACTOR

This section must be read in conjunction with the project specific Health and Safety Specification to be included in the Tender Documentation. The project specific Health and Safety Specification shall take precedence.

12.1. Statutory Requirements

NOTE: All costs which might be necessary to comply with these or any other statutory requirements not specifically mentioned, in any way, including the provision of any necessary / suitable equipment / materials shall be allowed for in the tender price and shall be at the cost and for the full account of the successful tenderer (contractor).

12.1.1. Occupational Health and Safety Act (OHS Act)

Any equipment, where applicable, offered against this Contract Specification and all work carried out shall conform to and comply with the relevant and applicable requirements of the OCCUPATIONAL HEALTH AND SAFETY ACT (Act 85 of 1993) as amended, and/or the regulations framed there under, as amended.

12.1.1.1. Construction Regulations, 2003

Tenderers shall submit Health & Safety Plans with their tender and allow for all costs, which they might incur in setting-up, carrying out and administering a fully documented Health and Safety Plan. This Health & Safety Plan must be based on the risk associated with the work as detailed in this tender.

The successful Tenderer (Contractor) will be required to set-up this Health and Safety Plan, using the Construction Regulations, 2003 of the Occupational Health and Safety Act as the Health and Safety Specification.

The Health and Safety Plan must include risk assessment and compliance plans listing the preventative measures and systems, which will reduce the risk associated with personal injury as well as exposure to hazardous substances. This will include:

1. Personal protection against falling objects.
2. Personal protection against dust inhalation.
3. Excavation work.
4. Personal protection due to damage of underground services.
5. Personal protection against electrical shock although the contractors will not be allowed to work on or in close proximity of live electrical apparatus.
6. Protection against noise.
7. Protection against vehicle movement.
8. Protection of hands and feet of working employees.
9. Protection against the use and temporary storage of flammable liquids on construction sites. Stacking and storage as well as fire precautions on construction sites.
10. Other risks at the workplace.
11. The provision of a fall protection plan when working in elevated position.

The tenders must indicate the following:

1. Training programs for employees including certification of such training on the specific risks.
2. The monetary provision made in the tender for:-
   a) Risks identification
   b) Health and Safety Training
   c) Personal protection equipment

In addition, the tenderers must indicate in detail their competency to carry out such work as specified in the tender in terms of the OHS Act including all previous personal experience associated with such work.

Tenderers who do not comply with this requirement will not be considered. In addition, tenderers with insufficient competencies in terms of the requirements of the Contractors Regulators of 2003 will also not be considered.

12.1.2. Compensation for Occupational Injuries and Diseases Act (COID Act)

The contractor will be expected to familiarise himself/herself with and comply with all the relevant provisions of the COMPENSATION FOR OCCUPATIONAL INJURIES AND DISEASES ACT (Act 130 of 1993), as amended, and/or the regulations framed there under, Compensation Commissioner Registration Number (or that of any agents or sub-contractors) on an Acceptance of Appointment Form, which they will be obliged to sign on behalf of their business undertaking, before commencing work.

12.1.3. Unemployment Insurance Act (UIF)

The contractor will be expected to familiarise himself/herself with and comply with all the relevant provisions of the UNEMPLOYMENT INSURANCE ACT (Act 30 of 1996), as amended, and/or the regulations framed there under, as amended.

12.1.4. Labour Relations Act (LRA)

The contractor will be expected to familiarise himself/herself with the content of the LABOUR RELATIONS ACT (Act 66 of 1995), as amended, and/or regulations framed there under, as amended, and shall adhere to the Act and regulations in all respects.

12.1.5. Basic Conditions of Employment Act

The contractor will be expected to familiarise himself/herself with the content of the BASIC CONDITIONS OF EMPLOYMENT ACT (Act 75 of 1997), as amended, and/or the regulations framed there under, as amended, and shall comply with and adhere to the Act and regulations in all respects.

