INVITATION TO TENDER

YOU ARE HEREBY INVITED TO TENDER FOR THE FOLLOWING SPECIFIED SUPPLY REQUIREMENTS

<table>
<thead>
<tr>
<th>TENDER NUMBER:</th>
<th>SKA PEP9 001/2016</th>
<th>CLOSING DATE:</th>
<th>10 February 2017</th>
<th>CLOSING TIME</th>
<th>12:00</th>
</tr>
</thead>
</table>

TENDER DESCRIPTION

SKA1говорщики multiddisciplinary team lead by an electrical/ mechanical engineer to consolidate, integrate, provide detailed designs including costing services for the expansion of the existing Karoo array processor building (KAPB) for the Square Kilometre Array project, Northern Cape, South Africa

Tenderers are required to fill in and sign the form of offer (C1.1) in this Invitation

Preferential Procurement System Applicable (points for price: points for procurement preference): 90:10

<table>
<thead>
<tr>
<th>Briefing Session / Site Visit</th>
<th>Compulsory</th>
<th>Date and Time:</th>
<th>Location:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>14th December 2016 at 11h00</td>
<td>SKA SA Site Complex, Meysdam Farmhouse, Northern Cape, SA – (Refer to Annexure Q for directions, GPS Coordinates 30°43'37.3&quot;S 21°27'25.1&quot;E)</td>
</tr>
</tbody>
</table>

TENDER DOCUMENTS ARE TO BE DEPOSITED IN THE TENDER BOX SITUATED AT:

Square Kilometre Array South Africa
Tender Box located on the 1st Floor Reception, Blend On Baker Building
17 Baker Street
Rosebank
Johannesburg
2196
ANY ENQUIRIES REGARDING THE TENDERING PROCEDURE DIRECTED TO:

Supply Chain Management:
Rayyan Arnold
SKA SA SCM Specialist
+27(0)21 506 7300

Technical Queries:
Angelo Syce
Contracts Manager: Infrastructure & Power
+27(0)11 268 3400

Tenderers are required to initial every page of this Tender document when submitting to the SKA SA.

Tenderers should timeously deliver Tenders to the correct address. If the Tender is late at the SKA SA address, it is not considered.

The Tender box is open from 08h00 to 16h30 South African time, 5 days a week, Monday to Friday. (Except for public holidays and tender closing)

ALL TENDERS MUST BE SUBMITTED ON THE OFFICIAL FORMS IN THIS INVITATION (NOT TO BE RE-TYPED) WITH ADDITIONAL INFORMATION ON ATTACHED SUPPORTING SCHEDULES

THIS TENDER IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT AND THE PREFERENTIAL PROCUREMENT REGULATIONS - 2011, THE FIDIC CLIENT/CONSULTANT AGREEMENT, FOURTH EDITION, 2006, WHICH IS APPLICABLE TO THIS CONTRACT (WHICH THE TENDERER SHALL PURCHASE), THIS INVITATION AND SPECIAL/PARTICULAR CONDITIONS OF CONTRACT AS STIPULATED IN THIS INVITATION.

THE FOLLOWING PARTICULARS MUST BE FURNISHED AS LEAD PAGE OF THE TENDER RESPONSE

<table>
<thead>
<tr>
<th>TENDER NUMBER:</th>
<th>SKA PEP9 001/2016</th>
<th>CLOSING DATE: 10 February 2017</th>
<th>CLOSING TIME</th>
<th>12:00</th>
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</thead>
<tbody>
<tr>
<td>NAME OF TENDERER</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>REPRESENTED BY</td>
<td></td>
<td></td>
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</table>

POSTAL ADDRESS

PHYSICAL ADDRESS

TELEPHONE NUMBER CODE NUMBER

CELL PHONE NUMBER CODE NUMBER

FACSIMILE NUMBER CODE NUMBER

E-MAIL ADDRESS

VAT REGISTRATION NUMBER:
DESCRIBE PRINCIPAL BUSINESS ACTIVITIES:

<table>
<thead>
<tr>
<th>TYPE OF COMPANY/FIRM:</th>
<th>[Tick applicable box]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partnership / Joint Venture/Consortium</td>
<td>☐ One person business/sole proprietor</td>
</tr>
<tr>
<td>Close Corporation</td>
<td>☐ Company</td>
</tr>
<tr>
<td>(Pty) Limited</td>
<td>☐ Other</td>
</tr>
</tbody>
</table>

COMPANY CLASSIFICATION: [Tick applicable box]

| Manufacturer                  | ☐ Supplier             | ☐ |
| Professional Service Provider | ☐ Other service providers e.g. transporter, etc. | ☐ |

PREFERENCE CLAIM FORM SUBMITTED FOR PREFERENCE POINTS? FORM C3 (SBD 6.1) YES or NO

A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE MUST SUPPORT PREFERENCE POINTS CLAIMED

IF YES, WHO WAS THE B-BBEE CERTIFICATE ISSUED BY

- AN ACCOUNTING OFFICER AS CONTEMPLATED IN THE CLOSE CORPORATION ACT (CCA) ☐
- A VERIFICATION AGENCY ACCREDITED BY THE SOUTH AFRICAN ACCREDITATION SYSTEM (SANAS); OR ☐
- A REGISTERED AUDITOR ☐

[Tick Applicable Box]

ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS/SERVICES/WORKS OFFERED? YES or NO

IF YES ENCLOSE PROOF

SIGNATURE OF TENDERER

NAME OF TENDERER

DATE

CAPACITY UNDER WHICH THIS TENDER IS SIGNED:
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<td>Background to the NRF and the SKA SA</td>
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<td>Pricing Schedule</td>
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<td>10.</td>
<td>Annexure A: CIDB Standard Conditions of Tender</td>
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<td>11.</td>
<td>Annexure B: SKA SA Transport Policy, Rev 2 (Document No. SSA0000-0000-001)</td>
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<td>13.</td>
<td>Annexure D: SKA SA Minimum Site Safety Requirements, Rev 1 (Document No. SSA0000-0000V1-04MP)</td>
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<td>17.</td>
<td>Annexure H: SKA-TEL-INSA-0000558 Rev1 SKA1_MID Infrastructure sub-element (Level 3) Requirements Specification Data Rack Power</td>
</tr>
<tr>
<td>18.</td>
<td>Annexure I: SKA-TEL-INSA-0000560 Rev1 SKA1_MID Infrastructure sub-element (Level 3) Requirements Specification Data Rack Cooling</td>
</tr>
</tbody>
</table>


23. Annexure N: SKA1_MID Infrastructure and Power Element PDR Drawings and Documentation


25. Annexure P SKA SA MeerKAT Infrastructure and Power Element As Built Register

26. Annexure Q: Directions to SKA SA Meysdam Farmhouse from Carnarvon
### TENDER RESPONSE SUBMISSION FORMAT / CHECKLIST

<table>
<thead>
<tr>
<th>No of originals</th>
<th>1</th>
<th>Number of Tender pack copies</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pack split into “Technical” (T₁) and “Financial” (F₂) Envelopes</td>
<td>Yes / No</td>
<td>Two envelope system used</td>
<td>Yes / No</td>
</tr>
<tr>
<td>Proposal – Tenderer’s B-BBEE Transformation Program</td>
<td>Yes/ No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### SUPPLIER ACCREDITATION

Provide documentation that the Tenderer is registered on the National Treasury Central Supplier Database (CSD) - [https://secure.csd.gov.za/](https://secure.csd.gov.za/) | Yes/No |

Certified copies of certificate of incorporation (as per entity type) | Yes/ No |

### SUBMISSION CHECKLIST

**Stage 1: Compliance Verification (These are all “GO” Documents that must be submitted)**

<table>
<thead>
<tr>
<th>COMPULSORY RETURNABLE FORMS AND DOCUMENTS (CD or USB Flash Drive and hardcopies)</th>
<th>RESPONSIBILITY OF:</th>
<th>PURPOSES REQUIRED FOR:</th>
<th>TO BE PLACED IN ENVELOPE</th>
<th>For Office Use Only FULL COMPLETED AND INCLUDED IN ENVELOPE?</th>
<th>PAGES IN TENDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covering Letter</td>
<td>Tenderer including JV Partners and sub-consultants</td>
<td>Compliance Verification</td>
<td>T₁</td>
<td>YES</td>
<td>None</td>
</tr>
<tr>
<td>Confirmation of registration on National Treasury central supplier database</td>
<td>Tenderer including JV Partners and sub-consultants</td>
<td>SCM Compliance</td>
<td>T₁</td>
<td>YES</td>
<td>None</td>
</tr>
<tr>
<td>Original certified B-BBEE certificate issued by a Verification Agency accredited by SANAS or a Registered Auditor approved by IRBA or an Accounting Officer as contemplated in the CCA (Optional but Original will be requested for the Financial/B-BBEE Evaluation Stage)</td>
<td>Tenderer. For a Joint Venture, a consolidated original B-BBEE Certificate is required and for any sub-contracting, sub-consultants must submit a B-BBEE certificate</td>
<td>SCM Compliance</td>
<td>T₁</td>
<td>YES</td>
<td>None</td>
</tr>
<tr>
<td>Form A1: Authority for signatory</td>
<td>Tenderer including JV Partners &amp; sub-consultants</td>
<td>SCM Compliance requirement</td>
<td>T¹</td>
<td>YES</td>
<td>64</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-------------------------------------------------</td>
<td>-----------------------------</td>
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</tr>
<tr>
<td>Form A2: Tenderer’s bank account details and financial references (Not compulsory if confirmation of registration on National Treasury Central Supplier Database is submitted)</td>
<td>Tenderer including JV Partners &amp; sub-consultants</td>
<td>SCM Compliance requirement</td>
<td>T¹</td>
<td>YES</td>
<td>65</td>
</tr>
<tr>
<td>Form A3: Certificate of Insurance Cover (Professional Indemnity)</td>
<td>Tenderer, JV Partners &amp; sub-consultants</td>
<td>SCM Compliance requirement</td>
<td>T¹</td>
<td>YES</td>
<td>66</td>
</tr>
<tr>
<td>Form A4: Certificate of Authority for Joint Venture (if applicable)</td>
<td>Tenderer, JV Partners</td>
<td>SCM Compliance requirement</td>
<td>T¹</td>
<td>YES</td>
<td>67</td>
</tr>
<tr>
<td>Form A5: Amendments and Qualification by Tenderer</td>
<td>Tenderer, JV Partners &amp; sub-consultants</td>
<td>SCM Compliance requirement</td>
<td>T¹</td>
<td>YES</td>
<td>68</td>
</tr>
<tr>
<td>Form B1: Certificate of Tenderer’s Attendance at the Compulsory Meeting</td>
<td>Tenderer, JV Partners &amp; sub-consultants</td>
<td>SCM Compliance requirement</td>
<td>T¹</td>
<td>YES</td>
<td>70</td>
</tr>
<tr>
<td>Form B2: Record of Addenda to Tender Documents</td>
<td>Tenderer, JV Partners &amp; sub-consultants</td>
<td>SCM Compliance requirement</td>
<td>T¹</td>
<td>YES</td>
<td>71</td>
</tr>
<tr>
<td>Form B3: Compulsory Enterprise Questionnaire</td>
<td>Tenderer JV Partners &amp; sub-consultants</td>
<td>SCM Compliance requirement</td>
<td>T¹</td>
<td>YES</td>
<td>72</td>
</tr>
<tr>
<td>Form B4: Declaration of Interest (SBD 4)</td>
<td>Tenderer JV Partners &amp; sub-consultants</td>
<td>SCM Compliance requirement</td>
<td>T¹</td>
<td>YES</td>
<td>75</td>
</tr>
<tr>
<td>Form B5: Declaration of Tenderer’s Past Supply Chain Management Practices (SBD 8)</td>
<td>Tenderer JV Partners &amp; sub-consultants</td>
<td>SCM Compliance requirement</td>
<td>T¹</td>
<td>YES</td>
<td>78</td>
</tr>
<tr>
<td>Form B6: Certificate of Independent Tender Determination (SBD 9)</td>
<td>Tenderer JV Partners Sub-consultants</td>
<td>SCM Compliance requirement</td>
<td>T1</td>
<td>YES</td>
<td>80</td>
</tr>
<tr>
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</table>
## Stage 2: Technical Evaluation

<table>
<thead>
<tr>
<th>COMPULSORY RETURNABLE FORMS AND DOCUMENTS (CD or USB Flash Drive and hard copies)</th>
<th>RESPONSIBILITY OF:</th>
<th>PURPOSES REQUIRED FOR:</th>
<th>TO BE PLACED IN ENVELOPE</th>
<th>For Office Use Only FULL COMPLETED AND INCLUDED IN ENVELOPE?</th>
<th>PAGES IN TENDER</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Schedule 1:</strong> Schedule of Key Design Personnel; All proposed Key Design personnel’s information; Qualification, Experience and Professional registration to be included. Additional Qualifying requirement - Only personnel included on this schedule will be assessed in terms of qualifying criteria. (The design lead for the project must be clearly indicated.)</td>
<td>Tenderer and JV Partners.</td>
<td>Required for technical evaluation</td>
<td>T¹</td>
<td>YES</td>
<td>49</td>
</tr>
<tr>
<td><strong>Schedule 2:</strong> Certified copies of Professional Qualification. Append to Schedule 1: Key Design Personnel (All key Design personnel; Please attach in the order that personnel are listed on the schedule)</td>
<td>Tenderer and JV Partners. (All key personnel. Please attach in the order that personnel are listed on the schedule)</td>
<td>Required for technical evaluation</td>
<td>T¹</td>
<td>YES</td>
<td>50</td>
</tr>
<tr>
<td><strong>Schedule 3:</strong> Certified copies of Professional Registration. Append to Schedule 1: Key Design Personnel (All key personnel; Please attach in the order that personnel are listed on the schedule)</td>
<td>Tenderer and JV Partners. (All key personnel. Please attach in the order that personnel are listed on the schedule)</td>
<td>Required for technical evaluation</td>
<td>T¹</td>
<td>YES</td>
<td>50</td>
</tr>
<tr>
<td>Schedule 4: The Curriculum Vitae. The CVs of each individual must be appended to the Schedule of Key Design Personnel (Template for CV provided. All CVs to be provided in this template)</td>
<td>Tenderer and JV Partners. (All key personnel. Please attach in the order that personnel are listed on the schedule)</td>
<td>Required for technical evaluation</td>
<td>T¹</td>
<td>YES</td>
<td>51</td>
</tr>
<tr>
<td>Schedule 5: Project Organisational Chart for Key Design Personnel and HVAC Specialist Contractor. (A project organisational structure identifying the design lead, all resources indicated above and all support staff required to ensure successful delivery of the project, including interfaces with the SKA).</td>
<td>Tenderer, sub-consultants, JV Partners and HVAC Specialist Contractor.</td>
<td>Required for technical evaluation</td>
<td>T¹</td>
<td>YES</td>
<td>54</td>
</tr>
<tr>
<td>Schedule 6: Tendering Entity past experience in delivering projects undertaken to the nature of the SKA site and building requirements (lists of current and completed projects to be submitted). Must include all Consultants and Sub-consultants.</td>
<td>Tenderer, JV Partners and HVAC Specialist Contractor.</td>
<td>Required for technical evaluation</td>
<td>T¹</td>
<td>YES</td>
<td>55</td>
</tr>
<tr>
<td>Schedule 7: References - The Tendering Entity, its sub-consultants, JV Partners and HVAC Specialist Contractor must each provide at least three (3) credible, written and contactable references from Clients for whom projects have been undertaken to the nature of the SKA site and building requirements and have indicated their willingness to take SKA SA representatives on such site visit to such Client premises if requested. (References shall be provided for all engineering disciplines as required for this project)</td>
<td>Tenderer &amp; JV Partners</td>
<td>Compliance Verification</td>
<td>T¹</td>
<td>YES</td>
<td>56</td>
</tr>
<tr>
<td>Schedule 8: Method Statement based on the scope of work defined in the tender document.</td>
<td>Tenderer &amp; JV Partners</td>
<td>Required for technical evaluation</td>
<td>T¹</td>
<td>YES</td>
<td>60</td>
</tr>
<tr>
<td>Schedule 9: Project Schedule for the activities to be undertaken specific to this project.</td>
<td>Tenderer (Submission of a Project Schedule for the activities to be undertaken specific to this scope of work.</td>
<td>Required for technical evaluation</td>
<td>T¹</td>
<td>YES</td>
<td>61</td>
</tr>
<tr>
<td>Schedule 10: Evidence of the Tenderer and JV partners existing Socio-Economic development activities and proposed Skills Transfer development plan specific for this contract to young graduates and mentorship for SKA SA young professionals. (Evidence and Certification to be provided for all participants on completion of this project)</td>
<td>Tenderer &amp; JV Partners</td>
<td>Compliance Verification</td>
<td>T¹</td>
<td>YES</td>
<td>62</td>
</tr>
</tbody>
</table>
### Stage 3: Evaluation of Price and B-BBEE status

<table>
<thead>
<tr>
<th>COMPULSORY RETURNABLE FORMS AND DOCUMENTS (CD or USB Flash Drive and hardcopies)</th>
<th>RESPONSIBILITY OF:</th>
<th>PURPOSES REQUIRED FOR:</th>
<th>TO BE PLACED IN ENVELOPE</th>
<th>FULLY COMPLETED AND INCLUDED IN ENVELOPE?</th>
<th>PAGE IN TENDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form C1.1 – Form of Offer &amp; Acceptance in Tender Invitation</td>
<td>Tenderer</td>
<td>SCM Compliance requirement</td>
<td>F²</td>
<td>YES/NO</td>
<td>94</td>
</tr>
<tr>
<td>Form C1.2 – Contract Data provided by Tenderer</td>
<td>Tenderer</td>
<td>SCM Compliance requirement</td>
<td>F²</td>
<td>YES/NO</td>
<td>99</td>
</tr>
<tr>
<td>Form C2.1 – Pricing</td>
<td>Tenderer</td>
<td>SCM Compliance requirement &amp; Stage 3 Assessment</td>
<td>F²</td>
<td>YES/NO</td>
<td>104</td>
</tr>
<tr>
<td>Form C3: Preference Certificate and Preference Points Claim in terms of the Preferential Procurement Regulations, 2011 (SBD 6.1)</td>
<td>Tenderer, joint venture partners, sub-consultants (Joint ventures must have a consolidated BBBEE Certificate)</td>
<td>SCM Compliance requirement &amp; Stage 3 Assessment</td>
<td>F²</td>
<td>YES/NO</td>
<td>111</td>
</tr>
</tbody>
</table>

T¹ – Technical Envelope (1 original, 3 copies in hard copy and soft copy format)

F² – Financial Envelope (1 original, 3 copies in hard copy and soft copy format)

**FAILURE TO PROVIDE ALL THE DOCUMENTATION LISTED ABOVE AT TIME OF CLOSURE OF THE TENDER WILL RESULT IN YOUR TENDER BEING DISQUALIFIED.**
TENDERERS TO NOTE THE FOLLOWING:

1) The Tenderer must be a single legal entity which is an Electrical/Mechanical Engineering Consultancy firm with all other necessary expertise secured via sub-contract or under a Joint Venture Agreement. The lead (contracting party) will be an Electrical/Mechanical Engineering Consultancy firm who will secure the necessary other professional engineering and specialist resources required to execute the contract. The NRF will enter into a single contract for the delivery of the work set out in the Scope of Work for this Tender; The tender is only open to South African companies.

