



THE SOUTH AFRICAN NATIONAL BIODIVERSITY INSTITUTE (SANBI)

Contract No: SANBI: G490/2023

REQUEST FOR BIDS FOR THE APPOINTMENT OF A CONTRACTOR FOR THE INSTALLATION AND MAINTENANCE OF A HYBRID ROOFTOP PHOTOVOLTAIC SOLAR SYSTEM AT THE PRETORIA NATIONAL BOTANICAL GARDEN

PROCUREMENT DOCUMENT

Issued by:

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Name of tenderer:

Address:

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Email:

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PART T: TENDER INFORMATION

Part T1: Tendering Procedures

PROJECT TITLE:	APPOINTMENT OF A CONTRACTOR FOR THE INSTALLATION AND MAINTENANCE OF A HYBRID ROOFTOP PHOTOVOLTAIC SOLAR SYSTEM AT THE PRETORIA NATIONAL BOTANICAL GARDEN		
CONTRACT NO:	SANBI : G490/2023		

Advertising date:	16 November 2023	Closing date:	8 December 2023
Closing time:	11:00	Validity period:	90 days

T1.1 Tender Notice and Invitation to Tender

- It is estimated that tenderers should have a **CIDB contractor grading of 5 EB or higher**.
- Tender documents will be available as from **16 November 2023** and will be available **ONLINE ONLY** on the SANBI website www.sanbi.org (click on “Opportunities”).

A compulsory briefing session will take place ONLINE/VIRTUALLY on 24 November 2023 starting from 09:00am. Only one representative per service provider will be allowed to attend the scheduled compulsory online briefing session. Bidders are encouraged to direct all technical and bidding procedure enquiries to the email addresses below.

Department: Supply Chain Management
Email: sanbi.tenders@sanbi.org.za
cc: admin@servinetconsulting.co.za
Cut-off date for enquiries: **30 November 2023**

Any queries regarding the tender document or any related matter prior to submission of tenders must be directed to:

SANBI Representative (Technical Queries Only)	Mr. Siyabonga Khoza Tel: +27 11 704 0447 E-mail: admin@servinetconsulting.co.za
SANBI Supply Chain Management:	sanbi.tenders@sanbi.org.za

The closing time and date for the receipt of Tenders is **11:00 on 8 December 2023**.

The Tenders will **NOT** be opened in public (please note that the two-envelope system is being followed). Requirements for sealing, addressing, delivery, opening, and assessment of Tenders are stated in the Tender Data.

PART T: TENDER INFORMATION

Part T1: Tendering Procedures

PROJECT TITLE:	APPOINTMENT OF A CONTRACTOR FOR THE INSTALLATION AND MAINTENANCE OF A HYBRID ROOFTOP PHOTOVOLTAIC SOLAR SYSTEM AT THE PRETORIA NATIONAL BOTANICAL GARDEN
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T1.2 Tender Data

The conditions of tender are the Standard Conditions of Tender as contained in Annex C of the CIDB Standard for Uniformity in Engineering and Construction Works Contracts – August 2019. (See www.cidb.org.za).

The Standard Conditions of Tender 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.

Claus e num ber	Tender Data
C.1.1	The Employer is: The South African National Biodiversity Institute Biodiversity Centre 2 Cussonia Avenue Brummeria Pretoria Private Bag X101 Silverton 0184
C.1.2	The Tender Documents issued by the Employer comprise the following documents: PART T: TENDER INFORMATION Part T1: Tendering procedures T1.1 - Tender notice and invitation to tender T1.2 - Tender data Part T2: Returnable documents T2.1 - List of returnable documents T2.2 - Returnable documents/Schedules PART C: THE CONTRACT Part C1: Agreements and Contract data C1.1 - Form of offer and acceptance C1.2 - Contract data C1.3 - Form of Construction Guarantee C1.4 - Occupational Health & Safety Agreement 37(2)

Clause number	Tender Data
	<p>Part C2: Pricing Data C2.1 - Notes to tenderer C2.2 - Bill of Quantities</p> <p>Part C3: Scope of Works C3.1 - Description of the works C3.2 - Design and Construction C3.3 - Drawings Annexure A: Set of Drawings (<i>provided separately</i>)</p> <p>Part C4: Site Information C4.1 - General site information C4.2 - Annexure F: Occupational Health and Safety Specification for Contractors who are on Contract with SANBI C4.3 - Annexure G: General Environmental Specification C4.4 - Annexure H: Geotechnical Information (N/A)</p>
C.1.4	<p>The employer's agent is:</p> <p>SERVINET CONSULTING ENGINEERS Fancourt Office Park, Building 4, Cnr Felstead & Northumberland Ave, North Riding, 2169 Contact person: Siyabonga Khoza Tel: +27 11 704 0447 Email: admin@servinetconsulting.co.za</p>
C.1.6.1	Contract will be awarded to the tenderer who achieved highest number of points on the price and specific goals.
C.1.6.2	A competitive negotiation procedure will not be followed.
C.1.6.3	A two stage-system will be followed.
C.2.1	<p>Only those tenderers who score the minimum score in respect of the quality criteria stated in C.3.11.1 of this Tender Data shall be considered responsive and have their tenders evaluated further.</p> <p>(a) CIDB registration Only those tenderers who are registered with the CIDB, or are capable of being so prior to the evaluation of submissions, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations, for a 5 EB or higher class of construction work, are eligible to have their tenders evaluated.</p> <p>Joint ventures are eligible to submit tenders provided that:</p> <ol style="list-style-type: none"> every member of the joint venture is registered with the CIDB; the lead partner has a contractor grading designation in the 5 EB or higher class of construction work; and <p>the combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a 5 EB or higher class of construction work or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations.</p>
C.2.7	<p>A compulsory briefing session will be conducted at the time and date given as follows:</p> <p>Date: 24 November 2023</p> <p>Time: 09:00am</p> <p>Virtual: Microsoft Teams</p>

Clause number	Tender Data
	<p>Link: https://teams.microsoft.com/l/meetup-join/19%3ameeting_OWJmNDI1OTAtNGFmMi00Njc3LTK1NWEtNTRiOTI4ZGlwMjhj%40thread.v2/0?context=%7b%22Tid%22%3a%220b847c5e-73e2-4441-8789-9c092d2dd489%22%2c%22Oid%22%3a%220758937e-423b-49a4-9f53-964a99574d68%22%7d</p>
C.2.8	The last date for request for clarifications will be on the 30 November 2023
C.2.12	<p>Replace contents</p> <p>Alternative offers will not be permitted</p>
C.2.13 .6	A two-envelope procedure will be followed as described in clause C.2.13.7.
C.2.13 .7	<p>Tenderers shall note the specific requirements for packaging of their tender documents and include only the following:</p> <ul style="list-style-type: none"> Financial: one (1) original document marked "Original" including Form of Offer and Acceptance, Estimated monthly expenditure and Priced Bills of Quantities; and Technical: one (1) document pack without any pricing (files in PDF format) on a memory stick <p>Financial or pricing details should ONLY be included in the printed document pack marked 'ORIGINAL', and not in the PDF file(s) of the document(s) on the memory stick.</p> <p>NB: Service Providers are to submit one (1) pack of the original tender with the memory stick (USB) in the same envelope, failure to comply will lead to your bid being disqualified.</p> <p>INCLUSION OF ANY PRICING INFORMATION ANYWHERE IN THE COPY WILL LEAD TO THE BID BEING DISQUALIFIED.</p> <p>The original document will be placed in one envelope and the one copy will be placed in another envelope. The two envelopes shall be placed together in an outer envelope sealed and bearing the following:</p> <ul style="list-style-type: none"> The address as stated in C.2.15.1 below The identification details as stated in C.2.15.1 below Name of the Tenderer The words "Not be opened before the Tender opening" <p>The technical and financial envelopes should also contain the details of the last three bullets on them. The financial envelope must contain the words NOT TO BE OPENED WITH THE TECHNICAL ENVELOPE.</p>
C.2.13 .9	Telephonic, telegraphic, telex, facsimile or e-mailed tender offers will not be accepted.
C.2.15 .1	<p>The Employer's address for delivery of tender offers and identification details to be shown on each tender offer package are:</p> <p>Location of Tender box: Biodiversity Centre, Pretoria National Botanical Garden, 2 Cussonia Ave, Brummeria, Pretoria, Gauteng Province</p> <p>Identification details: Tender number: SANBI : G490/2023</p> <p>Title of Tender: APPOINTMENT OF A CONTRACTOR FOR THE INSTALLATION AND MAINTENANCE OF A HYBRID ROOFTOP PHOTOVOLTAIC SOLAR SYSTEM AT THE PRETORIA NATIONAL BOTANICAL GARDEN</p>
C.2.15 .2	The closing time for submission of tender offers is as stated in the Tender Notice and Invitation to Tender.

Clause number	Tender Data
C.2.16.1	The tender offer validity period is 90 days.
C2.16.3	<p>Where a tenderer, at any time after the opening of his tender offer but prior to entering into a contract based on his tender offer:</p> <p>(1) withdraws his tender;</p> <p>(2) gives notice of his inability to execute the contract in terms of his tender; or</p> <p>(3) fails to comply with a request made in terms of C.2.17 or C.2.18</p> <p>such tenderer shall be barred from tendering on any of the Employer's future tenders for a period to be determined by the Employer, but not less than six (6) months, from the date of tender closure. The Employer may fully or partly exempt a tenderer from the provisions of this condition if he is of the opinion that the circumstances justify the exemption</p>
C.2.17	Provide clarification of a tender offer to a request to do so from the employer during the evaluation of tender offers.
C.2.18	<p>Any additional information requested under this clause must be provided within 5 working days of the date of request.</p> <p>The tenderer shall, when requested by the Employer to do so, submit the names of all management and supervisory staff that will be employed to supervise the Labour-Intensive portion of the works together with satisfactory evidence that such staff members satisfy the eligibility requirements</p>
C.2.22	Tender Documents will not be returned to tenderers
C.2.23	<p>The tenderer is required to submit with his/her tender, the following (failure to provide below documentation will result in the tender being rejected):</p> <ol style="list-style-type: none"> 1) A copy of the Central Suppliers Database (CSD) registration report. 2) A printed copy of the Active Contractor's Listing off the CIDB website (www.cidb.org.za) 3) Letter of Good Standing from the office of the Compensation Commissioner as required by the Compensation for Occupational Injuries and Diseases Act (COIDA). The letter should be issued by the Department of Labour. 4) In the case of a Joint Venture/Consortium the tax Compliance status Pin or Compliant tax status on CSD report must be submitted for each member of the Joint Venture/Consortium." 5) Provide a valid proof of registration as an Installation Electrician (IE) from the Department of Labour. 6) A site briefing certificate
C.3.1.1	The Employer shall respond to clarifications received up to 7 working days before the tender closing time.
C.3.2	The Employer shall issue addenda until 5 working days before the tender closing time.
C.3.5.1	The two-envelope system will be followed for this Tender.
C.3.7	In the event of disqualification, the Employer may, at his sole discretion, impose a specified period during which tender offers will not be accepted from the offending tenderer and report same to the CIDB and National Treasury.
C.3.11.1	The procedure for the evaluation of responsive tenders is stated in Annexure A .

Clause number	Tender Data
C.3.13	<p>Tender offers will only be accepted if:</p> <ul style="list-style-type: none"> a) the tenderer submits a copy of the CSD registration report or registration number (refer to T2.1.12); b) the tenderer is registered with the Construction Industry Development Board in an appropriate contractor grading designation (refer to T2.1.11); c) the tenderer or any of its directors/shareholders is not listed on the Register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector; d) the tenderer has completed the Compulsory Enterprise Questionnaire and there are no conflicts of interest which may impact on the tenderer's ability to perform the contract in the best interests of the employer or potentially compromise the tender process and persons in the employ of the state are permitted to submit tenders or participate in the contract (refer to T2.1.14); e) the tenderer is registered and in good standing with the compensation fund issued by the Department of Labour (Letter of good standing with COIDA); f) the employer is reasonably satisfied that the tenderer has in terms of the Construction Regulations, 2014, issued in terms of the Occupational Health and Safety Act, 1993, the necessary competencies and resources to carry out the work safely. g) A copy of Tax Compliance Status Pin or CSD report. h) valid proof of registration as an Installation Electrician (IE) (Wireman's License) from the Department of Labour is submitted.

Annexure A

This annexure contains all the criteria that the Employer shall use to evaluate tenders. In accordance with clause C.3.11 of the Standard conditions of tender. No other factors, methods or criteria shall be used. The tenderer shall provide all the information requested in the forms included in Part T2.2 – Returnable schedules.

Tenders shall be evaluated in three stages as follows

- Stage 1 – Evaluation of Eligibility and Administrative compliance
- Stage 2 – Evaluation of Functionality
- Stage 3 – Evaluation of Tender Price and Preference

1 Stage 1: Eligibility and Administrative compliance

The first stage will determine whether bids are compliant with all mandatory and disqualifiable submission requirements. Bidders that are deemed compliant will be eligible for further evaluation.

The criteria as identified in Clauses C.2.23 and C.3.13 in the Tender Data will be used to determine the tenders' eligibility.

For administrative compliance, the tenderers must complete all the returnable forms in Part T2.2, the Bill of Quantities and the Offer section in Part C1.1.

2 Stage 2: Functionality

The tenderers who complied with the eligibility and administrative criteria in stage 1 are considered for further evaluation on their capability to execute the project.

In this stage tenderers, will be evaluated on functionality according to the criteria listed below. Tenderers who fail to score a minimum of 70 points out of a possible 100 points on functionality criteria will not be eligible for further consideration.

Scoring quality

The functionality (quality) evaluation criteria are listed below. Maximum points for each criterion are in bold while points for each sub-criterion are indicated in brackets.

FUNCTIONALITY CRITERIA																
ID	CRITERIA	POINTS														
1	<p>Implementation method and project plan or programme</p> <ul style="list-style-type: none">• Method to be followed in delivering this project, the methodology and approach must be specific to the project and location of works. (this should include the PMBOK knowledge areas as well as all relevant project life cycle stages)	<p>25 (15)</p>														
	<table border="1"><thead><tr><th>Sub-Criteria</th><th>Points</th></tr></thead><tbody><tr><td>No Methodology</td><td>0</td></tr><tr><td>Poor Methodology</td><td>3</td></tr><tr><td>Average Methodology</td><td>6</td></tr><tr><td>Above Average Methodology</td><td>9</td></tr><tr><td>Good Methodology</td><td>12</td></tr><tr><td>Comprehensive (Exceptional) Methodology</td><td>15</td></tr></tbody></table>	Sub-Criteria	Points	No Methodology	0	Poor Methodology	3	Average Methodology	6	Above Average Methodology	9	Good Methodology	12	Comprehensive (Exceptional) Methodology	15	<p>(10)</p>
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Poor Methodology	3															
Average Methodology	6															
Above Average Methodology	9															
Good Methodology	12															
Comprehensive (Exceptional) Methodology	15															
2	<p>Contractor's Experience</p> <ul style="list-style-type: none">• Three positive reference letters regarding work of similar scope and scale completed in last	<p>40</p>														

	<p>five years</p> <table border="1"> <thead> <tr> <th>Sub-Criteria</th><th>Points</th></tr> </thead> <tbody> <tr> <td>One reference letter</td><td>5</td></tr> <tr> <td>Two reference letters</td><td>10</td></tr> <tr> <td>Three reference letters or more</td><td>15</td></tr> </tbody> </table> <ul style="list-style-type: none"> • List of at least five other similar projects with appointment letters, completion certificates and telephonic references indicating work of similar value completed in the last ten years <table border="1"> <thead> <tr> <th>Sub-Criteria</th><th>Points</th></tr> </thead> <tbody> <tr> <td>One Project</td><td>5</td></tr> <tr> <td>Two Projects</td><td>10</td></tr> <tr> <td>Three Projects</td><td>15</td></tr> <tr> <td>Four Projects</td><td>20</td></tr> <tr> <td>Five Projects</td><td>25</td></tr> </tbody> </table>	Sub-Criteria	Points	One reference letter	5	Two reference letters	10	Three reference letters or more	15	Sub-Criteria	Points	One Project	5	Two Projects	10	Three Projects	15	Four Projects	20	Five Projects	25	(15)
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Five Projects	25																					
	<p>Notes:</p> <p>Supporting documents required to support the claims above, (Corresponding orders/appointment letters, completion certificates and reference letters for projects must be submitted as proof). Bidders must submit all the requested documents as proof in order to be awarded the points.</p> <ul style="list-style-type: none"> • Both appointment letters and reference letters must be on the employer's letterhead, dated and signed by the employer. • Failure to complete and sign schedule of the tenderer's experience will result in the bidder forfeiting these points. 	(25)																				
3	<p>Contractor's Resources – Personnel and Plant</p> <p>Proposed personnel:</p> <ul style="list-style-type: none"> • CVs for proposed key personnel (At least 3 – Contracts Manager, Installation Electrician & OHS Officer) indicating: <ul style="list-style-type: none"> ○ Previous work experience of similar projects ○ Total number of years' working experience in construction ○ Individual experience on similar work in last five years ○ Certified copies of Qualifications or artisan's certification or other recognised training courses completed ○ Valid Professional Registration for Contracts Manager (ECSA or SACPCMP) and OHS Agent (SACPCMP) 	35																				
	<table border="1"> <thead> <tr> <th>Sub-Criteria</th> <th>Points</th> </tr> </thead> <tbody> <tr> <td>Combined CV experience of less than 2 years</td> <td>6</td> </tr> <tr> <td>Combined CV experience of more than 2 years</td> <td>12</td> </tr> <tr> <td>Combined CV experience of more than 5 years</td> <td>18</td> </tr> <tr> <td>Combined CV experience of more than 7 years</td> <td>24</td> </tr> <tr> <td>Combined CV experience of more than 10 years</td> <td>30</td> </tr> </tbody> </table> <p>Note: Each CV with 10 years or more experience will receive a maximum of 10 points.</p> <p>Plant:</p> <ul style="list-style-type: none"> • Equipment owned by Contractor – registration documents • Equipment to be rented (if any) – with preferred rental companies – letter of intent to hire 	Sub-Criteria	Points	Combined CV experience of less than 2 years	6	Combined CV experience of more than 2 years	12	Combined CV experience of more than 5 years	18	Combined CV experience of more than 7 years	24	Combined CV experience of more than 10 years	30	(30)								
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	TOTAL	100																				

Functionality shall be scored by not less than three evaluators in accordance with the following schedules:

Each evaluation criterion will be assessed in terms of five indicators – no response, poor, satisfactory, acceptable, good and very good. Scores ranging from 0 to 5 will be allocated to no response, very poor, poor, acceptable,

good and very good responses, respectively. The scores submitted by each of the evaluators will be averaged, weighted and then totalled to obtain the final score for functionality. The prompts for judgment and the associated scores used in the evaluation of quality shall be as follows:

Score	Prompt for judgement
0	Failed to address the question / issue
1	Very poor response: - response / answer / solution lacks convincing evidence of skill / experience sought or medium risk that relevant skills will not be available.
2	Poor response – some elements of the response / answer / solution are present, but documentary evidence is mostly lacking in respect of the required information
3	Acceptable response / answer / solution to the particular aspect of the requirements and evidence given of skill / experience sought
4	Above acceptable - response / answer / solution demonstrating real understanding of requirements and evidence of ability to meet it.
5	Excellent - response / answer / solution provides confidence that the tenderer will add real value to the project.

The minimum number of evaluation points for functionality proposal is 70 points in order to progress to stage 3 of the evaluation.

The stage three will evaluate the price and specific goals of those bids that meet the minimum threshold for functionality. In accordance with the Preferential Procurement Regulations, 2022 pertaining to the Preferential Procurement Policy Framework Act (No. 5 of 2000), the 80/20-point system will be applied in evaluating proposals that qualify for further consideration, where price constitutes 80 points and a maximum of 20 points will be awarded based on the bidder's specific goals.

3 Stage 3: Tender Price and Preference

The tenderers who complied with the functionality criteria in stage 2 are considered for further evaluation in terms of their Tender Price and Preference points.

3.1 Correction of arithmetical errors

Pursuant to clause C.3.9 of the standard conditions of tender as amended in the Tender Data, correction of arithmetical errors shall be undertaken.

3.2 Calculation of score for Tender Price

The score for Tender Price shall be calculated using the following formula:

$$N_F = W_f \times \left[1 - \left(\frac{P_t - P_{min}}{P_{min}} \right) \right]$$

Where:

N_F = the score for Tender Price awarded for the tender under consideration

W_f = the weighting given to financial offer, determined as follows:

- 90 where the Tender Price, inclusive of VAT, of all responsive tender offers received has a value in excess of R50 000 000,00; or
- 80 where the Tender Price, inclusive of VAT, of one or more responsive tender offers has a value that equals or is less than R50 000 000,00.

P_t = Tender Price of the tender under consideration

P_{\min} = Tender Price of the lowest responsive tender

In the event that the calculated value of N_F is negative, the allocated score shall be 0

3.3 Financial and Preference

After calculation of the scores for Tender Price and for Preference, a combined score will be calculated as follows:

$$NT = NF + NP$$

Where:

NT = Total score for tender under consideration

NF = Score for Tender Price

NP = Score for Preference

The tender with the highest score should be recommended for appointment.

Annexure C

Standard Conditions of Tender

C.1 General

C.1.1 Actions

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

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

Note:

- 1) *A conflict of interest may arise due to a conflict of roles which might provide an incentive for improper acts in some circumstances. A conflict of interest can create an appearance of impropriety that can undermine confidence in the ability of that person to act properly in his or her position even if no improper acts result.*
- 2) *Conflicts of interest in respect of those engaged in the procurement process include direct, indirect or family interests in the tender or outcome of the procurement process and any personal bias, inclination, obligation, allegiance or loyalty which would in any way affect any decisions taken.*

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

C.1.2 Tender Documents

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

C.1.3 Interpretation

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

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

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

- a) **conflict of interest** means any situation in which:
 - i) someone in a position of trust has competing professional or personal interests which make it difficult to fulfill his or her duties impartially;
 - ii) an individual or tenderer is in a position to exploit a professional or official capacity in some way for their personal or corporate benefit; or
 - iii) incompatibility or contradictory interests exist between an employee and the tenderer who employs that employee.
- b) **comparative offer** means the price after the factors of a non-firm price and all unconditional discounts it can be utilised to have been taken into consideration;
- c) **corrupt practice** means the offering, giving, receiving or soliciting of anything of value to influence the action of the employer or his staff or agents in the tender process;

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

C.1.4 Communication and employer's agent

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

C.1.5 Cancellation and Re-Invitation of Tenders

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

- a) due to changed circumstances, there is no longer a need for the engineering and construction works specified in the invitation;
- b) funds are no longer available to cover the total envisaged expenditure; or
- c) no acceptable tenders are received.
- d) there is a material irregularity in the tender process.