12.2. Extent of Contractor's Obligations

The Municipality and the Contractor agree, in terms of the provisions of Section 37(2) of the OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (Act 85 of 1993), herein after referred to as "the Act", that the following arrangements and procedures shall apply between them to ensure compliance by the Contractor with the provisions of the Act, namely:-

1. The contractor undertakes that the appropriate officials and employees of the Contractor will fully acquaint themselves with all relevant provisions of the Act and the regulations promulgated in terms of the Act.
2. The Contractor undertakes that all relevant duties, obligations and prohibitions imposed in terms of the Act and regulations will be fully complied with.
3. The Contractor hereby accepts sole liability for such due compliance with the relevant duties, obligations and prohibitions imposed by the Act and regulations, and expressly absolves the Municipality from itself being obliged to comply with any of the aforesaid duties, obligations and prohibitions.
4. The Contractor agrees that any duly authorised officials of the Municipality shall be entitled (although not obliged) to take such steps as may be necessary to ensure that the Contractor has complied with his undertakings as set out more fully in paragraph (a) and (b) above, which steps may include, but will not be limited to, the right to inspect any appropriate site or premises occupied by the Contractor, or to inspect any appropriate records held by the Contractor.
5. The Contractor shall be obliged to report to the Municipality any investigation, complaint or criminal charge, which may arise as a consequence of the provision of the Act and regulations, pursuant to work performed in terms of this Contract, and shall, on written demand, provide full details in writing, of such investigation, complaint or criminal charge.

12.3. Safety Conditions

12.3.1. General

All work undertaken by the Contractor and any agents or sub-contractors by him/her in terms of this Contract shall strictly comply with any relevant safety requirements called for in any Statutory requirements laid out in Clause 12.1 above.

It is the responsibility of the Contractor to acquaint himself/herself with such requirements and to ensure that his/her work force are also aware of these requirements and comply with them at all times.

All statutory safety equipment that may be required shall be supplied by the Contractor and it shall be used by his/her workers who must be instructed in its proper use.

The Contractor and any agents or sub-contractors shall not carry out any operating or work on Council plant or the electrical infrastructure.

The Contractor must take note of the following safety procedures if required to work on electrical plant:

- Any switching of existing power supplies shall be arranged beforehand with the Responsible Person of the Supply Authority.
- **The Contractor shall not perform work on any portion of a network until such portions have been isolated and earthed.**

- The Contractor shall request a written "Work Permit" from the Responsible Person, which shall be completed in duplicate.
- The original "Work Permit" shall be retained by the Contractor until completion of his work. Upon completion of the work, the Contractor shall sign a statement to this effect.
- He shall hand this statement, as well as the used "Work Permit" to the Responsible Person, to enable the latter to re-energise the relevant portion/portions of the network.

12.3.2. Detailed Health and Safety Requirements

In addition to the general requirements above the following Safe Operating Procedures (SOPs), where applicable, shall be included:

1. Working at height;
2. Barricading, excavation, in all cases;
3. Cable pulling, working with flammable gases and lead, if required on the project;
4. Working in close proximity to existing live high, medium and low voltage overhead and underground electrical services
5. The safe storage of equipment on site which would include accidental movement.
6. Working in close proximity of existing water, storm water, Telkom cables and other fibre optic cables from different network providers.
7. Housekeeping on construction sites.
8. Construction of welfare facilities in all cases.
9. SOPs as detailed on the project documentation, or required by the Engineer.

Notwithstanding full documentation compliance with the act, any official of the George Municipality, or Electricity shall, if unsafe conditions are deemed to exist on site due to an electrical installation, be obliged to stop work by noting the non-compliance in writing.

Work shall only continue once the compliance is signed off by such official or The Engineer.

12.3.3. Scaffolding/Lifting Equipment

The Contractor shall be responsible for the mechanical safety of ALL lifting equipment/ladders and scaffolding used in carrying out this Contract.

12.3.4. Competent Persons

A competent person/supervisor must be on site at all times to supervise the work undertaken by the crew. Such supervisor shall be fully conversant with the equipment and materials being installed.

The site supervisor shall be familiar and have undergone the necessary training to meet all the health and safety requirements stipulated in the Occupational Health and Safety Act (OHS Act) and where relevant to meet environmental procedures and the requirements of the Municipality.

The person in charge will also ensure that the necessary quality control is applied.

The Contractor shall be required to ensure that all persons involved with lifting operations or working from elevated positions are registered with the Department of Labour as competent persons for the particular scope of work required of them. Any deviations from this requirement shall be reported to and discussed with the Project Manager/Engineer.