3) A person will not be awarded points for B-BBEE status level if it is indicated in the Tender documents that such a Tenderer intends sub-contracting more than 25% of the value of the contract to any enterprise that does not qualify for at least the points that such Tenderer qualifies for, unless the intended sub-consultant is an EME that has the capability an ability to execute the sub-contract.
Background to the National Research Foundation and the SKA

The National Research Foundation ("NRF") is a juristic person established in terms of section 2 of the National Research Foundation Act, Act 23 of 1998. The NRF supports and promotes research and human capital development through funding, the provision of National Research Facilities and science outreach platforms and programmes to the broader community in all fields of science and technology, including natural science, engineering, social science and humanities. The NRF is a Schedule 3A entity in terms of the Public Finance Management Act of 1999 (Act 1 of 1999 as amended by Act 29 of 2000).

The SKA SA is a business unit of the National Research Foundation and is responsible for the design, construction, operations and maintenance of the MeerKAT radio telescope, a 64-dish array currently being constructed in the Karoo Radio Astronomy Observatory. MeerKAT will be operational from 2017.

South Africa and its 8 African partner countries were jointly awarded the SKA together with Australia. The SKA will be Africa's largest science project which will be a hub for both local and international collaboration. The SKA Organisation has been established with its headquarters at Jodrell Bank in Manchester, United Kingdom. The five key science projects will that will be undertaken by the SKA include:

- Probing the Dark Ages
- Galaxy Evolution
- The Origin and Evolution of Cosmic Magnetism
- Strong Field Tests of Gravity using Pulsars and Black Holes
- The Cradle of Life.

The first phase of the SKA includes the addition of 133 antennas to the 64-dish MeerKAT radio telescope and the second phase of the project and will include up to 2000 antennas distributed across South Africa and its eight African partner countries. The construction of the first phase of the SKA is expected to commence in 2019 until 2023/2024.


The SKAO has initiated the design phase for the SKA 1 radio telescope. This design phase will detail the SKA project at an element level, thus allowing the project to proceed to the construction of SKA1. The preliminary design phase was completed in April 2015, with the work executed by the various Consortia being consolidated into a revised baseline design which will progress to the detailed design phase.

The INFRA SA Consortium was awarded the work package to undertake the preliminary and detailed design phase of the infrastructure and power for SKA1_MID. The detailed design phase is currently funded by the SKA SA and European Union (EU) Horizon 2020 funding. The detailed design phase is scheduled to be completed during the fourth quarter of 2017.
1 Contextual Analysis

Locality

The SKA site is located in the Northern Cape Province, surrounded by the towns of Carnarvon, Williston, Brandvlei and Van Wyksvlei, as indicated in Figure 1 below.

![Figure 1: Indicative Locality Plan](image)

The SKA site is approximately 650km from Cape Town, 900km from Johannesburg city centre retrospectively and 90km from Carnarvon.

Access to the site is via a provincial gravel road currently under construction. The land makes provision for the SKA core site, KAT-7 radio telescope, MeerKAT instrument and the PAPER instrument.
2. Scope of Work

2.1 Overview

The core of the site is located about 80km northwest of the town of Carnarvon. From the core, there are three spiral arms which extend up to a distance of 120 kilometres. Approximately 62% of the antennas are located in the core, which is 2.5km in radius. The remaining 38% are located in the spiral arms, thus extending up 90 kilometres from the core. The SKA site complex located approximately 4km from the core, accommodates various buildings such as the Karoo Array Processor Building (KAPB), staff accommodation, dish assembly and pedestal integration sheds.

The SKA1_MID preliminary design report (PDR) for the Power and Buildings sub element, which is issued as part of this tender, has been approved by the SKAO, thus allowing the commencement of the detail design stage. The proposed solutions were based on limited information and external Interface Control Documents (ICD) from other Consortia. The Tenderer shall analyse the proposed solutions, investigate and recommend appropriate design solutions based on the SKA1_MID Infrastructure sub-element (Level 3) requirements specifications (Refer to Annexures).

It is anticipated that there will be interfaces with other consortia that are responsible for other elements of the SKA project. This interfacing will mainly be with the Telescope Manager (TM), Signal and Data Transport (SaDT) Consortium and Central Signal Processor (CSP) Consortium. The interfacing will be led by the Infrastructure and Power South Africa (INFRA SA) Consortium Representative.

The construction of the electrical infrastructure for the MeerKAT telescope was completed around June 2014. The current MeerKAT Power system can be broadly divided into Grid Power, On-site Power Transformation and Back-up power in the Power Facility and Electrical reticulation to dishes. Each of these components will be discussed in more detail below.

The existing Data Rack Cooling system comprises of five (5) 80 kW Computer Room Air Conditioner (CRAC) units with a hot/ cold air supply arrangement in the aisles as a cooling solution in the KDRA. The expansion to the KDRA will increase the heat load from 240kW to 750kW, requiring additional CRAC units, a liquid cooling solution which will interface with a customer-supplied heat exchangers in the racks and additional ventilation for the power distribution areas.

The MeerKAT telescope is currently being commissioned with the full dish array completed by the end of 2017. Once the SKA1_MID commence with construction in the first quarter of 2019, the MeerKAT telescope will be fully operating and limited disruption shall be experienced during construction. The design team shall take cognisance of this during the detail design stage and any operational disruption to the Losberg Facility shall be clearly indicted in the construction schedule.

The multidisciplinary team lead by an Electrical/ Mechanical engineer shall review, consolidate, integrate, and provide detailed designs including costing services for the expansion of the existing Karoo Array Processor Building (KAPB) based on the SKA1_MID Infrastructure sub-element (Level 3) Requirements Specification (Refer to Annexures). The SKA1_MID Infrastructure sub-element (Level 3) Requirements Specification consist of the following Grid Power, Losberg Power Facility, Data Rack Power, Data Rack Cooling, Building Management System and Building Ancillaries.
2.1.1 Overview of Existing MeerKAT Infrastructure

2.1.1.1 Existing Grid Power

The grid infrastructure associated with the MeerKAT telescope was constructed, owned and maintained by SKA SA. The grid power is provided by Eskom, the South African electricity public utility.

Due to the relative remoteness of the MeerKAT site, supply to the facility is provided via a series of long radial feeds. Eskom has a 400kV/132kV main transmission substation named Kronos, approximately 100km North East of the MeerKAT site. Approximately 10km from Kronos Substation is a 132/66/11kV Eskom sub-transmission substation called Cuprim Substation. The incoming 132kV voltage at Cuprim is stepped down to 11kV for distribution to the surrounding areas. One of the feeders from this 11kV busbar feeds a single 11kV/66kV step-up transformer. This 66kV busbar then supplies a ±100km long 66kV wood pole overhead line that feeds into Karoo Substation (located just outside the town of Carnarvon). Karoo Substation is essentially where the MeerKAT telescope draws its supply from Eskom. Karoo substation was historically a 66/22kV Substation and was constructed primarily to provide power to the town of Carnarvon and a few other smaller towns in the area. When construction on MeerKAT started, two additional 66/33kV 5MVA transformer bays were added to this substation exclusively for use by SKA SA. The two 66/33kV 5MVA transformers then feed a single 33kV busbar which in turn supplies the 100km long 33kV line to the MeerKAT site. The following sketch summarises the description given above.

Figure 2: Overview of existing MeerKAT Grid Power Infrastructure
Additional points to note relating to MeerKAT Grid Infrastructure:

- The addition of a 2.1 MVA shunt capacitor bank on the 33kV busbar at Karoo Substation will increase the power available at Karoo Substation from 10MVA to 11.5MVA.
- The installation of the above capacitor bank will also make 6.5MVA available for SKA on the 33kV busbar at Karoo (relates to 5.2MVA on site after transmission losses - TBC)
- The 100km of 33kV line between Karoo Substation and the MeerKAT site is owned and maintained by SKA SA.
- Two sets of voltage regulators are installed on the 33kV line between Karoo Substation and the MeerKAT site to compensate for voltage drop on the long 33kV line.
- The metering point for the MeerKAT power supply is at Karoo Substation.

2.1.1.2 On-site Power Facility and back-up

The MeerKAT Power Facility is the central hub for the in-take of the bulk power supply from Eskom as well as the distribution of power across the MeerkAT site, as indicated in Figure 3 and 4 below. This central facility currently supply loads to the Site Complex, KAT-7, HERA and MeerKAT Antenna.

Figure 3: Floor Plan of Karoo Array Processor Building (KAPB)
The existing power facility consists of five separate rooms comprising the following:

- **Domestic MV Switchroom** comprises of three 33kV breakers (1 x Eskom Incomer and 2 x Transformer Feeders), 22kV Switchgear and DC equipment required for protection functions.
- **Transformer Room** comprises of two 33/22kV 2.5MVA dry type transformers (2 x 22kV/400V 1.6MVA dry type transformers and a neutral earthing resistor (NER)).
- **Back-up Power and conditioning room** comprises of three Dynamic (Diesel) Rotary UPS Units, including their associated chokes, step-up transformers, day tanks and dummy loads etc.
- **Main LV Room** comprises of a Main LV Switchboard, control panels for the DRUPS units. Five DRUPS control panels are currently installed for the expansion of SKA1_MID.
- **DRUPS MV Switchroom** comprises of a MV circuit breakers associated with the DRUPS installation.

As mentioned above, MeerKAT power facility currently houses three Dynamic (Diesel) Rotary UPS (DRUPS) units capable of providing 3.75MVA of conditioned uninterrupted power to all loads on the MeerKAT site. The existing power
facility has spare space for the installation of two additional DRUPS units without having to carry out any major alterations to the existing building. All associated switchgear and control panels for the two future units have already been installed.

2.1.2 Losberg Power Facility

The power scope of work is the detailed design of the electrical infrastructure housed within the existing Losberg Site Complex in order to meet the SKA1_MID Infrastructure sub-element (Level 3) Requirements Specification (Refer to Annexure F).

The Tenderer is required to assess the existing 33kV overhead line approximately 100km long to site and determine a suitable solution for possible voltage stability issues associated with the overhead line. SKA SA has completed a number of simulations using the Digsilent Powerfactory software. The source file for this software will be made available to the successful Tenderer and used as input into their design solution. All power simulations must be done using Digsilent Powerfactory software. The reason for including the overhead line as part of the scope of work for this tender is that the equipment required to mitigate against these voltage stability concerns, may need to be installed inside the Losberg Power Facility and would therefore need to be integrated into the SKA1_MID design. Comment on whether the existing 100A Voltage regulators would be sufficient for the anticipated SKA1-MID loads would also need to be included as part of the assessment of this overhead line.

An important point to note is that a number of project changes have come about since the release of the Power preliminary design report. This means that the successful Tenderer will have to make an assessment as to the applicability of some of the design solutions proposed as part of the preliminary design report. There may be certain instances where the solutions proposed are no longer applicable and may require a completely different approach.

2.1.3 Data Rack Power

The existing Data Rack Power in the KAPB Data Rack Area comprises of underfloor power distribution from a LV panel through Radio Frequency Interference (RFI) filters to Distribution boards in the Data Rack Area, underfloor power busbar with socket outlets to each rack capable of accepting a dual redundant supply and power supply to the Computer Room Air Conditioner (CRAC) units.

The SKA1_MID Infrastructure sub-element (Level 3) Requirements Specification (Refer to Annexure H), for the Data Rack Power includes the PDR design of the expansion to Data Rack Power distribution to four (4) rows of racks in the KDRA and power supply to the additional required CRAC units, as indicated in Figure 5 below.
2.1.4 Data Rack Cooling (Heating, Ventilation and Air Conditioning)

The existing Data Rack Cooling comprises of five (5) 80 kW CRAC units with a hot/cold air supply arrangement in the aisles as a cooling solution in the KDRA.

The SKA1_MID Infrastructure sub-element (Level 3) Requirements Specification (Refer to Annexure I), for the Data Rack Cooling includes the PDR design of the expansion to the Data Rack Cooling. This will entail to increase the KDRA heat load from 240kW to 750kW, by adding additional CRAC units, a facility liquid cooling solution which will interface with a customer-supplied heat exchangers in the racks and additional ventilation for infrastructure equipment in the KAPB. The liquid coolant will be circulated through the racks and pumped to an external heat exchanger where heat will be rejected to the atmosphere. The cooled fluid will then return to the racks, forming a closed loop.

Both solution shall be investigated and a recommendation made for the appropriate design solutions based on the SKA1_MID Infrastructure sub-element (Level 3) requirements specifications. The air cooling solutions will require a Computational Fluid Dynamics (CFD) simulation model and the liquid cooling will require a prototype to be constructed for testing and verification.
2.1.5 Building Management System (BMS)

The existing BMS provides Supervisory Control and Data Acquisition (SCADA) for ‘non-telescope’ systems on site and at the Klerefontein Support Base, refer to Figure 6 and 7 below for Existing KAPB BMS overview. The servers and software are located at the Support Base with a back-up server at the KAPB on site. The BMS has external interfaces with the existing Karoo Radio Astronomy Observatory (KRAO) LAN, the MeerKAT CAM/TM element and the Integrated Logistic Server (ILS).

The SKA1_MID Infrastructure sub-element (Level 3) Requirements Specification (Refer to Annexure J), for the BMS includes the PDR design of the expansion to the existing BMS. The BMS shall monitor the sub-element expansion as described above and the installed Maser Room equipment which has not yet been integrated with the existing BMS. The detail design work shall include the required BMS equipment, cabling installation and additional Human Machine Interface (HMI) screens and adaptation of existing. The HMI shall be designed in consultation with the SKA SA user representatives.

Figure 6: Existing KAPB BMS Overview
2.1.6 Building Ancillaries

The SKA1_MID Infrastructure sub-element (Level 3) Requirements Specification (Refer to Annexure K), for building ancillaries includes the PDR design for the expansion to the existing KAPB services. The ancillaries consist of but not limited to Data Rack Area Floor loading, Fire Detection, Gas Suppression system, RFI penetrations, KAPB Lighting, Emergency lighting, Motion detection, Door open sensors, Cable trays and Fibre guides with downchutes, Underfloor cable tray guides, Maser room and TFR Area overhead trays, Surveillance cameras, Anti-static test station and GNSS Precision Antenna mount.

2.2 Deliverables

The following requirements shall form part of the particular conditions C1.2.2 for this tender.

2.2.1 Design Process, Deliverables and Approvals

The SKA SA will follow a System Engineering (SE) process to realise the design, construction, test and verification and handover the works. Based on the concept design and supporting documentation issued by SKA SA (refer to Annexures) the Tenderer is expected to prepared detailed designs for the stated scope of works.

The SE process will be managed internally within the INFRA SA Consortium, with technical input from the successful Tenderer as and when required. Tenderers must also note that SKA SA has specific configuration management for projects. All documentation, including drawings, will be compiled on specific templates which will be issued to the successful Tenderer. There will also be a specific numbering system which will be provided to the successful Tenderer.
Bi-weekly design progress meetings will be held between the design team and the SKA SA at the SKA SA offices in Rosebank, Johannesburg. The Project Manager for the design team will be responsible for minuting the actions from each meeting including Requests for Information from the SKA SA as and when required. The design reviews and approval meetings will be held at the SKA SA offices in Rosebank, Johannesburg. The SKA review panel members will be confirmed after award of this tender.

<table>
<thead>
<tr>
<th>Time For Completion (154 Calendar Days)</th>
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</thead>
<tbody>
<tr>
<td>Review and Analyse SKA Requirements, PDR and other Recorded Information</td>
</tr>
<tr>
<td>(14 days)</td>
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</tbody>
</table>

Figure 6: SKA SA System Engineering process

2.2.1.1 Review and Analyse SKA Requirements, PDR and other Recorded Information (14 Calendar Days)

The design team will undertake a detailed review of the requirements listed in the SKA1_MID Infrastructure sub-element (Level 3) Requirements Specification (Refer to Annexures), MeerKAT As-built information, including reports, drawings, specifications, SKA1_MID preliminary design reports and its recommended solutions, SKA1_MID requirements as input to the design solution and liaise with SKA SA representatives. All recommended solutions shall be verified by the Tenderer. Any clarifications on requirements which are unclear or require further discussion and where requirements can be optimised/ reduced will be discussed during the Requirements Review period. Once the Requirements Review has been concluded, the draft design will commence.

The Review and Analyse of SKA Requirements will include the submission of the following for review by a Review Panel, appointed by the SKA SA:

1. Comments on SKA1_MID Infrastructure sub-element (Level 3) Requirements Specification
2. Suggested verification method for each SKA1_MID Infrastructure sub-element (Level 3) Requirements Specification (Template will be provided)

2.2.1.2 Draft Detail Design (31 Calendar Days)

The Draft Design will include the submission of documents/ drawings for the SKA1_MID Infrastructure Sub Elements listed in the scope of work.
The Draft Design will include the submission of the following for review by a Review Panel, appointed by the SKA SA:

1. Written Draft Design report in Word and PDF format (*Note: Separate reports shall be prepared for each of the SKA1_MID Infrastructure Sub-elements*)
2. Draft Design Drawings in Autocad format and PDF Format
3. Preliminary Cost Estimate (All SKA1_MID Infrastructure Sub-elements)
4. Project specific Safety, Health, Environmental and Quality management plan for approval, based on the SKA SA EMP and OHS specification which are both issued as part of this tender
5. Reliability Analysis (Grid Power, Losberg Power Facility and Data Rack Cooling)

### 2.2.1.3 Draft Detail Review (7 Calendar Days)

All draft detail design documentation/drawings/reports as listed above shall be submitted in hard copy and USB flash drive containing all required information to SKA SA on commencement of this stage.

The SKA panel will review all documentation/drawings/reports through an Observation Action Register (OAR) to raise questions/comments/clarifications which will be submitted to the design team. The design team will present their OAR responses at the close out review meeting in an effort to close-out these comments. The Panel will publish a report within one week on whether the concept design can proceed to the detailed design phase and record decisions made during the concept design phase.