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

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

C.1.6 Procurement procedures

C.1.6.1 General

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

C.1.6.2 Competitive negotiation procedure

C.1.6.2.1 Where the tender data require that the competitive negotiation procedure is to be followed, tenderers shall submit tender offers in response to the proposed contract in the first round of submissions. Notwithstanding the requirements of C.3.4, the employer shall announce only the names of the tenderers who make a submission. The requirements of C.3.8 relating to the material deviations or qualifications which affect the competitive position of tenderers shall not apply.

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

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

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

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

C.1.6.3 Proposal procedure using the two stage-system

C.1.6.3.1 Option 1

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

C.1.6.3.2 Option 2

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

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

C.2 Tenderer's obligations

C.2.1 Eligibility

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

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

C.2.2 Cost of tendering

C.2.2.1 Accept that, unless otherwise stated in the tender data, the employer will not compensate the tenderer for any costs incurred in the preparation and submission of a tender offer, including the costs of any testing necessary to demonstrate that aspects of the offer complies with requirements.

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

C.2.3 Check documents

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

C.2.4 Confidentiality and copyright of documents

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

C.2.5 Reference documents

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

C.2.6 Acknowledge addenda

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

C.2.7 Clarification meeting

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

C.2.8 Seek clarification

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

C.2.9 Insurance

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

C.2.10 Pricing the tender offer

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

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

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

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

C.2.11 Alterations to documents

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

C.2.12 Alternative tender offers

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

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

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

C.2.13 Submitting a tender offer

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

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

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

- C.2.13.4 Sign the original and all copies of the tender offer where required in terms of the tender data. The employer will hold all authorized signatories liable on behalf of the tenderer. Signatories for tenderers proposing to contract as joint ventures shall state which of the signatories is the lead partner whom the employer shall hold liable for the purpose of the tender offer.
- C.2.13.5 Seal the original and each copy of the tender offer as separate packages marking the packages as "ORIGINAL" and "COPY". Each package shall state on the outside the employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address.
- C.2.13.6 Where a two-envelope system is required in terms of the tender data, place and seal the returnable documents listed in the tender data in an envelope marked "financial proposal" and place the remaining returnable documents in an envelope marked "technical proposal". Each envelope shall state on the outside the employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address.
- C.2.13.7 Seal the original tender offer and copy packages together in an outer package that states on the outside only the employer's address and identification details as stated in the tender data.
- C.2.13.8 Accept that the employer will not assume any responsibility for the misplacement or premature opening of the tender offer if the outer package is not sealed and marked as stated.
- C.2.13.9 Accept that tender offers submitted by facsimile or e-mail will be rejected by the employer, unless stated otherwise in the tender data.

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

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

C.2.15 Closing time

- C.2.15.1 Ensure that the employer receives the tender offer at the address specified in the tender data not later than the closing time stated in the tender data. Accept that proof of posting shall not be accepted as proof of delivery.
- C.2.15.2 Accept that, if the employer extends the closing time stated in the tender data for any reason, the requirements of these conditions of tender apply equally to the extended deadline.

C.2.16 Tender offer validity

- C.2.16.1 Hold the tender offer(s) valid for acceptance by the employer at any time during the validity period stated in the tender data after the closing time stated in the tender data.
- C.2.16.2 If requested by the employer, consider extending the validity period stated in the tender data for an agreed additional period with or without any conditions attached to such extension.
- C.2.16.3 Accept that a tender submission that has been submitted to the employer may only be withdrawn or substituted by giving the employer's agent written notice before the closing time for tenders that a tender is to be withdrawn or substituted. If the validity period stated in C.2.16 lapses before the employer evaluating tender, the contractor reserves the right to review the price based on Consumer Price Index (CPI).
- C.2.16.4 Where a tender submission is to be substituted, a tenderer must submit a substitute tender in accordance with the requirements of C.2.13 with the packages clearly marked as "SUBSTITUTE".

C.2.17 Clarification of tender offer after submission

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

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

C.2.18 Provide other material

C.2.18.1 Provide, on request by the employer, any other material that has a bearing on the tender offer, the tenderer's commercial position (including notarized joint venture agreements), preferencing arrangements, or samples of materials, considered necessary by the employer for the purpose of a full and fair risk assessment.

Should the tenderer not provide the material, or a satisfactory reason as to why it cannot be provided, by the time for submission stated in the employer's request, the employer may regard the tender offer as non-responsive.

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

C.2.19 Inspections, tests and analysis

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

C.2.20 Submit securities, bonds and policies

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

C.2.21 Check final draft

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

C.2.22 Return of other tender documents

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

C.2.23 Certificates

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

C.3 The employer's undertakings

C.3.1 Respond to requests from the tenderer

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

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

- a) an individual firm, or a joint venture as a whole, or any individual member of the joint venture fails to meet any of the collective or individual qualifying requirements;
- b) the new partners to a joint venture were not prequalified in the first instance, either as individual firms or as another joint venture; or
- c) in the opinion of the Employer, acceptance of the material change would compromise the outcome of the prequalification process.

C.3.2 Issue Addenda

If necessary, issue addenda that may amend or amplify the tender documents to each tenderer during the period from the date that tender documents are available until three (3) working days before the tender closing time stated in the Tender Data. If, as a result a tenderer applies for an

extension to the closing time stated in the Tender Data, the Employer may grant such extension and, shall then notify all tenderers who collected tender documents.

C.3.3 Return late tender offers

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

C.3.4 Opening of tender submissions

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

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

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

C.3.5 Two-envelope system

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

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

C.3.6 Non-disclosure

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

C.3.7 Grounds for rejection and disqualification

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

C.3.8 Test for responsiveness

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

- a) complies with the requirements of these Conditions of Tender,
- b) has been properly and fully completed and signed, and
- c) is responsive to the other requirements of the tender documents.

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

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

- b) significantly change the Employer's or the tenderer's risks and responsibilities under the contract, or
- c) affect the competitive position of other tenderers presenting responsive tenders, if it were to be rectified.

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

C.3.9 Arithmetical errors, omissions and discrepancies

- C.3.9.1 Check responsive tenders for discrepancies between amounts in words and amounts in figures. Where there is a discrepancy between the amounts in figures and the amount in words, the amount in words shall govern.
- C.3.9.2 Check the highest ranked tender or tenderer with the highest number of tender evaluation points after the evaluation of tender offers in accordance with C.3.11 for:
 - a) the gross misplacement of the decimal point in any unit rate;
 - b) omissions made in completing the pricing schedule or bills of quantities; or
 - c) arithmetic errors in:
 - (i) line item totals resulting from the product of a unit rate and a quantity in bills of quantities or schedules of prices; or
 - (ii) the summation of the prices.
- C.3.9.3 Notify the tenderer of all errors or omissions that are identified in the tender offer and either confirm the tender offer as tendered or accept the corrected total of prices.
- C.3.9.4 Where the tenderer elects to confirm the tender offer as tendered, correct the errors as follows:
 - a) If bills of quantities or pricing schedules apply and there is an error in the line item total resulting from the product of the unit rate and the quantity, the line item total shall govern and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line item total as quoted shall govern, and the unit rate shall be corrected.
 - b) Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the tenderer's addition of prices, the total of the prices shall govern, and the tenderer will be asked to revise selected item prices (and their rates if bills of quantities apply) to achieve the tendered total of the prices.

C.3.10 Clarification of a tender offer

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

C.3.11 Evaluation of tender offers

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

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

The CIDB Standard Conditions of Tender are based on a procurement system that satisfies the following system requirements:

Requirement	Qualitative interpretation of goal
--------------------	---

Fair	The process of offer and acceptance is conducted impartially without bias, providing simultaneous and timely access to participating parties to the same information.
Equitable	Terms and conditions for performing the work do not unfairly prejudice the interests of the parties.
Transparent	The only grounds for not awarding a contract to a tenderer who satisfies all requirements are restrictions from doing business with the employer, lack of capability or capacity, legal impediments and conflicts of interest.
Competitive	The system provides for appropriate levels of competition to ensure cost effective and best value outcomes.
Cost effective	Cost effective

The activities associated with evaluating tender offers are as follows:

- a) Open and record tender offers received
- b) Determine whether or not tender offers are complete
- c) Determine whether or not tender offers are responsive
- d) Evaluate tender offers
- e) Determine if there are any grounds for disqualification
- f) Determine acceptability of preferred tenderer
- g) Prepare a tender evaluation report
- h) Confirm the recommendation contained in the tender evaluation report

C.3.11.1 General

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

C.3.12 Insurance provided by the employer

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

C.3.13 Acceptance of tender offer

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

- a) is not under restrictions, or has principals who are under restrictions, preventing participating in the employer's procurement;
- b) can, as necessary and in relation to the proposed contract, demonstrate that he or she possesses the professional and technical qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, experience and reputation, expertise and the personnel, to perform the contract;
- c) has the legal capacity to enter into the contract;
- d) is not; insolvent, in receivership, under Business Rescue as provided for in chapter 6 of the Companies Act No. 2008, bankrupt or being wound up, has his/her affairs administered by a court or a judicial officer, has suspended his/her business activities or is subject to legal proceedings in respect of any of the foregoing;
- e) complies with the legal requirements, if any, stated in the tender data; and
- f) is able, in the opinion of the employer, to perform the contract free of conflicts of interest.

C.3.14 Prepare contract documents

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

- a) addenda issued during the tender period,
- b) inclusion of some of the returnable documents and
- c) other revisions agreed between the employer and the successful tenderer.

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

C.3.15 Complete adjudicator's contract

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

C.3.16 Registration of the award

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

C.3.17 Provide copies of the contracts

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

C.3.18 Provide written reasons for actions taken

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

PART T 2: Returnable Documents

PROJECT TITLE:	APPOINTMENT OF A CONTRACTOR FOR THE INSTALLATION AND MAINTENANCE OF A HYBRID ROOFTOP PHOTOVOLTAIC SOLAR SYSTEM AT THE PRETORIA NATIONAL BOTANICAL GARDEN
CONTRACT NO:	SANBI : G490/2023

T2.1 List of Returnable Documents

1. RETURNABLE SCHEDULES REQUIRED FOR TENDER EVALUATION PURPOSES

Tender document name	Number of pages issued	Returnable document
Resolution of Board of Directors (T2.1.01)	1 Page	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Resolution of Board of Directors to enter into consortia or JV's (T2.1.02) (If Applicable)	2 Pages	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Special Resolution of Consortia or JV's (T2.1.03) (If Applicable)	3 Pages	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Schedule of proposed sub-contractors (T2.1.04)	1 Page	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Capacity of Tenderer (T2.1.05)	3 Pages	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Preference Point System (T2.1.06)	6 Pages	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Schedule of Key Personnel (T2.1.07)	1 Pages	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Compensation of Occupational Injuries and Disease Act (COIDA) (T2.1.08)	1 Page	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

2. OTHER DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES

Tender document name	Number of pages issued	Returnable document
Declaration of Interest (T2.1.09)	2 Pages	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Medical Certificate for the confirmation of permanent disabled status (T2.1.10)	1 Page	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Proof of registration with Construction Industry Development Board (T2.1.11)	1 Page	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Copy of CSD Registration Certificate (T2.1.12)	1 Pages	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

3. RETURNABLE SCHEDULES THAT WILL BE INCORPORATED INTO THE CONTRACT

Tender document name	Number of pages issued	Returnable document
Record of Addenda to tender documents (T2.1.13)	1 Page	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Compulsory Enterprise Questionnaire (T2.1.14)	3 Pages	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

4. OTHER DOCUMENTS THAT WILL BE INCORPORATED INTO THE CONTRACT

Tender document name	Number of pages issued	Returnable document
Applicable Form of Guarantee	3 Pages	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Priced Bill of Quantities	6 Pages	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

C1.1 Form of Offer and Acceptance

C1.2 Contract Data

C1.3 Form of Guarantee

RETURNABLE DOCUMENT CHECKLIST

This form has been created as an aid to ensure a tenderer's compliance with the completion of the returnable schedules and subsequent placement in the correct **Technical** and **Financial** envelopes.

A TECHNICAL ENVELOPE (1 COPY)

Reference No	Document Description	Tick if completed
T2.1.01	Resolution of Board of Directors	
T2.1.02	Resolution of Board of Directors to enter into consortia or JV's (If Applicable)	
T2.1.03	Special Resolution of Consortia or JV's (If Applicable)	
T2.1.04	Schedule of proposed sub-contractors	
T2.1.05	Capacity of Tenderer	
T2.1.06	Preference Point System	
T2.1.07	Schedule of Key Personnel	
T2.1.08	Compensation of Occupational Injuries and Disease Act (COIDA)	
T2.1.09	Declaration of Interest	
T2.1.10	Medical Certificate for the confirmation of permanent disabled status	
T2.1.11	Proof of registration with Construction Industry Development Board	
T2.1.12	Copy of CSD Registration Certificate	
T2.1.13	Record of Addenda to tender documents	
T2.1.14	Compulsory Enterprise Questionnaire	

B FINANCIAL ENVELOPE (ORIGINAL DOCUMENT)

The entire original tender document must be submitted in this envelope including the forms as listed below:

Reference No	Document Description	Tick if completed
Form C1.1	Form of Offer and Acceptance	
Form C1.2	Contract Data – Part 1	
Form C2.2	Priced Bill of Quantities	

PART 2: RETURNABLE DOCUMENTS

PROJECT TITLE:	APPOINTMENT OF A CONTRACTOR FOR THE INSTALLATION AND MAINTENANCE OF A HYBRID ROOFTOP PHOTOVOLTAIC SOLAR SYSTEM AT THE PRETORIA NATIONAL BOTANICAL GARDEN
CONTRACT NO:	SANBI : G490/2023

T2.2 Returnable documents/Schedules

T2.1.01: RESOLUTION OF BOARD OF DIRECTORS

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

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

Held at (place)

On (date)

RESOLVED that:

1. The Enterprise submits a Bid / Tender to the South African National Biodiversity Institute in respect of the following project:

.....
.....
(project description as per Bid / Tender Document)

Bid / Tender Number: (Bid / Tender Number as per Bid / Tender Document)

2. *Mr/Mrs/Ms:

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

and who will sign as follows:

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

	Name	Capacity	Signature
1			
2			
3			
4			

Note:

1. * Delete which is not applicable
2. **NB.** This resolution must be signed by all the Directors / Members / Partners of the Bidding Enterprise.
3. Should the number of Directors / Members/Partners exceed the space available above, additional names and signatures must be supplied on a separate page.

ENTERPRISE STAMP

T2.1.02: RESOLUTION OF BOARD OF DIRECTORS TO ENTER INTO CONSORTIA OR JOINT VENTURES

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

.....

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

Held at (place)

On (date)

RESOLVED that:

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

.....

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

to the South African National Biodiversity Institute in respect of the following project:

.....

.....
(Project description as per Bid /Tender Document)

Bid / Tender Number: (Bid / Tender Number as per Bid / Tender Document)

2. *Mr/Mrs/Ms:

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

and who will sign as follows:

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

3. The Joint Venture formation/arrangement will be in the following proportions:

Name of Contractor	Proportion (%)

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

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

Physical address:

.....

..... (code)

Postal address:

.....

Telephone number: (code)

Fax number: (code)

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

Note:

1. * Delete which is not applicable.
2. **NB.** This resolution must be signed by all the Directors / Members / Partners of the Bidding Enterprise.
3. Should the number of Directors / Members / Partners exceed the space available above, additional names and signatures must be supplied on a separate page.'

ENTERPRISE STAMP

T2.1.03: SPECIAL RESOLUTION OF CONSORTIA OR JOINT VENTURES

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

1.

.....

2.

.....

3.

.....

4.

.....

5.

.....

6.

.....

7.

.....

8.

.....

Held at (place)

On (date)

RESOLVED that:

A. The above-mentioned Enterprises submit a Bid in Consortium/Joint Venture to the South African National Biodiversity Institute in respect of the following project:

.....

.....

(Project description as per Bid / Tender Document)

Bid / Tender Number: (*Bid / Tender Number as per Bid / Tender Document*)

*Mr/Mrs/Ms:

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

and who will sign as follows:

be, and is hereby, authorised to sign the Bid, and any and all other documents and/or correspondence in connection with and relating to the Bid, as well as to sign any Contract, and any and all documentation, resulting from the award of the Bid to the Enterprises in Consortium/Joint Venture mentioned above.

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

Physical address:

.....
..... (code)

Postal address:

.....
..... (code)

Telephone number: (code)

Fax number: (code)

	Name	Capacity	Signature
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

Note:

1. * Delete which is not applicable.
2. **NB.** This resolution must be signed by all the Duly Authorised Representatives of the Legal Entities to the Consortium Joint Venture submitting this Bid.
3. Should the number of Duly Authorised Representatives of the Legal Entities joining forces in this Bid exceed the space available above, additional names and signatures must be supplied on a separate page.
4. Resolutions, duly completed and signed, from the separate Enterprises who participate in this Consortium/Joint Venture must be attached to the Special Resolution.

T2.1.04: SCHEDULE OF PROPOSED SUBCONTRACTORS

PROJECT TITLE:	APPOINTMENT OF A CONTRACTOR FOR THE INSTALLATION AND MAINTENANCE OF A HYBRID ROOFTOP PHOTOVOLTAIC SOLAR SYSTEM AT THE PRETORIA NATIONAL BOTANICAL GARDEN
CONTRACT NO:	SANBI : G490/2023

We notify you that it is our intention to employ the following Subcontractors for work in this contract.

If we are awarded a contract, we agree that this notification does not change the requirement for us to submit the names of proposed Subcontractors in accordance with requirements in the contract for such appointments. If there are no such requirements in the contract, then your written acceptance of this list shall be binding between us.

	Name and address of proposed Subcontractor	Nature and extent of work	Previous experience with Subcontractor
1			
2			
3			
4			

Name of representative	Signature	Capacity	Date

Name of organisation:	
------------------------------	--

T2.1.05: CAPACITY OF TENDERER

PROJECT TITLE:	APPOINTMENT OF A CONTRACTOR FOR THE INSTALLATION AND MAINTENANCE OF A HYBRID ROOFTOP PHOTOVOLTAIC SOLAR SYSTEM AT THE PRETORIA NATIONAL BOTANICAL GARDEN
CONTRACT NO:	SANBI : G490/2023

1. **WORK CAPACITY:** *(The Tenderer is requested to furnish the following particulars, attach additional pages if more space is required. Failure to furnish the particulars may result in the Tender being disregarded.)*

Skilled artisans employed		Unskilled employees employed	
Categories of artisans	Number	Categories of employees	Number

1.1. Provide full particulars of:

Machinery	Plant	Workshops

2. PARTICULARS OF COMMITMENTS WHICH THE TENDERER HAS PREVIOUSLY COMPLETED AND PRESENTLY ENGAGED WITH:

2.1. Current projects:

	Project	Place (town)	Reference / Contact person	Contact Tel. No.	Contract amount	Contract period	Date of commencement	Scheduled date of completion
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

2.2. Previous projects:

Project		Place (town)	Reference / Contact person	Contact Tel. No.	Contract amount	Contract period	Date of commencement	Scheduled date of completion	Actual date of completion
1									
2									
3									
4									
5									
6									
7									
8									
Name of Tenderer		Signature				Date			

T2.1.06: PREFERENCE POINT SYSTEM

PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022

This preference form must form part of all tenders invited. It contains general information and serves as a claim form for preference points for specific goals.

NB: BEFORE COMPLETING THIS FORM, TENDERERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF THE TENDER AND PREFERENTIAL PROCUREMENT REGULATIONS, 2022

1. GENERAL CONDITIONS

1.1 The following preference point systems are applicable to invitations to tender:

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

1.2 To be completed by the organ of state

a) The applicable preference point system for this tender is the **80/20** preference point system.

1.3 Points for this tender (even in the case of a tender for income-generating contracts) shall be awarded for:

- (a) Price; and
- (b) Specific Goals.

1.4 To be completed by the organ of state:

The maximum points for this tender are allocated as follows:

	POINTS
PRICE	80
SPECIFIC GOALS	20
Total points for Price and SPECIFIC GOALS	100

1.5 Failure on the part of a tenderer to submit proof or documentation required in terms of this tender to claim points for specific goals with the tender, will be interpreted to mean that preference points for specific goals are not claimed.

1.6 The organ of state reserves the right to require of a tenderer, either before a tender is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner

required by the organ of state.

2. DEFINITIONS

- (a) **“tender”** means a written offer in the form determined by an organ of state in response to an invitation to provide goods or services through price quotations, competitive tendering process or any other method envisaged in legislation;
- (b) **“price”** means an amount of money tendered for goods or services, and includes all applicable taxes less all unconditional discounts;
- (c) **“rand value”** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;
- (d) **“tender for income-generating contracts”** means a written offer in the form determined by an organ of state in response to an invitation for the origination of income-generating contracts through any method envisaged in legislation that will result in a legal agreement between the organ of state and a third party that produces revenue for the organ of state, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auctions; and
- (e) **“the Act”** means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000).

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1. **POINTS AWARDED FOR PRICE**

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

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

80/20	or	90/10
$Ps = 80 \left(1 - \frac{Pt - P_{min}}{P_{min}}\right)$	or	$Ps = 90 \left(1 - \frac{Pt - P_{min}}{P_{min}}\right)$
Where		

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

P_{min} = Price of lowest acceptable tender

3.2. FORMULAE FOR DISPOSAL OR LEASING OF STATE ASSETS AND INCOME GENERATING PROCUREMENT

3.2.1 POINTS AWARDED FOR PRICE

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

$$\begin{array}{ccc}
 \textbf{80/20} & \text{or} & \textbf{90/10} \\
 \textbf{\textit{Ps}} = 80 \left(1 + \frac{Pt - P_{max}}{P_{max}} \right) & \text{or} & \textbf{\textit{Ps}} = 90 \left(1 + \frac{Pt - P_{max}}{P_{max}} \right)
 \end{array}$$

Where

Ps = Points scored for price of tender under consideration
 Pt = Price of tender under consideration
 Pmax = Price of highest acceptable tender

4. POINTS AWARDED FOR SPECIFIC GOALS

4.1. In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1 below as may be supported by proof/ documentation stated in the conditions of this tender:

4.2. In cases where organs of state intend to use Regulation 3(2) of the Regulations, which states that, if it is unclear whether the 80/20 or 90/10 preference point system applies, an organ of state must, in the tender documents, stipulate in the case of—

- (a) an invitation for tender for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system; or
- (b) any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system,

then the organ of state must indicate the points allocated for specific goals for both the 90/10 and 80/20 preference point system.

