NEC3 Engineering & Construction Contract

Between  ESKOM HOLDINGS SOC Ltd
(Reg No. 2002/015527/30)

and  [Insert at award stage]
(Reg No. ___________)

for  Auxiliary Sump Pump Replacement at Gariep Power Station

Contents:

Part C1  Agreements & Contract Data
Part C2  Pricing Data
Part C3  Scope of Work
Part C4  Site Information

CONTRACT No.  Insert at award stage
Part C1: Agreements & Contract Data

Contents:

C1.1 Form of Offer and Acceptance

[to be inserted from Returnable Documents at award stage]

C1.2a Contract Data provided by the Employer

C1.2b Contract Data provided by the Contractor
C1.1 Form of Offer & Acceptance

Offer

The Employer, identified in the Acceptance signature block, has solicited offers to enter into a contract for the procurement of:

**Auxiliary Sump Pump Replacement at Gariep Power Station**

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

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

<table>
<thead>
<tr>
<th>Options A</th>
<th>The offered total of the Prices exclusive of VAT is</th>
<th>R [●]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Value Added Tax @ 15% is</td>
<td>R [●]</td>
</tr>
<tr>
<td></td>
<td>The offered total of the amount due inclusive of VAT is</td>
<td>R [●]</td>
</tr>
<tr>
<td></td>
<td>(in words) [●]</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Signature(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name(s)</td>
</tr>
<tr>
<td>Capacity</td>
</tr>
</tbody>
</table>

For the tenderer:

(Insert name and address of organisation)

<table>
<thead>
<tr>
<th>Name &amp; signature of witness</th>
<th>Date</th>
</tr>
</thead>
</table>

Tenderer’s CIDB registration number (if applicable)
Acceptance

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

The terms of the contract, are contained in:

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>Agreements and Contract Data, (which includes this Form of Offer and Acceptance)</td>
</tr>
<tr>
<td>C2</td>
<td>Pricing Data</td>
</tr>
<tr>
<td>C3</td>
<td>Scope of Work: Works Information</td>
</tr>
<tr>
<td>C4</td>
<td>Site Information</td>
</tr>
</tbody>
</table>

and drawings and documents (or parts thereof), which may be incorporated by reference into the above listed Parts.

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

The tenderer shall within two weeks of receiving a completed copy of this agreement, including the Schedule of Deviations (if any), contact the Employer’s agent (whose details are given in the Contract Data) to arrange the delivery of any securities, bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the conditions of contract identified in the Contract Data at, or just after, the date this agreement comes into effect. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this agreement.

Notwithstanding anything contained herein, this agreement comes into effect on the date when the tenderer receives one fully completed original copy signed between them of this document, including the Schedule of Deviations (if any).

Unless the tenderer (now Contractor) within five working days of the date of such receipt notifies the Employer in writing of any reason why he cannot accept the contents of this agreement, this agreement shall constitute a binding contract between the Parties.

<table>
<thead>
<tr>
<th>Signature(s)</th>
<th>Name(s)</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Julian Fourie</td>
<td>Peaking Senior Manager - Plant Management</td>
</tr>
</tbody>
</table>

**for the Employer**

<table>
<thead>
<tr>
<th>Name &amp; signature of witness</th>
<th>Marna Bester Procurement Manager</th>
<th>Date</th>
</tr>
</thead>
</table>
Schedule of Deviations to be completed by the Employer prior to contract award

Note:
1. This part of the Offer & Acceptance would not be required if the contract has been developed by negotiation between the Parties and is not the result of a process of competitive tendering.
2. 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.
3. A tenderer's covering letter must not be included in the final contract document. Should any matter in such letter, which constitutes a deviation as aforesaid be the subject of agreement reached during the process of Offer and Acceptance, the outcome of such agreement shall be recorded here and the final draft of the contract documents shall be revised to incorporate the effect of it.

<table>
<thead>
<tr>
<th>No.</th>
<th>Subject</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>[●]</td>
<td>[●]</td>
</tr>
<tr>
<td>2</td>
<td>[●]</td>
<td>[●]</td>
</tr>
<tr>
<td>3</td>
<td>[●]</td>
<td>[●]</td>
</tr>
<tr>
<td>4</td>
<td>[●]</td>
<td>[●]</td>
</tr>
<tr>
<td>5</td>
<td>[●]</td>
<td>[●]</td>
</tr>
<tr>
<td>6</td>
<td>[●]</td>
<td>[●]</td>
</tr>
<tr>
<td>7</td>
<td>[●]</td>
<td>[●]</td>
</tr>
</tbody>
</table>

By the duly authorised representatives signing this Schedule of Deviations below, the Employer and the tenderer agree to and accept this Schedule of Deviations as the only 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 confirmation, clarification or changes to the terms of the Offer agreed by the tenderer and the Employer during this process of Offer and Acceptance.