### 2.2.1.4 Detail Design (53 Calendar Days)

The detail design will include the submission of the following documents/drawings to the SKA SA for the Critical Design Review being held (CDR):

1. Written Detail Design report/s in Word and PDF format (*Note: Separate reports shall be prepared for each of the SKA1_MID Infrastructure Sub-elements*). These reports shall include the following:
   - All detailed and standard specifications and ordering schedules in sufficient detail for construction tendering purposes.
   - A list of all applicable standards used (*Note: All standards shall become the property of SKA and used for the issue of any construction tenders*)
   - Bill of Materials with required equipment and parts in Excel. Identifying names, part no., data sheet, etc., per item (A template will be issued by SKA SA on award of this tender)
   - Support Failure Modes, Effects and Criticality Analysis (FMECA) for Losberg Power Facility, Data Rack Power and Data Rack Cooling. (A template will be issued by SKA SA on award of this tender)
   - Final Reliability, Availability, Maintainability report on all key components (All SKA1_MID Infrastructure Sub-elements) (A template will be issued by SKA SA on award of this tender)
   - Trade-off studies for various design solutions. These trade-off studies shall include power system simulations using Digsilent Powerfactory Software
   - Installation, Commissioning and Handover procedures (All SKA1_MID Infrastructure Sub-elements)
- Power ramp up and roll out plan based on the SKA1_MID construction plan
- Operator procedures (SKA1_MID Infrastructure BMS Sub-element)
- Maintenance Strategy, Maintenance Task Identification and Maintenance procedures including complete asset and spares list (RASCI chart) (A template will be issued by SKA SA on award of this tender)
- Final project specific Safety, Health, Environmental and Quality management plan for Construction, based on the SKA SA EMP and OHS specification which are both issued as part of this tender
- Construction Schedule and Deployment Strategy (including integration plan between sub elements and components)
- Complete requirements compliance matrix, linking each requirement to its related test procedure
- Lifecycle costs for equipment (capital, operations and maintenance), for a 50 year period including major equipment replacement and technology upgrades.
- Risk and Opportunity Register

2. Construction working drawings in AutoCAD format DWG, DXF and PDF Format (including cable schedules, detailed specifications, etc.)

3. A power simulations report which provides simulation results and comment analysis of these results. The submission shall also include the submission of all the Digsilent Powerfactory PFD files, libraries, etc. to allow the simulations to be viewed and modified by SKA SA using the Digsilent Powerfactory Software. These simulations shall include the overhead powerline and entire power facility. SKA SA has undertaken simulations on the 22kV reticulation network to the dishes and will make these available to the successful Tenderer in order for them to assess power factor correction requirements of the Losberg Power facility.

4. Detailed Bill of Quantities (un/priced) for construction in PDF, Excel and WinQS/QSPlus or other measuring software format. (All SKA1_MID Infrastructure Sub-elements)

5. Test and Verification (Qualification Test Procedure) procedures for all sub elements and associated bulk infrastructure based on the detail design.

Extract from above for the Prototype Liquid Cooling Solution:

6. Compile Test and Verification (Qualification Test Procedure) procedures for the Prototype Liquid Cooling Solution approved by SKA SA.

7. Prototype Liquid Cooling Solution Safety, Health, Environmental and Quality management plan for approval, based on the SKA SA EMP and OHS specification which are both issued as part of this tender;

8. Issue drawings and specifications for construction of the prototype Liquid Cooling Solution

2.2.1.5 Detail Design Review (7 Calendar Days)

All draft detail design documentation/drawings/reports as listed above shall be submitted in hard copy and USB flash drive containing all required information to SKA SA on commencement of this stage.

The SKA panel will review all documentations/drawings/reports through an Observation Action Register (OAR) to raise questions/comments/clarifications which will be submitted to the design team. The design team will present their OAR
responses at the close out review meeting in an effort to close-out these comments.

The Project Manager for the design team will be responsible for minuting the actions from the meeting for further updates. The design reviews and approval meetings will be held at the SKA SA offices in Rosebank, Johannesburg

2.2.1.6 Prototype Liquid Cooling Solution (21 Calendar Days)

A prototype liquid cooling solution for the data rack cooling specifications shall be constructed and simulated at the premises of the Tenderer in South Africa or an alternative location approved by SKA SA. All equipment, testing apparatus and tools deemed necessary required to simulate testing shall be provided. The test and verification procedures shall be agreed with SKA SA before commencement. All testing procedures to be in the presences of SKA SA representatives. The proposed liquid for the liquid cooling solution shall be verified by the Tenderer.

The Final Detailed Designs will be updated for CDR based on SKA comments and test results from the prototype liquid cooling solution.

2.2.1.7 Critical Design Review and Approval (CDR) (14 Calendar Days)

All detail design documentation/drawings/reports as listed in 2.2.1.4 Detail Design including updates based on SKA comments and test results from the prototype liquid cooling solution shall be submitted in hard copy and USB flash drive containing all required information to SKA SA on commencement of this stage. The SKA CDR panel will review all documentation through an Observation Action Register (OAR) to raise questions/comments/clarifications which will be submitted to the design team. The design team will present their OAR responses at the CDR close out meeting, in an effort to close-out these comments.

The Project Manager for the design team will be responsible for minuting the actions from the meeting for further updates. The design reviews and approval meetings will be held at the SKA SA offices in Rosebank, Johannesburg.

2.2.1.8 Final Detailed Design Updates to Reports, Drawings and all supporting documentation (7 Calendar Days)

All detail design documentation/drawings/reports as listed in 2.2.1.4 Detail Design above shall be updated as per the CDR OAR and submitted in hard copy and USB flash drive containing all required information to SKA SA on competition of this stage.

The design team will be available to address all questions/comments/clarifications raised by the SKAO CDR panel through an OAR and provide additional engineering services leading up to SKA1_MID CDR.

2.3 SKA SA Site Contraints and Conditions

2.3.1 Radio Frequency Interference

SKA has a Radio Frequency Interference Policy, which all personnel and consultants on site must comply with. The policy has been adopted to ensure that there is an environment where there is no interference with the operations of the SKA telescope. The design, construction and testing and associated infrastructure must therefore comply with the policy. The policy will be issued to the successful tenderer prior to commencement of the project.
Communication on site within the core area is only permitted when using a radio device that operates within a specified frequency band, which must be approved by the SKA RFI Manager, while the use of satellite radio is permitted in the spiral arms. No cell phones, smart watches, electronic devices are allowed on site. Only diesel operated vehicles, plant and equipment and generators are permitted on site. A list of all construction equipment, vehicles and devices which may be used on site must be provided to the SKA RFI Manager for approval, before it is allowed onto site.

2.3.2 Tenderers to note the following:

The overall time for completion for the whole of the works will be **154 Calendar days including public holidays.**

Electrical reticulation to antenna dishes will not require any detail design work.

The MeerKAT telescope will be a fully functional instrument at the time the proposed scope of work identified as part of this tender needs to be carried out. The solutions identified need to take this into account, which means any downtime must be kept to an absolute minimum. The current planning allows for construction activities to take place during the day, with scientific observations taking place at night.

Configuration Management including document numbering system will be agreed and approved by SKA SA after award of this tender.

The successful tenderer appointed for the required detailed design will not be involved during construction of the works, unless agreed by SKA but the HVAC Specialist Contractor involved with the construction of the prototype will be allowed to tender.
3. Performance Levels

The SKA SA requires the following levels of performance from the selected Tenderer:

<table>
<thead>
<tr>
<th>Performance Area</th>
<th>Required Level of Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Detail Design</strong></td>
<td>154 Calendar Days</td>
</tr>
<tr>
<td>Review and Analyse SKA Requirements, PDR and other Recorded Information</td>
<td>14 Days</td>
</tr>
<tr>
<td>Draft Detail Design</td>
<td>31 Days</td>
</tr>
<tr>
<td>Preliminary Draft Design Review</td>
<td>7 Days</td>
</tr>
<tr>
<td>Detail Design</td>
<td>53 Days</td>
</tr>
<tr>
<td>Detail Design Review</td>
<td>7 Days</td>
</tr>
<tr>
<td>Prototype for Liquid Cooling Solution</td>
<td>21 Days</td>
</tr>
<tr>
<td>Critical Design Review and Approval (CDR)</td>
<td>14 Days</td>
</tr>
<tr>
<td>Final Detailed Design Updates to Reports, Drawings and all supporting documentation</td>
<td>7 Days</td>
</tr>
</tbody>
</table>

**NOTES:**

1. Delay penalties of R5,000 per day will be applied shall the design team not meet the Required Levels of Performance defined in the Table above.
4 Part T1: Tendering Procedure

4.1.1 T1.1: Tender Notice and Invitation to Tender

SQUARE KILOMETRE ARRAY SOUTH AFRICA (SKA SA) invites tenders for the SKA1 MID MULTIDISCIPLINARY TEAM LEAD BY AN ELECTRICAL/MECHANICAL ENGINEER TO CONSOLIDATE, INTEGRATE, PROVIDE DETAILED DESIGNS INCLUDING COSTING SERVICES FOR THE EXPANSION OF THE EXISTING KAROO ARRAY PROCESSOR BUILDING (KAPB) FOR THE SQUARE KILOMETRE ARRAY PROJECT, NORTHERN CAPE, SOUTH AFRICA. The core of the site is located about 80km North West of the town of Carnarvon in the Northern Cape.

Tender documents will be available from Wednesday, 7th December 2016 during working hours (08h00 to 16h00 Monday to Friday). The physical address for collection of Tender documents is:

Square Kilometre Array South Africa
17 Baker Street, 1st floor Reception
Rosebank
Johannesburg
2196

Queries relating to the issuing of these documents may be addressed to:

Supply Chain Management:
Rayyan Arnold
SKA SA SCM Specialist
rayyan@ska.ac.za
+27(0)21 506 7300

Technical Queries:
Angelo Syce
Contracts Manager: Infrastructure and Power
asyce@ska.ac.za
+27(0)11 268 3400

All Tenderers must attend a compulsory briefing meeting at the SKA SA Site Complex, Meysdam Farmhouse, Northern Cape, SA – (Refer to Annexure Q for directions, GPS Coordinates 30°43'37.3"S 21°27'25.1"E or -30.727028, 21.456972) on Wednesday, 14th December 2016 at 11h00. **No more than two (2) representatives per Tenderer shall attend the meeting. Confirmation of attendance to be notified at least two (2) full working days in advance to Mr Rayyan Arnold.** Failure to attend the compulsory briefing meeting will result in disqualification. An opportunity will be provided to the prospective Tenderers to visit the site after the briefing session in order to acquaint themselves with the site and its conditions. The date, time and meeting place for the site visit will be confirmed at the compulsory briefing session.

Tenderers shall familiarise themselves with Annexure Q on directions to the SKA SA Site Complex, Meysdam Farmhouse in the Northern Cape, as adequate planning should be made.

This tender is only open to Electrical/Mechanical Engineering Consultancy Companies.

The Tender will close at 12h00 on Friday, 10th February 2017. Tenders must be placed in the Tender Box located at Reception on the 1st floor at the SKA SA Office, Blend On Baker Building, 17 Baker Street, Rosebank, Johannesburg, South Africa, 2196.

Telegraphic, telephonic, facsimile, email and late Tenders will not be accepted. Requirements for sealing, addressing, delivery, opening and assessment of Tenders are stated in the Tender Data.
4.1.2 T1.2: Tender Data

The Standard Conditions of Tender makes 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.

The Conditions of Tender are the CIDB Standard Conditions of Tender (January 2009 edition) available from the CIDB website www.cidb.org.za following the Documents and Publications link and navigating through the Procurement Documents Templates and Guidelines section1 (CIDB Tel. +27 12 482 7200 or +27 86 100 2432) or refer to Annexure A.

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

F1.1 The Employer is:

Name: Square Kilometre Array South Africa
17 Baker Street
Rosebank
JOHANNESBURG
South Africa
2196

Contact person: Angelo Syce

Tel: +27(0)11 268 3400

Email: asyce@ska.ac.za

F1.2 The Tender documents issued by the Employer comprise of the following:

THE TENDER
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 Schedules

THE CONTRACT
Part C1 Agreements and contract data
C1.1 Form of offer and acceptance
C1.2 Contract data

Part C2 Pricing Data
C2.1 Pricing Instructions
C2.2 Pricing Schedule

F.2.3 The arrangements for a compulsory clarification meeting are:

Location: SKA SA Site Complex, Meysdam Farmhouse, Northern Cape, SA – (Refer to Annexure Q for directions, GPS Coordinates 30°43'37.3"S 21°27'25.1"E)

Date: 14th December 2016
Starting time: 11h00

Confirmation of attendance to be notified at least two (2) full working days in advance to:

Name: Rayyan Arnold
Tel: +27(0)21 506 7300
Email: rayyan@ska.ac.za
Tenderers must sign the attendance list in the name of the Tendering entity. Addenda will be issued and Tenders will be received only from those tendering entities appearing on the attendance list.

F2.13.1 Not applicable

F2.13.3 Part of each Tender offer communicated on paper shall be submitted as an original, plus three (3) additional copies, **four (4) documents in total** (i.e. four (4) hard copies of the Technical Envelope and four (4) hard copies of the Financial Envelope), plus a CD or USB flash drive containing all technical information and another CD or USB flash drive containing the financial information.

F2.13.9 Telephonic, telegraphic, telex, facsimile or emailed Tender offers will **not** be accepted.

F2.15 The closing time for submission of Tender offers is: **12h00 on Friday, 10th February 2017**

F2.15.1 The Employer’s address for delivery of Tender offers and identification details to be shown on each Tender offer package are:

<table>
<thead>
<tr>
<th>Location of tender box:</th>
<th>SKA SA Office, 1st Floor Reception (Tender box location)</th>
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<tbody>
<tr>
<td></td>
<td>Blend On Baker Building</td>
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<tr>
<td></td>
<td>17 Baker Street</td>
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<td></td>
<td>Rosebank</td>
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<td>Johannesburg</td>
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<td>South Africa</td>
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<td>2196</td>
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</table>

| Identification Details: | Contract No. SKA PEP9 001/2016: SKA1 MID MULTIDISCIPLINARY TEAM LEAD BY AN ELECTRICAL/ MECHANICAL ENGINEER TO CONSOLIDATE, INTEGRATE, PROVIDE DETAILED DESIGNS INCLUDING COSTING SERVICES FOR THE EXPANSION OF THE EXISTING KAROO ARRAY PROCESSOR BUILDING (KAPB) FOR THE SQUARE KILOMETRE ARRAY PROJECT, NORTHERN CAPE, SOUTH AFRICA |

Tenderers shall note the specific requirements for packaging for the two envelopes as detailed on Page 5 of this Tender document and in clauses F2.13.6 and F2.13.7 of the Conditions of Tender.

Any proposal that does not adhere to this format, any which does not address each specification and requirement within the Request for Proposal may be deemed non-responsive and rejected on that basis.

F2.16 The Tender offer validity period is 150 calendar days from close of tender.

F2.17 The tenderer shall provide clarification in response to a request to do so from the employer during the tender evaluation of tenders.

F2.18 The tenderer shall provide any other material when requested to do so by the employer during the tender evaluation of tenders.

F2.19 No access for tests and inspection is required during the Tendering period, unless agreed with SKA SA.

F2.23 The Tenderer is required to submit with his Tender:

1. BBBEE Scorecard verified by a SANAS accredited verification agency, including all of the sub-consultants;
(2) Proof of registration with the National Treasury Central Supplier Database.

F.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 the Tender documents are available until five (5) 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 an extension and, shall then notify all Tenderers who drew documents.

F.3.4 The time and location for opening of the Tender offers are:
The technical proposal envelopes will be opened immediately after the submission of Tenders at the SKA Project Office at the address indicated in F.2.15.1 above.

F3.5 A two-envelope procedure will be followed.
The procedure for the evaluations of responsive tenders is Method 2, following a functional/quality evaluation for Stage 2: Technical Evaluation where a minimum score of 75 points out of 100 points must be attained by the Tenderer and then the Stage 3 evaluation: financial and preference. The preference procedure for evaluation of responsive tender offers shall be the 90/10 point preference system, in full compliance with the requirements of SKA SA, included in Form C3: Preference Schedules.

Envelope "T": Compliance & Functionality

Envelope “T” must be clearly marked “Compliance and Functionality” and include the following:
- The original tender invitation document completed, signed and bound;
- The response to the Terms of Reference. One (1) original and three (3) hard copies with one electronic PDF version saved on a CD or USB flash drive, each separated in terms of Compliance and Functionality;
- Envelope “T” shall not include any price proposal, any indication of professional rates or fees or B-BBEE status.

Envelope “F” must be clearly marked “Price and B-BBEE” and include the following documents:
- The price of the project and B-BBEE status of the Tenderer (For a Joint Venture, a consolidated original B-BBEE Certificate is required and for any sub-contracting, sub-consultants must submit a B-BBEE certificate). (Optional but Original will be requested for the Financial/B-BBEE Evaluation Stage)

Both these envelopes must be clearly marked with the Tender reference number and the contact details of the Tenderer.

The Tenderer must be a single legal entity which is an Electrical/Mechanical Engineering Consultancy Company with all other necessary expertise secured via sub-contract or under a Joint Venture Agreement. The lead (contracting
party) will be an Electrical/Mechanical Engineering Consultancy Company who will secure the necessary other professional engineering and specialist resources required to execute the contract. The NRF will enter into a single contract for the delivery of the work set out in the Scope of Work for this Tender; The tender is only open to South African companies.

A person will not be awarded points for B-BBEE status level if it is indicated in the Tender documents that such a Tenderer intends sub-contracting more than 25% of the value of the contract to any enterprise that does not qualify for at least the points that such Tenderer qualifies for, unless the intended sub-consultant is an EME that has the capability to execute the sub-contract.

F3.11.3 The quality criteria and maximum score in respect of each of the criteria are as follows:

**Selection of Qualified Tenderers (Competency)**

Tender responses / submissions will be evaluated against the Tender invitation specifications. Evaluation of Tenders will be done in accordance to published evaluation criteria and the scoring set for each criterion. The selection process is a Three stage process (Stage 1): Compliance Verification is conducted to verify that Tenderers submitted all compulsory returnable forms and documents, only compliant Tenderers will proceed to (Stage 2) Tenderers proposals will be reviewed against GO/NO GO documentation and evaluated by the SKA SA Tender Evaluation Committee. Tenderers meeting 75% or 75 points out of 100 point threshold will be invited to the financial opening, (Stage 3): Financial/B-BBEE Evaluation phase.

**Qualifying Thresholds for Selection (Stage 1) Evaluation**

Tenderers must score “GO” on all “GO/NO” requirements in Stage 1. A score less than the minimum threshold of 75% or 75 points out of 100 points for Stage 2 will not be considered for Stage 3 evaluation. Evaluation scoring for all criteria is scored on the following basis unless specified otherwise:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td>Average</td>
<td>Meets requirements</td>
<td>Exceeds requirements with value-add proposition</td>
</tr>
</tbody>
</table>

Total score per evaluation criteria is the points awarded per Tender Evaluation Committee member divided by maximum points allowable for each criterion multiplied by weighting for each criterion. Individual scores for Tender Evaluation Committee members are added up for each criterion and divided by the number of committee members to calculate a total score for each criterion.