Table 1: Specific goals for the tender and points claimed are indicated per the table below.

Note to tenderers: The tenderer must indicate how they claim points for each preference point system.)

The specific goals allocated points in terms of this tender	Number of points allocated (90/10 system) (To be completed by the organ of state)	Number of points allocated (80/20 system) (To be completed by the organ of state)	Number of points claimed (90/10 system) (To be completed by the tenderer)	Number of points claimed (80/20 system) (To be completed by the tenderer)
Categories of persons historically disadvantaged by unfair discrimination on the basis of race Information will be verified on CSD report. Points will be allocated based on the percentage of ownership per goal		10		

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

- 100% black ownership = 10 points				
Categories of persons historically disadvantaged by unfair discrimination on the basis of gender. Information will be verified on CSD report. Points will be allocated based on the percentage of ownership per goal		10		
- 100% female ownership = 10 points				

DECLARATION WITH REGARD TO COMPANY/FIRM

4.3. Name of company/firm.....

4.4. Company registration number:

4.5. TYPE OF COMPANY/ FIRM

Partnership/Joint Venture / Consortium
 One-person business/sole proprietor
 Close corporation
 Public Company
 Personal Liability Company
 (Pty) Limited
 Non-Profit Company
 State Owned Company

[TICK APPLICABLE BOX]

4.6. I, the undersigned, who is duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the specific goals as advised in the tender, qualifies the company/ firm for the preference(s) shown and I acknowledge that:

- The information furnished is true and correct;
- The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
- In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;
- If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –

- (a) disqualify the person from the tendering process;
- (b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
- (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
- (d) recommend that the tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and
- (e) forward the matter for criminal prosecution, if deemed necessary.

.....
SIGNATURE(S) OF TENDERER(S)

SURNAME AND NAME:

DATE:

ADDRESS:

.....

.....

.....

T2.1.07: SCHEDULE OF KEY PERSONNEL

The Tenderer shall list below the key personnel who will be engaged on the Contract by completing this schedule.

Any reference to words "Bid" or "Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

T2.1.08: COMPENSATION OF OCCUPATIONAL INJURIES AND DISEASE ACT (COIDA)

PROJECT TITLE:	APPOINTMENT OF A CONTRACTOR FOR THE INSTALLATION AND MAINTENANCE OF A HYBRID ROOFTOP PHOTOVOLTAIC SOLAR SYSTEM AT THE PRETORIA NATIONAL BOTANICAL GARDEN
CONTRACT NO:	SANBI : G490/2023

The tenderer is registered and in good standing with the compensation fund issued by the Department of Labour (Letter of good standing with COIDA).

T2.1.09: DECLARATION OF INTEREST

PROJECT TITLE:	APPOINTMENT OF A CONTRACTOR FOR THE INSTALLATION AND MAINTENANCE OF A HYBRID ROOFTOP PHOTOVOLTAIC SOLAR SYSTEM AT THE PRETORIA NATIONAL BOTANICAL GARDEN
CONTRACT NO:	SANBI : G490/2023

Any person, including persons in the employ of the South African National Biodiversity Institute; or persons acting on behalf of the South African National Biodiversity Institute performing business as a sole proprietor or in partnership; or persons acting in the capacity of a trustee/s of a trust; or any legal entity, including legal entities and trusts, of which the members, directors, shareholders, trustees and/or beneficiaries are in the employ of the South African National Biodiversity Institute or act on behalf of the South African National Biodiversity Institute, may make an offer or offers in terms of this tender invitation.

In view of the possible allegations of favouritism, should the resulting tender, or part thereof, be awarded to persons employed by the South African National Biodiversity Institute; or to persons who act on behalf of the South African National Biodiversity; or to persons connected or related to them, the bidder / tenderer or the bidder / tenderer's duly authorized representative shall disclose herein any relationship and/or kinship, including blood relation, which he/she; his/her employer; the bidder / tenderer's management; members; directors; partners; shareholders; trustees; and/or beneficiaries may have with any person or persons in the employ of the South African National Biodiversity Institute and/or with any person or persons acting on behalf of the South African National Biodiversity Institute and who may directly or indirectly be involved in, and/or may be in a position to influence the adjudication and/or evaluation and/or award of this bid / tender.

In order to give effect to the above, the following questionnaire shall be completed and submitted with the tender. Failure to furnish the information requested in the questionnaire below may render the tender submission not to be considered at all.

(In answering the questions below, indicate the applicable answer with a ✓ and cross the other out)

1. Is the bidder / tenderer and/or the duly authorized representative in the employ of the South African National Biodiversity Institute?

YES NO

If yes, State the full particulars of such person/s, together with their current position held as an employee of the South African National Biodiversity Institute.

2. Is the bidder / tenderer and/or the duly authorized representative in the employ of the person/s or legal entity acting on behalf of the South African National Biodiversity Institute, and who may directly or indirectly be involved in, and/or may be in a position to influence, the adjudication and/or evaluation and/or award of this tender?

YES NO

If yes, State the full particulars of such person/s, together with their current position held as an employee of such person/s or legal entity acting on behalf of the South African National Biodiversity Institute.

3. Does the bidder / tenderer, the bidder's / tenderer's duly authorised representative, and/or any of the bidder's / tenderer's employees, management, partners, members, directors, shareholders, trustees and/or beneficiaries have any relationship (family, friend, business- or financial interest) with a person, or persons in the employ of the South African National Biodiversity Institute and/or in the employ of the person/s or legal entity acting on behalf of the South African National Biodiversity Institute, and who may directly or indirectly be involved in, and/or may be in a position to influence, the adjudication and/or evaluation and/or award of this tender?

YES NO

If yes, State the full particulars of the persons between whom the relationship exists, the nature of the relationship and the current position/status of such employee/s of the South African National Biodiversity Institute and/or of the person/s and/or legal entity acting on behalf of the South African National Biodiversity Institute herein.

I, the undersigned, _____
(name of the person duly authorised to sign the bid / tender documents on behalf of the bidder / tenderer)
hereby certify that the information, furnished above, is correct in all respects. I accept and understand that the South African National Biodiversity Institute, may act against me and the bidder / tenderer, jointly and severally, should this declaration prove to be false.

Duly signed at _____ on this the _____ day of _____ (month)
_____ (year)

Full name of signatory

Name of Bidder / Tenderer

Capacity of Signatory

Signature

COMMISSIONER OF OATHS

T2.1.10: MEDICAL CERTIFICATE FOR THE CONFIRMATION OF PERMANENT DISABLED STATUS

PROJECT TITLE:	APPOINTMENT OF A CONTRACTOR FOR THE INSTALLATION AND MAINTENANCE OF A HYBRID ROOFTOP PHOTOVOLTAIC SOLAR SYSTEM AT THE PRETORIA NATIONAL BOTANICAL GARDEN
CONTRACT NO:	SANBI : G490/2023

I, _____ (surname and name), Identity number, _____ do hereby declare that I am a registered medical practitioner, with my practice number being _____, practicing at _____ (Physical and postal addresses) declare that I have examined Mr/Mrs _____, identity number of _____ and have found the said person to be permanently disabled or having a recurring disability.

“Disability” means, in respect of a person, a permanent impairment of a physical, intellectual, or sensory function, which results in restricted, or lack of, ability to perform an activity in the manner, or within the range, considered normal for a human being.” – As per Preferential Procurement Policy Framework Act: No 5 of 2000 (PPPFA)

The nature of the disability is as follows:

Thus signed at _____ on this _____ day of _____ of _____.

Signature _____

Date _____

OFFICIAL STAMP OF
MEDICAL PRACTITIONER

T2.1.11: PROOF OF REGISTRATION WITH CONSTRUCTION INDUSTRY DEVELOPMENT BOARD

PROJECT TITLE:	APPOINTMENT OF A CONTRACTOR FOR THE INSTALLATION AND MAINTENANCE OF A HYBRID ROOFTOP PHOTOVOLTAIC SOLAR SYSTEM AT THE PRETORIA NATIONAL BOTANICAL GARDEN
CONTRACT NO:	SANBI : G490/2023

The Tenderer shall provide a printed copy of the Active Contractor's Listing off the CIDB website www.cidb.org.za. In the case of a joint venture, a printed copy of the Active Contractor's listing must be provided for each member of the joint venture.

Name of Contractor:

Contractor Grading Designation:

CIDB Contractor Registration Number:

T2.1.12: COPY OF CSD REGISTRATION CERTIFICATE

PROJECT TITLE:	APPOINTMENT OF A CONTRACTOR FOR THE INSTALLATION AND MAINTENANCE OF A HYBRID ROOFTOP PHOTOVOLTAIC SOLAR SYSTEM AT THE PRETORIA NATIONAL BOTANICAL GARDEN
CONTRACT NO:	SANBI : G490/2023

A copy of Central Suppliers Database (CSD) Registration Certificate must be included for evaluation purposes.

T2.1.13: RECORD OF ADDENDA TO TENDER DOCUMENTS

PROJECT TITLE:	APPOINTMENT OF A CONTRACTOR FOR THE INSTALLATION AND MAINTENANCE OF A HYBRID ROOFTOP PHOTOVOLTAIC SOLAR SYSTEM AT THE PRETORIA NATIONAL BOTANICAL GARDEN
CONTRACT NO:	SANBI : G490/2023

I / We confirm that the following communications received from the South African National Biodiversity Institute before the submission of this tender offer, amending the tender documents, have been taken into account in this tender offer: *(Attach additional pages if more space is required)*

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

Name of Tenderer	Signature	Date

I / We confirm that no communications were received from the South African National Biodiversity Institute before the submission of this tender offer, amending the tender documents.

Name of Tenderer	Signature	Date

T2.1.14: COMPULSORY ENTERPRISE QUESTIONNAIRE

PROJECT TITLE:	APPOINTMENT OF A CONTRACTOR FOR THE INSTALLATION AND MAINTENANCE OF A HYBRID ROOFTOP PHOTOVOLTAIC SOLAR SYSTEM AT THE PRETORIA NATIONAL BOTANICAL GARDEN
CONTRACT NO:	SANBI : G490/2023

The following particulars must be furnished. In the case of a joint venture, separate enterprise questionnaires in respect of each partner must be completed and submitted.

Section 1: Name of enterprise:

Section 2: VAT registration number, if any:

Section 3: CIDB registration number, if any:

Section 4: Particulars of sole proprietors and partners in partnerships

Name*	Identity number*	Personal income tax number*

*Complete only if sole proprietor or partnership and attach separate page if more than 3 partners.

Section 5: Particulars of companies and close corporations

Company registration number:

Close corporation number:

Tax reference number:

Section 6: Record in the service of the state

Indicate by marking the relevant boxes with a cross, if any sole proprietor, partner in a partnership or director, manager, principal shareholder or stakeholder in a company or close corporation is currently, or has been within the last 12 months, in the service of any of the following:

<input type="checkbox"/> a member of any municipal council	<input type="checkbox"/> an employee of any provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No 1 of 1999)
<input type="checkbox"/> a member of any provincial legislature	
<input type="checkbox"/> a member of the National Assembly or the National Council of Province	
<input type="checkbox"/> a member of the board of directors of any municipal entity	<input type="checkbox"/> a member of an accounting authority of any national or provincial public entity

an official of any municipality or municipal entity an employee of Parliament or a provincial legislature

If any of the above boxes are marked, disclose the following:

*Insert separate page if necessary.

Section 7: Record of spouses, children and parents in the service of the state

Indicate by marking the relevant boxes with a cross, if any spouse, child or parent or a sole proprietor, partner in a partnership or director, manager, principal shareholder or stakeholder in a company or close corporation is currently, or has been within the last 12 months, in the service of any of the following:

- a member of any municipal council
- a member of any provincial legislature
- a member of the National Assembly or the National Council of Province
- a member of the board of directors of any municipal entity
- an official of any municipality or municipal entity
- an employee of any provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No 1 of 1999)
- a member of an accounting authority of any national or provincial public entity
- an employee of Parliament or a provincial legislature

Name of spouse, child or parent	Name of institution, public office, board or organ of state and position held	Status of service (tick appropriate column)	
		Current	Within last 12 months

*Insert separate page if necessary.

Any reference to words "Bid" or "Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

The undersigned, who warrants that he/she is duly authorised to do so on behalf of the enterprise:

- (i) authorises the Employer to obtain a tax clearance certificate from the South African Revenue Services that my/our tax matters are in order;
- (ii) confirms that neither the name of the enterprise or the name of any partner, manager, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears on the Register of Tender Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act, 2004;
- (iii) confirms that no partner, member, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise, has within the last five years been convicted of fraud or corruption;
- (iv) confirms that I/we are not associated, linked or involved with any other tendering entities submitting tender offers and have no other relationship with any of the Tenderers or those responsible for compiling the Scope of Work that could cause or be interpreted as a conflict of interest; and
- (v) confirms that the contents of this questionnaire are within my personal knowledge and are to the best of my belief both true and correct.

Signed: Date:

Name: Position:

Enterprise name:

**T2.1.15: COPY OF INSTALLATION ELECTRICIAN'S REGISTRATION
WITH THE DEPARTMENT OF LABOUR (WIREMAN'S LICENSE)**

PROJECT TITLE:	APPOINTMENT OF A CONTRACTOR FOR THE INSTALLATION AND MAINTENANCE OF A HYBRID ROOFTOP PHOTOVOLTAIC SOLAR SYSTEM AT THE PRETORIA NATIONAL BOTANICAL GARDEN
CONTRACT NO:	SANBI : G490/2023

A copy of the Wireman's License for the Installation Electrician must be included for evaluation purposes.

PART C: THE CONTRACT

Part C1: Agreement and Contract Data

PROJECT TITLE:	APPOINTMENT OF A CONTRACTOR FOR THE INSTALLATION AND MAINTENANCE OF A HYBRID ROOFTOP PHOTOVOLTAIC SOLAR SYSTEM AT THE PRETORIA NATIONAL BOTANICAL GARDEN.
CONTRACT NO:	SANBI : G490/2023

C1.1 Form of Offer and Acceptance

The Employer, identified in the Acceptance signature block, has solicited offers to enter into a contract for the **APPOINTMENT OF A CONTRACTOR FOR THE INSTALLATION AND MAINTENANCE OF A HYBRID ROOFTOP PHOTOVOLTAIC SOLAR SYSTEM AT THE PRETORIA NATIONAL BOTANICAL GARDEN.**

The tenderer, identified in the Offer signature block, has examined the documents listed in the Tender Data and addenda thereto as listed in the Returnable Schedules, and by submitting this Offer has accepted the Conditions of Tender.

The tenderer, identified in the Offer signature block, has examined the draft contract as listed in the Acceptance section and agreed to provide this Offer.

By the representative of the tenderer, deemed to be duly authorised, signing this part of this Form of Offer and Acceptance the tenderer offers to perform all of the obligations and liabilities of the **Contractor** under the contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the conditions of contract identified in the Contract Data.

THE OFFERED TOTAL OF THE PRICES INCLUSIVE OF VAT IS:

(in words) Rand;

R (in figures)

THE OFFERED PRICES ARE AS STATED IN THE PRICING SCHEDULE

This Offer may be accepted by the Employer by signing the Acceptance part of this Form of Offer and Acceptance and returning one copy of this document including the Schedule of Deviations (if any) to the tenderer before the end of the period of validity stated in the Tender Data, or other period as agreed, whereupon the tenderer becomes the party named as the **Contractor** in the conditions of contract identified in the Contract Data.

Signature(s)

Name(s)

Capacity

**For the
Tenderer:**

Name &
signature of Date

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

The South African National Biodiversity Institute

APPOINTMENT OF A CONTRACTOR FOR THE INSTALLATION AND MAINTENANCE OF A HYBRID ROOFTOP PHOTOVOLTAIC
SOLAR SYSTEM AT THE PRETORIA NATIONAL BOTANICAL GARDEN
Contract
No.: SANBI: **G490/2023**

witness

.....

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

Acceptance

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

The terms of the Contract are contained in

Part C1 Agreements and Contract Data [*which includes this Agreement*]

Part C2 Pricing Data

Part C3 Scope of Work

Part C4 Site Information

and drawings and documents or parts thereof, which may be incorporated by reference into Parts C1 to C4 above.

Deviations from and amendments to the documents listed in the Tender Data and any Addenda thereto listed in the Tender Schedules, as well as any changes to the terms of the Offer agreed by the Tenderer and the Employer during this process of offer and acceptance, are contained in the Schedule of Deviations attached to and forming part of this Agreement. No amendments to or deviations from the said documents are valid unless contained in this Schedule, which must be duly signed by the authorised representative(s) of both parties.

The Tenderer shall within the time required to submit documentation in accordance with clause 5.3.2 of the Contract Data (C1.2) after receiving a completed copy of this Agreement, including the Schedule of Deviations (if any), contact the Employer's agent (whose details are given in the Contract Data) to arrange the delivery of any bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the Conditions of Contract identified in the Contract Data at, or just after, the date this Agreement comes into effect. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this Agreement.

Notwithstanding anything contained herein, this Agreement comes into effect on the date when the Tenderer receives one fully completed original copy of this document, including the Schedule of Deviations (if any). Unless the Tenderer (now Contractor) within five working days of the date of such receipt notifies the Employer in writing of any reason why he cannot accept the contents of this Agreement, this Agreement shall constitute a binding Contract between the parties.

Signature(s)

Name(s)

Capacity

For the Employer:

.....
(Insert name and address of organisation)

Name & signature of witness

Date

Schedule of Deviations

1	Subject
	Details

2	Subject
	Details

3	Subject
	Details

4	Subject
	Details

5	Subject
	Details

By the duly authorised representatives signing this Schedule of Deviations, the Employer and the Tenderer agree to and accept the foregoing Schedule of Deviations as the only deviations from and amendments to the documents listed in the Tender Data and Addenda thereto as listed in the Tender Schedules, as well as any confirmation, clarification or change to the terms of the offer agreed by the Tenderer and the Employer during this process of offer and acceptance.

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

FOR THE TENDERER:

Signature(s)

Name(s)

Capacity

[Name and address of organisation]

Name and
signature of
witness

Date

FOR THE EMPLOYER:

Signature(s)

Name(s)

Capacity

[Name and address of organisation]

Name and
signature of
witness

Date

CONFIRMATION OF RECEIPT

The Tenderer (now Contractor), identified in the Offer part of this Agreement, hereby confirms receipt from the Employer, identified in the Acceptance part of this Agreement, of one fully completed original copy of this Agreement, including the Schedule of Deviations (if any) today:

The..... *[day]*

of *[month]*

20 *[year]*

at *[place]*

For the Contractor:

Signature

.....
Name

.....
Capacity

Signature and name of witness:

Signature

.....
Name

PART C: THE CONTRACT**Part C1: Agreement and Contract Data**

PROJECT TITLE:	APPOINTMENT OF A CONTRACTOR FOR THE INSTALLATION AND MAINTENANCE OF A HYBRID ROOFTOP PHOTOVOLTAIC SOLAR SYSTEM AT THE PRETORIA NATIONAL BOTANICAL GARDEN
CONTRACT NO:	SANBI : G490/2023

C.1.2 Contract Data

C.1.2 Contract Data	
<p>The Conditions of Contract are the <i>General Conditions of Contract for Construction Works (Third Edition, 2nd print, 2015)</i> published by the South African Institution of Civil Engineering. Copies of these conditions of contract may be obtained from the South African Institution of Civil Engineering (Tel: 011-805 5947).</p> <p>Each item of data given below is cross-referenced to the clause in the Conditions of Contract to which it mainly applies.</p>	
Part 1: Data provided by the Employer	
Clause	Data
1.1.1.13	<p>Clause 1.1.1.13: Defects Liability Period</p> <p>The Defects Liability Period is 12 months, measured from the date of the Certificate of Completion</p>
1.1.1.14	<p>Clause 1.1.1.14: Due Completion Date</p> <p>The time for achieving Practical Completion is as follows:</p> <p>5 Months after the Commencement date</p>
1.1.1.15	<p>The name of the Employer is The South African National Biodiversity Institute, represented by Mr Tanaka Mupudzi and/or such persons or person duly authorised thereto be the Employer in writing.</p>
1.2.1.2	<p>The Employer's address for receipt of communications is:</p> <p>Delivery Address: Attention: Deputy Director: Supply Chain Management Pretoria National Botanical Garden Biodiversity Centre, 2 Cussonia Avenue Brummeria, Pretoria</p> <p>Postal Address: Attention: Deputy Director: Supply Chain Management South African National Biodiversity Institute Private Bag X101 Silverton, Gauteng 0184</p>
1.1.1.16	<p>The name of the Engineer is SERVINET CONSULTING ENGINEERS</p>

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

1.2.1.2	The address of the Engineer is: ServiNet Consulting Engineers Fancourt Office Park, Building 4 Cnr Felstead & Northumberland Ave North Riding, Gauteng
1.1.1.26	Clause 1.3.: Pricing Strategy The Pricing Strategy is a re-measurement contract.
3.1.3	Clause 3.1.3: Specific Approval of the Employer Required The Engineer is required to obtain the specific approval of the Employer before executing any of the following functions or duties: 1 Clause 6.3: Variations 2 Clause 5.11.1: Suspension of the Works 3 Clause 5.12: Extension of Time for Practical Completion
3.2.3	Clause 3.2.3: Specific Approval of the Employer Required The Employer's Agent is required to obtain the specific approval of the Employer before executing any of the following functions or duties: 1 Clause 6.3: Variations 2 Clause 5.11.1: Suspension of the Works 3 Clause 5.12: Extension of Time for Practical Completion
5.3.1	Clause 5.3.1: Commencement of the Works The documentation required before commencement with Works execution are: Health and Safety Plan (Refer to Clause 4.3) Initial programme (Refer to Clause 5.6) Security (Refer to Clause 6.2) Insurance (Refer to Clause 8.6) Cash flow projection
5.3.2	Clause 5.3.2: Timeframe to deliver documentation The time to submit the documentation required before commencement with Works execution is twenty-one (21) days.
5.3.3	Clause 5.3.3: Time to instruct commencement of the Works <i>Add the following to Clause 5.3.3 after the last sentence:</i> "The Contractor shall not commence working until they have an approved project specific health and safety plan in terms of the Occupational Health and Safety Act, 1993: Construction Regulations, 2014 and complied with the initial requirements thereof."
5.4.2	The access and possession of Site shall not be exclusive to the Contractor but as set out in the Site Information.
5.8.1	Clause 5.8.1: Non-Working Times The non-working days are Saturdays and Sundays.