4. APPENDIX A FACILITY PERFORMANCE

Measurement of Performance Ratio

The PR shall be measured in accordance with IEC 61724 with the exception that Global Horizontal Irradiation shall serve as the reference as measured by the calibrated secondary standard pyranometer and not Global Inclined Irradiation

The measured PR is:

$$PR_{meas}^{i} = \frac{Y_f^i}{Y_r^i} \quad (1)$$

Where

$$Y_f^i = \frac{E_{meas}^i}{P_{STC}} \quad (2)$$

Where:

Y_f^i is the specific yield or equivalent nameplate hours of the Facility measured in kWh/kWp in period ***i;***

E_{meas}^i is the energy output of the Facility measured in kWh AC in period ***i***;

P_{STC} is Facility rated power measured as the total flash list power of all modules evaluated at standard test conditions STC being irradiation of 1 kW/m² , cell temperature of 25°C, and air mass of 1.5. Measured in kWp;

And

$$Y_r^i = \frac{H_m^i}{G_{STC}} \quad (3)$$

Y_r^i is the equivalent hours of STC experienced by the site in period ***i***;

H_m^i is the total Global Horizontal Irradiation measured with a secondary standard pyranometer in kWh/m² in period ***i***;

G_{STC} is the reference solar radiation at STC of 1 kW/m;

Guaranteed Performance Ratio

The Contractor guarantees the 3 year average performance ratio PR_G

Liquidated Damages

If:

$$PR_{meas}^{i} < PR_G \quad (4)$$

Then Liquidated Damages for low performance are paid by the Contractor to the Employer as stated in the Financial Model.

ANNEXURE B

Proposed Programme

ID	Task Description	Duration	Start Date	End Date
	EPC FOR THREE PV PLANTS WITH STORAGE AT ELECTROTECH, TOURISM AND SCHAAPKOP			
1	**Commercial**			
A	Letter of Acceptance Signed		03/10/2022	
B	Kick off Meeting			
C	Health and Safety File Submission			
D	Approval of Health and Safety			
2	**Designs – PV Plant Review and Approval (for all 3 sites)**			
A	Electrical Single line diagrams design			
B	Steel Structures design (for the Tourism PV)			
C	Control and Monitoring System			
D	Design Review Meeting			
E	Client Approval			
3	**Procurement**			
A	Mounting system, manufacturing of steel structures			
B	PV Modules			
C	Inverters (on the CoCT certified inverter list)			
D	DC and AC Cables			
E	PV Combiner Boxes			
F	Submission of shop drawings			
4	**Construction (for all 3 sites)**			
A	Site Establishment			
5	**Civil Works**			
A	Trenching, backfilling and installation of cable sleeves			

B	Installation of main LV cables sleeves			
6	**Mechanical installation**			
A	Installation of mounting system			
7	**Electrical installation**			
A	Installation of PV Modules			
B	Installation of DC strings			
C	Installation of inverters and DC/AC connections			
D	Earthing and Lightning Protection			
8	**Control and Monitoring System**			
A	Installation of PV DB/s with Control and Monitoring system			
B	Connection of comms cables and testing			
9	**Connection to Existing Supply**			
A	Preliminary changeover date			
B	Electrical tests			
C	Completed CoC/Quality Checks			
10	**Test and Commissioning**			
A	Visual Inspection and Rectifying Snags			
B	Commissioning			
C	Performance Monitoring			
11	**Removal of Site Establishment**			
A	Removal of Site Establishment after project completion			
B	Disposal of surplus unsuitable material including haulage up to 10km from site			
12	Practical Completion			