Tenderers must achieve a minimum averaged score of 3 by all Tender Evaluation Committee members for each Stage 2 Technical Evaluation criteria item 1.1 to 1.5 and 2.1 to 2.2, as these are GO/NO GO criteria which Tenderers have to comply with in their response.
## SELECTION CRITERIA/ CHECKLIST

<table>
<thead>
<tr>
<th>Stage</th>
<th>Element</th>
<th>GO</th>
<th>NO GO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Covering Letter</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Confirmation of registration on National Treasury central supplier database</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Original certified B-BBEE certificate issued by a Verification Agency accredited by SANAS or a Registered Auditor approved by IRBA or an Accounting Officer as contemplated in the CCA (Optional but Original will be requested for the Financial/B-BBEE Evaluation Stage)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Schedule 1: Schedule confirming compliance to list of Key Design Personnel</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Schedule 2: Certified copies of Professional Qualification for Key Design Personnel (attached to Schedule 1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Schedule 3: Certified copies of Professional Registration with the relevant South African Professional Council for each discipline (attached to Schedule 1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Schedule 4: The Curriculum Vitae. The CVs of each individual must be appended to the Schedule of Key Design Personnel (Template for CV provided. All CVs to be provided in this template)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Schedule 5: Project Organisational Chart for Key Design. (A project organisational structure identifying all resources indicated above and all support staff required to ensure successful delivery of the project, including interfaces with the SKA SA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Schedule 6: Tendering Entity past experience in delivering projects</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
undertaken to the nature of the SKA site and building requirements (lists of current and completed projects to be submitted). Must include all Consultants and Sub-consultants

| Schedule 7: References - The Tendering Entity, its sub-consultants and JV Partners must each provide at least three (3) credible, written and contactable references from Clients for whom projects have been undertaken to the nature of the SKA site and building requirements and have indicated their willingness to take SKA SA representatives on such site visit to such Client premises if requested. (References shall be provided for all engineering disciplines as required for this project) |
| GO | NO GO |

| Schedule 8: Method Statement based on the scope of work defined in the tender document. |
| GO | NO GO |

| Schedule 9: Project Schedule for the activities to be undertaken specific to this project. |
| GO | NO GO |

| Schedule 10: Evidence of the Tenderer, sub-consultants and JV partners existing Socio-Economic development activities and proposed Skills Transfer development plan specific for this contract to young graduates and mentorship for SKA SA young professionals. (Evidence and Certification to be provided for all participants on completion of this project) |
| GO | NO GO |
Tenderers are required to comply with all of the Stage 1 documents / forms / schedules requested in the Table above. A “GO” means that the Tenderer has submitted each document/schedule and a “NO GO” means a document / schedule has not been submitted which will declare the Tenderer non-responsive.

Tenderers must ensure that ALL the above Forms and Schedules are submitted to ensure that the Tender is declared responsive and can proceed to the Stage 2 Evaluation.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Element</th>
<th>✓ Tick Appropriate Box</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Form A1: Authority for signatory</td>
<td>GO</td>
</tr>
<tr>
<td></td>
<td>Form A2: Tenderer’s bank account details and financial references (Not compulsory if confirmation of registration on National Treasury Central Supplier Database is submitted)</td>
<td>GO</td>
</tr>
<tr>
<td></td>
<td>Form A3: Certificate of Insurance Cover</td>
<td>GO</td>
</tr>
<tr>
<td></td>
<td>Form A4: Certificate of Authority for Joint Venture (if applicable)</td>
<td>GO</td>
</tr>
<tr>
<td></td>
<td>Form A5: Amendments and Qualification by Tenderer</td>
<td>GO</td>
</tr>
<tr>
<td></td>
<td>Form B1: Certificate of Tenderer’s Attendance at the Compulsory Meeting</td>
<td>GO</td>
</tr>
<tr>
<td></td>
<td>Form B2: Record of Addenda to Tender Documents</td>
<td>GO</td>
</tr>
<tr>
<td></td>
<td>Form B3: Compulsory Enterprise Questionnaire</td>
<td>GO</td>
</tr>
<tr>
<td></td>
<td>Form B4: Declaration of Interest (SBD 4)</td>
<td>GO</td>
</tr>
<tr>
<td></td>
<td>Form B5: Declaration of Tenderer’s Past Supply Chain Management Practices (SBD 8)</td>
<td>GO</td>
</tr>
<tr>
<td></td>
<td>Form B6: Certificate of Independent Tender Determination (SBD 9)</td>
<td>GO</td>
</tr>
<tr>
<td>Stage 2 Technical Evaluation</td>
<td>Weighting</td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------------------------------------------</td>
<td>-----------</td>
<td></td>
</tr>
<tr>
<td>1. Capability which addresses the following aspects: (Tenderers must achieve a minimum averaged score of 3 by all Tender Evaluation Committee members for each criteria item 1.1 to 1.5 as these are GONO GO criteria which Tenderers have to comply with in their response)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1. Schedule of Key Design Personnel; All proposed Key Design personnel’s information; Qualification, Experience and Professional registration to be included. Additional Qualifying requirement - Only personnel included on this schedule will be assessed in terms of qualifying criteria</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design Team:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design Lead (Min. 15Years’ experience)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Electrical/Power Engineer (Min. 7Years’ experience)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Mechanical Engineer (mechanical services) (Min. 7Years’ experience)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Building Electrical Engineer (Min. 7Years’ experience)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Building Wet Services / Fire Engineer (Min. 7 Years’ experience)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Radio Frequency (RF/ EMC) Engineer (Min. 10Years’ experience)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Information Technology Engineer (Min. 7Years’ experience)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Quantity Surveyor (Min. 10Years’ experience)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>1.2. Certified copies of Professional Qualification. Append to Schedule 1: Key Design Personnel (All key Design personnel. Please attach in the order that personnel are listed on the schedule)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.3. Certified copies of Professional Registration. Append to Schedule 1: Key Design Personnel (All key engineering personnel. Please attach in the order that personnel are listed on the schedule)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.4. The Curriculum Vitae. The CVs of each individual must be appended to the Schedule of Key Design Personnel (Template for CV provided. All CVs to be provided in this template)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.5. Project Organisational Chart for Key Design Personnel and HVAC Specialist Contractor. (A project organisational structure identifying all resources indicated above and all support staff required to ensure successful delivery of the project, including interfaces with the SKA).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Previous Experience and Track Record:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Tenderers must achieve a minimum averaged score of 3 by all Tender Evaluation Committee members for each criteria item 2.1 to 2.2 as these are GONO GO criteria which Tenderers have to comply with in their response)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1. Tendering Entity past experience in delivering projects undertaken to the nature of the SKA site and building requirements (lists of current and completed projects to be submitted). Must include all Consultants and Sub-consultants.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design Team (including sub-consultants) experience in projects undertaken to the nature of the SKA site and building requirements (minimum of 5):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HVAC Specialist Contractor for prototype cooling solution construction (including sub-contractors) experience in projects undertaking Liquid Cooling Solutions for Data Centre Facilities (minimum of 5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General companies (both design team and HVAC Specialist Contractor) track record in the engineering and construction industry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2. References - The Tendering Entity, its sub-consultants, JV Partners and HVAC Specialist Contractor.must each provide at least three (3) credible, written and contactable references from Clients for whom projects have been undertaken to the nature of the SKA site and building requirements and have indicated their willingness to take SKA SA representatives on such site visit to such Client premises if requested. (References shall be provided for all engineering disciplines as required for this project)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3. Method Statement, and Project Schedule specific to this project which addresses the following:

<table>
<thead>
<tr>
<th>3.1. Method Statement based on the scope of work defined in the tender document.</th>
<th>The method statement must as a minimum address the following aspects:</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.2. Project Schedule for the activities to be undertaken specific to this project</td>
<td>The project schedule must as a minimum address the following aspects:</td>
</tr>
</tbody>
</table>

| 3.1. Method Statement | 10 |
| 3.2. Project Schedule | 10 |

4. Localisation specific to this project which addresses the following:

<table>
<thead>
<tr>
<th>4.1 Evidence of the Tenderer and JV partners existing Socio-Economic development activities and proposed Skills Transfer development plan specific for this contract to young graduates and mentorship for SKA SA young professionals. (Evidence and Certification to be provided for all participants on completion of this project)</th>
<th>Existing Socio-Economic development activities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Skills Transfer development plan specific for this contract to young graduates and mentorship for SKA SA young professionals.</td>
</tr>
</tbody>
</table>

| 4.1 Evidence | 5 |

Tenderers must achieve a minimum averaged score of 3 by all Tender Evaluation Committee members for each Stage 2 Technical Evaluation criteria item 1.1 to 1.5 and 2.1 to 2.2 above, as these are GO/NO GO criteria which Tenderers have to comply with in their response.

All Tenderers with Tenders that have been successful at the Stage Two level by meeting the minimum of 75% or a total of 75 points out of 100 points threshold will be invited to the financial opening, for further consideration.
Tenderers must achieve a minimum of 75% or 75 points out of 100 points during this stage (Stage 2) to proceed to the Stage 3 Financial/B-BBEE evaluation.

2. Financial/B-BBEE evaluation/Awarding of the Contract (Stage 3)

<table>
<thead>
<tr>
<th>Price and Preference Evaluation</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>90</td>
</tr>
<tr>
<td>Preference</td>
<td>10</td>
</tr>
</tbody>
</table>

Tenders will be compared on a fair and equal basis taking into account all financial aspects of the proposals including professional fees percentage/ratio and any discounts thereon.

The contract award criterions are:

1. **Price** – with the lowest comparatively priced Tender on an equal and fair comparison basis receiving the highest price score as set out in the 2011 Preference Regulations

2. **Preference** – preference points as claimed in the preference claim form are added to the price scores and the highest combined score is nominated for the contract award

3. **Administration** - Contracts are awarded where Tenderers have supplied the relevant administration documentation.

**Preference System Applicable**

In terms of the PPPFA Regulations 2011, the preference system used is the 90 (price): 10 point system, utilising the B-BBEE Transformation Levels as award base. Preference points will be awarded in accordance with the Tenderers signed claim for SBD 6.1.

**Price and Preference Scoring:**

Price and Preference scores shall be calculated and determined as per Table below. The Tenderer, and all the proposed sub-consultants are required to submit a copy of its Broad-Based Black Economic Empowerment Certificate, issued by a South African National Accreditation System (SANAS) accredited verification agency (as per form SBD 6.1.).
**Evaluation Criteria**

**90 points towards Price**

**10 points for Preference**

<table>
<thead>
<tr>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 points</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% of 90 points will count towards price. The Lowest Acceptable Tender will earn full marks and any higher Tenders will proportionately earn fewer points.</td>
</tr>
</tbody>
</table>

The formula used in determining points for price will be:

\[
P_s = 90 \left( 1 - \frac{P_t - P_{\text{min}}}{P_{\text{min}}} \right)
\]

Where

- \( P_s \) = Points scored for price of Tender under consideration
- \( P_t \) = Rand value of Tender under consideration
- \( P_{\text{min}} \) = Rand value of lowest acceptable Tender submitted

<table>
<thead>
<tr>
<th>Preference Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preference points will be awarded to Tenderers attaining their B-BBEE status level of contribution in accordance with the table below:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B-BBEE Contribution Level</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Non-compliant contributor</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
</tr>
</tbody>
</table>

**F3.13** Tender offers will only be accepted if:

(a) 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 either;

(b) The Tenderer has not:

   (i) Abused the Employer’s Supply Chain Management System; or
   (ii) Failed to perform on any previous contract and has been given a written notice to this effect;

(c) 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 not permitted to submit Tenders or participate in the contract;

(d) The Tenderer is registered and in good standing with the compensation fund or with a licensed compensation insurer;
(e) The following Stage 1 compliance verification supporting documentation is submitted:

(1) **Covering Letter**

The Tenderer must include a *Covering Letter* whereby the following are stated:

- Acceptance of the rules of Tendering, evaluation of Tenders, and Tender evaluation criteria set out in the Terms of Reference;
- Provide full contact details of the Tenderer;
- Providing the Tenderer’s VAT Registration Number;

(2) **Confirmation of Registration on National Treasury Central Supplier Database**

- Proof that the Tenderer is registered on the National Treasury Central Supplier Database

(3) **Schedule 1: Schedule of Key Design Personnel**

- In order to be considered for an appointment in terms of this Tender, the Tenderer must submit a schedule of the key Design Personnel required to execute this project (as per Table 1) in its permanent employment for the duration of the project. Alternatively, the Tenderer needs to have entered into sub-consultant agreements and or joint ventures. These agreements will need to be appended to the compulsory completed and returnable ‘*Schedule 1: Schedule Key Design Personnel*’. Tenderers should note that the names submitted for the key design disciplines for the successful Tenderer may not be changed without prior written approval by the SKA SA in the implementation of this Scope of Work.

(4) **Schedule 2: Professional Qualification**

- Certified copies of professional qualification of each Team Member must be attached to Schedule 1: Key Design Personnel.

(5) **Schedule 3: Professional Registration**

- Certified copies of professional registration certificates (where relevant Councils’ exist) of each individual Team Member must be attached to the Schedule 1: Schedule of Key Design Personnel.

(6) **Schedule 4: Curriculum Vitae**

- CVs must be submitted in the required format;
• Only include CV's for the required personnel as listed in the above table and in the format of the template as per Schedule 4. Please attach in the order that the key Design Personnel are listed on the schedule;

• Do NOT include CVs for support staff.

Please Note:

• The Tenderer should respond to the requirements listed in Table 1 below and insert the details of the required personnel in the Schedule of Key Design Personnel and attach the supporting documentation and sub-contracting agreements (where applicable);

• The Tenderer must clearly indicate in the Table where one person can fulfil various roles;

• The names listed in Table 1 for the Key Design disciplines will be those personnel that carry design responsibility for the respective design engineering discipline;

• Do not include support staff in the Schedule of Key Design Personnel. Only key personnel will be assessed. Support staff with therefore not be assessed. It is however the responsibility of the Tenderer to ensure that the project is provide with adequate support capacity;

• Where there are no names next to the suggested Key Design Personnel, it will be assumed that the Tenderer does not have the personnel included in the professional team;

• In order to qualify, the team must include all the Key Design Personnel (or indicate where one person fulfils other roles) and each Team Member must meet the minimum requirements in relation to qualification, registration and number of years’ experience as stated in Table 1.

• The Key Design personnel must be registered with their respective related regulatory bodies and have recognised qualifications. Registration with Councils, for those professions where Councils exist, and with Associations or Institutes for those professions where only Associations and / or Institutes exist is required.
<table>
<thead>
<tr>
<th>Key Design Personnel</th>
<th>Minimum Academic Qualification Required</th>
<th>Professional Registration required</th>
<th>Required minimum years of experience, skills pre-requisites and knowledge in the profession relevant to this project, calculated from date of qualification in that specific professional role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design Lead</td>
<td>Built Environment Degree or equivalent</td>
<td>Yes</td>
<td>15 Years’ experience from date of professional registration in (Electrical/Mechanical) design projects of a similar nature and ensuring integration of various built environment / specialist disciplines during design and construction</td>
</tr>
<tr>
<td>Electrical/Power Engineer</td>
<td>Electrical Engineering Degree or equivalent</td>
<td>Yes</td>
<td>7 years experience from date of professional registration in designing bulk electrical supply to a site/building/facilitating access from Local Authority to connect bulk power supply</td>
</tr>
<tr>
<td>Mechanical Engineer (mechanical services)</td>
<td>Mechanical Engineering Degree or equivalent (HVAC, etc.)</td>
<td>Yes</td>
<td>7 years experience from date of professional registration in designing &amp; commissioning HVAC systems (including CFD modelling for data centres) and other mechanical services</td>
</tr>
<tr>
<td>Building Electrical Engineer</td>
<td>Electronic Engineering Degree or equivalent (facility management)</td>
<td>Yes</td>
<td>7 Years experience from date of professional registration in designing internal building electrical reticulation</td>
</tr>
<tr>
<td>Building Wet Services / Fire Engineer</td>
<td>Civil Engineering degree or equivalent</td>
<td>Yes</td>
<td>7 years experience from date of professional registration in designing building wet services, fire detection &amp; gas suppression services for typical data</td>
</tr>
<tr>
<td>Role</td>
<td>Qualification</td>
<td>Experience Details</td>
<td>Yes/No</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>Radio Frequency (RF/ EMC) Engineer</td>
<td>Degree in Electrical/Electronic engineering, RFI/EMC specialist, earthing &amp; lightning protection</td>
<td>10 years experience from date of professional registration specialising in RFI/EMC radio-frequency interference design including earthing, lightning protection</td>
<td>Yes</td>
</tr>
<tr>
<td>Information Technology Engineer</td>
<td>IT degree or equivalent (local area networks, AV equipment etc.)</td>
<td>7 years experience from date of professional registration in designing building internal local area networks (cabling, routing, WiFi, AV)</td>
<td>Yes</td>
</tr>
<tr>
<td>Quantity Surveyor</td>
<td>Quantity Surveying degree or equivalent</td>
<td>10 years experience from date of professional registration in preparing detailed bills of quantities in coordination with other built environment disciplines and undertaking financial evaluation of Tenders to ensure correctness</td>
<td>Yes</td>
</tr>
</tbody>
</table>

F3.17 The number of paper copies of the signed contract to be provided by the Employer is **two (2)**.
Part T2: Returnable Documents

4.1.3 T2.1: List of Returnable Documents

The Tenderer must complete the following returnable documents:

1 Returnable Schedules required for Tender evaluation purposes

SCHEDULE 1: SCHEDULE OF KEY DESIGN PERSONNEL

SCHEDULE 2: CERTIFIED COPIES OF PROFESSIONAL QUALIFICATIONS OF KEY DESIGN PERSONNEL

SCHEDULE 3: CERTIFIED COPIES OF PROFESSIONAL REGISTRATION OF KEY DESIGN PERSONNEL

SCHEDULE 4: CURRICULUM VITAE OF KEY DESIGN PERSONNEL

SCHEDULE 5: PROJECT ORGANISATIONAL CHART FOR KEY DESIGN PERSONNEL

SCHEDULE 6: TENDERING ENTITY PAST EXPERIENCE IN DELIVERING PROJECTS UNDERTAKEN TO THE NATURE OF THE SKA SITE AND BUILDING REQUIREMENTS

SCHEDULE 7: THREE (3) CREDIBLE REFERENCES OF THE TENDERING ENTITY, SUB-CONSULTANTS AND JOINT VENTURE PARTNERS

SCHEDULE 8: EVIDENCE OF THE TENDERER, SUB-CONSULTANT & JV PARTNERS EXISTING SOCIO-ECONOMIC DEVELOPMENT ACTIVITIES AND WHAT WILL BE IMPLEMENTED SPECIFIC TO THIS CONTRACT

FORM A1: AUTHORITY FOR SIGNATORY

FORM A2: TENDERER’S BANK DETAILS AND FINANCIAL REFERENCES

FORM A3: CERTIFICATE OF INSURANCE COVER

FORM A4: CERTIFICATE OF AUTHORITY FOR JOINT VENTURE (IF APPLICABLE)

FORM A5: AMENDMENT AND QUALIFICATION BY TENDERER

2 Other documents required for Tender evaluation purposes

FORM B1: CERTIFICATE OF TENDERER’S ATTENDANCE AT THE COMPULSORY SITE CLARIFICATION MEETING

FORM B2: RECORD OF ADDENDA TO TENDER DOCUMENTS

FORM B3: COMPULSORY ENTERPRISE QUESTIONNAIRE

FORM B4: DECLARATION OF INTEREST (SBD 4)

FORM B5: DECLARATION OF TENDERER’S PAST SUPPLY CHAIN MANAGEMENT PRACTICES (SBD 8)

FORM B6: CERTIFICATE OF INDEPENDENT TENDER DETERMINATION (SBD 9)
3 Returnable Schedules for Technical Evaluation Purposes

3.1. METHOD STATEMENT BASED ON THE SCOPE OF WORK DEFINED IN THE TENDER DOCUMENT.

3.2. PROJECT SCHEDULE FOR THE ACTIVITIES TO BE UNDERTAKEN SPECIFIC TO THIS PROJECT.

4 Returnable Schedules which will form part of the Contract

FORM C1.1 – FORM OF OFFER AND ACCEPTANCE IN TENDER INVITATION

FORM C1.2 – CONTRACT DATA PROVIDED BY TENDERER

FORM C2.1 – PRICING SCHEDULE

FORM C3 – PREFERENCE CERTIFICATE AND PREFERENCE POINTS CLAIM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS (SBD 6.1)

4.1.4 T2.2: Returnable Schedules

The tenderer must complete the following returnable documents.