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

	<p>The special non-working days are:</p> <ol style="list-style-type: none"> 1. All gazetted public holidays falling outside the year end break. 2. The year-end break 																								
5.12.2.	<p>Clause 5.12.2.: Some reasons for extension of time</p> <p>Clause 5.12.2.2: Abnormal climatic conditions.</p> <p><i>Add the following:</i></p> <p>Regardless of the cause of any delay an extension of time will only be considered if it can be shown that the activity delayed is on the critical path indicated on the Programme of Works (Clause 5.6.1).</p> <p>No extension of time will be granted in respect of any delays attributed to normal climatic conditions. Normal Climatic Conditions shall be deemed to include normal rainfall and associated wet conditions and materials, strong winds and extremes of temperature. However, in the event that delays to critical activities exceed the number of working days listed below for each month, then abnormal climatic conditions shall be deemed to exist, and an extension of time shall be granted in accordance with the provisions of that Clause.</p> <p>The number of days quoted below shall be regarded as a fair estimate of the delays to be anticipated and allowed for under normal climatic conditions where inclement weather prevents or disrupts work on the critical path.</p> <table style="width: 100%; text-align: center;"> <tr> <td>January</td> <td>3 days</td> <td>May</td> <td>1 days</td> <td>September</td> <td>1 days</td> </tr> <tr> <td>February</td> <td>6 days</td> <td>June</td> <td>1 days</td> <td>October</td> <td>2 days</td> </tr> <tr> <td>March</td> <td>7 days</td> <td>July</td> <td>1 days</td> <td>November</td> <td>2 days</td> </tr> <tr> <td>April</td> <td>5 days</td> <td>August</td> <td>1 days</td> <td>December</td> <td>4 days</td> </tr> </table> <p>Claims for delays for abnormal climatic conditions shall be accompanied by substantiating facts and evidence, which shall be submitted timeously as each day or half-day delay is experienced. Should an extension of time be granted by the Engineer such extension of time will be added to the Time for Completion.</p> <p>It shall be further noted that where the critical path is not affected, no extension of time for <u>abnormal</u> climatic conditions or for any other reason will be entertained. Rainfall of 10mm or less per day shall be deemed to be normal climatic conditions.</p>	January	3 days	May	1 days	September	1 days	February	6 days	June	1 days	October	2 days	March	7 days	July	1 days	November	2 days	April	5 days	August	1 days	December	4 days
January	3 days	May	1 days	September	1 days																				
February	6 days	June	1 days	October	2 days																				
March	7 days	July	1 days	November	2 days																				
April	5 days	August	1 days	December	4 days																				
5.13.1	<p>Clause 5.13.1: Penalty for Delay</p> <p>The penalty for failing to complete the Works is R4000 per day.</p>																								
5.14.1	<p>Clause 5.14.1: Practical completion</p> <p>The requirements for achieving Practical Completion are:</p> <p>Works to reach a state of readiness fit for intended purpose and occupation without danger/undue inconvenience to the Employer/public.</p>																								
5.14.2	<p>Clause 5.14.2: Issue of Certificate of Practical Completion</p> <p><i>Replace "the Employer's Agent" in the second and third lines with the following:</i></p> <p>", the Contractor shall notify the Employer's Agent, who shall inspect the Works and the Employer's Agent"</p>																								
5.14.4	<p>Clause 5.14.4: Certificate of Completion</p> <p><i>Replace "the Employer's Agent" in the third line of the first paragraph with:</i></p> <p>", the Contractor shall notify the Employer's Agent, who shall inspect the works and the Employer's Agent"</p>																								

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

5.16.3	Clause 5.16.3: Latent defect liability The latent defect period is five (5) years for building works.
6.2	Clause 6.2: Security The Form of Guarantee is to contain the wording of the pro-forma document as per the contract document. The liability of the guarantee shall be for 10% of the Approved Contract Sum.
6.8.2	Clause 6.8.2: Contract Price Adjustment Contract Price Adjustment <u>is not applicable</u>
6.8.3	Clause 6.8.3: Variation in Cost of Special Materials Price adjustments for variations in the costs of special materials are not allowed
6.10.1.5	Clause 6.10.1.5: Interim Payments - Materials on Site No percentage advance on materials on site but not yet built into the Permanent Works is allowed for, or will be paid.
6.10.3	Clause 6.10.3: Retention Money The percentage retention on the amounts due to the Contractor is 10% (ten percent). The limit of retention is 10% of the Contract Sum, including allowances for contingencies. This reduces to 5% upon the issue of the Certificate of Completion. The remaining 5% retention will be released upon the issue of the Final - Approval Certificate upon lapse of the defects liability period. Security plus Retention amount will not exceed 15% of the Contract Sum
6.10.4	Clause 6.10.4: Delivery, dissatisfaction with and payment of payment certificate <i>Replace "28 days" in the second last sentence with "30 days"</i>
6.10.6	Clause 6.10.6: Set-Off and Delayed Payments A guarantee in lieu of retention is not permitted
6.10.6.2	Clause 6.10.6.2: Set-Off and Delayed Payments <i>Replace the words "prime overdraft rate certified by the Contractor's banker" with the words "interest rate as determined by the Minister of Finance, from time to time, in terms of section 80(1)(b) of the Public Finance Management Act, 1999 (Act No. 1 of 1999), will apply"</i>
6.10.8	Clause 6.10.8: Contractor's completion statement <i>Replace "28 days" in the last sentence with "30 days"</i>
6.10.9	Clause 6.10.9: Final payment certificate <i>Replace "28 days" in the last sentence with "30 days"</i>
6.12	Clause 6.12: Additional <i>Add Clause 6.12 as follows:</i> In respect of any amount owed by the Contractor to the Employer, the Contractor shall pay the Employer interest at the rate as determined by the Minister of Finance, from time to time, in terms of section 80(1)(b) of the Public Finance Management Act, 1999 (Act No. 1 of 1999), will apply
8.6.1	Clause 8.6.1: Insurance <i>Add the following:</i>

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

	<p>Damage to the Works</p> <p>(a) Without in any way limiting the Contractor's obligations in terms of the Contract, the Contractor shall bear the full risk of damage to and/or destruction of the Works by whatever cause during construction of the Works and hereby indemnifies and holds harmless the Employer against any such damage. The Contractor shall take such precautions and security measures and other steps for the protection and security of the Works, as he may deem necessary.</p> <p>(b) The Contractor shall at all times proceed immediately to remove or dispose of any debris arising from damage to or destruction of the Works and to rebuild, restore, replace and/or repair the Works.</p> <p>(c) The Employer shall carry the risk of damage to or destruction of the Works and material paid for by the Employer that is the result, whether direct or indirect or proximate or remote, of the excepted risks as set out in Clause 8.6.2.</p> <p>(d) Where the Employer bears the risk in terms of this Contract, the Contractor shall, if requested to do so, reinstate any damage or destroyed portions of the Works and the costs of such reinstatement shall be measured and valued in terms of Clause 6.7 hereof.</p>
8.6.1.1.2	<p>Clause 8.6.1.1.2: Insurance</p> <p>The value of the materials supplied by the Employer to be included in the insurance sum is -Nil.</p>
8.6.1.1.3	<p>Clause 8.6.1.1.3: Insurance</p> <p>The amount to cover professional fees for repairing damage and loss to be included in the insurance sum is -Nil.</p>
8.6.1.3	<p>Clause 8.6.1.3: Insurance</p> <p>The limit of indemnity for liability insurance is R10 000 000.00 for any single claim – the number of claims to be unlimited during the construction.</p>
8.6.1.5	<p>Clause 8.6.1.5: Additional Insurance</p> <p>Additional Insurance is required for the following:</p> <p>a) Where the contract involves manufacturing and/or fabrication of the works or part thereof at premises other than the Site, the Contractor shall satisfy the Employer that all materials and equipment for incorporation in the works are adequately insured during manufacture and/or fabrication. In the event of the Employer having an insurable interest in such works during manufacture or fabrication then such interest shall be noted by endorsement to the Contractor's Policies of Insurance.</p>
10.1.5	<p>Clause 10.1.5: Employer's Agent's ruling on Contractor's Claim</p> <p><i>Add the following to Clause 10.1.5 before the last sentence:</i></p> <p>"If the Employer's Agent does not respond in accordance with the foregoing procedure and timetable, either Party may consider that the claim has been rejected by the Employer's Agent and either Party may submit the dispute by issuing a Dispute Notice in terms of Clause 10.3.1."</p>
10.3.1	<p>Clause 10.3: Dispute Notice</p> <p><i>Replace Clause 10.3.1.1 with the following</i></p> <p>"The dispute arises from any ruling."</p>
10.5, 10.6, 10.7	<p>Clause 10.5, 10.6, 10.7: Dispute Resolution</p> <p>Dispute resolution shall be by Arbitration.</p>

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

11	Clause 12: Confidentiality The Contractor shall treat the details of the Works comprised in this Contract as private and confidential (save in so far as may be necessary for the purposes hereof) and shall not publish or disclose the same or any particulars thereof in any trade or technical paper elsewhere without prior written consent of the Engineer.
12	Clause 13: Amendments in writing No amendments of this Contract or of any provisions or terms hereof and no waiver or relaxation or suspension of any of the provisions or terms of this Contract shall be of any force or effect unless reduced to writing and signed by both the parties hereto.

PART 2: DATA PROVIDED BY THE CONTRACTOR

Clause

1.1.1.9 The Contractor is

1.2.1.2 The Contractor's address for receipt of communications is:

Physical address:

Postal address:

.....

.....

.....

.....

.....

.....

Telephone:

Fax:

Email:.....

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

PART C: THE CONTRACT**Part C1: Agreement and Contract Data**

PROJECT TITLE:	APPOINTMENT OF A CONTRACTOR FOR THE INSTALLATION AND MAINTENANCE OF A HYBRID ROOFTOP PHOTOVOLTAIC SOLAR SYSTEM AT THE PRETORIA NATIONAL BOTANICAL GARDEN
CONTRACT NO:	SANBI : G490/2023

C1.3 FORM OF CONSTRUCTION GUARANTEE**C1.3.1 PRO FORMA PERFORMANCE GUARANTEE****GUARANTOR DETAILS AND DEFINITIONS**

"Guarantor" means:

Physical address:

"Employer" means:

"Contractor" means:

"Engineer" means:

"Works" means:

"Site" means:

"Contract" means: The Agreement made in terms of the Form of Offer and Acceptance and such amendments or additions to the Contract as may be agreed in writing between the parties.

"Contract Sum" means: The accepted amount inclusive of tax of R

Amount in words:

"Guaranteed Sum" means: The maximum aggregate amount of R.....

Amount in words:

"Expire Date" means:

CONTRACT DETAILS

Engineer issues: Interim Payment Certificates, Final Payment Certificate and the Certificate Completion of the Works as defined in the Contract.

PERFORMANCE GUARANTEE

1 The Guarantor's liability shall be limited to the amount of the Guaranteed Sum.

- 2 The Guarantor's period of liability shall be from and including the date of issue of this Performance Guarantee and up to and including the Expiry Date or the date of issue by the Engineer of the Certificate of Completion of the Works or the date of payment in full of the Guaranteed Sum, whichever occurs first. The Engineer and/or the Employer shall advise the Guarantor in writing of the date on which the Certificate of Completion of the Works has been issued.
- 3 The Guarantor hereby acknowledge that:
 - 3.1 any reference in this Performance Guarantee to the Contract is made for the purpose of convenience and shall not be construed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a suretyship;
 - 3.2 its obligation under this Performance Guarantee is restricted to the payment of money.
- 4 Subject to the Guarantor's maximum liability referred to in 1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 4.1 to 4.3:
 - 4.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Engineer in an Interim or Final Payment Certificate has not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 4.2;
 - 4.2 A first written demand issued by the Employer to the guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) days has elapsed since the first written demand in terms of 4.1 and the sum certified has still not been paid;
 - 4.3 A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum certified in 4.
- 5 Subject to the Guarantor's maximum liability referred to in 1, the Guarantor undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Performance Guarantee, such demand stating that:
 - 5.1 the Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 5; or
 - 5.2 a provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Performance Guarantee is called up in terms of 5; and
 - 5.3 the aforesaid written demand is accompanied by a copy of the notice of termination and/or the provisional/final sequestration and/or the provisional liquidation court order.
- 6 It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 4 and 5 shall not exceed the Guarantor's maximum liability in terms of 1.
- 7 Where the Guarantor has made payment in terms of 5, the Employer shall upon the date of issue of the Final Payment Certificate submit an expense account to the Guarantor showing how all monies received in terms of this Performance Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of this Performance Guarantee shall bear interest at the prime overdraft rate of the Employer's bank compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund.
- 8 Payment by the Guarantor in terms of 4 or 5 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.

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- 9 Payment by the Guarantor in terms of 5 will only be made against the return of the original Performance Guarantee by the Employer.
- 10 The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may deem fit and the Guarantor shall not have the right to claim his release from this Performance Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.
- 11 The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.
- 12 This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 2, where after no claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.
- 13 This Performance Guarantee, with the required demand notices in terms of 4 or 5, shall be regarded as a liquid document for the purposes of obtaining a court order.
- 14 Where this Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Courts Act No 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.

Signed at

Date.....

Guarantor's signatory: (1)

Capacity.....

Guarantor's signatory: (2)

PART C: THE CONTRACT

Part C1: Agreement and Contract Data

PROJECT TITLE:	APPOINTMENT OF A CONTRACTOR FOR THE INSTALLATION AND MAINTENANCE OF A HYBRID ROOFTOP PHOTOVOLTAIC SOLAR SYSTEM AT THE PRETORIA NATIONAL BOTANICAL GARDEN
CONTRACT NO:	SANBI : G490/2023

C1.4 Occupational Health and Safety Agreement 37(2)

AGREEMENT MADE AND ENTERED INTO BETWEEN THE

(Hereinafter called the “EMPLOYER”)

(Contractor / Mandatary / Company / CC Name)

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

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

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

COID ACT Registration Number:

Or Compensation Insurer: Policy No.:

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

I further undertake to ensure that any Sub-contractors employed by me will enter into an Occupational Health and Safety Agreement separately, and that such Sub-contractors comply with the conditions set.

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

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

Any reference to words “Bid” or Bidder” herein and/or in any other documentation shall be construed to have the same meaning as the words “Tender” or “Tenderer”.

Signed at this day of..... 20.....

.....
WITNESS

.....
MANDATORY

Signed at this day of..... 20.....

.....
WITNESS

.....
FOR AND ON BEHALF OF THE EMPLOYER

OCCUPATIONAL HEALTH AND SAFETY CONDITIONS

1. The Chief Executive Officer of the Contractor shall assume the responsibility in terms of Section 16(1) of the Occupational Health and Safety Act (as amended). Should the Contractor assign any duty in terms of Section 16(2), a copy of such assignment shall immediately be provided to the representative of the Employer as defined in the Contract.
2. All work performed on the Employer's premises shall be performed under the supervision of the construction supervisor who understand the hazards associated with any work that the Contractor performs on the site in terms of Construction Regulations 2003.
3. The Contractor shall appoint a Competent Person who shall be trained on any occupational health and safety aspect pertaining to them or to the work that is to be performed.
4. The Contractor shall ensure that he familiarises himself with the requirements of the Occupational Health and Safety Act and that he, his employees, and any sub-contractors, comply with them.
5. Discipline in the interests of occupational health and safety shall be strictly enforced.
6. Personal protective equipment shall be issued by the Contractor as required and shall be worn at all times where necessary.
7. Written safe work procedures and appropriate precautionary measures shall be available and enforced, and all employees shall be made conversant with the contents of these practices.
8. No substandard equipment/machinery/articles or substances shall be used on the site.
9. All incidents referred to in terms of Section 24 of the Occupational Health and Safety Act shall be reported by the Contractor to the Department of Labour and the Employer.
10. The Employer hereby obtains an interest in the issue of any formal inquiry conducted in terms of Section 32 of the Occupational Health and Safety Act and into any incident involving a Contractor and/or his employees and/or his Sub-Contractor/s.

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

11. No use shall be made of any of the Employer's machinery / plant / equipment / substance / personal protective equipment or any other article without prior arrangement and written approval.
12. No alcohol or any other intoxicating substance shall be allowed on the site. Any person suspected of being under the influence of alcohol or any other intoxicating substance shall not be permitted access to, or allowed to remain on the site.
13. Prior to commencement of any work, verified copies of all documents mentioned in the agreement, must be presented to the Employer.

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

PART C: THE CONTRACT

Part C2: Pricing Data

PROJECT TITLE:	APPOINTMENT OF A CONTRACTOR FOR THE INSTALLATION AND MAINTENANCE OF A HYBRID ROOFTOP PHOTOVOLTAIC SOLAR SYSTEM AT THE PRETORIA NATIONAL BOTANICAL GARDEN	
CONTRACT NO:	SANBI : G490/2023	
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C2.2	Provisional Bill of Quantities	73

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

PART C: THE CONTRACT

Part C2: Pricing Data

PROJECT TITLE:	APPOINTMENT OF A CONTRACTOR FOR THE INSTALLATION AND MAINTENANCE OF A HYBRID ROOFTOP PHOTOVOLTAIC SOLAR SYSTEM AT THE PRETORIA NATIONAL BOTANICAL GARDEN
CONTRACT NO:	SANBI : G490/2023

C2.1 Notes to Tenderer

C2.1.1 Project Description

The scope of work includes but is not limited to the following:

- Install solar panel mounting structurers on the roof space for the Herbarium and Biodiversity Centre Buildings at the Pretoria National Botanical Gardens
- Install 200 x 550W Tier 1 solar panels on the roof space for the Herbarium.
- Install 200 x 550W Tier 1 solar panels on the roof space for the Biodiversity Centre Building.
- Install new DC cabling and earthing cables from the solar panels to the DC protection boxes and from the DC protection boxes to the inverters including cable trays and wireways.
- Install new 2 x 50kW hybrid inverters with WIFI connectivity for the Herbarium and 2 x 50kW hybrid inverters with WIFI connectivity for the Biodiversity Centre.
- Install 160kWh battery storage for the Herbarium and 160kWh Battery storage for the Biodiversity Centre inclusive of cabling, trunking and fused battery disconnectors.
- Install the associated AC cabling and AC protection for both buildings.
- Install earthing and lightning protection for the solar plant in both buildings.
- Commission the new solar plants.

C2.1.2. General Notes

2.1 The tenderer's attention is drawn to, inter alia, the following as contained in this document:

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

2.1.1 The General Conditions of Contract for Construction Works (2015) published by the South African Institution of Civil Engineering, are applicable to this contract.

2.1.2 The Bills of Quantities have been drawn up in accordance with the "Standard System of Measuring Building Work Seventh Edition (Revised 2015)" published by the Association of South African Quantity Surveyors

2.1.3 The General Preambles for Trades (2017 edition), as published by the Association of South African Quantity Surveyors, shall be deemed to be incorporated in the bills of quantities and no claims arising from brevity of description of items, fully described in the said General Preambles, will be entertained

2.1.4 "Supplementary Preambles" are incorporated in the bills of quantities to satisfy the requirements of the project and shall take precedence over the provisions of the said General Preambles

2.1.5 Descriptions in the Bills of Quantities are abbreviated and comply generally with those in the said General Preambles

2.1.6 The units of measurement described in the Bills of Quantities are metric units. Abbreviations which may be used in the Bills of Quantities are as follows:

mm	=	millimetre	m	=	linear metre
m ²	=	square metre	m ³	=	cubic metre
km	=	kilometre	ha	=	hectare
h	=	hour	kg	=	kilogram
t	=	ton	L	=	litre
kl	=	kilolitre	kN	=	kiloweton
MN	=	meganewton	MPa	=	megapascal
kW	=	kilowatt	%	=	percent
No	=	number	sum	=	lump sum
PC Sum	=	Prime Cost Sum			
Prov Sum	=	Provisional Sum			

PART C: THE CONTRACT

Part C2: Pricing Data

PROJECT TITLE:	APPOINTMENT OF A CONTRACTOR FOR THE INSTALLATION AND MAINTENANCE OF A HYBRID ROOFTOP PHOTOVOLTAIC SOLAR SYSTEM AT THE PRETORIA NATIONAL BOTANICAL GARDEN
CONTRACT NO:	SANBI : G490/2023

C2.2 Bills of Quantities

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

Item	Description	Unit	Qty	Rate	Amount
	<u>BILL 1: PRELIMINARY & GENERAL ITEMS</u>				
	Fixed Items				
1.1	Allow for costs incurred for site establishment, ablution facilities, off-loading and storage and removal of site establishment on completion of contract.	Sum	1		
	Time-Related Items				
1.2	Site supervision, site security and other relevant overhead costs	Sum	1		
1.3	Allowance to attend to all site meetings and inspections, transport and time related to such meetings and inspections	Sum	1		
1.4	Allow for Health And Safety File, including compliance with OH&S Act & Construction Regulations	Sum	1		
1.5	Allowance for lifting gear, cranes etc. that may be required for moving plant & equipment into position	Sum	1		
1.6	Allowance to comply, maintain all insurance premium costs, statutory contributions, provision of Sureties, Guarantee of Works, etc.	No	1		
1.7	Other (Please Specify)	-	-		
TOTAL CARRIED FORWARD TO SUMMARY PAGE					

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

Item	Description	Unit	Qty	Rate	Amount
	<u>BILL 2: BIODIVERSITY CENTRE SOLAR PLANT INSTALLATION</u>				
	Solar Panels				
	Supply & Install 550Wp Tier 1 solar panels e.g Canadian Solar, JA Solar, Jinko or similar approved by the Engineer				
2.1	Supply	No.	200		
2.2	Install	No.	200		
2.3	Earthing & Lightning Protection of the solar plant as per the SANS regulations Include earth spikes for inverter earthing	Sum	1		
	PV Cables				
	Halogen-free according to IEC 60754-1, Flame-retardant according to IEC 60332-1-2, Smoke density according to IEC 61034, Weathering/UV-resistant and Ozone resistant PV DC cables installed on cable tray, cable ladder, ground and sleeves including all fixings and accessories (cable trays and sleeves measured elsewhere)				
	6mm ² single-core				
2.4	Supply	m	1800		
2.5	Install	m	1800		
	Cable Terminations				
	Make off and terminate the PV DC cable, complete with MC4 Connectors including connection of cable to equipment terminals . Rate to include supply of any other accessories required to make task complete				
	6mm ² single-core				
2.6	Supply	No	128		
2.7	Install	No	128		