ANNEXURE C

Layout Diagrams

LEGENDE

FRAME 1

0 20 40m

GEORGE
MUNISIPALITEIT
MUNICIPALITY

ELEKTROTEGNIES AFDELING
ELECTRICAL DEPARTMENT

PROJEK / PROJECT

PROPOSED 20kWp + 60kWh SOLAR SYSTEM, AT ELECTROTECHNICAL DEPARTMENt, GEORGE INDUSTRIA

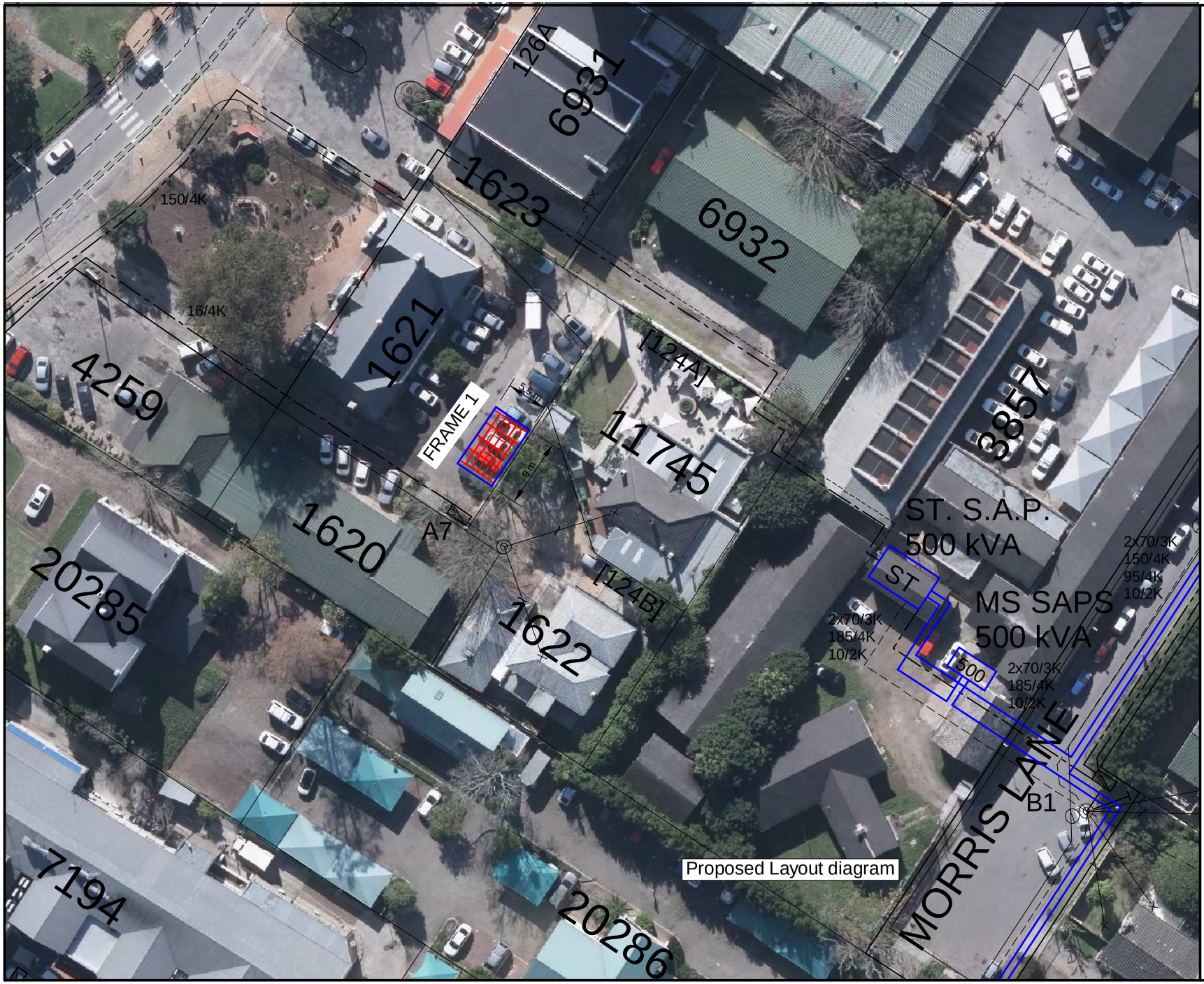
BESKRYWING / DESCRIPTION

LAYOUT PLAN

GETEKEN DRAWN	CDV	NAGESIEN CHECKED	
ONTWERP DESIGN		INGENIEUR ENGINEER	
SKAAL SCALE	1 : 500	DATUM DATE	2022/06/23

TEKENING DRAWING No. JP - 667 VEL SHEET 1 VAN OF 1

Proposed Layout diagram: This is meant to provide an overview of what the Municipality envisions. The final layout and designs will be dependent on the Contractor's design.