T2.2.1. RETURNABLE SCHEDULES REQUIRED FOR TENDER EVALUATION PURPOSES

T2.2.2. OTHER DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES

T2.2.3. RETURNABLE SCHEDULES FOR TECHNICAL EVALUATION PURPOSES

T2.2.4. RETURNABLE SCHEDULES THAT WILL BE INCORPORATED INTO THE CONTRACT
T2.2.1 RETURNABLE SCHEDULES REQUIRED FOR TENDER EVALUATION PURPOSES

SCHEDULE 1: SCHEDULE OF KEY DESIGN PERSONNEL

SCHEDULE 2: CERTIFIED COPIES OF PROFESSIONAL QUALIFICATIONS OF KEY DESIGN PERSONNEL

SCHEDULE 3: CERTIFIED COPIES OF PROFESSIONAL REGISTRATION OF KEY DESIGN PERSONNEL

SCHEDULE 4: CURRICULUM VITAE OF KEY DESIGN PERSONNEL

SCHEDULE 5: PROJECT ORGANISATIONAL CHART FOR KEY DESIGN PERSONNEL

SCHEDULE 6: TENDERING ENTITY PAST EXPERIENCE IN DELIVERING PROJECTS UNDERTAKEN TO THE NATURE OF THE SKA SITE AND BUILDING REQUIREMENTS

SCHEDULE 7: THREE (3) CREDIBLE REFERENCES OF THE TENDERING ENTITY, SUB-CONSULTANTS AND JOINT VENTURE PARTNERS

SCHEDULE 8: EVIDENCE OF THE TENDERER, SUB-CONSULTANT & JV PARTNERS EXISTING SOCIO-ECONOMIC DEVELOPMENT ACTIVITIES AND WHAT WILL BE IMPLEMENTED SPECIFIC TO THIS CONTRACT

FORM A1: AUTHORITY FOR SIGNATORY

FORM A2: TENDERER'S BANK DETAILS AND FINANCIAL REFERENCES

FORM A3: CERTIFICATE OF INSURANCE COVER

FORM A4: CERTIFICATE OF AUTHORITY FOR JOINT VENTURE (IF APPLICABLE)

FORM A5: AMENDMENT AND QUALIFICATION BY TENDERER
## SCHEDULE 1: SCHEDULE OF KEY DESIGN PERSONNEL

<table>
<thead>
<tr>
<th>Key Design Personnel</th>
<th>Name</th>
<th>Qualifications</th>
<th>Registration Number</th>
<th>No of years experience in terms of required skills</th>
<th>Company Name &amp; Physical address and contact details of local office</th>
</tr>
</thead>
</table>

### Design Team:

- **Design Lead**
- **Electrical/Power Engineer**
- **Mechanical Engineer (mechanical services)**
- **Building Electrical Engineer**
- **Building Wet Services / Fire Engineer**
- **Radio Frequency (RF/ EMC) Engineer**
- **Information Technology Engineer**
- **Quantity Surveyor**
NOTE: SCHEDULE 2 & SCHEDULE 3: CERTIFIED COPIES OF PROFESSIONAL QUALIFICATIONS AND PROFESSIONAL REGISTRATION OF KEY DESIGN PERSONNEL TO BE APPENDED TO SCHEDULE 1
SCHEDULE 4: CURRICULUM VITAE TEMPLATE OF KEY DESIGN PERSONNEL LISTED IN SCHEDULE 1

NAME OF COMPANY

1. Surname (and maiden name
   In brackets where applicable):

2. First name/s:

3. Date of birth:

4. Nationality:

5. Education and Specialist training:

<table>
<thead>
<tr>
<th>Qualification</th>
<th>Institution</th>
<th>Date Obtained</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. Membership of Professional Bodies

   Body:

   Registration Number:
7. **Key Qualifications relevant to this project:**

8. **Key skills and expertise relevant to this project:**

9. **High-level overview of professional experience directly related to the role of the team member in this project:**

<table>
<thead>
<tr>
<th>Date (From – To)</th>
<th>Client</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td></td>
</tr>
<tr>
<td>Position in firm or project role</td>
<td></td>
</tr>
<tr>
<td>High-level description of duties or responsibilities in position or project team</td>
<td></td>
</tr>
<tr>
<td>Date (From – To)</td>
<td>Client</td>
</tr>
<tr>
<td>Location</td>
<td></td>
</tr>
<tr>
<td>-------------------</td>
<td>---</td>
</tr>
<tr>
<td>Position in firm or project role</td>
<td></td>
</tr>
<tr>
<td>Date (From – To)</td>
<td></td>
</tr>
<tr>
<td>Client</td>
<td></td>
</tr>
<tr>
<td>Location</td>
<td></td>
</tr>
<tr>
<td>Position in firm or project role</td>
<td></td>
</tr>
<tr>
<td>High-level description of duties or responsibilities in position or project team</td>
<td></td>
</tr>
</tbody>
</table>

10. References:

  Name:  

  Position:  

  Tel:  

  Email:
NOTE: SCHEDULE 5 PROJECT ORGANISATIONAL CHART FOR KEY DESIGN PERSONNEL TO BE PROVIDED
SCHEDULE 6: TENDERING ENTITY PAST EXPERIENCE IN DELIVERING PROJECTS UNDERTAKEN TO THE NATURE OF THE SKA SITE AND BUILDING REQUIREMENTS (LISTS OF CURRENT AND COMPLETED PROJECTS TO BE SUBMITTED). MUST INCLUDE ALL CONSULTANTS AND SUB-CONSULTANTS.

| NAME OF COMPANY |

<table>
<thead>
<tr>
<th>PROJECT/EMPLOYER (Name, tel no and fax no)</th>
<th>NATURE OF WORK</th>
<th>VALUE OF WORK</th>
<th>YEAR OF COMPLETION</th>
</tr>
</thead>
</table>
SCHEDULE 7: REFERENCE TEMPLATE (MINIMUM OF 3) FOR THE TENDERING ENTITY, FOR SUB-CONSULTANTS AND JOINT VENTURE PARTNERS

1.1. References for Tendering Entity, Sub-consultants and Joint Venture Partners

The Tendering Entity, its sub-consultants and joint venture Partners must each provide at least three (3) credible, written and contactable references from Clients for whom projects have been undertaken to the nature of the SKA site and building requirements and have indicated their willingness to take SKA SA representatives on such site visit to such Client premises if requested. References shall be provided for all engineering disciplines as required for this project.

The references must be provided in the following format:

<table>
<thead>
<tr>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client Point of Contact &amp; Tel Number</td>
</tr>
<tr>
<td>Date of Project (From – To)</td>
</tr>
<tr>
<td>Description of Project</td>
</tr>
<tr>
<td>Role of Tenderer in project</td>
</tr>
<tr>
<td>Professionalism (please justify reasons for scoring in columns adjacent)</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Was the project delivered on time? If not, why not?</td>
</tr>
<tr>
<td>Was the project delivered within budget? If not, why not?</td>
</tr>
<tr>
<td>Was the project delivered to the required satisfaction/quality to the Client? If not, why not?</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Were there contract variations in the project? If yes, list them and the reason for them</td>
</tr>
<tr>
<td>Role of Tenderer in project</td>
</tr>
</tbody>
</table>
Would you use the Tenderer/Sub-consultants/JV Partners again?

Yes

No (reasons)

Overall Impression:

Company Representative: .................................................................

Position in Company: .................................................................

Company Stamp and Date (Reference must be done in 2016):
NOTE: SCHEDULE 8 METHOD STATEMENT BASED ON THE SCOPE OF WORK DEFINED IN THE TENDER DOCUMENT
NOTE: SCHEDULE 9 PROJECT SCHEDULE FOR THE ACTIVITIES TO BE UNDERTAKEN SPECIFIC TO THIS PROJECT
**SCHEDULE 10: EVIDENCE OF THE TENDERER, SUB-CONSULTANTS AND JOINT VENTURE PARTNERS SOCIO-ECONOMIC DEVELOPMENT ACTIVITIES AND PROPOSED ACTIVITIES SPECIFIC TO THIS PROJECT**

The Tenderer, joint venture partners and sub-consultants must provide evidence of the entities implementing skills development, and /or mentorship programmes and corporate social investment programmes within each entity and the value of all entities investment into skills development and /or mentorship programmes. The Tenderer must provide information on these programmes as part of its response to this Tender as well as what skills development programme / corporate social investment programme will be proposed for the scope of this project. The response must be provided in the following format:

<table>
<thead>
<tr>
<th>Tenderer Name / Joint Venture Name / Subconsultant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description of skills development programme/s &amp; number of staff participating</td>
</tr>
<tr>
<td>Description of mentorship programmes (if any) and number of people in programme</td>
</tr>
<tr>
<td>Monetary value of programmes to date &amp; awards</td>
</tr>
<tr>
<td>Description of corporate social investment (CSI) programmes implemented by Tendering entities</td>
</tr>
<tr>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Number of people impacted by implementation of CSI programme</td>
</tr>
<tr>
<td>Total monetary value of CSI programmes implemented</td>
</tr>
<tr>
<td>Description of what the Tenderer and partners propose in terms of skills development / corporate social investment for this project</td>
</tr>
</tbody>
</table>
FORM A1: AUTHORITY FOR SIGNATORY

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

Notes to Tenderer:

1. In the event that the Tenderer is a joint venture, a certificate is required from each member of the joint venture, clearly setting out:
   - authority for signatory,
   - undertaking to formally enter into a joint venture contract should an award be made to the joint venture,
   - name of designated lead member of the intended joint venture

An example for a company is shown below:

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

Mr ……………………………………………………………………………………………………………….

has been duly authorized to sign all documents in connection with the Tender for Contract No …………………………………………………… and any Contract which may arise there from on behalf of (BLOCK CAPITALS) ………………………………………………………………………………………………………………….

………………………………………………………………………………………………………………

………………………………………………………………………………………………………………

………………………………………………………………………………………………………………

SIGNED ON BEHALF OF THE COMPANY : ………………………………………………………………………

IN HIS CAPACITY AS : ………………………………………………………………………

DATE : ………………………………………………………………………

FULL NAMES OF SIGNATORY : ………………………………………………………………………

AS WITNESSES : 1……………………………………………………………………

: 2……………………………………………………………………
FORM A2: TENDERER’S BANK DETAILS AND FINANCIAL REFERENCES

Notes to Tenderer:

1. The Tenderer shall attach to this form a letter from the bank at which he declares he conducts his account. The contents of the bank's letter must state the credit rating that it, in addition to the information required below, accords to the tenderer for the business envisaged by this tender. Failure to provide the required letter with the tender submission may render the Tenderer’s offer unresponsive.

2. The Tenderer’s banking details as they appear below shall be completed.

3. In the event that the tenderer is a joint venture enterprise, details of all the members of the joint venture shall be similarly provided and attached to this form.

The tenderer shall provide the following:

(i) Name of Account Holder: ........................................................................................................

(ii) Account Number: ....................................................................................................................

(iii) Bank name: ............................................................................................................................

(iv) Branch Number: ......................................................................................................................

(v) Bank and branch contact details: ...........................................................................................

..................................................................................................................................................

SIGNED ON BEHALF OF TENDERER: ........................................................................................
FORM A3: CERTIFICATE OF INSURANCE COVER

Note to Tenderer:
In the event of the Tenderer being a joint venture/consortium the details of the individual members must also be provided.

Refer to Particular Conditions of Tender. Professional Indemnity Insurance must be a minimum of double the contract value for this contract.

The Tenderer shall provide the following details of this insurance cover:

(i) Name of Tenderer: ..............................................................................................................................................

(ii) Period of Validity: ...................................................................................................................................................

(iii) Value of Insurance:

- Insurance for Works and Tenderer’s Equipment:
  Company: ..........................................................................................................................................................
  Value: .................................................................................................................................................................

- Insurance for Tenderer’s Personnel:
  Company: ..........................................................................................................................................................
  Value: .................................................................................................................................................................

- Motor Vehicles liability
  Company: ..........................................................................................................................................................
  Value: .................................................................................................................................................................

- Third Party liability:
  Company: ..........................................................................................................................................................
  Value: .................................................................................................................................................................

The successful Tenderer shall take full responsibility to restore any damaged existing NRF (SKA SA) infrastructure to the status it was prior to damage.

SIGNED ON BEHALF OF TENDERER: ........................................................................................................................................}

Page | 66
FORM A4: CERTIFICATE OF AUTHORITY FOR JOINT VENTURE (if applicable)

This Returnable Schedule is to be completed by joint ventures.

We, the undersigned, are submitting this Tender offer in Joint Venture and hereby authorised Mr/Ms .......................................................... , authorised signatory of the company .......................................................... .......................................................... , acting in the capacity of lead partner, to sign all documents in connection with the tender offer and any contract resulting from it on our behalf.

<table>
<thead>
<tr>
<th>NAME OF FIRM</th>
<th>ADDRESS</th>
<th>DULY AUTHORIZED SIGNATORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead partner:</td>
<td></td>
<td>Signature ..................</td>
</tr>
<tr>
<td>Participation: %</td>
<td></td>
<td>Name ..................</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Designation ..................</td>
</tr>
<tr>
<td>Partner 2:</td>
<td></td>
<td>Signature ..................</td>
</tr>
<tr>
<td>Participation: %</td>
<td></td>
<td>Name ..................</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Designation ..................</td>
</tr>
<tr>
<td>Partner 3:</td>
<td></td>
<td>Signature ..................</td>
</tr>
<tr>
<td>Participation: %</td>
<td></td>
<td>Name ..................</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Designation ..................</td>
</tr>
<tr>
<td>Partner 4:</td>
<td></td>
<td>Signature ..................</td>
</tr>
<tr>
<td>Participation: %</td>
<td></td>
<td>Name ..................</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Designation ..................</td>
</tr>
</tbody>
</table>

Signed: _______________________________ Date: _____________________

Name: _______________________________ Position: ____________________

Tenderer: _______________________________

The Tenderer must be a single legal entity which is an Electrical/Mechanical Engineering Consultancy firm with all other necessary expertise secured via sub-contract or under a Joint Venture Agreement. The lead (contracting party) will be an Electrical/Mechanical Engineering Consultancy firm who will secure the necessary other professional engineering and specialist resources required to execute the contract. The NRF will enter into a single contract for the delivery of the work set out in the Scope of Work for this Tender; The tender is only open to South African companies.

SIGNED ON BEHALF OF TENDERER: ..........................
FORM A5: AMENDMENTS AND QUALIFICATION BY TENDERER

Refer to General Conditions of Contract

<table>
<thead>
<tr>
<th>PAGE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
</table>

SIGNED ON BEHALF OF TENDERER: ......................................................................................................................
T2.2.2 OTHER DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES

FORM B1: CERTIFICATE OF TENDERER’S ATTENDANCE AT THE COMPULSORY SITE CLARIFICATION MEETING

FORM B2: RECORD OF ADDENDA TO TENDER DOCUMENTS

FORM B3: COMPULSORY ENTERPRISE QUESTIONNAIRE

FORM B4: DECLARATION OF INTEREST (SBD 4)

FORM B5: DECLARATION OF TENDERER’S PAST SUPPLY CHAIN MANAGEMENT PRACTICES (SBD 8)

FORM B6: CERTIFICATE OF INDEPENDENT TENDER DETERMINATION (SBD 9)
FORM B1: CERTIFICATE OF TENDERER’S ATTENDANCE AT THE COMPULSORY CLARIFICATION MEETING

This is to certify that I, …………………………………………………………………………………………………

Representative of (Tenderer) ……………………………………………………………………………………………

…………………………………………………………………………………………………………………………………………

…………………………………………………………………………………………………………………………………………

of (address) …………………………………………………………………………………………………………………

…………………………………………………………………………………………………………………………………………

…………………………………………………………………………………………………………………………………………

…………………………………………………………………………………………………………………………………………

Telephone number ……………………………………………………………………………………………………………

Fax number ……………………………………………………………………………………………………………………

Visited and examined the Site on (date) …………………………………………………………………………………

In the company of (Employer) ……………………………………………………………………………………………

TENDERER’S REPRESENTATIVE ……………………………………………………………………………………………

EMPLOYER’S REPRESENTATIVE ……………………………………………………………………………………………
FORM B2: RECORD OF ADDENDA TO TENDER DOCUMENTS

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

<table>
<thead>
<tr>
<th>Date</th>
<th>Title or details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
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<tr>
<td>5</td>
<td></td>
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<td>8</td>
<td></td>
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<tr>
<td>9</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
</tr>
</tbody>
</table>

Attach additional pages if more space is required.

Signed ........................................ Date: ........................................

Name: ........................................ Position: ........................................

SIGNED ON BEHALF OF TENDERER: ..........................................................
FORM B3: COMPULSORY ENTERPRISE QUESTIONNAIRE

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: Association membership, if any: .....................................................................................................................................