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

	Earth Conductors						
	Insulated Copper Earth Wire						
	6mm ²						
2.8		Supply	m	900			
2.9		Install	m	900			
	16mm ²						
2.10		Supply	m	240			
2.11		Install	m	240			
	Earth Conductors Terminations						
	Make off and terminate Insulated Copper Earth Wire, including lugs and connections.						
	6mm ²						
2.12		Supply	No	416			
2.13		Install	No	416			
	16mm ²						
2.14		Supply	No	16			
2.15		Install	No	16			
TOTAL CARRIED FORWARD TO NEXT PAGE							

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

Item	Description	Unit	Qty	Rate	Amount
BROUGHT FORWARD					
2.16	Cable Trays Galvanized cable trays inclusive of couplers, bends, etc mounted on the walls and ceilings 300mm	Supply	m	240	
2.17		Install	m	240	
2.18	Sleeves Kabelflex high density (or equal and approved) polyethylene (HDPE) sleeve with double wall construction, corrugated outer wall and smooth inner wall finish inclusive of couplers, bends, etc 110mm diameter	Supply	m	50	
2.19		Install	m	50	
2.20	DC Protection Box 1000V Protection Box with 4 Inputs and 4 Outputs including a 32A Isolator, Type II SPD and 20A fuses	Supply	No	4	
2.21		Install	No	4	
2.22	- Excavations Excavate for cable and sleeve trench including temporary support of sides, keeping excavations dry, backfilling and compacting as required.				
2.23	Pickable Soil		m^3	18	
2.24	For Soft Rock		m^3	6	
2.25	Bedding under and filling around cables comprising sifted sand		m^3	4	
2.26	Cable Tape and Markers PVC warning marking tape	Supply	m	50	
		Install	m	50	

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

	Concrete route markers complete with outer marking arrows and "LV CABLE" inscription.					
2.27		Supply	No.	3		
2.28		Install	No.	3		
	Solar Panel Mounting Structure					
	Supply and install rooftop solar mounting structures including all the required clamps, nuts. Bolts, connectors etc to mount the solar panels					
2.29		Supply	Sum	1		
2.30		Install	Sum	1		
	Inverters					
	Supply & Install Hybrid inverters including all accessories required to mount the inverters as well as communication cables					
	50kW 3-Phase Hybrid Inverter					
2.31		Supply	Sum	2		
2.32		Install	Sum	2		
TOTAL CARRIED FORWARD TO NEXT PAGE						

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

Item	Description	Unit	Qty	Rate	Amount
BROUGHT FORWARD					
	Armoured Cables				
	600/1 000V PVC/PVC/SWA/PVC multi-core copper cable to SANS 1507-3 installed on cable tray, cable ladder, ground and sleeves including all fixings and accessories (cable trays and sleeves measured elsewhere)				
2.33	70mm ² 4-core	Supply	m	200	
2.34		Install	m	200	
	Cable Terminations				
	Make off and terminate the LV cable, complete with glands, lugs and shrouds including connection of cable to equipment terminals. Rate to include supply, nuts, flat and spring washers and any other accessories required to make task complete				
2.37	70mm ² 4-core	Supply	No	4	
2.38		Install	No	4	
	Earth Conductors				
	Bare Copper Earth Wire				
2.39	25mm ² 4-core	Supply	No.	8	
2.40		Install	No.	8	
	Earth Conductors				
	Bare Copper Earth Wire				
2.41	35mm ²	Supply	m	200	
2.42		Install	m	200	

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

2.43	16mm ²	Supply	m	20		
2.44		Install	m	20		
Earth Conductors Terminations						
Make off and terminate Insulated Copper Earth Wire, including lugs and connections.						
2.45	35mm ²	Supply	No	4		
2.46		Install	No	4		
2.47	16mm ²	Supply	No	8		
2.48		Install	No	8		
AC DB						
Supply and install a three phase AC Protection Box with 2 x 80A Input and 1 x out 160A, complete with enclosure, 25kA Type II SPD, switchgear, changeover switch and all accessories required to combine the two AC outputs from the two inverters						
2.49		Supply	No	1		
2.50		Install	No	1		
TOTAL CARRIED FORWARD TO NEXT PAGE						

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

Item	Description	Unit	Qty	Rate	Amount
BROUGHT FORWARD					
2.51	Trunking Supply & Install steel galvanized trunking/wireway with covers for both AC and DC cable management inside the building	Supply	Sum	1	
2.25		Install	Sum	1	
Battery Bank					
2.53	Supply & Install a battery bank for the solar system complete with fused battery disconnectors, battery rack/stand as required and battery connection cables	Supply	Sum	1	
2.54	160kWh battery bank	Install	Sum	1	
Testing and commissioning					
2.55	Test and commission the complete solar installation in the presence of the Consulting Engineer.	Item		1	
TOTAL CARRIED FORWARD TO SUMMARY PAGE					

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

Item	Description	Unit	Qty	Rate	Amount
	<u>BILL 3: HERBARIUM SOLAR PLANT INSTALLATION</u>				
	Solar Panels				
	Supply & Install 550Wp Tier 1 solar panels e.g Canadian Solar, JA Solar, Jinko or similar approved by the Engineer				
3.1	Supply	No.	200		
3.2	Install	No.	200		
3.3	Earthing & Lightning Protection of the solar plant as per the SANS regulations Include earth spikes for inverter earthing	Sum	1		
	PV Cables				
	Halogen-free according to IEC 60754-1, Flame-retardant according to IEC 60332-1-2, Smoke density according to IEC 61034, Weathering/UV-resistant and Ozone resistant PV DC cables installed on cable tray, cable ladder, ground and sleeves including all fixings and accessories (cable trays and sleeves measured elsewhere)				
	10mm ² single-core				
3.4	Supply	m	1800		
3.5	Install	m	1800		
	Cable Terminations				
	Make off and terminate the PV DC cable, complete with MC4 Connectors including connection of cable to equipment terminals (Solar variable Speed Drive) . Rate to include supply of any other accessories required to make task complete				
	10mm ² single-core				
3.6	Supply	No	128		
3.7	Install	No	128		

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

	Earth Conductors						
	Insulated Copper Earth Wire						
	6mm ²						
3.8		Supply	m	900			
3.9		Install	m	900			
	16mm ²						
3.10		Supply	m	240			
3.11		Install	m	240			
	Earth Conductors Terminations						
	Make off and terminate Insulated Copper Earth Wire, including lugs and connections.						
	6mm ²						
3.12		Supply	No	416			
3.13		Install	No	416			
	16mm ²						
3.14		Supply	No	16			
3.15		Install	No	16			
TOTAL CARRIED FORWARD TO NEXT PAGE							

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

Item	Description	Unit	Qty	Rate	Amount
BROUGHT FORWARD					
3.16	Cable Trays Galvanized cable trays inclusive of couplers, bends, etc mounted on the walls and ceilings 300mm	Supply	m	240	
3.17		Install	m	240	
3.18	Sleeves Kabelflex high density (or equal and approved) polyethylene (HDPE) sleeve with double wall construction, corrugated outer wall and smooth inner wall finish inclusive of couplers, bends, etc 110mm diameter	Supply	m	50	
3.19		Install	m	50	
3.20	DC Protection Box 1000V Protection Box with 4 Inputs and 4 Outputs including a 32A Isolator, Type II SPD and 20A fuses	Supply	No	4	
3.21		Install	No	4	
3.22	- Excavations Excavate for cable and sleeve trench including temporary support of sides, keeping excavations dry, backfilling and compacting as required.				
3.23	Pickable Soil		m^3	18	
3.24	For Soft Rock		m^3	6	
3.25	Bedding under and filling around cables comprising sifted sand		m^3	4	
3.26	Cable Tape and Markers PVC warning marking tape	Supply	m	50	
		Install	m	50	

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

	Concrete route markers complete with outer marking arrows and "LV CABLE" inscription.					
3.27		Supply	No.	3		
3.28		Install	No.	3		
Solar Panel Mounting Structure Supply and install rooftop solar mounting structures including all the required clamps, nuts. Bolts, connectors etc to mount the solar panels						
3.29		Supply	Sum	1		
3.30		Install	Sum	1		
Inverters Supply & Install Hybrid inverters including all accessories required to mount the inverters as well as communication cables 50kW 3-Phase Hybrid Inverter						
3.31		Supply	Sum	2		
3.32		Install	Sum	2		
TOTAL CARRIED FORWARD TO NEXT PAGE						

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

Item	Description	Unit	Qty	Rate	Amount
BROUGHT FORWARD					
	Armoured Cables				
	600/1 000V PVC/PVC/SWA/PVC multi-core copper cable to SANS 1507-3 installed on cable tray, cable ladder, ground and sleeves including all fixings and accessories (cable trays and sleeves measured elsewhere)				
3.33	70mm ² 4-core	Supply	m	200	
3.34		Install	m	200	
	25mm² 4-core				
3.35		Supply	m	20	
3.36		Install	m	20	
	Cable Terminations				
	Make off and terminate the LV cable, complete with glands, lugs and shrouds including connection of cable to equipment terminals. Rate to include supply, nuts, flat and spring washers and any other accessories required to make task complete				
3.37	70mm ² 4-core	Supply	No	4	
3.38		Install	No	4	
	25mm² 4-core				
3.39		Supply	No.	8	
3.40		Install	No.	8	
	Earth Conductors				
	Bare Copper Earth Wire				
	35mm ²				
3.41		Supply	m	200	
3.42		Install	m	200	

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

3.43	16mm ²	Supply	m	20		
3.44		Install	m	20		
Earth Conductors Terminations						
Make off and terminate Insulated Copper Earth Wire, including lugs and connections.						
3.45	35mm ²	Supply	No	4		
3.46		Install	No	4		
3.47	16mm ²	Supply	No	8		
3.48		Install	No	8		
AC DB						
Supply and install a three phase AC Protection Box with 2 x 80A Input and 1 x out 160A, complete with enclosure, 25kA Type II SPD, switchgear, changeover switch and all accessories required to combine the two AC outputs from the two inverters						
3.49		Supply	No	1		
3.50		Install	No	1		
TOTAL CARRIED FORWARD TO NEXT PAGE						

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

Item	Description	Unit	Qty	Rate	Amount
BROUGHT FORWARD					
3.51	Trunking Supply & Install steel galvanized trunking/wireway with covers for both AC and DC cable management inside the building	Supply	Sum	1	
3.52		Install	Sum	1	
Battery Bank					
3.53	Supply & Install a battery bank for the solar system complete with fused battery disconnectors, battery rack/stand as required and battery connection cables	Supply	Sum	1	
3.54	160kWh battery bank	Install	Sum	1	
Testing and commissioning					
3.55	Test and commission the complete solar installation in the presence of the Consulting Engineer.	Item		1	
TOTAL CARRIED FORWARD TO SUMMARY PAGE					

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

Item	Description	Unit	Qty	Rate	Amount
<u>BILL 4: ADDITIONAL ITEMS</u>					
Documentation					
4.1	Provision of the Certificates of Compliance as per the requirement of SANS 10142-1 upon completion for the electrical works covered within the contract.	Item	1		
4.2	Provision of the Operation and Maintenance manuals for the works covered within this contract including product warranties, and product brochures (3 sets - 1 original and 2 copies).	Item	1		
Training					
4.3	Conduct Training for the Client User's personnel	Item	1		
Guarantee					
4.4	12 month equipment and installation guarantee on the works covered within this contract. The guarantee period commences on the day of successful handing over of the building to the Client	Item	1		
Maintenance (Service Level Agreement)					
	Provide for the solar system maintenance services for a period of 2 years. (Provide an annual rate)				
4.5	Year 1	Sum	1		
4.6	Year 2	Sum	1		
4.7	Utility consent/sign-off	Sum	1		
TOTAL CARRIED FORWARD TO SUMMARY PAGE					

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

Item	Description	Page No.	Amount						
	<u>SUMMARY PAGE</u>								
5.1	BILL 1: PRELIMINARY & GENERAL ITEMS	1							
5.2	BILL 2: BIODIVERSITY CENTRE SOLAR PLANT INSTALLATION	2							
5.3	BILL 3: HERBARIUM SOLAR PLANT INSTALLATION	6							
5.4	BILL 4: ADDITIONAL ITEMS	10							
5.5	CONTINGENCIES @ 10%								
SUB-TOTAL (Excluding VAT)									
Add VAT @ 15%									
GRAND TOTAL (Including VAT)									
<p>NOTE: ALL RATES AND PRICES EXCLUDE 15% VAT and CONTINGENCIES</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">Contractor's Name</td> <td style="padding: 5px;"></td> </tr> <tr> <td style="padding: 5px;">Electrical Contractor's Registration Number at the Electrical Contracting Board of South Africa</td> <td style="padding: 5px;"></td> </tr> <tr> <td style="padding: 5px;">Name of Registered Person / Firm at ECB</td> <td style="padding: 5px;"></td> </tr> </table> <p>NB: Only contractors whose ECB Registration is for Three Phase installations will be considered.</p> <p>MINIMUM CIDB GRADING OF 5EB IS REQUIRED</p> <p>Signature of person authorised to sign the tender:</p>				Contractor's Name		Electrical Contractor's Registration Number at the Electrical Contracting Board of South Africa		Name of Registered Person / Firm at ECB	
Contractor's Name									
Electrical Contractor's Registration Number at the Electrical Contracting Board of South Africa									
Name of Registered Person / Firm at ECB									

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

PART C: THE CONTRACT**Part C3: Scope of Work**

PROJECT TITLE:	APPOINTMENT OF A CONTRACTOR FOR THE INSTALLATION AND MAINTENANCE OF A HYBRID ROOFTOP PHOTOVOLTAIC SOLAR SYSTEM AT THE PRETORIA NATIONAL BOTANICAL GARDEN
	SANBI : G490/2023

	<u>Page</u>
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C3.2 DESIGN & CONSTRUCTION	89
C3.3 DRAWINGS	91

Status

Should any requirement or provision in the parts of the Scope of Work conflict with any requirement of any Standardised Specification, Particular Specification or any drawings, the order of precedence, unless otherwise specified, is:

Drawings

Scope of Work

Standardised Specifications

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

PART C: THE CONTRACT

Part C3: Scope of Work

PROJECT TITLE:	APPOINTMENT OF A CONTRACTOR FOR THE INSTALLATION AND MAINTENANCE OF A HYBRID ROOFTOP PHOTOVOLTAIC SOLAR SYSTEM AT THE PRETORIA NATIONAL BOTANICAL GARDEN
CONTRACT NO:	SANBI : G490/2023

C 3.1. Description of the Works

C3.1.1 Background

The Pretoria National Botanical Garden (PNBG) is located in Pretoria and which is surrounded by urban development, offers a much-needed green area and corridor for wildlife in the eastern suburbs of Pretoria. The garden is a favourite birding spot with over 220 bird species having been listed. Various mammals, nocturnal animals, bats and reptiles often visit the natural grassland for food or shelter. More than 50 butterfly species have been recorded.

In May of 2023, ServiNet Consulting Engineers was appointed by SANBI for the assessment, design, procurement, construction and monitoring for the installation and maintenance of a hybrid rooftop photovoltaic solar system at the Pretoria National Botanical Garden.

C3.1.2 Scope of Works

The scope of works per phase includes, but is not necessarily limited to, the following:

Note: All works to be carried out according to SANS standards

- Install solar panel mounting structurers on the roof space for the Herbarium and Biodiversity Centre Buildings at the Pretoria National Botanical Garden
- Install 200 x 550W Tier 1 solar panels on the roof space for the Herbarium.
- Install 200 x 550W Tier 1 solar panels on the roof space for the Biodiversity Centre Building.
- Install new DC cabling and earthing cables from the solar panels to the DC protection boxes and from the DC protection boxes to the inverters including cable trays and wireways.
- Install new 2 x 50kW hybrid inverters with WIFI connectivity for the Herbarium and 2 x 50kW hybrid inverters with WIFI connectivity for the Biodiversity Centre.
- Install 160kWh battery storage for the Herbarium and 160kWh Battery storage for the Biodiversity Centre inclusive of cabling, trunking and fused battery disconnectors.

- Install the associated AC cabling and AC protection for both buildings.
- Install earthing and lightning protection for the solar plant in both buildings.
- Commission the new solar plants.
- Maintenance of the solar infrastructure for a period of two years after the 12-month guarantee period has lapsed as per the Maintenance Plan on page 140 of this document..

Note that all the products should be CSIR and SABS approved.

C3.1.3 Location of the Works

The project is located at the Pretoria National Botanical Garden, Pretoria

Part C3: Scope of Work

PROJECT TITLE:	APPOINTMENT OF A CONTRACTOR FOR THE INSTALLATION AND MAINTENANCE OF A HYBRID ROOFTOP PHOTOVOLTAIC SOLAR SYSTEM AT THE PRETORIA NATIONAL BOTANICAL GARDEN
CONTRACT NO:	SANBI : G490/2023

C3.2. Design & Construction

This project is for appointment of a contractor for the installation and maintenance of a hybrid rooftop photovoltaic (PV) solar system at the Pretoria National Botanical Garden for the South African National Biodiversity Institute.

C3.2.1 Initial Basic Information:

The scope includes guidelines and practices for the supply, installation, testing and commissioning of a hybrid rooftop PV solar system.

All the necessary approvals from the Power Utility, feasibility study, necessary civil works, mounting of module support structures, PV module installation, inverter installation, battery bank, DC/AC cabling and interconnections, installation of lightning arresters and earthing system as per the applicable SANS standards, arranging all the necessary inspections from the Power Utility as part of pre-commissioning, if any, commissioning of the PV solar system, are coming under the scope of the Contractor.

C3.2.2 Site Camp

No major site camp is envisioned for this project, and should there be a need, the area must be kept to an absolute minimum. There are open areas around the botanical garden which may be used for a small site camp. No large containers will be allowed for offices or storage. Water and electricity area available on site. Security of the site and materials is the sole responsibility of the Contractor.

C3.2.3 Equipment / Plan

No large plant is envisioned for the project. The majority of work should be labour intensive with hand operated tools. Should there be a need to bring large machinery on to the work site, it should be as per the arrangement with the Employer or Employer's representative. Any damage or disturbance of the site/infrastructure by large machinery will have to be remediated at the cost of the Contractor.

C3.2.4 Applicable Project Specifications

Products

C3.2.4.1 SOLAR PV MODULE

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

The Contractor shall use only the PV modules with the specifications detailed below:

1. The PV modules must be PID compliant, salt, mist and ammonia resistant and should withstand weather conditions for the project life cycle.
2. The back sheet of PV module shall be a minimum of three layers with the outer layer (exposure to ambience) made of PVDF or PVF. The back sheets for PV module with two layered or three layered polyester types or the back sheets with polyester (PET type) at air side material are not permitted for the empanelment. The minimum thickness of the core layers (without adhesive and inner EVA coated) must be 300 microns. The maximum allowed water vapor transmission rate shall be less than 2 g/m²/day and shall have a partial discharge > / = 1500V DC.
3. The front glass shall meet the following specifications:
 - a. The facing glass must be tempered, PV grade with low iron and high transmission.
 - b. The transmission shall be > 93 %
 - c. The thickness shall be a minimum of 3.2 mm
 - d. It shall be textured to trap more light
 - e. The glass shall have an anti-reflective coating for better transmission and light absorption.
 - f. It shall have tempered glass to meet the external load conditions
4. The encapsulant used for the PV modules should be UV resistant in nature. No yellowing of the encapsulant with prolonged exposure shall occur. The sealant used for edge sealing of PV modules shall have excellent moisture ingress protection with good electrical insulation and with good adhesion strength. Edge tapes for sealing are not allowed.
5. Anodized aluminium module frames of sufficient thickness shall be used which are electrically and chemically compatible with the structural material used for mounting the modules and have a provision for earthing.

6. UV resistant junction boxes with a minimum of three numbers of bypass diodes and two numbers of MC4 connectors or equivalent with appropriate length of 4 sq.mm Cu cable shall be provided. IP67 degree of protection shall be used to avoid degradation during life.
7. Shading correction/bypass diode for optimising PV out shall be incorporated in each solar module or panel level.
8. Each PV module used in any solar power project must use a RF identification tag (RFID), which must contain the following information. The RFID can be inside or outside the module laminate but must be able to withstand harsh environmental conditions.
 - a) Name of the manufacturer of PV module.
 - b) Name of the manufacturer of solar cells.
 - c) Month and year of the manufacture (separately for solar cells and module).
 - d) Country of origin (separately for solar cell and module).
 - e) I-V curve for the module.
 - f) Peak wattage, IM, VM and FF for the module.
 - g) Unique Serial No. and Model No. of the module.
 - h) Date and year of obtaining IEC PV module qualification certificate.
 - i) Name of the test lab issuing IEC certificate.
 - j) Other relevant information on traceability of solar cells and module as per ISO 9000 series.
9. The following details should be provided on the module
 - a) Name of the manufacturer.
 - b) Month and year of manufacture.
 - c) Rated power at STC.
 - d) VMP, IMP, VOC, Isc.
10. The PV modules must qualify as per relevant IEC/SANS standard. The performance of PV modules at STC conditions must be tested and approved (supply test reports).