LEGENDE

FRAME 1

0 20 40m

GEORGE
MUNISIPALITEIT
MUNICIPALITY

GEORGE
THE CITY FOR ALL REASONS

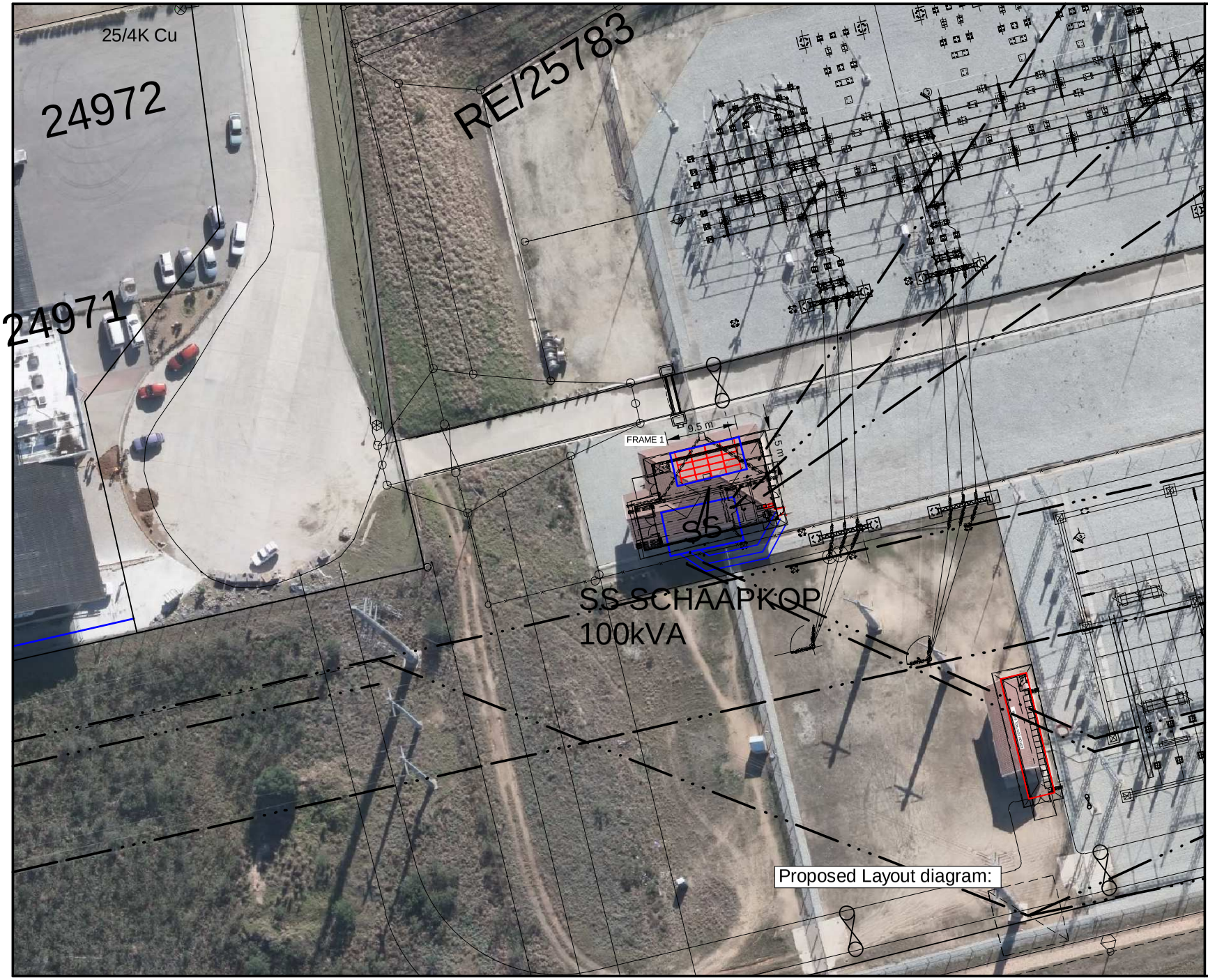
ELEKTROTEGNIES INGENIEURSAFDELING
ELECTRICAL ENGINEERING DEPARTMENT

PROJEK / PROJECT
PROPOSED 4kWp + 10kWh SOLAR SYSTEM, AT TOURISM, GEORGE CENTRAL

BESKRYWING / DESCRIPTION
LAYOUT PLAN

GETEKEN DRAWN	CDV	NAGESIEN CHECKED	
ONTWERP DESIGN		INGENIEUR ENGINEER	
SKAAL SCALE	1 : 500	DATUM DATE	2022/06/24

TEKENING DRAWING No. JP - 668 VEL SHEET 1 VAN OF 1



LEGENDE

FRAME 1

GEORGE
MUNISIPALITEIT
MUNICIPALITY

GEORGE
THE CITY FOR ALL REASONS

ELEKTROTEGNIES INGENIEURSAFDELING
ELECTRICAL ENGINEERING DEPARTMENT

PROJEK / PROJECT
PROPOSED 2kWp + 10kWh SOLAR SYSTEM, AT SS SCHAAPKOP, STEINHOFF INDUSTRIA

BESKRYWING / DESCRIPTION
LAYOUT PLAN

GETEKEN DRAWN	CDV	NAGESIEN CHECKED	
ONTWERP DESIGN		INGENIEUR ENGINEER	
SKAAL SCALE	1 : 500	DATUM DATE	2022/07/07

TEKENING DRAWING	No. JP - 669	WYSIGING AMENDMENT