Section 4: Particulars of sole proprietors and partners in partnerships

<table>
<thead>
<tr>
<th>Name*</th>
<th>Identity number*</th>
<th>Personal income tax number*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*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:

- □ 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 1 of 1999)
- □ a member of an accounting authority of any national or provincial public entity
- □ an employee of Parliament or a provincial legislature
If any of the above boxes are marked, disclose the following:

<table>
<thead>
<tr>
<th>Name of sole proprietor, partner, director, manager, principal shareholder or stakeholder</th>
<th>Name of institution, public office, board or organ of state and position held</th>
<th>Status of service (tick appropriate column)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Current</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within last 12 months</td>
</tr>
</tbody>
</table>

*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 1 of 1999)
- [ ] a member of an accounting authority of any national or provincial public entity
- [ ] an employee of Parliament or a provincial legislature

*Insert separate page if necessary.

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

a) to obtain a tax clearance certificate from the South African Revenue Services that my/our tax matters are in order;

b) 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 of 2004;

c) 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;
d) 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

e) 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  .......................................................................................................................
FORM B4: DECLARATION OF INTEREST (SBD 4)

DECLARATION OF INTEREST

1. Any legal person, including persons employed by the state¹, or persons having a kinship with persons employed by the state, including a blood relationship, may make an offer or offers in terms of this invitation to Tender (includes a price quotation, advertised competitive Tender, limited Tender or proposal). In view of possible allegations of favouritism, should the resulting Tender, or part thereof, be awarded to persons employed by the state, or to persons connected with or related to them, it is required that the Tenderer or his/her authorised representative declare his/her position in relation to the evaluating/adjudicating authority where-

- the Tenderer is employed by the state; and/or

- the legal person on whose behalf the Tendering document is signed, has a relationship with persons/a person who are/is involved in the evaluation and or adjudication of the Tender(s), or where it is known that such a relationship exists between the person or persons for or on whose behalf the declarant acts and persons who are involved with the evaluation and or adjudication of the Tender.

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

2.1 Full Name of Tenderer or his or her representative: ……………………………………………………………

2.2 Identity Number: ……………………………………………………………………………………………………………

2.3 Position occupied in the Company (director, trustee, shareholder²): ………………………………………

2.4 Company Registration Number: ………………………………………………………………………………………

2.5 Tax Reference Number: …………………………………………………………………………………………………

2.6 VAT Registration Number: ……………………………………………………………………………………………

2.6.1 The names of all directors / trustees / shareholders / members, their individual identity numbers, tax reference numbers and, if applicable, employee / personal numbers must be indicated in paragraph 3 below.

¹“State” means –
(a) any national or provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No. 1 of 1999);
(b) any municipality or municipal entity;
(c) provincial legislature;
(d) national Assembly or the national Council of provinces; or
(e) Parliament.

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

2.7 Are you or any person connected with the Tenderer presently employed by the state? YES / NO

2.7.1 If so, furnish the following particulars:

Name of person / director / trustee / shareholder / member: …………………………………………………

Name of state institution at which you or the person connected to the Tenderer is employed: …………………………………………………

Position occupied in the state institution: …………………………………………………

Any other particulars:
………………………………………………………………………………
………………………………………………………………………………
2.7.2 If you are presently employed by the state, did you obtain the appropriate authority to undertake remunerative work outside employment in the public sector? YES / NO

2.7.2.1 If yes, did you attach proof of such authority to the Tender document? YES / NO

(Note: Failure to submit proof of such authority, where applicable, may result in the disqualification of the Tender.

2.7.2.2 If no, furnish reasons for non-submission of such proof:

…………………………………………………………………….
…………………………………………………………………….
…………………………………………………………………….

2.8 Did you or your spouse, or any of the company’s directors / trustees / shareholders / members or their spouses conduct business with the state in the previous twelve months? YES / NO

2.8.1 If so, furnish particulars:

…………………………………………………………………….
…………………………………………………………………….
…………………………………………………………………….

2.9 Do you, or any person connected with the Tenderer, have any relationship (family, friend, other) with a person employed by the state and who may be involved with the evaluation and or adjudication of this Tender? YES / NO

2.9.1 If so, furnish particulars.

…………………………………………………………………….
…………………………………………………………………….
…………………………………………………………………….

2.10 Are you, or any person connected with the Tenderer, aware of any relationship (family, friend, other) between any other Tenderer and any person employed by the state who may be involved with the evaluation and or adjudication of this Tender? YES/NO

2.10.1 If so, furnish particulars.

…………………………………………………………………….
…………………………………………………………………….
…………………………………………………………………….

2.11 Do you or any of the directors / trustees / shareholders / members of the company have any interest in any other related companies whether or not they are Tendering for this contract? YES/NO

2.11.1 If so, furnish particulars:

…………………………………………………………………….
…………………………………………………………………….
…………………………………………………………………….
3   Full details of directors / trustees / members / shareholders.

<table>
<thead>
<tr>
<th>Full Name</th>
<th>Identity Number</th>
<th>Personal Tax Reference Number</th>
<th>State Employee Number/ Personal Number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>

4   DECLARATION

I, THE UNDERSIGNED (NAME)..................................................................................................................

CERTIFY THAT THE INFORMATION FURNISHED IN PARAGRAPHS 2 and 3 ABOVE IS CORRECT.
I ACCEPT THAT THE STATE MAY REJECT THE TENDER OR ACT AGAINST ME IN TERMS OF
PARAGRAPH 23 OF THE GENERAL CONDITIONS OF CONTRACT SHOULD THIS DECLARATION PROVE
TO BE FALSE.

......................................................... ..........................................................
Signature                                      Date

......................................................... ..........................................................
Position                                      Name of Tenderer

May 2011
**FORM B5: DECLARATION OF TENDERER’S PAST SUPPLY CHAIN MANAGEMENT PRACTICES (SBD 8)**

**DECLARATION OF TENDERER’S PAST SUPPLY CHAIN MANAGEMENT PRACTICES**

1. This Standard Tendering Document must form part of all Tenders invited.

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

3. The Tender of any Tenderer may be disregarded if that Tenderer, or any of its directors have:
   - a. abused the institution’s supply chain management system;
   - b. committed fraud or any other improper conduct in relation to such system; or
   - c. failed to perform on any previous contract.

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

<table>
<thead>
<tr>
<th>Item</th>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1</td>
<td>Is the Tenderer or any of its directors listed on the National Treasury’s Database of Restricted Suppliers as companies or persons prohibited from doing business with the public sector? (Companies or persons who are listed on this Database were informed in writing of this restriction by the Accounting Officer/Authority of the institution that imposed the restriction after the audi alteram partem rule was applied).</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>The Database of Restricted Suppliers now resides on the National Treasury’s website(<a href="http://www.treasury.gov.za">www.treasury.gov.za</a>) and can be accessed by clicking on its link at the bottom of the home page.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1.1</td>
<td>If so, furnish particulars:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.2</td>
<td>Is the Tenderer or any of its directors listed on the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004)? The Register for Tender Defaulters can be accessed on the National Treasury’s website(<a href="http://www.treasury.gov.za">www.treasury.gov.za</a>) by clicking on its link at the bottom of the home page.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>4.2.1</td>
<td>If so, furnish particulars:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.3</td>
<td>Was the Tenderer or any of its directors convicted by a court of law (including a court outside of the Republic of South Africa) for fraud or corruption during the past five years?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>4.3.1</td>
<td>If so, furnish particulars:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.4</td>
<td>Was any contract between the Tenderer and any organ of state terminated during the past five years on account of failure to perform on or comply with the contract?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>4.4.1</td>
<td>If so, furnish particulars:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CERTIFICATION

I, THE UNDERSIGNED (FULL NAME) ...........................................................................
CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM IS TRUE AND CORRECT.

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

.........................................................................................................................
Signature ............................................................................................................... Date
.............................................................................................................................
Position ............................................................................................................... Name of Tenderer
CERTIFICATE OF INDEPENDENT BID DETERMINATION

1. This Standard Bidding Document (SBD) must form part of all bids invited.

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

3. Treasury Regulation 16A9 prescribes that accounting officers and accounting authorities must take all reasonable steps to prevent abuse of the supply chain management system and authorizes accounting officers and accounting authorities to:
   a. disregard the bid of any bidder if that bidder, or any of its directors have abused the institution’s supply chain management system and or committed fraud or any other improper conduct in relation to such system.
   b. cancel a contract awarded to a supplier of goods and services if the supplier committed any corrupt or fraudulent act during the bidding process or the execution of that contract.

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

5. In order to give effect to the above, the attached Certificate of Bid Determination (SBD 9) must be completed and submitted with the bid:

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

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

I, the undersigned, in submitting the accompanying bid:

______________________________
(Bid Number and Description)

in response to the invitation for the bid made by:

______________________________
(Name of Institution)

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

I certify, on behalf of: ________________________________ that:

(Name of Bidder)

1. I have read and I understand the contents of this Certificate;
2. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect;
3. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;
4. Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign the bid, on behalf of the bidder;
5. For the purposes of this Certificate and the accompanying bid, I understand that the word “competitor” shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:

   (a) has been requested to submit a bid in response to this bid invitation;
   (b) could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and
   (c) provides the same goods and services as the bidder and/or is in the same line of business as the bidder.
6. The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However communication between partners in a joint venture or consortium\(^3\) will not be construed as collusive bidding.

7. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
   
   (a) prices;
   
   (b) geographical area where product or service will be rendered (market allocation);
   
   (c) methods, factors or formulas used to calculate prices;
   
   (d) the intention or decision to submit or not to submit, a bid;
   
   (e) the submission of a bid which does not meet the specifications and conditions of the bid; or
   
   (f) bidding with the intention not to win the bid.

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

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

\(^3\) Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.
10. I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

.......................................................... ..........................................................
Signature Date

.......................................................... ..........................................................
Position Name of Bidder
Jw914w 2
### T2.2.3. RETURNABLE SCHEDULES FOR TECHNICAL EVALUATION PURPOSES

<table>
<thead>
<tr>
<th>Stage 2 Technical Evaluation</th>
<th>Weighting</th>
</tr>
</thead>
</table>
| **1. Capability which addresses the following aspects:**  
(Tenderers must achieve a minimum averaged score of 3 by all Tender Evaluation Committee members for each criteria item 1.1 to 1.5 as these are GO/NO GO criteria which Tenderers have to comply with in their response) | 20 (Total) |
| **1.1 Schedule of Key Design Personnel:** All proposed Key Design personnel’s information; Qualification, Experience and Professional registration) to be included.  
Additional Qualifying requirement - Only personnel included on this schedule will be assessed in terms of qualifying criteria | Design Team: |
|  | Design Lead (Min. 15Years’ experience) | 4 |
|  | Electrical/Power Engineer (Min. 7Years’ experience) | 2 |
|  | Mechanical Engineer (mechanical services) (Min. 7Years’ experience) | 2 |
|  | Building Electrical Engineer (Min. 7Years’ experience) | 2 |
|  | Building Wet Services / Fire Engineer (Min. 7 Years’ experience) | 2 |
|  | Radio Frequency (RF/ EMC) Engineer (Min. 10Years’ experience) | 2 |
|  | Information Technology Engineer (Min. 7Years’ experience) | 2 |
|  | Quantity Surveyor (Min. 10Years’ experience) | 2 |
| **1.2 Certified copies of Professional Qualification.** Append to Schedule 1: Key Design Personnel (All key Design personnel. Please attach in the order that personnel are listed on the schedule) |  |
| **1.3 Certified copies of Professional Registration.** Append to Schedule 1: Key Design Personnel (All key engineering personnel. Please attach in the order that personnel are listed on the schedule) |  |
| **1.4 The Curriculum Vitae.** The CVs of each individual must be appended to the Schedule of Key Design Personnel (Template for CV provided. All CVs to be provided in this template) |  |
| **1.5 Project Organisational Chart for Key Design Personnel and HVAC Specialist Contractor.** (A project organisational structure identifying all resources indicated above and all support staff required to ensure successful delivery of the project, including interfaces with the SKA). | 2 |
| **2 Previous Experience and Track Record:**  
(Tenderers must achieve a minimum averaged score of 3 by all Tender Evaluation Committee members for each criteria item 2.1 to 2.2 as these are GO/NO GO criteria which Tenderers have to comply with in their response) | 35 Total |
| **2.1 Tendering Entity past experience in delivering projects undertaken to the nature of the SKA site and building requirements (lists of current and completed projects to be submitted).** Must include all Consultants and Sub-consultants. | Design Team (including sub-consultants) experience in projects undertaken to the nature of the SKA site and building requirements (minimum of 5): | 15 |
|  | HVAC Specialist Contractor for prototype cooling solution construction (including sub-contractors) experience in projects undertaking Liquid Cooling Solutions for Data Centre Facilities (minimum of 5) | 5 |
|  | General companies (both design team and HVAC Specialist Contractor) track record in the engineering and construction industry | 2.5 |

---
2.2 References - The Tendering Entity, its sub-consultants, JV Partners and HVAC Specialist Contractor must each provide at least three (3) credible, written and contactable references from Clients for whom projects have been undertaken to the nature of the SKA site and building requirements and have indicated their willingness to take SKA SA representatives on such site visit to such Client premises if requested. (References shall be provided for all engineering disciplines as required for this project)

<table>
<thead>
<tr>
<th>3 Method Statement and Project Schedule specific to this project which addresses the following:</th>
<th>35 (Total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 Method Statement based on the scope of work defined in the tender document.</td>
<td>The method statement must as a minimum address the following aspects: • Planning (Sequence of activities); • Detailed Design process and approvals; • Safety, Health, Environmental &amp; Quality considerations during the design phase; • Prototype cooling solution for required heat sources • Test, Verification and Validation (In the presence of SKA representative) • Submission of the final designs, reports, including all supporting documents • RFI/EMC compliance to SKA requirements</td>
</tr>
<tr>
<td>3.2 Project Schedule for the activities to be undertaken specific to this project.</td>
<td>The project schedule must as a minimum address the following aspects: • Appointment and Commencement of Contract • Design Activities • Design Reviews • Approvals • Prototype cooling solution for required heat sources (including all testing) • Testing, Verification and Validation (In the presence of SKA representative) • Submission of the final designs, reports, including all supporting documents</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4 Localisation specific to this project which addresses the following:</th>
<th>10 (Total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1 Evidence of the Tenderer and JV partners existing Socio-Economic development activities and proposed Skills Transfer development plan specific for this contract to young graduates and mentorship for SKA SA young professionals. (Evidence and Certification to be provided for all participants on completion of this project)</td>
<td>Existing Socio-Economic development activities</td>
</tr>
<tr>
<td></td>
<td>Skills Transfer development plan specific for this contract to young graduates and mentorship for SKA SA young professionals.</td>
</tr>
</tbody>
</table>

Tenderers must achieve a minimum averaged score of 3 by all Tender Evaluation Committee members for each Stage
2 Technical Evaluation criteria item 1.1 to 1.5 and 2.1 to 2.2 above, as these are GO/NO GO criteria which Tenderers have to comply with in their response.

All Tenderers with Tenders that have been successful at the Stage Two level by meeting the minimum of 75% or a total of 75 points out of 100 points threshold will be invited to the financial opening, for further consideration.

The Tender Evaluation Committee will use the following prompts in evaluating Tenderers’ responses to the Quality Criteria defined for this Tender:
## Stage 2 Technical Evaluation

<table>
<thead>
<tr>
<th>Technical Criteria</th>
<th>Weighting</th>
<th>Proposed Key Design Team</th>
<th>Score 1</th>
<th>Score 2</th>
<th>Score 3</th>
<th>Score 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Capability which addresses the following aspects:</td>
<td>20 Total</td>
<td>Design Team:</td>
<td>Qualification Degree or equivalent, no relevant experience as a Design Lead, Electrical/Power Engineer, Mechanical Engineer (mechanical services), Building Electrical Engineer, Building Wet Services / Fire Engineer, RFI/EMC Engineer, Information Technology Engineer, Quantity Surveyor on contracts of a similar nature and ensuring integration of various built environment / specialist</td>
<td>Qualification Degree or equivalent, less than the minimum years of experience as a Design Lead, Electrical/Power Engineer, Mechanical Engineer (mechanical services), Building Electrical Engineer, Building Wet Services / Fire Engineer, RFI/EMC Engineer, Information Technology Engineer, Quantity Surveyor on contracts of a similar nature and ensuring integration of various built environment / specialist</td>
<td>Qualification Degree or equivalent, meets the minimum years of experience as a Design Lead, Electrical/Power Engineer, Mechanical Engineer (mechanical services), Building Electrical Engineer, Building Wet Services / Fire Engineer, RFI/EMC Engineer, Information Technology Engineer, Quantity Surveyor on contracts of a similar nature and ensuring integration of various built environment / specialist</td>
<td>Qualification Degree or equivalent, exceeds the minimum years of experience as a Design Lead, Electrical/Power Engineer, Mechanical Engineer (mechanical services), Building Electrical Engineer, Building Wet Services / Fire Engineer, RFI/EMC Engineer, Information Technology Engineer, Quantity Surveyor on contracts of a similar nature and ensuring integration of various built environment / specialist</td>
</tr>
<tr>
<td>1.1 Schedule of Key Design Personnel; All proposed Key Design personnel’s information; Qualification, Experience and Professional registration) to be included. Additional Qualifying requirement - Only personnel included on this schedule will be assessed in terms of qualifying criteria.</td>
<td>4</td>
<td>Design Lead (Min. 15Years’ experience)</td>
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</tr>
<tr>
<td>1.2 Certified copies of Professional Qualification. Append to Schedule 1: Key Design Personnel (All key Design and personnel. Please attach in the order that personnel are listed on the schedule)</td>
<td>2</td>
<td>Electrical/Power Engineer (Min. 7Years’ experience)</td>
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<tr>
<td>1.3 Certified copies of Professional Registration. Append to Schedule 1: Key Design Personnel (All key engineering personnel. Please attach in the order that personnel are listed on the schedule)</td>
<td>2</td>
<td>Mechanical Engineer (mechanical services) (Min. 7Years’ experience)</td>
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</tr>
<tr>
<td>1.4 The Curriculum Vitae. The CVs of each individual must be appended to the Schedule of Key Design Personnel (Template for CV provided. All CVs to be provided in this template)</td>
<td>2</td>
<td>Building Electrical Engineer (Min. 7Years’ experience)</td>
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<tr>
<td></td>
<td></td>
<td>Building Wet Services / Fire Engineer (Min. 7 Years’ experience)</td>
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<tr>
<td></td>
<td></td>
<td>Radio Frequency (RF/EMC) Engineer (Min. 10Years’ experience)</td>
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<tr>
<td></td>
<td></td>
<td>Information Technology Engineer (Min. 7Years’ experience)</td>
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<tr>
<td></td>
<td></td>
<td>Quantity Surveyor (Min. 10Years’ experience)</td>
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</tbody>
</table>
### Stage 2 Technical Evaluation