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

11. PV modules used in solar power plant/systems must be warranted for 10 years for their material, manufacturing defects, and workmanship. The output peak watt capacity should not be less than 90% at the end of 10 years and 80% at the end of 25 years.
12. Original Equipment Manufacturers (OEM) Warranty of the PV modules shall be submitted by the bidders.
13. The PV modules shall conform to the following standards:
 - IEC 61215 / IEC 61646: c-Si (IEC 61215): Crystalline silicon terrestrial photovoltaic (PV) modules – Design, qualification and type approval Thin Film (IEC 61646): Design, qualification and type approval
 - IEC 61730-1: Photovoltaic module safety qualification - Part 1: Requirements for construction
 - IEC 61730-2: Photovoltaic module safety qualification - Part 2: Requirements for testing
 - IEC 61701: Salt mist corrosion testing of photovoltaic modules
 - IEC 62716: Test sequences useful to determine the resistance of PV modules to Ammonia (NH3)

C3.2.4.2 **INVERTER**

The inverter shall be a string inverter with a power exporting facility to the grid. The specifications for the hybrid inverters are detailed below:

General Specifications:

- . All the inverters should contain the following clear and indelible Marking Label & Warning Label. The equipment shall, as a minimum, be permanently marked with:
 - a. The name or trademark of the manufacturer or supplier.
 - b. A model number, name or other means to identify the equipment.
 - c. A serial number, code or other markings allowing identification of manufacturing location and the manufacturing batch or date within a three-month time period.
 - d. Input voltage, type of voltage (A.C. or D.C.), frequency, and maximum continuous current for each input.
 - e. Output voltage, type of voltage (A.C. or D.C.), frequency, maximum continuous current, and for A.C. outputs, either the power or power factor for each output.

f. The Ingress Protection (IP) rating

The hybrid inverter output shall be 415 VAC, 50 Hz, 3 phase or 230 VAC, 50 Hz, 1 phase.

The hybrid inverter should have all the technical requirements for connecting to the grid and provision of intentional islanding with a facility for connecting to a battery bank.

The hybrid inverter shall include appropriate self-protective and self-diagnostic features to protect itself and the PV array from damage in the event of inverter component failure or from parameters beyond the inverter's safe operating range due to internal or external causes.

The technical specification of hybrid inverters are summarised below:

Specifications of Inverters	
Parameters	Detailed specification
Nominal voltage	230V/415V
Voltage band	Between 80% and 110% of V nominal
Nominal frequency	50 Hz
Operating frequency range	47.5 to 50.5 Hz
Waveform	Sine wave
Harmonics	AC side total harmonic current distortion < 3%
Ripple	DC voltage ripple content shall be not more than 1%
Efficiency	Efficiency shall be >95%
Casing protection levels	Degree of protection: Minimum IP-21 for internal units and IP-65 for outdoor units
Operating ambient temperature range	-10 to + 60 degree Celsius
Operation	Completely automatic including wakeup, synchronisation (phase locking) and shut down
MPPT	MPPT range must be suitable to individual array voltages

Protections	Over voltage: both input and output Over current: both input and output Over / Under grid frequency Over temperature Short circuit Lightning Surge voltage induced at output due to external source islanding
Ingress protection	IP 20/IP 21
Recommended indications	LED ON Grid ON Under/Over voltage Overload Over temperature
Recommended LCD display on front panel	DC input voltage DC current AC voltage (all 3 phases) AC current (all 3 phases) Frequency Ambient temperature Instantaneous power cumulative output energy Cumulative hours of operation Daily DC energy produced
Communication Interface	RS485/ RS232/Wi-Fi (with or without USB)

The technical specification for interconnection are summarised below:

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

SI No,	Parameters	Requirements	Reference
1	Overall conditions of service	Reference to regulations	Conditions for supply of electricity
2	Overall grid standards	Reference to regulations	Power utility standards
3	Equipment	Applicable industry standards	IEC/EN standards
4	Safety and supply	Reference to regulations, (general safety requirements)	SANS standards, power utility requirements
5	Meters	Reference to regulations and additional conditions issued by the utility.	Utility specifications
6	Harmonic current	Harmonic current injections from a generating station shall not exceed the limits specified in IEEE 519	IEEE 519

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

7	Synchronisation	Photovoltaic system must be equipped with a grid frequency synchronisation device, if the system is using a synchronizer inherently built into the inverter then no separate synchroniser is required	Relevant utility regulations
8	Voltage	The voltage-operating window should minimize nuisance tripping and should be under operating range of 90% to 110% of the nominal connected voltage. Beyond the clearing time of two seconds, the Photovoltaic system must isolate itself from the grid	
9	Flicker	Operation of Photovoltaic system should not cause voltage flicker in excess of the limits stated in IEC 61000 or other equivalent Indian standards if any	
10	Frequency	When the distribution system frequency deviates outside the specified limits (50.5 Hz on upper side and 47.5 Hz on lower side) up to 0.2 sec, the Photovoltaic systems shall automatically disconnect from grid and be in island mode.	Relevant utility specifications

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

11	DC injection	Photovoltaic system shall not inject DC current greater than 0.5% of full rated output at the interconnection point or 1% rated inverter output current into distribution system under any operating conditions.	
12	Power factor	While the output of the inverter is greater than	

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		50%, a lagging power factor greater than 0.9 shall be maintained.	
13	Islanding and disconnection	The photovoltaic system in the event of voltage or frequency variations must island/disconnect itself with the time stipulated as per IEC standards	
14	Overload and overheat	The inverter should have the facility to automatically switch off in case of overload or overheat and should restart when normal conditions are restored	

The IEC Certifications of on-grid inverters are summarized below:

Standard	Description
IEC 61683	Photovoltaic systems – Power conditioners – Procedure for measuring efficiency
IEC 61727	Photovoltaic systems - Characteristics of the utility interface
IEC/EN 62109-1	Safety of power converters for use in photovoltaic power systems – Part 1: General requirements
IEC/EN 62109-2	Safety of power converters for use in photovoltaic power systems – Part 2: Particular requirements for inverters

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

IEC/EN 61000-3-3/ 3-11/ 3-5	Electromagnetic compatibility (EMC) – Part 3-11; Limits; Limitation of Voltage Change, Voltage Fluctuations and Flicker in Public Low- Voltage Supply Systems; Rated Current <16A / >16A and <75A / >75A per Phase respectively
IEC/EN 61000-3-2/ -3-12/ -3-4	Electromagnetic compatibility (EMC) – Part 3-12; Limits; Limits for Harmonic Currents produced by equipment connected to the public low voltage systems with Rated Current <16A / >16A and <75A / >75A per Phase respectively
*IEC/EN 61000-6- 1 / 6-2	Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity standard for residential and commercial / industrial environments
*IEC/EN 61000-6- 3 / 6-4	Electromagnetic compatibility (EMC) – Part 6-4: Generic standards – Emission standard for residential and commercial / industrial environments
IEC 62116 /IEEE 1547 or IEEE 1547.1 / UL 1741	Utility-interconnected photovoltaic inverters – Test procedure of islanding prevention measures
IEC 60068-2-1	Environmental testing – Part 2-1: Tests – Test A: Cold
IEC 60068-2-2	Environmental testing – Part 2-2: Tests – Test B: Dry heat
IEC 60068-2-14	Environmental testing – Part 2-14: Tests – Test N: Change of temperature
IEC 60068-2-30	Environmental testing – Part 2-30: Tests – Test Db: Dampheat, cyclic (12 h + 12 h cycle)

***Recommended but not mandatory**

C3.2.4.3 **BATTERY BANK**

The battery bank should preferably be Lithium - Ion. The specifications for the batteries are detailed below:

No:	Parameters
1.	Nominal capacity (Ah) shall be rated @C10
2.	Minimum nominal voltage (V): 48V for LV inverters and ±512V for HV batteries
3,	Self-discharge (less than 3% per month at 30°C)

General Specifications:

- Test certificate submitted should qualify the minimum requirements as per above standards for capacity test, ampere-hour efficiency test, watt-hour efficiency test, self- discharge test.
- Battery shall have a warranty of a minimum of 10 years
- Battery capacity is rated C/10 at 27°C

Original Equipment Manufacturers (OEM) warranty of battery shall be submitted.

Standards and certifications:

Major IEC Certification for batteries are listed below:

Standard	Description
IEC 61427	IEC 61427 – This series gives general information relating to the requirements for the secondary batteries used in photovoltaic energy systems (PVES) and to the typical methods of test used for the verification of battery performances.

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

IEC 60896	This part of IEC 60896 applies to all stationary lead-acid cells and Monobloc batteries of the valve regulated type for float charge applications, (i.e. permanently connected to a load and to a DC power supply), in a static location (i.e. not generally intended to be moved from place to place) and incorporated into stationary equipment or installed in battery rooms for use in telecom, uninterruptible power supply (UPS), utility switching, emergency power or similar applications.
IEC 62133 : 2012**	Defines requirements and tests for the safe operation of portable sealed secondary cells and batteries containing alkaline or other non- acid electrolyte, under intended use and reasonably foreseeable misuse.
IEC 61056*	IEC 61056-1:2012 specifies the general requirements, functional characteristics and methods of test for all general-purpose lead-acid cells and batteries of the valve-regulated type
IEC 62133-2: 2017**	IEC 62133 requirements and tests for the safe operation of portable sealed secondary lithium cells and batteries containing non-acid electrolyte, under intended use and reasonably foreseeable misuse.
IEC 62620:2014**	IEC 62620 defines marking, tests and requirements for lithium secondary cells and batteries used in industrial applications including stationary applications.

* Recommended

** Applies for Lithium ferro phosphate batteries

C3.2.4.4 DATALOGGING

A dedicated data logging system (hardware and software) for monitoring the plant shall be provided even if the inverter has an embedded data logging system. The following weather parameters are to be measured as part of the datalogging system.

It is recommended that the following important parameters shall be accessible through the data logging facility.

- a) AC voltage
- b) AC output current

- c) Output power
- d) Energy in kWh
- e) DC input voltage
- f) DC input current
- g) Temperatures (°C)
- h) Invertor status

- i) String voltage and current

Provision for internet monitoring and downloads of historical data shall be incorporated. A GSM Modem/WiFi modem, in the case of GSM connectivity, must be used or a wireless router + modem, in the case of an Ethernet connection, must be provided for remote access.

C3.2.4.5 MODULE MOUNTING STRUCTURE

- Photovoltaic arrays must be mounted on a stable, durable structure that can support the array and withstand wind, rain, and other adverse conditions. The modules will be fixed on structures with a fixed arrangement.
- The module mounting structures shall have adequate strength and appropriate design suitable to the locations, which can withstand the load and high wind velocities. Stationary structures shall support PV modules at a given orientation, absorb and transfer the mechanical loads to the surface properly.
- The PV module mounting structure shall have a capacity to withstand a wind velocity of 150 km/hr.
- The materials used for structures shall be aluminium or hot dip galvanized mild steel conformed to IS 2062:1992 or aluminium of a suitable grade and minimum alloy 6063 or better.
- The minimum thickness of galvanization for hot dip galvanized mild steel should be at least 80 microns.
- The bolts, nuts, fasteners, and clamps used for panel mounting shall be of stainless steel.

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

- No welding is allowed on the mounting structure.
- Aluminium structures used shall be protected against rusting either by coating or anodization.
- Aluminium frames should be avoided for installations in coastal areas.
- The structure shall be designed to withstand operating environmental conditions for a minimum period of 25 years and shall be free from corrosion during installation.
- Screw fasteners shall use existing mounting holes provided by module manufacturer. No additional holes shall be drilled on module frames
- The total load of the structure (when installed with PV modules) on the terrace should be less than 60 kg/m².
- The minimum distance between the lower level of PV module and the ground shall be 0.6m from the ground level.
- The PV panel area shall be accessible for cleaning and for any repair work.
- Sufficient gaps need to be provided between the rows to avoid the falling of shadows of one row onto the next row. Seismic factors for the site will be considered while making the design of the foundation.
- Adequate spacing shall be provided between any two modules secured on the PV panel for improved wind resistance.
- The installation of the structure for solar PV mounting should not tamper with the water proofing of the roofs.
- Drawings shall be approved by the concerned engineer before installing the plant.

C3.2.4.6 EARTHING

The solar PV plant should have a dedicated earthing system.

The earthing system shall connect all non-current carrying metal receptacles, electrical boxes, appliance frames, chassis and PV module mounting structures in one long run. The earth strips should not be bolted. Earthing GI strips shall be interconnected by proper welding.

The earthing conductor should be rated for 1.56 times the maximum short circuit current of the PV array. The factor 1.56 considers 25 percent as a safety factor and 25 percent as albedo factor to protect from any unaccounted external reflection onto the PV modules increasing its current.

In any case, the cross-section area of the earthing conductor for PV equipment should not be less than 6 mm² if copper, 10 mm² if aluminium, or 70 mm² if hot-dipped galvanized iron. For the earthing of lightning arrestor, the cross-section of the earthing conductor should not be less than 16 mm² if copper or 70 mm² if hot-dipped galvanized iron. The complete earthing system shall be mechanically

and electrically connected to provide an independent return to earth.

Earth resistance shall not be more than 10 ohms. The earthing system must be interconnected through GI strips to arrive at equipotential bonding. The size of the GI earth strip must be a minimum of 25 mm X 6 mm.

All non-current carrying metal parts shall be earthed with two separate and distinct earth continuity conductors to an efficient earth electrode.

The equipment grounding wire shall be connected to an earth strip by a proper fixing arrangement. Each strip shall be continued up to at least 500 mm from the equipment.

C3.2.4.7 **LIGHTNING PROTECTION**

The solar PV power plant should be provided with lightning and over voltage protection. The source of over voltage can be lightning or another atmospheric disturbance. The lightning conductors shall be made as per applicable SANS Standards, in order to protect the entire array yard from lightning strikes.

The design and specification shall conform to IEC 62305, "Protection against lightning" should govern all lightning protection-related practices of a PV system.

The entire space occupying SPV array shall be suitably protected against lightning by deploying the required number of lightning arresters. Lightning protection should be provided as per IEC 62305.

The lightning system shall comprise of air terminations, down conductors, test links, earth electrode etc. as per approved drawings.

The protection against induced high voltages shall be provided by the use of surge protection devices (SPDs) and the earthing terminal of the SPD shall be connected to the earth through the earthing system.

The EPC Contractor/Company shall submit the drawings and detailed specifications of the PV array lightning protection equipment to the Employer for approval before installation of system.

C3.2.4.8 **ARRAY JUNCTION BOX (AJB)/ STRING COMBINER BOX (SCB)**

The Array Junction Box (AJB) shall be provided as per the design requirement of the inverter, if required.

The AJB comprises of an enclosure, copper busbars, fuses, Surge Protection Device (SPD) and an isolator. DC generated by the solar modules is transmitted through the appropriate cables from the array yard to the control facility. The AJB bus and panel shall be provided for the incoming DC supply from the array yard.

The AJB, if required, should be equipped with an adequate capacity indoor DC circuit breaker along with control circuit, protection relays, fuses, etc.

The AJB, if required, must be enclosed to ensure it is dust and vermin proof, the bus bar / cables must be made of copper of a desired size.

The AJBs are to be provided in the PV array for termination of connecting cables. The AJBs shall be made with a full dust, water and vermin proof arrangement. All wires/cables must be terminated through cable lugs. The JBs shall be such that input and output termination can be made through suitable cable glands.

Suitable markings shall be provided on the bus bar for easy identification and the cable ferrules must be fitted at the cable termination points for identification.

Copper bus bars/terminal blocks housed in the junction box must have suitable termination threads conforming to IP 65 standards to prevent water entry, single/double compression cable glands, and provision of earthing. It should be placed at a height suitable for ease of accessibility.

Each junction box shall have high quality suitable capacity Metal Oxide Varistors (MOVs)/SPDs. The Surge Protective Device shall be of Type 2 as per IEC 60364-5- 53.

The junction boxes shall have suitable arrangement for the following (typical):- Combine groups of modules into independent charging sub-arrays that will be wired into the controller. The junction boxes shall have arrangements for disconnection for each group and attest point for each sub-group for fault location.

The current carrying ratings of the string combiner box/junction box shall be suitable with an adequate safety factor, to interconnect the solar PV array.

All fuses shall have DIN rail mountable fuse holders and shall be housed in thermoplastic IP65 enclosures with transparent covers.

Fuses for both positive and negative inputs of each string, isolator of MCB, SPD of type 2 shall be provided.

The surge arresters shall be type 2 (with reference to IEC 61643-1) rated at a continuous operating voltage of at least 125 percentage of the open-circuit voltage of the PV string, and a flash current of more than 5A.

Not more than two strings can be connected in parallel to a single input of SCB/AJB. One spare input terminal along with a connector shall be provided for each SCB/AJB.

Every SCB/AJB input shall be provided with fuses on both the positive and negative sides.

DC switch disconnectors of suitable rating shall be provided at AJB/SCB output to disconnect both the positive and negative side simultaneously.

C3.2.4.9 **AC DISTRIBUTION BOARD**

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

AC Distribution Board (ACDB) shall control the AC power from the inverter and should have the necessary surge arrestors.

An ACDB panel shall be provided in between the inverter and the utility grid. It shall have MCB/MCCB/ACB or circuit breaker of a suitable rating for connection and disconnection of the inverter from the grid.

The connection between the ACDB and the utility grid shall be a standard cable/conductor with suitable termination. It shall have provision to measure grid voltage, current and power.

The incomer shall be selected at the required rating. The ACDB enclosure shall be of good protection and suitable for mounting on the trenches/on the wall.

All the 415 V AC or 230 V AC devices/equipment like bus support insulators, circuit breakers, SFU isolators (if applicable), SPD, etc. mounted inside the switch gear shall be suitable for continuous operation.

Switches/circuit breakers/connectors meeting general requirements and safety measurements as per IS 60947 Part I, II, III and IEC 60947 part I, II and III.

Junction boxes, enclosures, panels for inverters/controllers shall meet IP 54 (for outdoor)/IP 65 (for indoor) as per IEC 529.

C3.2.4.10 AC/DC CABLING

Cabling is required for wiring from the AC output of inverter/INVERTER to the grid interconnection point. It includes the DC cabling from the solar array to the AJB and from the AJB to the inverter input.

All cables of appropriate size to be used in the system shall have the following characteristic:

- g. Shall conform to IEC 60227 & IEC 60502 standards.
- h. Temperature Range: -10 degree Celsius to +80 degree Celsius
- i. Voltage rating: 660/1000V
- j. Excellent resistance to heat, cold, water, oil, abrasion, UV radiation
- k. Flexible

Sizes of cables between any array interconnections, array to junction boxes, junction boxes to inverter etc. shall be so selected to keep the voltage drop (power loss) of the entire solar system to the minimum (5%).

For the DC cabling, XLPE or XLPO insulated and sheathed, UV stabilised single core flexible copper cables shall be used. Multi-core cables shall not be used.

For the AC cabling, PVC or XLPE insulated and PVC sheathed single or, multi-core flexible copper

cables shall be used. However, for above 25kWp systems, XLPE insulated aluminium cable of a suitable area of cross section can be used in the AC side subject to a minimum area of cross section of 10 sq.mm. Outdoor AC cables shall have a UV -stabilised outer sheath IEC 69947.

The total voltage drop on the cable segments from the solar PV modules to the solar grid inverter shall not exceed 2.0%

The total voltage drop on the cable segments from the solar grid inverter to the building distribution board shall not exceed 2.0%.

The DC cables from the SPV module array shall run through a UV-stabilised PVC conduit pipe of adequate diameter with a minimum wall thickness of 1.5 mm.

Cables and wires used for the interconnection of solar PV modules shall be provided with solar PV connectors (MC4) and couplers.

In three phase systems, the size of the neutral wire size shall be equal to the size of the phase wires.

Cable marking: All cable/wires are to be marked in a proper manner by good quality ferule or by other means so that the cable can be easily identified. The following colour code shall be used for cable wires:

DC positive: red (the outer PVC sheath can be black with a red line marking)

DC negative: black

AC single phase: phase: red; neutral: black

AC three phase: phases: red, yellow, blue; neutral: black

Earth wires: yellow/green

Cables and conduits that have to pass through walls or ceilings shall be taken through PVC pipe sleeve.

Cable conductors shall be terminated with tinned copper end ferrules to prevent fraying and breaking of individual wire strands. The termination of the DC and AC cables at the solar grid inverter shall be done as per instructions of the manufacturer, which in most cases will include the use of special connectors.

All cables and connectors used for installation of solar fields must be of solar grade which can withstand harsh environment conditions including high temperatures, UV radiation, rain, humidity, dirt, salt, burial and attack by moss and microbes' for 25 years and voltages as per the latest IEC standards. DC cables used from solar modules to array junction box shall be solar grade copper (Cu) with XLPO insulation and rated for 1.1 kV as per relevant standards only.

Bending radii for cables shall be as per the manufacturers recommendations.

For laying/termination of cables latest SANS/IEC Codes/ standards shall be followed.

C3.2.4.11

CIVIL WORKS

Existing shade-free roof-top space shall be used to install the solar PV array. While installing solar power plants on the rooftops, the physical condition of the rooftop, chances of shading, chances of water level rise on the rooftop during rain due to improper drainage should be taken into consideration.

The solar PV array shall be installed in the terrace space free from any obstruction and/or shadow and to minimise the effects of shadows due to adjacent PV panel rows.

The solar PV array shall be oriented in a southly direction in order to maximise the annual energy yield of the plant.

The solar PV array must be installed on the rooftop in such a way that there is sufficient space on the rooftop for maintenance etc.

There should not be any damage whatsoever to the rooftop due to setting up of the solar power plant resulting in leakage of rainwater, etc. from the rooftop at a later stage.

Some civil works are inevitable for erecting the footings for the module mounting structure as discussed in the nodule mounting structure section. The rooftop may be given a suitable grading plaster with suitable leak proof compounds so as to render the roof entirely leak proof.

Ample clearance shall be provided in the layout of the inverter and DC/AC distribution boxes for adequate cooling and ease of maintenance.

While cabling the array, care must be taken to ensure that no loose cables lie on the rooftops.

The rooftop should look clean and tidy after the installation of the array.

Neatness, tidiness and aesthetics must be observed while installing the systems.

Plastering in cement mortar 1:5, 1:6 and 1:3 shall be applied to all areas

The display of mandatory items including the single line diagram and layout diagram of modules and interconnection at the installation site shall be provided near the inverter for greater than 10 kWp systems.

All civil works required for the installation of the PV solar system and other civil and electrical work in evacuation infrastructure, wherever necessary, shall be within the scope of the bidder.

The layout of inverter accommodation shall be designed to enable adequate heat dissipation and availability and mounted within the existing infrastructure available in consultation with the Site Manager in charge.

C3.2.4.12 CONNECTIVITY

The output of the solar power conditioning unit has to be connected to the main ACDB in the building.

Plant capacity	Connecting voltage
Up to 5 kWp	240V - single phase or 415V-three phase at the option of the consumer
Above 5 kWp and up to 100 kWp	415V – three phase or higher at the option of the consumer.

C3.2.4.13 GENERAL PROCEDURES FOR PROJECTS

The following procedures are required regarding the installation of grid connected PV plants.