<table>
<thead>
<tr>
<th>Technical Criteria</th>
<th>Weighting</th>
<th>Proposed Key Design and Construction Team</th>
<th>Score 1</th>
<th>Score 2</th>
<th>Score 3</th>
<th>Score 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5 Project Organisational Chart for Key Design Personnel and HVAC Specialist Contractor. (A project organisational structure identifying all resources indicated above and all support staff required to ensure successful delivery of the project, including interfaces with the SKA).</td>
<td>2</td>
<td>The Organogram and supplementary information presented is poor and there is insufficient information to assess whether the Tenderer has sufficient resources to undertake this Contract</td>
<td>The Organogram and supplementary information is average, does not address all the requirements and leaves questions that the Tenderer is capable of undertaking the Contract</td>
<td>The Organogram and supplementary information meets the requirements of this Tender and confirms the Tenderer’s capacity to undertake this Contract</td>
<td>The Organogram and supplementary information exceeds the requirements of this Tender through the proposal of value-add options which are considered at the same cost or where a reduction in timelines is considered to reduce cost and schedule further</td>
<td></td>
</tr>
</tbody>
</table>
## Technical Criteria

<table>
<thead>
<tr>
<th>Weighting</th>
<th>Score 1</th>
<th>Score 2</th>
<th>Score 3</th>
<th>Score 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2. Previous Experience and Track Record:</strong></td>
<td><strong>35 Total</strong></td>
<td><strong>Design Team (including sub-consultants) experience in projects undertaken to the nature of the SKA site and building requirements (minimum of 5):</strong></td>
<td><strong>HVAC Specialist Contractor for prototype cooling solution construction (including subcontractors) experience in projects undertaking Liquid Cooling Solutions for Data Centre Facilities (minimum of 5)</strong></td>
<td><strong>General companies (both design team and HVAC Specialist Contractor) track record in the engineering and construction industry</strong></td>
</tr>
<tr>
<td><strong>2.1 Tendering Entity past experience in delivering projects undertaken to the nature of the SKA site and building requirements (lists of current and completed projects to be submitted). Must include all Consultants and Sub-consultants.</strong></td>
<td><strong>15</strong></td>
<td><strong>The Tendering entity has no experience in delivering projects undertaken to the nature of the SKA site and building requirements</strong></td>
<td><strong>The Tendering entity has limited experience in delivering projects (less than 3) undertaken to the nature of the SKA site and building requirements</strong></td>
<td><strong>The Tendering entity has relevant experience in delivering projects (3) undertaken to the nature of the SKA site and building requirements</strong></td>
</tr>
<tr>
<td><strong>2.2 References</strong></td>
<td><strong>12.5</strong></td>
<td><strong>Less than 3 reference letters are provided from each of the Tendering Entity, its sub-consultants, JV Partners and HVAC Specialist Contractor. 1 of the letters has on average more than 50% “Average” scores and it has been indicated that the employer would use them again.</strong></td>
<td><strong>3 reference letters are provided from each of the Tendering Entity, its sub-consultants, JV Partners and HVAC Specialist Contractor. 2 of the letters have on average more than 50% “Average” scores and it has been indicated that the employer would use them again.</strong></td>
<td><strong>3 Reference letters are provided from each of the Tendering Entity, its sub-consultants, JV Partners and HVAC Specialist Contractor. 2 of the letters have on average more than 50% “Exceeded requirements” scores and it has been indicated that the employer would use them again.</strong></td>
</tr>
<tr>
<td>Technical Criteria</td>
<td>Weighting</td>
<td>Sub Criteria</td>
<td>Score 1</td>
<td>Score 2</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------------</td>
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<td>----------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| 3. Method Statement, and Project Schedule specific to this project which addresses the following: | 35 Total  | 3.1 Method Statement based on the scope of work defined in the tender document.                                                             The method statement must as a minimum address the following aspects:  
- Planning (Sequence of activities);  
- Detailed Design process and approvals;  
- Safety, Health, Environmental & Quality considerations during the design phase;  
- Prototype cooling solution for required heat sources  
- Test, Verification and Validation (In the presences of SKA representative)  
- Submission of the final designs, reports, including all supporting documents  
- RF/EMC compliance to SKA requirements                                                                                                         The method statement is generic and not tailored to address the specific project objectives and requirements. The approach does not adequately deal with the critical characteristics of the project.                                                                 The method statement is specifically tailored to address the specific project objectives and requirements. The approach is sufficiently flexible to accommodate changes that may occur during execution.                                                                 The method statement is specifically tailored and details ways to improve the project outcomes and the quality of the outputs which address the specific project objectives and requirements. The approach is sufficiently flexible to accommodate changes that may occur during execution. |
| 3.2 Project Schedule for the activities to be undertaken specific to this project. | 10        | The Project Schedule must as a minimum address the following aspects:  
- Appointment and Commencement of Contract  
- Design Activities  
- Design Reviews  
- Approvals  
- Prototype cooling solution for required heat sources (including all testing)  
- Testing, Verification and Validation (In the presences of SKA representative)  
- Submission of the final designs, reports, including all supporting documents                                                                 The Project Schedule is poor and does not meet the requirements                                                                                                                                     The Project Schedule meets the requirements with all the aspects required as part of the criteria are described in detail and the SKA SA is satisfied that the Tenderer is capable of managing the execution of the contract                                                                 The Project Schedule exceeds the requirements in that it clearly defines how the contract will be successfully managed and leaves no doubt that the Tenderer understands the requirements in terms of the project management and system engineering process and proposes clear processes & procedures in terms of the management of cost, schedule, quality and risk |


<table>
<thead>
<tr>
<th>Technical Criteria</th>
<th>Weighting</th>
<th>Sub Criteria</th>
<th>Score 1</th>
<th>Score 2</th>
<th>Score 3</th>
<th>Score 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Localisation specific to this project which addresses the following:</td>
<td>10 Total</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>4.1 Evidence of the Tenderer and JV partners existing Socio-Economic development activities and proposed Skills Transfer development plan specific for this contract to young graduates and mentorship for SKA SA young professionals. (Evidence and Certification to be provided for all participants on completion of this project)</td>
<td>5</td>
<td>Existing Socio-Economic development activities</td>
<td>Poor Socio-Economic development activities</td>
<td>Generic Socio-Economic development activities</td>
<td>Socio-Economic development activities which meets the Tenderers company objectives</td>
<td>Socio-Economic development activities which exceeds the Tenderers company objectives and provided evidence.</td>
</tr>
<tr>
<td>5</td>
<td>Skills Transfer development plan specific for this contract to young graduates and mentorship for SKA SA young professionals.</td>
<td>The Skills Transfer development plan is of poor quality and does not address how skills transfer will occur.</td>
<td>The Skills Transfer development plan is generic on how to transfer skills through this project to young graduates and mentorship for SKA SA young professionals.</td>
<td>The Skills Transfer development plan is tailored and details ways on how to transfer skills through this project to young graduates and mentorship for SKA SA young professionals.</td>
<td>The Skills Transfer development plan is specifically tailored and details ways on how to transfer skills through this project and other skills not associate through this contract to young graduates and mentorship for SKA SA young professionals.</td>
<td></td>
</tr>
</tbody>
</table>

Tenderers must achieve a minimum averaged score of 3 by all Tender Evaluation Committee members for each Stage 2 Technical Evaluation criteria item 1.1 to 1.5 and 2.1 to 2.2 above, as these are GO/NO GO criteria which Tenderers have to comply with in their response.

All Tenderers with Tenders that have been successful at the Stage Two level by meeting the minimum of 75% or a total of 75 points out of 100 points threshold will be invited to the financial opening, for further consideration.

The Tender Evaluation Committee will use the following prompts in evaluating Tenderers’ responses to the Quality Criteria defined for this Tender:
Tenderers must achieve a minimum of 75% or 75 points out of 100 points during this stage (Stage 2) to proceed to the Stage 3 Financial/B-BBEE evaluation.

Signed

___________________________ Date _________________________________

Name

___________________________ Position _________________________________

Tenderer

______________________________________________________________

SIGNED ON BEHALF OF TENDERER: ………………………………………………………………………………………………………
T2.2.4 RETURNABLE SCHEDULES THAT WILL BE INCORPORATED IN THE CONTRACT

FORM C1.1 – FORM OF OFFER AND ACCEPTANCE IN TENDER INVITATION

FORM C1.2 – CONTRACT DATA PROVIDED BY TENDERER

FORM C2.1 – PRICING SCHEDULE

FORM C3 – PREFERENCE CERTIFICATE AND PREFERENCE POINTS CLAIM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS (SBD 6.1)
FORM C1.1 OFFER AND ACCEPTANCE (AGREEMENT)

OFFER
The Employer, identified in the Acceptance signature block, has solicited offers to enter into a contract in respect of the following works:

SKA1 MID MULTIDISCIPLINARY TEAM LEAD BY AN ELECTRICAL/MECHANICAL ENGINEER TO CONSOLIDATE, INTEGRATE, PROVIDE DETAILED DESIGNS INCLUDING COSTING SERVICES FOR THE EXPANSION OF THE EXISTING KAROO ARRAY PROCESSOR BUILDING (KAPB) FOR THE SQUARE KILOMETRE ARRAY PROJECT, NORTHERN CAPE, SOUTH AFRICA

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

By the representative of the Tenderer, deemed to be duly authorized, signing this part of this Form of Offer and Acceptance, the Tenderer offers to perform all of the obligations and liabilities of the Consultant 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 VALUE-ADDED TAX (VAT) IS

..............................................................................................................................................................................................

.............................................................................................................................................................................................. Rand (in words): R .............................................. (in figures),

This Offer may be accepted by the Employer by signing the Acceptance part of this Form of Offer and Acceptance and returning one copy of this document to the tenderer before the end of the period of validity stated in the Tender Data, whereupon the tenderer becomes the party named as the Consultant in the Conditions of Contract identified in the Contract Data.

Signature(s)  ______________________________    ______________________________

Name(s)  ______________________________    ______________________________

Capacity  ______________________________    ______________________________

(Name and address of Organization)

Name and Signature of Witness  ______________________________    Date __________________________

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 Consultant 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 in this Agreement and in the Contract that is the subject of this Agreement.

The terms of the contract are contained in:

- Agreements and Contract Data (which includes this Agreement)
- Pricing Schedule
- Scope of Work and Site Information.
And drawings and documents or parts thereof, which may be incorporated by reference into Parts C1 to C3 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 from the said documents are valid unless contained in this Schedule, which must be duly signed by the authorized representative(s) of both parties.

Within 14 calendar days of the date of this form of acceptance (including the schedule of deviations if any) you shall deliver to the Employer (whose details are given in the Contract Data) the following:

- Proof of insurance in terms of the information provided in the Contract Data and Clause 18 of the FIDIC Conditions of Contract. Proof of currency of insured cover shall be provided on a monthly basis until contract completion
- Any other documentation to be provided in terms of the Conditions of Contract

The effective date of the contract shall be the date of this form of acceptance unless you, within seven (7) calendar days of the effective date, notify the Employer in writing of any justification why you cannot accept the contents of this Agreement.

The Commencement Date of the Contract shall be that on which the contract hand-over meeting is held which shall be no later than 28 calendar days after the date of this form, or earlier if circumstances demand and as agreed between tenderer/Employer.

Notwithstanding that a full, original-signed copy of the contract document containing all contract data an schedules (including that of accepted deviations) will be delivered to you, this form of acceptance constitutes the binding contract between us.

Signature(s) ________________ ________________
Name(s) ________________ ________________
Capacity ________________ ________________
(Name and address of Organization)

Name and Signature of Witness ________________ Date ________________
SCHEDULE OF DEVIATIONS

Notes:

1. The extent of deviations from the tender documents issued by the Employer prior to the tender closing date is limited to those permitted in terms of the Conditions of Tender.

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

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

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

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<th>Subject</th>
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<tr>
<td>6</td>
<td></td>
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<tr>
<td></td>
<td>Details</td>
</tr>
</tbody>
</table>
By the duly authorized representatives signing this Schedule of Deviations, the Employer and the Tenderer agree to and accept the foregoing Schedule of Deviations as the only deviations from and amendments to the documents listed in the Tender Data and addenda thereto as listed in the Tender Schedules, as well as any confirmation, clarification or 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 Organization)

Name and Signature of Witness ___________________________ Date __________________________

FOR THE EMPLOYER:

Signature(s) ___________________________ ___________________________
Name(s) ___________________________ ___________________________
Capacity ___________________________ ___________________________

(Name and address of Organization)

Name and Signature of Witness ___________________________ Date __________________________
CONFIRMATION OF RECEIPT

The Tenderer (now Consultant), 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 Consultant: ……………………………………………………………….

Signature …………………………………………………………………

Name …………………………………………………………………

Capacity …………………………………………………………………

Signature and name of witness: ……………………………………………………………….

Signature …………………………………………………………………

Name …………………………………………………………………
C1.2 CONTRACT DATA

PART 1: DATA PROVIDED BY THE EMPLOYER

C1.2.1 CONDITIONS OF CONTRACT

The following General Conditions of Contract are applicable for this Contract:


Copies of these General Conditions (White Book) may be obtained from the South African Institution of Civil Engineering (SAICE) (tel 011 805 5947) or Consulting Engineers South Africa (CESA) (tel 011 463 2022).

C1.2.2 PARTICULAR CONDITIONS

Part A: References from Clauses in the General Conditions:

Sub-Clause

1.1 Definitions

| Sub-Clause | 
| --- | --- |
| 1.1.2 | The Project is SKA1 MID MULTIDISCIPLINARY TEAM LEAD BY AN ELECTRICAL/ MECHANICAL ENGINEER TO CONSOLIDATE, INTEGRATE, PROVIDE DETAILED DESIGNS INCLUDING COSTING SERVICES FOR THE EXPANSION OF THE EXISTING KAROO ARRAY PROCESSOR BUILDING (KAPB) FOR THE SQUARE KILOMETER ARRAY PROJECT, NORTHERN CAPE, SOUTH AFRICA |

1.1.10 Commencement Date

1.1.11 Time for Completion 154 Calendar Days

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Duration</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review and Analyse SKA Requirements, PDR and other Recorded Information</td>
<td>14 days</td>
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<tr>
<td>Draft Detail Design</td>
<td>31 days</td>
<td></td>
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<tr>
<td>Preliminary Draft Design Review</td>
<td>7 days</td>
<td></td>
</tr>
<tr>
<td>Detail Design</td>
<td>53 days</td>
<td></td>
</tr>
<tr>
<td>Detail Design Review</td>
<td>7 Days</td>
<td></td>
</tr>
<tr>
<td>Prototype for Liquid Cooling Solution</td>
<td>21 Days</td>
<td></td>
</tr>
<tr>
<td>Critical Design Review and Approval (CDR)</td>
<td>14 days</td>
<td></td>
</tr>
<tr>
<td>Final Detailed Design Updates to Reports, Drawings and all supporting documentation</td>
<td>7 days</td>
<td></td>
</tr>
</tbody>
</table>

1.3 Language for Communications English

1.4 Language(s) of the Agreement

| Ruling Language | Governing Law | Republic of South Africa |

1.8 Notices

| Client’s address | 
| --- | --- |
| Square Kilometre Array South Africa |
| 17 Baker Street |
| Johannesburg |
| 2196 |
| South Africa |
4.4 Delays

4.4.1 Delay Penalty

R 5 000.00 per day for delays to any deliverable defined in the Performance Levels in this Tender with a maximum of 10% of the final Contract Price.

5.2.2 Agreed Compensation for Overdue Payment (percent per day)

Reckoned from 30 days after approval of the Payment Certificate.

6.3.1 Duration of Liability

8.2 Mediation

8.2.1 Named Mediator

8.2.1 Nominating Centre for Mediation

8.3.2 Rules of Arbitration
Part B: Additional Clauses:

1 General Provisions

1.1 Definitions

Sub-clause 1.1.1 “Agreement”
Replace “Appendix 1 [Scope of Services], Appendix 2 [Personnel, Equipment, Facilities and Services of Others to be Provided by the Client], Appendix 3 [Remuneration and Payment], Appendix 4 [Time Schedule for Services]” with “The Tender document”

Sub-clause 1.1.3 “Services”
Replace “Appendix 1 [Scope of Services]” with “The Tender document”

Sub-clause 1.1.5 “Country”
Replace “the country to which the Project (or most of it) relates” with “South Africa”

Sub-clause 1.1.15 “Agreed Compensation”
Replace “additional sums as defined in Appendix 3 [Remuneration and Payment]” with additional sums.

1.2 Interpretation

Add the following sub-clause:

1.2.6 The words Scope of Services shall be used interchangeably with Scope of Work.

2 Client

2.3 Assistance

Sub-clause 2.3.1
Delete the entire subclause as it is not applicable.

2.4 Clients Financial Arrangements

Sub-clause 2.4.1
Delete the entire sub-clause as it is not applicable.

2.5 Equipment and Facilities

Sub-clause 2.5.1
Replace “described in Appendix 2 [Personnel, Equipment, Facilities and Services of Others to be Provided by the Client]” with “described in the scope of work of the tender document”.

2.6 Supply of Client’s Personnel

Sub-clauses 2.6.1, 2.6.2 & 2.6.3
Delete the entire sub-clauses as they are not applicable.

2.8 Services of Others

Sub-clause 2.8.1
Replace “from others as described in Appendix 2 [Personnel, Equipment, Facilities and Services of Others to be Provided by the Client]” with “outside the defined scope of services and required from a third party”.

3 The Consultant

3.1 Scope of Services

Sub-clause 3.1.1
Replace “in Appendix 1 [Scope of Services]” with “The Tender document”.

3.2 Normal, Additional and Exceptional Services
Sub-clause 3.2.1
Replace the entire sub-clause with “Normal services are those described as such in The Tender document, and additional services are variations to such Scope of Work.

Sub-clause 3.2.2
Delete the entire sub-clause as it is not applicable.

3.3 Duty of Care and Exercise of Authority

Sub-clause 3.3.2 (a)
Delete “where they are not described in Appendix 1 [Scope of Services]”

4 Commencement, Completion, Variation and Termination

4.2 Commencement and Completion

Sub-clause 4.2.1
Replace “Time Schedule in Appendix 4 [Time Schedule where they are not described in Appendix 1 [Scope of Services]” with latest approved Time Schedule”.

4.4 Delays

Add the following sub-clause

Sub-clause 4.4.2
Penalties shall be imposed upon failure to deliver as per milestones defined in the latest approved project schedule. Penalty amounts are indicated on the Particular conditions to tender.

4.8 Exceptional Services

Sub-clause 4.8.1
Delete the entire sub-clause as it is not applicable.

Sub-clause 4.8.2
Delete the entire sub-clause as it is not applicable

Add the following clause

4.10 Early Warning
The Parties shall give each other an early warning by notifying the other as soon as either becomes aware of any situation that could result in:
a) Increase in cost,
b) Delay completion,
c) Delay in achieving a milestone or
d) Defective work

The Consultant shall thereafter enter the early warning into the risk register and either party can call for a risk mitigation meeting where the risk will be discussed and mitigation measures agreed. Where there is no agreement the Employer shall make the determination. All personnel attending the risk mitigation meeting shall cooperate in finding solutions that deal with the risk in an effective and efficient manner, without compromising other deliverables, and taking decisions that are in accordance with the Contract.

Risk mitigation measures that affect the scope of work shall be dealt with as variation to the contract and dealt with in terms of the provisions of the Contract.

The risk register shall be updated on a continuous basis.
5 Payment

5.1 Payment to the Consultant

Sub-clause 5.1.1
Replace “Appendix 3 [Remuneration and Payment]” with “the Tender”.

Sub-clause 5.1.2
Delete the entire sub-clause as it is not applicable.

5.2 Time for Payment

Add the following sub-clause

Sub-clause 5.1.2
The successful tenderer will submit invoices in the following intervals:

a) After twenty eight days of commencement, following an approval of a progress report, which is to be based on the latest approved programme; and

b) At the end of the project after approval of the detail design report and all supporting deliverables defined in the scope of work.

The NRF undertakes to pay validated invoices in full within thirty (30) days from the monthly statement date.

5.3 Currencies of Payment

Sub-clause 5.3.1
Replace “currencies applicable to the Agreement are those stated in Appendix 3 [Remuneration and Payment]” with “currency applicable to the Agreement is the South African Rand”.

Sub-clause 5.3.2
Delete the entire sub-clause as it is not applicable.

5.4 Third Party Charges on the Consultant

Sub-clause 5.4.1
Delete the entire sub-clause as it is not applicable.

3 Insurance

7.1 Insurance for Liability and Indemnity

Delete sub-clause 7.1.1, 7.1.2 & 7.1.3, and replace with

Sub-clause 7.1.1

Insurance to be provided by the tenderer is listed in Form A3 of the returnable documents. However, this does not prevent the Tenderer from arranging, at his own cost, any additional cover or limits he (the Supplier) may deem fit.

Sub-clause 7.1.2

The Consultant shall:

a) ensure that all potential and appointed Subconsultants (or Sub-consultants) are aware of the whole contents of this clause, and

b) enforce the compliance by Subconsultants (or Sub-consultants) with this clause where applicable.
FORM C2.1. PRICING SCHEDULE - (FIXED AND FIRM PRICE FOR DURATION OF THE CONTRACT)

(Standard Tendering Document 3.1)

**NOTE:**

<table>
<thead>
<tr>
<th>Only fixed and firm price will be accepted. Non-fixed and firm prices (including prices subject to rates of exchange variations) will not be considered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price quotes is <strong>fully inclusive</strong> of all costs including delivery to the specified NRF site; Value Added Tax (VAT) and other taxes (this includes all disbursement and travel costs)</td>
</tr>
<tr>
<td>A full breakdown of costs, including detailed costing schedules, contingencies, professional fees, travel, accommodation and disbursements must be in format as set out below and, where applicable, in supporting schedules</td>
</tr>
<tr>
<td>The Conditions of Contract, the Contract Data and the Scope of Work shall be read in conjunction with the Pricing Schedule</td>
</tr>
<tr>
<td>Tender price in South African currency, foreign exchange risk is for the account of the Tenderer</td>
</tr>
<tr>
<td>It will be assumed that prices included in the Pricing Schedules are based on Acts, Ordinances, Regulations, By-laws, International Standards and National Standards that were published 28 days before the closing date of Tenders (refer to <a href="http://www.stanza.org.za">www.stanza.org.za</a> or <a href="http://www.iso.org">www.iso.org</a> for information on standards)</td>
</tr>
<tr>
<td>OFFER TO BE VALID FOR</td>
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</tbody>
</table>
## PRICING SCHEDULE

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Unit</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Review and Analyse SKA Requirements, PDR and other Recorded Information</td>
<td>Sum</td>
<td>R</td>
</tr>
<tr>
<td>1.2</td>
<td>Draft Design</td>
<td>Sum</td>
<td>R</td>
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<tr>
<td>1.3</td>
<td>Draft Design Review</td>
<td>Sum</td>
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<tr>
<td>1.4</td>
<td>Detailed Design</td>
<td>Sum</td>
<td>R</td>
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<tr>
<td>1.5</td>
<td>Detailed Design Review</td>
<td>Sum</td>
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<td>1.6</td>
<td>Prototype for Liquid Cooling Solution</td>
<td>Sum</td>
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<td>1.7</td>
<td>Critical Design Review and Approval (CDR)</td>
<td>Sum</td>
<td>R</td>
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<tr>
<td>1.8</td>
<td>Final Detailed Design Updates to Reports, Drawings and all supporting documentation</td>
<td>Sum</td>
<td>R</td>
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<tr>
<td>1.9</td>
<td><strong>SUB TOTAL</strong></td>
<td></td>
<td>R</td>
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<tr>
<td>1.10</td>
<td>Disbursement (all-inclusive travel cost, travel time, accommodation, printing, copying, etc.)</td>
<td>Sum</td>
<td>R</td>
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<tr>
<td>1.11</td>
<td><strong>SUB TOTAL</strong></td>
<td></td>
<td>R</td>
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<tr>
<td>1.12</td>
<td>Provision for additional Engineering services leading up to SKA1_MID CDR</td>
<td>Prov</td>
<td>R</td>
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<tr>
<td>1.13</td>
<td><strong>TOTAL (EXCLUDING VAT)</strong></td>
<td></td>
<td>R</td>
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<td>1.14</td>
<td>VALUE ADDED TAX (14%)</td>
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<td>R</td>
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<tr>
<td>1.15</td>
<td><strong>TOTAL (INCLUDING VAT) CARRIED TO FORM C1.1 OFFER AND ACCEPTANCE AGREEMENT</strong></td>
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<td>R</td>
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SIGNED ON BEHALF OF TENDERER: .................................................................
SUMMARY FOR TENDER OPENING PURPOSES

NAME OF TENDERER: ……………………………………………………………………………………………………………………………

OFFERED TOTAL: R………………………………………………………………………………………………………………………………
(Amount brought forward from The Form of Offer)*

Signed by authorized representative of the Tenderer: ………………………………………………………………………………………………………

DATE: ……………………………………………..

* Should any discrepancy occur between this figure and that stated in the Form of Offer and Acceptance, the latter shall apply.
All delivery costs indicated below must be included in the Tender price for Pricing Schedule 1, for delivery at the prescribed destination.

“All applicable taxes” includes value-added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies.

1. The accompanying information must be used for the formulation of proposals
PERSONS WHO WILL BE INVOLVED IN THE PROJECT AND RATES APPLICABLE (These rates will be used as the basis for calculation in the case where additional work is required on the Contract)

<table>
<thead>
<tr>
<th>PERSON AND POSITION</th>
<th>HOURLY RATE (VAT INCL.)</th>
<th>DAILY RATE (VAT INCL)</th>
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<tr>
<td>PERSON AND POSITION</td>
<td>HOURLY RATE (INCL. VAT)</td>
<td>DAILY RATE (INCL. VAT)</td>
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OTHER EXPENSES (These rates will be used as the basis for calculation in the case where additional work is required on the Contract)

(Printing, Car Hire, Per/km mileage, Air travel, accommodation etc.)

<table>
<thead>
<tr>
<th>DESCRIPTION OF EXPENSE</th>
<th>RATE</th>
<th>QUANTITY</th>
<th>AMOUNT (INCL VAT)</th>
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SIGNED ON BEHALF OF TENDERER: .................................................................
FORM C3: PREFERENCE POINTS CLAIM IN TERMS OF PREFERENTIAL PROCUREMENT REGULATIONS, 2011

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

NB: BEFORE COMPLETING THIS FORM, TENDERERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF B-BBEE, AS PRESCRIBED IN THE PREFERENTIAL PROCUREMENT REGULATIONS, 2011.

1. GENERAL CONDITIONS

1.1 The following preference point systems are applicable to all Tenders:
- the 80/20 system for requirements with a Rand value of up to R1 000 000 (all applicable taxes included); and
- the 90/10 system for requirements with a Rand value above R1 000 000 (all applicable taxes included).

1.2 The value of this Tender is estimated to exceed R1 000 000 (all applicable taxes included) and therefore the 90/10 preference point system shall be applicable.

1.3 Preference points for this Tender shall be awarded for:
(a) Price; and
(b) B-BBEE Status Level of Contribution.

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

<table>
<thead>
<tr>
<th>Points</th>
<th>PRICE</th>
<th>B-BBEE STATUS LEVEL OF CONTRIBUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total points for Price and B-BBEE must not exceed 100</td>
</tr>
</tbody>
</table>

1.5 Failure on the part of a Tenderer to submit a B-BBEE Verification Certificate from a Verification Agency accredited by the South African Accreditation System (SANAS), or a Registered Auditor approved by the Independent Regulatory Board of Auditors (IRBA) or a sworn affidavit confirming annual turnover and level of black ownership in case of an EME and QSE together with the Tender, will be interpreted to mean that preference points for B-BBEE status level of contribution are not claimed.

1.6 The purchaser reserves the right to require of a 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 purchaser.

2. DEFINITIONS

(a) “all applicable taxes” includes value-added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies;

(b) “B-BBEE” means broad-based black economic empowerment as defined in section 1 of the Broad-Based Black Economic Empowerment Act;
(c) “B-BBEE status level of contributor” means the B-BBEE status received by a measured entity based on its overall performance using the relevant scorecard contained in the Codes of Good Practice on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;

(d) “Tender” means a written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of services, works or goods, through price quotations, advertised competitive Tendering processes or proposals;

(e) “Broad-Based Black Economic Empowerment Act” means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);

(f) “comparative price” means the price after the factors of a non-firm price and all unconditional discounts that can be utilized have been taken into consideration;

(g) “consortium or joint venture” means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract;

(h) “contract” means the agreement that results from the acceptance of a Tender by an organ of state;

(i) “EME” means an Exempted Micro Enterprise as defines by Codes of Good Practice under section 9 (1) of the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);

(j) “Firm price” means the price that is only subject to adjustments in accordance with the actual increase or decrease resulting from the change, imposition, or abolition of customs or excise duty and any other duty, levy, or tax, which, in terms of the law or regulation, is binding on the consultant and demonstrably has an influence on the price of any supplies, or the rendering costs of any service, for the execution of the contract;

(k) “functionality” means the measurement according to predetermined norms, as set out in the Tender documents, of a service or commodity that is designed to be practical and useful, working or operating, taking into account, among other factors, the quality, reliability, viability and durability of a service and the technical capacity and ability of a Tenderer;

(l) “non-firm prices” means all prices other than “firm” prices;

(m) “person” includes a juristic person;

(n) “QSE” means a Qualifying Small EEnterprise as defines by Codes of Good Practice under section 9 (1) of the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);

(o) “rand value” means the total estimated value of a contract in South African currency, calculated at the time of Tender invitations, and includes all applicable taxes and excise duties;

(p) “sub-contract” means the primary contractor’s assigning, leasing, making out work to, or employing, another person to support such primary contractor in the execution of part of a project in terms of the contract;

(q) “total revenue” bears the same meaning assigned to this expression in the Codes of Good Practice on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act and promulgated in the Government Gazette on 9 February 2007;

(r) “trust” means the arrangement through which the property of one person is made over or bequeathed to a trustee to administer such property for the benefit of another person; and

(s) “trustee” means any person, including the founder of a trust, to whom property is bequeathed in order for such property to be administered for the benefit of another person.
3. ADJUDICATION USING A POINT SYSTEM

3.1 The Tenderer obtaining the highest number of total points will be awarded the contract.

3.2 Preference points shall be calculated after prices have been brought to a comparative basis taking into account all factors of non-firm prices and all unconditional discounts.

3.3 Points scored must be rounded off to the nearest 2 decimal places.

3.4 In the event that two or more Tenders have scored equal total points, the successful Tender must be the one scoring the highest number of preference points for B-BBEE.

3.5 However, when functionality is part of the evaluation process and two or more Tenders have scored equal points including equal preference points for B-BBEE, the successful Tender must be the one scoring the highest score for functionality.

3.6 Should two or more Tenders be equal in all respects, the award shall be decided by the drawing of lots.

4. POINTS AWARDED FOR PRICE

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

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

\[
Ps = 80 \left( 1 - \frac{Pt - P_{\text{min}}}{P_{\text{min}}} \right) \quad \text{or} \quad Ps = 90 \left( 1 - \frac{Pt - P_{\text{min}}}{P_{\text{min}}} \right)
\]

Where

\[Ps\] = Points scored for comparative price of Tender under consideration

\[Pt\] = Comparative price of Tender under consideration

\[P_{\text{min}}\] = Comparative price of lowest acceptable Tender
5. POINTS AWARDED FOR B-BBEE STATUS LEVEL OF CONTRIBUTION

5.1 In terms of Regulation 5 (2) and 6 (2) of the Preferential Procurement Regulations, preference points must be awarded to a Tenderer for attaining the B-BBEE status level of contribution in accordance with the table below:

<table>
<thead>
<tr>
<th>B-BBEE Status Level of Contributor</th>
<th>Number of points (90/10 system)</th>
<th>Number of points (80/20 system)</th>
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<tbody>
<tr>
<td>1</td>
<td>10</td>
<td>20</td>
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<tr>
<td>2</td>
<td>9</td>
<td>18</td>
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<td>3</td>
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<td>16</td>
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<td>8</td>
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<td>Non-compliant contributor</td>
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5.2 A Tenderer who qualifies as an EME in terms of the B-BBEE Act must submit a sworn affidavit confirming Annual Total Revenue and Level of Black Ownership.

5.3 A Tenderer other than EME or QSE must submit their original and valid B-BBEE status level verification certificate or a certified copy thereof, substantiating their B-BBEE rating issued by a Registered Auditor approved by IRBA or a Verification Agency accredited by SANAS.

5.4 A trust, consortium or joint venture, will qualify for points for their B-BBEE status level as a legal entity, provided that the entity submits their B-BBEE status level certificate.

5.5 A trust, consortium or joint venture will qualify for points for their B-BBEE status level as an unincorporated entity, provided that the entity submits their consolidated B-BBEE scorecard as if they were a group structure and that such a consolidated B-BBEE scorecard is prepared for every separate Tender.

5.6 Tertiary Institutions and Public Entities will be required to submit their B-BBEE status level certificates in terms of the specialized scorecard contained in the B-BBEE Codes of Good Practice.

5.7 A person will not be awarded points for B-BBEE status level if it is indicated in the Tender documents that such a Tenderer intends sub-contracting more than 25% of the value of the contract to any other enterprise that does not qualify for at least the points that such a Tenderer qualifies for, unless the intended sub-consultant is an EME that has the capability and ability to execute the sub-contract.

5.8 A person awarded a contract may not sub-contract more than 25% of the value of the contract to any other enterprise that does not have an equal or higher B-BBEE status level than the person concerned, unless the contract is sub-contracted to an EME that has the capability and ability to execute the sub-contract.

6. TENDER DECLARATION

6.1 Tenderers who claim points in respect of B-BBEE Status Level of Contribution must complete the following:
7. B-BBEE STATUS LEVEL OF CONTRIBUTION CLAIMED IN TERMS OF PARAGRAPHS 1.4 AND 5.1

7.1 B-BBEE Status Level of Contribution: \( \quad = \quad \) ………(maximum of 10 or 20 points)

(Points claimed in respect of paragraph 7.1 must be in accordance with the table reflected in paragraph 5.1 and must be substantiated by means of a B-BBEE certificate issued by a Verification Agency accredited by SANAS or a Registered Auditor approved by IRBA or a sworn affidavit.

8. SUB-CONTRACTING

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

(Tick applicable box)

YES  NO

8.1.1 If yes, indicate:

i) What percentage of the contract will be subcontracted\( \)\%  

ii) The name of the sub-consultant\( \)\( \)\( \)

iii) The B-BBEE status level of the sub-consultant\( \)\( \)\( \)

iv) Whether the sub-consultant is an EME.

(Tick applicable box)

YES  NO

9. DECLARATION WITH REGARD TO COMPANY/FIRM

9.1 Name of company/firm:…………………………………………………………………………….

9.2 VAT registration number:………………………………………………………………………………

9.3 Company registration number:…………………………………………………………………………

9.4 TYPE OF COMPANY/ FIRM

☐ Partnership/Joint Venture / Consortium

☐ One person business/sole propriety

☐ Close corporation

☐ Company

☐ (Pty) Limited

[TICK APPLICABLE BOX]
9.5 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES


9.6 COMPANY CLASSIFICATION

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

[TICK APPLICABLE BOX]

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

9.8 I/we, the undersigned, who is / are duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the B-BEE status level of contribution indicated in paragraph 7 of the foregoing certificate, qualifies the company/ firm for the preference(s) shown and I / we acknowledge that:

i) The information furnished is true and correct;

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

iii) In the event of a contract being awarded as a result of points claimed as shown in paragraph 7, the consultant may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct;

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

(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) restrict the Tenderer or consultant, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, from obtaining business from any organ of state for a period not exceeding 10 years, after the audi alteram partem (hear the other side) rule has been applied; and

(e) forward the matter for criminal prosecution.
WITNESSES

1. ...........................................
2. ...........................................

SIGNATURE(S) OF TENDERER(S)
ANNEXURES

Annexure A: CIDB Standard Conditions of Tender

Annexure B: SKA SA Transport Policy, Rev 2 (Document No. SSA0000-0000-001)

Annexure C: SKA SA Policy for the Control of RFI on the Karoo Site Rev 1 (Document No. M2900-0000-019)

Annexure D: SKA SA Minimum Site Safety Requirements, Rev 1 (Document No. SSA0000-0000V1-04MP)

Annexure E: SKA SA MeerKAT Environmental Management Plan (EMP) Dated July 2008 (SEF Ref. 502131)

Annexure F: SKA-TEL-INSA-0000561 Rev1 SKA1_MID Infrastructure sub-element (Level 3) Requirements Specification Grid Power

Annexure G: SKA-TEL-INSA-0000559 Rev1 SKA1_MID Infrastructure sub-element (Level 3) Requirements Specification Losberg Power Facility

Annexure H: SKA-TEL-CHC-0000562 Rev1 SKA1_MID Infrastructure sub-element (Level 3) Requirements Specification Data Rack Power

Annexure I: SKA-TEL-CHC-0000560 Rev1 SKA1_MID Infrastructure sub-element (Level 3) Requirements Specification Data Rack Cooling

Annexure J: SKA-TEL-CHC-0000562 Rev1 SKA1_MID Infrastructure sub-element (Level 3) Requirements Specification Building Management System (BMS)

Annexure K: SKA-TEL-CHC-0000563 Rev1 SKA1_MID Infrastructure sub-element (Level 3) Requirements Specification Building Ancillaries


Annexure N: SKA1_MID Infrastructure and Power Element PDR Drawings and Documentation

Annexure O: SKA SA MeerKAT Infrastructure and Power Element Applicable As Built Drawings List

Annexure P SKA SA MeerKAT Infrastructure and Power Element As Built Register

Annexure Q: Directions to SKA SA Meysdam Farmhouse from Carnarvon