The documentation, inspection, and commissioning tests shall confirm to IEC 62446- 1:2016 and its amendments.

C3.2.4.14 WARRANTY AND COMPREHENSIVE MAINTENANCE CONTRACT

A 5-year system warranty should be provided by the contractor for the inverter and components installed. The battery bank shall come with a 10-year warranty.

The successful bidder should submit the copies of the Warranty Certificates for the on- site warranty provided by the OEM for the important components like PV modules, inverters, junction boxes etc.

The Warranty Modalities is between the Customer and the Contractor. The contractor must provide maintenance services for 2 years after the 12-month guarantee period.

C3.2.4.15 OPERATION MANUAL

An Operation, Instruction and Maintenance Manual should be provided with the system. The following minimum details must be provided in the manual:

- About the solar system – its components and expected performance.
- DO's and DON'T's.

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

- Cleaning solar PV modules at regular intervals
- Clear instructions on regular maintenance and troubleshooting of solar system
- As-built drawings for the installation
- OEM Warrantee Certificates of inverters, PV modules, batteries etc.
- Specification of PV solar system
- Data sheets of major equipment like PV module, inverter etc.
- Name and address of the Contractor and the contract person in case of non- functionality of the solar system.

PART C: THE CONTRACT

Part C3: Scope of Work

PROJECT TITLE:	APPOINTMENT OF A CONTRACTOR FOR THE INSTALLATION AND MAINTENANCE OF A HYBRID ROOFTOP PHOTOVOLTAIC SOLAR SYSTEM AT THE PRETORIA NATIONAL BOTANICAL GARDEN
CONTRACT NO:	SANBI : G490/2023

C3.3. DRAWINGS

C3.3.1 Drawings List:

DRAWING NUMBER	DESCRIPTION

The drawings are contained on Pages 138 -139 and provided separately.

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

PART C: THE CONTRACT

Part C4: Site Information

PROJECT TITLE:	APPOINTMENT OF A CONTRACTOR FOR THE INSTALLATION AND MAINTENANCE OF A HYBRID ROOFTOP PHOTOVOLTAIC SOLAR SYSTEM AT THE PRETORIA NATIONAL BOTANICAL GARDEN
CONTRACT NO:	SANBI : G490/2023

C4.1. General Site Information

The proposed construction is to take place within Pretoria National Botanical Garden, Pretoria.

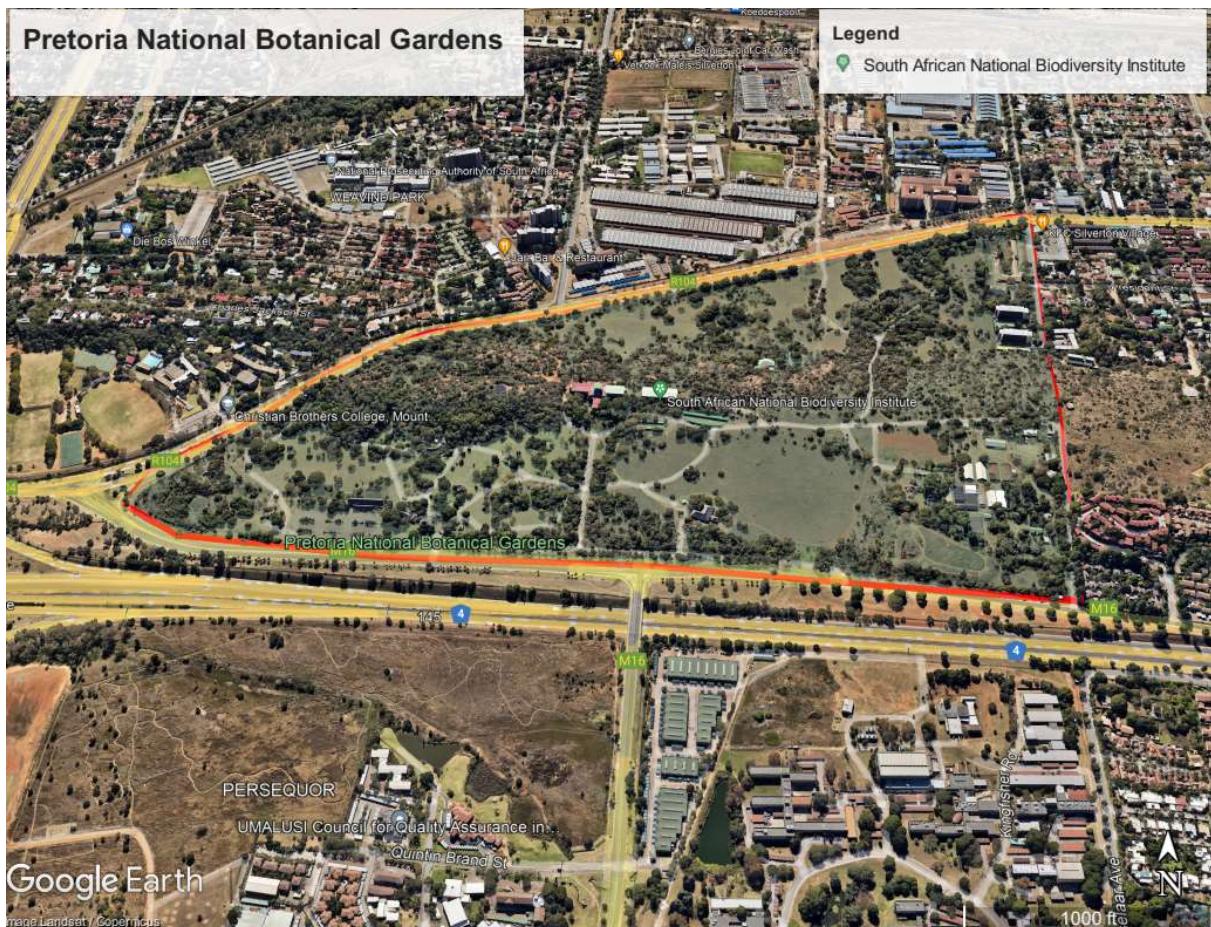


FIGURE 1: SITE LOCALITY PLAN - AERIAL PHOTO OF THE PNBG

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

Annexure F

OCCUPATIONAL HEALTH AND SAFETY SPECIFICATIONS FOR CONTRACTORS WHO ARE ON CONTRACT WITH SANBI

C4.1.1 Scope

This specification establishes general requirements to enable SANBI and the Contractors to satisfy the requirements of Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) and the Construction Regulations, 2014 as amended.

The Construction Regulations, 2014, require an Employer to stop any Contractor from executing construction work which is not in accordance with the Contractor's health and safety plan for the site or which poses to be a threat to the health and safety of persons.

This specification establishes generic health and safety requirements for health and safety as stated in the scope of work associated with a contract and

- provides the overarching framework within which the Contractor is required to demonstrate compliance with certain requirements for occupation health and safety established by the Occupational Health and Safety Act of 1993;
- establishes the manner in which the Contractor is to manage the risk of health and safety incidents in the execution of the contract; and
- establishes the manner in which the Employer's health and safety agent will interact with the Contractor.

C4.1.2 Requirements

C4.1.2.1 General requirement

The Contractor shall:

- create and maintain a safe and healthy work environment,
- execute the works in a manner that complies with all the requirements of the Act and all its associated regulations, and in so doing, minimize the risk of incidents occurring; and
- respond to the notices issued by the SANBI's Health and Safety Agent as follows:
 - Improvement Notice: improve health and safety performance over time so that repeat notices are not issued;
 - Contravention Notice: rectify contravention as soon as possible;
 - Prohibition Notice: terminate affected activities with immediate effect and only recommence activities when it is safe to do so.

Any incident occurring as a result of the contractors 'negligence which may affect SANBI employees will be claimed against the contractor.

C4.1.3 Administration

C4.1.3.1 Application and Notification of intention to commence construction work

C4.1.3.1.1 Application for construction work permit

A client who intends to have construction work carried out, must at least 30 days before that work is to be carried out apply to the provincial director in writing for a construction work permit to perform construction work if the intended construction work will:

- exceed 180 days;
- will involve more than 1800 person days of construction work; or
- the works contract is of a value equal to or exceeding thirteen million rand or Construction Industry Development Board (CIDB) grading level 5.

An application must be done in a form similar to Annexure 1 in the Regulation and a site-specific number assigned by the Provincial Director must be displayed on site.

C4.1.3.1.2 Notification of construction work

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:

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

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

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

C4.1.3.2 Copy of the Act

The Contractor shall ensure that a copy of the Act and relevant regulations is available on site for inspection by any person engaged in any activity on the site.

Good standing with the compensation fund or a licensed compensation insurer

The Contractor shall, before commencing with any works on the site, provide the SANBI with proof of good standing with the compensation fund or with a licensed compensation insurer.

C4.1.3.3 Emergency procedures

The Contractor shall submit for acceptance to the SANBI 's Health and Safety Agent an emergency procedure which include but are not limited to fire, spills, accidents to employees, exposure to hazardous substances, which:

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

The Contractor shall within 24 hours of an emergency taking place notify the SANBI's Health and Safety Agent in writing of the emergency and briefly outline what happened and how it was dealt with.

C4.1.3.4 Health and safety file

The Contractor shall maintain on site a health and safety file which contains copies of the following;

C4.1.3.4.1 Documents required before the contractor commences with construction activities

- the Contractor's health and safety policy, signed by the chief executive officer, which outlines the Contractor's objectives and how they will be achieved and implemented by the Contractor;
- the notification made to the Provincial Director of Labour, and if relevant, the notification of the person who supplies or contracts or agrees to supply electricity to that electrical installation;
- the letters of appointment, as relevant, of the construction supervisor for the site in respect of construction works covered by the Construction Regulations and the registered person responsible for the electrical installation covered by the Electrical Installations Regulations;
- a copy of the certificate of registration of the registered person responsible for the electrical installation covered by the Electrical Installations Regulations where applicable;
- the approval of the design of the part of an electrical installation which has a voltage in excess of 1 kV by a person deemed competent in terms of the Electrical Installations Regulations;
- proof of registration of the electrical contractor who undertakes the electrical installation in terms of the Electrical Installations Regulations where applicable;
- the preliminary hazard identification undertaken by a competent person;
- the organogram which outlines the roles and responsibilities of the construction supervisor's assistants and safety officers; and
- the contractor's health and safety plan;
- the emergency procedures;
- the procedure for the replacement of lost, stolen, worn or damage personal protective clothing and
- proof that the contractor is registered and in good standing with the compensation fund or with a licensed compensation insurer;

C4.1.3.4.2 Documents required after construction activities have commenced

- the letters of appointments, if relevant, of:
 - persons who are required to assist the construction supervisor;
 - safety officers;
 - health and safety representatives;
 - replacement construction supervisor, and
 - assistants of construction supervisor.
- any revisions to the organogram which outlines the roles and responsibilities of the construction supervisor's assistants and safety officers;
- each and every subcontract agreement;
- proof that every subcontractor is registered and in good standing with the compensation fund or with a licensed compensation insurer;

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

- proof of all subcontractor's induction training whenever it is conducted;
- copies of the minutes of the Contractor's subcontractors health and safety meetings;
- copies of each of the Contractor's subcontractors' health and safety policy, signed by the Chief executive officer, which outlines the Contractor's objectives and how the will be achieved and implemented by the Contractor;
- the health and safety plans of all the Contractor's subcontractors who are required to provide such plans;
- a comprehensive and updated list of all the subcontractors employed on site by the contractor, indicating the type of work being performed by such sub-contractors;
- the outcomes of the monthly audits for compliance with the approved health and safety plan of each and every sub-contractor working on the site;
- any report made to an inspector by the health and safety committee;
- the minutes of all health and safety meetings and any recommendations made to the Contractor by the health and safety committee;
- the findings of all audit reports made regarding the implementation of the Contractor's or a subcontractor's health and safety plan;
- the inputs of the safety officer, if any, into the health and safety plan;
- details of induction training conducted whenever it is conducted including the list of attendees;
- proof of the following where suspended platforms are used:
 - a certificate of system design issued by a professional engineer, professional certificated engineer or a professional engineering technologist;
 - proof of competency of erectors;
 - proof of compliance of operational design calculations with requirements of the system design certificate;
 - proof of performance test results;
 - sketches indicating the completed system with the operational loading capacity of the platform;
 - procedures for and records of inspections having been carried out;
 - procedures for and records of maintenance work having been carried out;
 - proof that the prescribed documentation has been forwarded to the provincial director;
- letters of appointments for competent persons to supervise the activities which law requires to be so supervised;
- A copy of risk assessments made by competent person;
- records of the register of inspections made by a competent person immediately before and during the placement of concrete or any other load on formwork;
- the names of the first aiders on site and copies of the first aid certificates of competency;
- the names of the persons the persons who are in possession of valid certificate of competency in first aid and copies of such certificates;
- details of all incidents together with the Contractor's report on such incident; and
- the record of inspections carried out by the designers of structures to ensure compliance with designs.

The health and safety file shall be made available for inspection by any inspector, subcontractor, the Project Manager, the SANBI's Health and Safety Agent or employee of the Contractor upon the request of such persons.

The Contractor shall hand over the health and safety file to the SANBI's Health and Safety Agent upon completion of the contract and if relevant, a certificate of compliance accompanied by a test report for the electrical installation in accordance with the provisions of the Electrical Installation Regulations.

C4.1.3.5 **Health and safety committee**

The Contractor shall convene health and safety meetings whenever more than two health and safety representatives have been appointed for the site. These meetings shall be attended by all health and safety representatives and persons nominated by the Contractor. Such meetings shall be convened at least once every month to:

- make recommendations to the Contractor regarding any matter affecting the health or safety of persons on the site; and
- discuss any incident on the site in which or in consequence of which any person was injured, became ill or died.

The Contractor shall consult with the health and safety committee on the development, monitoring and review of the risk assessment.

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

SANBI Health and Safety Agent shall be invited to attend such meetings as an observer.

C4.1.3.6 **Inspections, formal enquires and incidents**

The Contractor shall inform the relevant safety representative:

- beforehand of inspections, investigations or formal inquiries of which he has been notified by an inspector and
- as soon as reasonably practicable of the occurrence of an incident on the site.

The Contractor shall record all incidents and notify the SANBI's Health and Safety Agent of any incident, except in the case of a traffic accident on a public road, as soon as possible after it has occurred and reports such incidence to an inspector.

The Contractor shall investigate all incidents and issue the SANBI's Health and Safety Agent with copies of such investigations.

C4.1.3.7 **Personal protective equipment and clothing**

The Contractor shall ensure that:

- all workers are issued with the necessary personal protective clothing;
- all workers are identifiable at all times by having the company for which they work for printed on the back or front of their overalls; and
- clear procedures are in place for the replacement of lost, stolen, worn or damage personal protective clothing.

C4.1.4 **Appointments**

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

C4.1.4.1 **Health and safety representatives**

The Contractor shall appoint in writing one health and safety representative for every 50 employees working on the site, whenever there are more than 20 employees on the site, to:

- review the effectiveness of health and safety measures;
- identify potential hazards and potential major incidents;
- in collaboration with his employer, examine the causes of incidents;
- investigate complaints by any employee of the Contractor relating to that employee's health or safety on the site;
- make representations to the Contractor on matters arising from a), b), c) or d) or on general matters affecting the health or safety of the employees at the workplace;
- inspect the site with a view to, the health and safety of employees, at regular intervals;
- participate in consultations with inspectors at the workplace and accompany inspectors on inspections of the workplace; and
- participate in any internal health or safety audit.

The Contractor shall provide the health and safety representatives with the necessary assistance, facilities and training to carry out the functions established in 4.3.1

C4.1.4.2 **Appointment of construction supervisor and safety officers**

The Contractor shall, prior to commencing the work, appoint a full-time competent employee in writing as the construction supervisor for the site, with the duty of supervising the performance of the work falling within the scope of the contract and may appoint one or more competent employees to assist the appointed construction supervisor.

The Contractor may, having considered the size of the project, the degree of dangers likely to be encountered or the accumulation of hazards or risks on the site, appoint a full time or part-time construction safety officer in writing, who has in the Contractor's opinion the necessary competencies and resources, to assist the Contractor in the control of all safety related aspects on the site.

The Contractor shall compile and maintain an organogram which outlines the roles and responsibilities of the construction supervisor's assistants and safety officers.

C4.1.4.3 **Competent persons**

The Contractor shall appoint in writing competent persons to supervise or inspect, as relevant, any of the following:

- formwork and support work operations;
- excavation work;
- demolition work;
- scaffolding work operations;
- suspended platform work operations;
- material hoists;
- operation of batch plants;
- explosive power tools;

- vehicles and mobile equipment;
- fire equipment; and
- the stacking and storage of articles on the site.

The Contractor shall appoint in writing competent persons to:

- induct employees in health and safety; and
- prepare a fall protection plan.

C4.1.5 Creating and maintaining a safe and healthy work environment

C4.1.5.1 General

The Contractor shall with respect to the site and the construction works that are contemplated:

- cause a preliminary hazard identification to be performed by a competent person before commencing any physical construction activity;
- evaluate the risks associated with such work constituting a hazard to the health and safety of such employees and the steps that need to be taken to comply with the Act; and as far as is reasonably practicable, prevent the exposure of such employees to the hazards concerned or, where prevention is not reasonably practicable, minimize such exposure.

The Contractor shall ensure that:

- 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;
- no structure or part of a structure is loaded in a manner which would render it unsafe; and
- account of information, if any, provided by the designer of the structure is taken into account in the risk assessment;

Note: The information provided by the designer should outline known or anticipated dangers or hazards relating to the works and make available all information required for the safe execution of the work. It should provide as relevant, geotechnical information (or make reference to reports provided in the site information), the loading the structure is designed to withstand, the methods and sequence of construction.

The Contractor shall carry out regular inspections and audits to ensure that the works are being performed in accordance with the requirements of this specification

C4.1.5.2 Risk assessment

The Contractor shall before the commencement of any work on site and during construction work, cause a risk assessment to be performed by a competent person appointed in writing. Such an assessment shall as a minimum:

- identify the risks and hazards to which persons may be exposed to;
- analyse and evaluate the identified risks and hazards;
- document a plan of safe work procedures, including the use of any personal protective equipment or clothing and the undertaking of periodic "toolbox talks" or inductions before undertaking hazardous work, to mitigate, reduce or control the risks and hazards that have been identified;
- provide a monitoring plan; and
- provide a review plan.

C4.1.5.3 **Health and safety plans**

The Contractor shall prior to commencing the works to which this specification applies, submit to SANBI's Health and Safety Agent for approval a suitable and sufficiently documented health and safety plan, based on this specification and the risk assessment that is conducted.

The health and safety plan must be specific to the current project and shall as a minimum provide:

- the information about hazards associated with the task to be performed; and
- an outline of the manner in which the Contractor intends complying with the requirements of this specification.
- The arrangements to ensure the safety of all SANBI staff affected by the activities of the project/work.
- The manner in which hazards will be communicated to all staff/including SANBI employees.

C4.1.5.4 **Responsibilities towards employees and visitors**

The Contractor shall as far as is reasonably practicable, cause every employee to be made conversant with the hazards to his health and safety attached to any work which he has to perform, any article or substance which he has to produce, process, use, handle, store or transport and any plant or machinery which he is required or permitted to use, as well as with the precautionary measures which should be taken and observed with respect to those hazards or safe work procedures. Safety for SANBI employees must be considered throughout the project life cycle.

The Contractor shall provide suitable on-site signage to alert workers and visitors to health and safety requirements. Such signage shall include but not be limited to:

- unauthorized entrance prohibited;
- signage to indicate what personal protective equipment is to be worn; and
- activity related signs.

The Contractor shall not permit any person who is or who appears to be under the influence of intoxicating liquor or drugs, to enter or remain at a workplace.

C4.1.6 **Subcontractors**

The Contractor may only subcontract work in terms of a written subcontract and shall only appoint a subcontractor should he be reasonably satisfied that such a subcontractor has the necessary competencies and resources to safely perform the work falling within the scope of the contract.

The Contractor shall provide any sub-contractor who is submitting a tender or appointed to perform a sub-contract falling within the scope of the contract, with the relevant sections of this specification and any work specific information which might be pertinent to the sub-contract.

C4.1.7 **First aid, emergency equipment and procedures**

The Contractor shall where more than five employees are employed at a workplace, provide a first aid box or boxes at or near the workplace which shall be available and accessible for the treatment of injured persons at that workplace. Such first aid boxes shall contain suitable first aid equipment.

The Contractor shall ensure that where there are more than 10 employees employed on the site that for every group of up to 50 employees at that workplace, at least one person is readily available during normal working hours, who is in possession of a valid certificate of competency in first aid.

C4.1.8 Facilities for workers

The Contractor shall provide and keep clean and fit for use at or within reasonable access of the site:

- at least one shower facility for every 15 workers
- at least one sanitary facility for every 30 workers;
- changing facilities for each sex; and
- sheltered eating areas.

2.5.4.2 A contractor shall provide reasonable and suitable living accommodation for the workers at construction sites which are remote from their homes and where adequate transportation between the site and their homes, or other suitable living accommodation, is not available

C4.1.9 Waste management

Construction will result in waste generation although in different scales depending on the nature and size of the project.

The goal for construction waste management is primarily the reduction of waste generated. Waste reduction is the responsibility of all on site, as it relates to materials procurement, handling, storage and use. Waste generated during construction will be reused, recycled or disposed to landfill.

Waste collection during building works will be appropriately managed through the staged nature of construction and the use of known quantities of materials. The majority of recyclable material that could be recovered during construction is likely to be off cuts and discards of concrete reinforcement (steel), metal off cuts, drainage pipes, telecommunication and electrical cabling, plastics, paint and timber.

No uncontrolled hazardous materials or dangerous goods will be stored on site.

Principal contractor will be required to provide waste management plan before construction work commences.

C4.1.10 Points to remember - Legal

C4.1.10.1 Requirements

- Application for construction work permit
- Notice of construction work
- Letter of good standing from the Department of Labour/Insurance
- Risk assessment and safe working procedures
- Appointment letter of Principal contractor and other legal appointments
- Health and safety plan
- Valid medical certificates of fitness for employees
- Fall protection plan
- Health and safety inductions.
- Notice boards and display of site-specific number assigned to the project.
- Management of plant & noise
- Management of premises
- Management of plant, labour & materials on site

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

- Management of safety file

C4.2. Annexure G

GENERAL ENVIRONMENTAL SPECIFICATIONS

Index to Environmental Specifications

<u>Clause</u>	<u>Description</u>
E1	Location of camp and depot
E2	Demarcation of the site
E3	Refuse
E4	Protection of fauna and flora
E5	Defacement of natural features
E6	Protection of archaeological and palaeontological Sites
E7	Effluent and storm-water management
E8	Run off from construction camps
E9	Discharge of construction water
E10	Servicing/fuelling of construction equipment
E11	Fuels and chemicals
E12	Dust control
E13	Noise control
E14	Materials use, handling, storage and transport
E15	Use of cement/concrete
E16	Fuel storage and use
E17	Hazardous materials
E18	Transport of materials outside the site
E19	Fire
E20	Removal of topsoil
E21	Stabilisation of steep slopes
E22	Site Rehabilitation
E23	Landscaping and preparation for re-vegetation

E1 Location of camp and depot

The Contractor's Camp and Materials Storage Area shall be located at a position approved by the Responsible Person. No site staff other than security personnel shall be housed on site. The Contractor's Camp and Materials Storage Area shall be kept neat and tidy and free of litter.

E2 Demarcation of the site

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

It is important that activities are conducted within a limited area to facilitate control and to minimise the impact on the existing natural environment, existing tenants and other construction activities in the vicinity and public thoroughfares.

The Contractor shall demarcate the boundaries of the site in order to restrict his construction activities to the site. The method of demarcation and the location of the demarcated area shall be determined by the Contractor and approved by the Responsible Person before any work being undertaken. The Contractor shall ensure that all plant, labour and materials remain within the boundaries of the site. Failure to do so may result in the Contractor being required to fence the boundaries of the site at his/her own expense to the satisfaction of the Responsible Person.

If additional areas (e.g. for lay down, rest areas) are required, these must be approved in writing by the Responsible Person. The Contractor is advised that it may take approximately one week to obtain such permission from the Responsible Person.

Suitable temporary fencing may need to be erected during construction to minimise the risk of injury to the public, and animals.

E3 Refuse

Refuse refers to all solid waste, including construction debris (e.g. wrapping materials, timber, cans etc.) waste and surplus food, food packaging etc.

The Contractor shall institute an on-site waste management system that is acceptable to the Responsible Person to prevent the spread of refuse within and beyond the site. The Contractor is reminded that wind velocities on the construction site can be high.

All waste shall be collected and contained immediately. The Contractor shall institute a weekly clean up of the site if so instructed by the Responsible Person. This daily/weekly clean up shall be for the Contractor's account.

The Contractor shall not dispose of any waste and/or construction debris by burning or burying. The use of waste bins and skips is recommended. The bins shall be provided with lids and an external closing mechanism to prevent their contents from blowing out. The Contractor shall ensure that all waste is deposited by his employees in the waste bins for removal by the Contractor. Bins shall not be used for any purposes other than waste collection and shall be emptied on a regular basis. All waste shall be disposed of off-site at approved landfill sites.

Hazardous waste, including waste oil and other chemicals (e.g. paints, solvents) shall be stored in (an) enclosed area(s), and shall be clearly marked. If deemed necessary by the Responsible Person, the Contractor shall obtain the advice of a specialist waste expert concerning the storage of hazardous waste. Such waste shall be disposed of off-site by a specialist waste contractor, at a permitted hazardous waste disposal site.

E4 Protection of fauna and flora

All fauna within and around the site shall be protected. Birds and animals shall not be caught or killed by any means, including poisoning, trapping, shooting or setting of snares. Offenders may be prosecuted in terms of the Animals Protection Act 71 of 1962.

E5 Defacement of natural features

Defacement of any features outside of the construction site shall not occur without the prior written permission of the Responsible Person. Any features defaced by the Contractor shall be restored to the satisfaction of the Responsible Person.

E6 Protection of archaeological and palaeontological sites

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

If any possible palaeontological /archaeological material is found during excavations, the Contractor shall stop work immediately and inform the Responsible Person. The Responsible person will inform the South African Heritage Resource Agency (SAHRA) and arrange for a palaeontologist/archaeologist to inspect, and if necessary, excavate the material, subject to acquiring the requisite permits from the National Monuments Council. Costs incurred will be for the Employer's account.

E7 Effluent and storm-water management

The Contractor must ensure that pollution of the ground or surface water does not occur as a result of site activities. Pollution could result from the accidental release of contaminated run-off from construction camps, discharge of contaminated construction water, chemicals, oils, fuels, sewage, run-off from stockpiles, solid waste, litter, etc.

E8 Run off from construction camps

The Contractor shall ensure that polluted run-off (excluding silt "pollution"), such as run-off from construction camps where equipment is cleaned and/or serviced, fuel stores, workshops, etc. is not discharged overland. The Contractor shall erect an earth/brick berm 0,5 m high around such areas and shall collect all run-off from these areas and store it in a conservancy tank for removal from the site. The Contractor shall ensure that silt-laden water is not discharged directly into any surface watercourses (i.e. vlei's, etc.), and shall take suitable measures to prevent this.

Natural run-off shall be diverted away from any camps towards the storm-water drains where these are available. Special care must be taken in areas susceptible to erosion, e.g. steep slopes. The Contractor shall ensure that excessive quantities of sand, silt and silt-laden water do not enter the storm-water drain system, or any surface watercourse. The Contractor shall take appropriate measures, e.g. the erection of silt traps, or drainage retention areas, to prevent silt and sand entering drainage or watercourses. Any partial or complete blockage of the storm-water drainage system shall be cleared by the Contractor at his / her own expense.

E9 Discharge of construction water

Construction water refers to all water dirtied as a result of construction activities.

The Contractor may discharge silt laden water overland and allow this water to filter into the ground. However, s/he shall ensure that he does not cause erosion as a result of any overland discharge.

The Contractor may not discharge cement-laden water overland, i.e. washings from trowels, wheelbarrows and the like.

Trucks delivering concrete shall not wash the trucks or the chutes on the site. All washing operations shall take place off site at a location where wastewater can be disposed of in the correct manner.

E10 Servicing/fuelling of construction equipment

Servicing and fuelling should preferably occur off site.

However, if these activities occur on site, the Contractor shall ensure that all servicing of vehicles and equipment takes place in designated areas agreed upon by the Responsible Person. All waste shall be collected and disposed of off-site at an appropriately licensed landfill site. All equipment that leaks onto the ground shall be repaired immediately or removed.

Similarly, no vehicles or machines shall be refuelled on site except at designated refuelling locations, unless otherwise agreed with the Responsible Person. The Contractor shall not change oil or lubricants anywhere on site except at designated locations, except if there is a breakdown or an emergency repair.

In such instances, the Contractor shall ensure that he has Drizit pads (or equivalent) and/or drip trays available to collect any oil, fluid, etc.

E11 Fuels and chemicals

The Contractor shall take all reasonable precautions to prevent the pollution of the ground and/or water resources by fuels and chemicals as a result of his activities.

The Contractor shall keep the necessary materials and equipment on site to deal with ground spills of any of the materials used or stored on site.

The Contractor shall ensure that no oil, petrol, diesel, etc. is discharged onto the ground. Pumps and other machinery requiring oil, diesel, which is intended to remain in one position for longer than two days shall be placed on drip trays. The drip trays shall be emptied regularly, and the contaminated water disposed of off-site at a facility capable of handling such wastewater. Drip trays shall be cleaned before any possible rain events that may result in the drip trays overflowing, and before long weekends and holidays.

The Contractor shall remove all oil-, petrol-, and diesel-soaked sand immediately and shall dispose of it as hazardous waste.

Should the Responsible Person/ECO and/or the relevant authorities deem it necessary to institute a programme for the removal of contaminated ground resulting from the non-compliance of the controls detailed above, these costs will be for the Contractor's account. Remedial action shall be approved by the ECO and relevant authorities, if appropriate.

E12 Dust control

The Contractor shall be responsible for the continued control of dust arising from his/her operations, through measures including, but not limited to, spraying of water on bare areas, rotovating straw bales into the soil surface and the scheduling of dust-generating activities to times when wind velocity is low. Overhead sprayers shall not be used in windy conditions, due to water loss through evaporation. The use of water carts is preferred.

The Contractor shall inform the Responsible Person 48 hours in advance of anticipated "unavoidable" dust-generating activities. The Responsible Person and/or ECO may inform adjacent land users, tenants and communities about the possibility of dust pollution, and the approximate duration of the problem.

E13 Noise control

The Contractor shall take all reasonable precautions to minimise noise generated on site as a result of his operations, especially when working in areas or on activities that may impact on neighbouring land users.

The Contractor shall comply with the applicable regulations with regard to noise.

The Contractor shall inform the Responsible Person 48-hours in advance of anticipated "unavoidable" noise-generating activities. The Responsible Person and/or Environmental Officer may inform adjacent land users, tenants and communities about the possibility of noise pollution and the approximate duration of the problem.

E14 Materials use, handling, storage and transport

Procedure for material handling must be discussed with and approved by the Responsible Person prior to commencement of this activity.

E15 Use of cement/concrete

The Contractor is advised that cement and concrete are regarded as highly hazardous to the natural environment on account of the very high pH of the material, and the chemicals contained therein. Therefore, the Contractor shall ensure that:

- concrete is mixed on mortar boards, and not directly on the ground;
- visible remains of concrete, either solid, or from washings, are physically removed immediately and disposed of as waste. Washing visible signs into the ground is not acceptable; and
- all aggregate is also removed.

E16 Fuel storage and use

Tanks containing fuels shall have lids and shall remain firmly shut. Only clean, empty tanks may be stored on the bare ground. Fuel stores shall be placed on a bunded sealed base - the bunds shall have a volume of 110% of the volume of the largest tank in the storage area. Any waste-water or spilled fuel collected within the bund shall be disposed of as hazardous waste.

The Contractor shall take all the necessary precautions to prevent fires or spills. No smoking shall be allowed in the vicinity of the fuel stores. Failure to adhere to this specification shall be cause for a spot fine being imposed on the offender.

The Contractor shall ensure that there is adequate fire-fighting equipment at the fuel stores.

E17 Hazardous materials

The Contractor shall comply with all relevant national, regional and local legislation with regard to the transport, use and disposal of hazardous materials. If necessary, the Contractor shall obtain the advice of the manufacturer with regard to the safe handling of hazardous materials. Any claims against the Contractor shall be for his/her account.

The Contractor shall provide the Responsible Person with a list of hazardous substances on site, together with storage procedures for these materials.

The Contractor shall ensure that there is an emergency procedure to deal with accidents and incidents (e.g. spills) arising from hazardous substances. The Contractor shall report major incidents (spills in excess of 50 litres) to the Responsible Person immediately.

The Contractor shall maintain a register of spills or incidents involving hazardous materials, as well as measures taken.

The Contractor shall ensure that information on all hazardous substances is available to all personnel on site. The Contractor shall furthermore be responsible for the training of all personnel on site who will be handling the material about its proper use, handling and disposal.

E18 Transport of materials outside the site

The Contractor shall comply with all the applicable local, regional and national by-laws with regard to road safety and the transport of materials, especially hazardous and/or toxic materials. Any claims against the Contractor shall be for his account.

The Responsible Person shall provide the Environmental Officer with a schedule of the proposed transportation of significant quantities of hazardous material onto the site, before commencing work on

site. The Environmental Officer may request further details or notifications of specific material movements if considered necessary.

E19 Fire

The Contractor shall take all the necessary precautions to ensure that fires are not started as a result of his/her activities on site, and shall also comply with the requirements of the Occupational Health and Safety Act 85 of 1993.

No open fires shall be permitted on or off site. Closed fires or stoves shall only be permitted at designated safe sites in the construction camps. Fires shall also not be permitted near any potential sources of combustion, such as fuel stores, stockpiles of plant material etc.

The Contractor is advised that sparks generated during welding, cutting of metal or gas cutting can cause fires. Every possible precaution shall therefore be taken when working with this equipment near potential sources of combustion. Such precautions include having an approved fire extinguisher immediately available at the site of any such activities.

The Contractor shall be liable for any expenses incurred by any organisations called to assist with fighting fires, and for any costs relating to the rehabilitation of burnt areas.

E20 Removal of topsoil

Following removal of vegetation from the site, all topsoil shall be removed (up to a maximum of 30-cm depth) and stock-piled for re-use in subsequent rehabilitation and landscaping activities. The stockpiles shall not be higher than 2-m in order to minimise composting. The stockpiles of topsoil shall be located in an area agreed with the Responsible Person.

E21 Stabilisation of steep slopes

The disturbance of steep slopes, for example by the removal of vegetation, may result in slope instability and erosion by rain and surface run off. The Contractor shall ensure that slopes that are disturbed during construction are stabilised to prevent erosion occurring. Where re-vegetation of slopes is undertaken, this shall be in accordance with the specification provided in EP6.

Slopes that are susceptible to accidental damage during construction shall be protected to reduce the risk of disturbance.

Any erosion that does occur must be reinstated at the Contractor's cost.

E22 Site rehabilitation

The Contractor shall be responsible for rehabilitating any areas cleared or disturbed for construction purposes that are to be incorporated into open space or buffer zones. The Contractor shall re-vegetate such areas in accordance with the specification provided below.

The Contractor shall stabilise, by straw rot ovation or other means, any areas that are cleared or disturbed for construction purposes which are not going to be incorporated into open space or buffer zones (i.e. areas that will be subsequently developed by another party).

All construction equipment and excess aggregate, gravel, stone, concrete, bricks, temporary fencing and the like shall be removed from the site upon completion of the work. No discarded materials of whatsoever nature shall be buried on the site or on any other land not owned by ACSA.

E23 Landscaping and preparation for re-vegetation

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

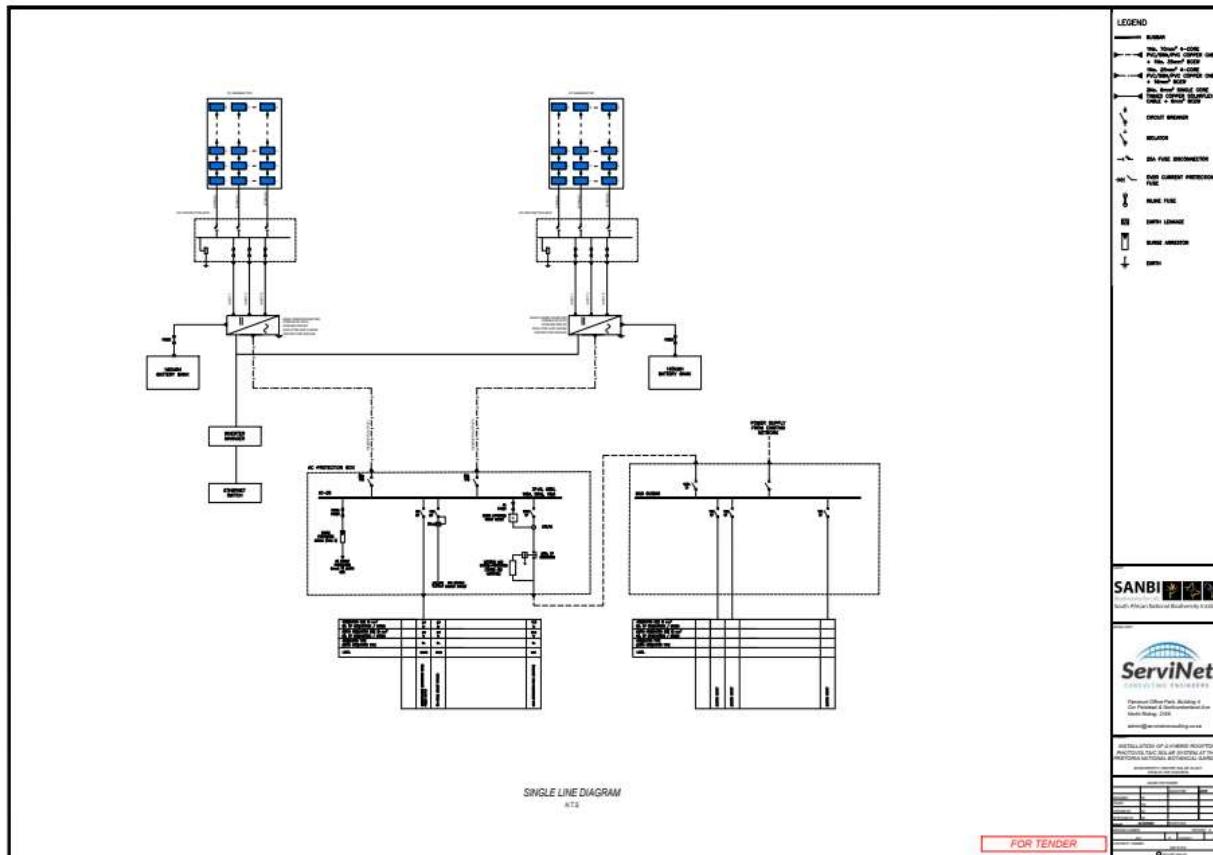
Areas that require reshaping shall be cut, filled and compacted so as to follow the contours of the surrounding landscape. Topsoil removed from the area initially shall be replaced. Care must be taken not to mix the topsoil with the subsoil during shaping operations. Should a crust form on the soil before re-vegetation is commenced, the Contractor shall, at his own cost, loosen the crust by scarifying to a depth of 150-mm.

C4.3. Annexure H

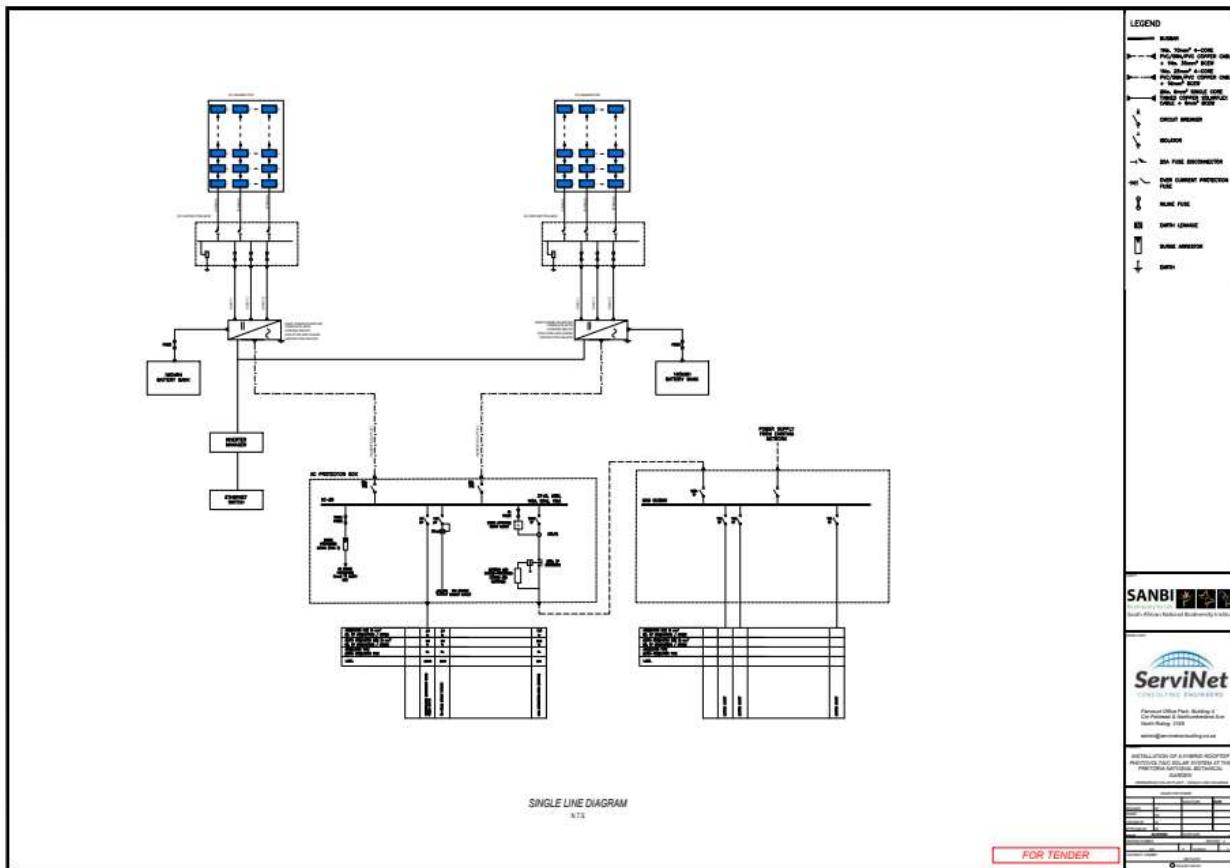
GEOTECHNICAL INFORMATION (N/A)

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DRAWINGS



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MAINTENANCE PLAN

EQUIPMENT	TASK	IMPORTANCE	FREQUENCY
Solar Panels	Integrity inspection	Minimum requirement	Yearly
	Thermography inspection	Recommendation	Yearly
	Measurements inspection	If required	Yearly
	Checking & tightening of clamps	Minimum requirement	Yearly
	Modules cleaning	According to local conditions	Bi-Annual
Electrical cabinets and switchboards - array/string junction box - AC switchboards - General utilities switchboard - Weather station's cabinet - Monitoring system cabinet - Communication cabinet - Other cabinets	Integrity check & cleaning	Minimum requirement	Yearly
	Documents Inspection	If required	Yearly
	Check labelling and identification	Minimum requirement	Yearly
	Electrical protection visual inspection & functional test	Minimum requirement	Every 4 months
	Check fuses status	Minimum requirement	Every 4 months
	Check surge protection status	Minimum requirement	Every 4 months
	Check integrity of cables & state of terminals	Minimum requirement	Every 4 months
	Measurements (String voltages, AC Output voltages etc)	Best practice	Every 4 months
	Thermography inspection	Recommendation	Yearly
	Check tightening	Minimum requirement	Y
	Lubrication of locks	Minimum requirement	Yearly
Cables - DC / AC cables - Cables in switchboards, cabinets, inverters	Integrity inspection	Minimum requirement	Yearly
	Check labelling and identification	Minimum requirement	Yearly
	Check cable terminals	Minimum requirement	Every 4 months
Inverters	Integrity check & cleaning	Minimum requirement	Yearly
	Documents inspection	Best practice	Yearly
	Check labelling and identification	Minimum requirement	Yearly
	Check Settings	Minimum requirement	Every 4 months
	Functional test of ventilation system	Minimum requirement	OEM

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	Check batteries	According to manufacturer's recommendations	Every 4 months

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