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

<table>
<thead>
<tr>
<th>For the tenderer:</th>
<th>For the Employer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signature</td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>Julian Fourie</td>
</tr>
<tr>
<td>Capacity</td>
<td>Peaking Senior Manager: Plant Management</td>
</tr>
<tr>
<td>On behalf of</td>
<td>(Insert name and address of organisation)</td>
</tr>
<tr>
<td></td>
<td>Eskom Peaking Generation</td>
</tr>
<tr>
<td></td>
<td>15 Pasita Street</td>
</tr>
<tr>
<td></td>
<td>Rosenpark</td>
</tr>
<tr>
<td></td>
<td>Bellville, 7536</td>
</tr>
<tr>
<td>Name &amp; signature of witness</td>
<td>Marna Bester</td>
</tr>
<tr>
<td></td>
<td>Procurement Manager</td>
</tr>
<tr>
<td>Date</td>
<td></td>
</tr>
</tbody>
</table>
## C1.2 ECC3 Contract Data

### Part one - Data provided by the *Employer*

<table>
<thead>
<tr>
<th>Clause</th>
<th>Statement</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>General</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The <em>conditions of contract</em> are the core</td>
<td>A: Priced contract with activity schedule</td>
</tr>
<tr>
<td></td>
<td>clauses and the clauses for main Option W1:</td>
<td>Dispute resolution procedure</td>
</tr>
<tr>
<td></td>
<td>dispute resolution Option</td>
<td>X1: Price adjustment for inflation</td>
</tr>
<tr>
<td></td>
<td>and secondary Options</td>
<td>X2: Changes in the law</td>
</tr>
<tr>
<td></td>
<td>X7: Delay damages</td>
<td>X15: Limitation of <em>Contractor’s</em> liability for design to reasonable skill and care</td>
</tr>
<tr>
<td></td>
<td>X16: Retention</td>
<td>X18: Limitation of liability</td>
</tr>
<tr>
<td></td>
<td>X17: Limitation of liability for design to</td>
<td></td>
</tr>
<tr>
<td></td>
<td>reasonable skill and care</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Z: <em>Additional conditions of contract</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td>of the NEC3 Engineering and Construction</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Contract, April 2013 (ECC3)</td>
<td></td>
</tr>
</tbody>
</table>

### 10.1 The *Employer* is (Name):

Eskom Holdings SOC Ltd (reg no: 2002/015527/30), a state owned company incorporated in terms of the company laws of the Republic of South Africa

Address

Registered office at Megawatt Park, Maxwell Drive, Sandton, Johannesburg

### 10.1 The *Project Manager* is: (Name)

Andiswa Hlazo

Address

Eskom Brackenfell, 01 Eskom Road, Brackenfell, South Africa

Tel

021 941 5918

e-mail

hlazoa@eskom.co.za
10.1 The Supervisor is: (Name) Jabulani Tswayi

Address 01 Maxwell Drive, Sunninghill, Sandton Johannesburg

Tel No. 011 516 7305

e-mail TswayiJS@eskom.co.za

11.2(13) The works are Auxiliary Sump Pump Replacement at Gariep Power Station

11.2(14) The following matters will be included in the Risk Register Covid 19 Pandemic

11.2(15) The boundaries of the site are Machine Hall, Generator Floor, White Floor Green Floor sump A and Sump B. Access to all restricted areas requires authorised site personnel to accompany the Contractor

11.2(16) The Site Information is in Part 4: Site Information

11.2(19) The Works Information is in Part 3: Scope of Work and all documents and drawings to which it makes reference.

12.2 The law of the contract is the law of the Republic of South Africa

13.1 The language of this contract is English

13.3 The period for reply is Prior to Site implementation - Two Weeks During Site implementation - Five working days

2 The Contractor's main responsibilities Data required by this section of the core clauses is provided by the Contractor in Part 2 and terms in italics used in this section are identified elsewhere in this Contract Data.

3 Time

11.2(3) The completion date for the whole of the works is 22 April 2022

11.2(9) The key dates and the conditions to be met are:

<table>
<thead>
<tr>
<th>Condition to be met</th>
<th>key date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Design Submission</td>
<td>28 January 2021</td>
</tr>
<tr>
<td>2 Delivery of Equipment</td>
<td>15 July 2021</td>
</tr>
<tr>
<td>3 Pre-implementation documents</td>
<td>26 August 2021</td>
</tr>
<tr>
<td>4 Installation</td>
<td>17 January 2022</td>
</tr>
</tbody>
</table>

30.1 The access dates are:

<table>
<thead>
<tr>
<th>Part of the Site</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Delivery of Equipment</td>
<td>15 July 2021</td>
</tr>
<tr>
<td>2 Sump pumps A&amp;B</td>
<td>17 January 2022</td>
</tr>
</tbody>
</table>

31.1 The Contractor is to submit a first programme for acceptance within Four weeks of the Contract Date.
31.2 The starting date is 17 December 2020

32.2 The Contractor submits revised programmes at intervals no longer than Pre-implementation - One week Implementation - One week

35.1 The Employer is not willing to take over the works before the Completion Date. [No data needed if this statement is included]

4 Testing and Defects

42.2 The defects date is 52 weeks after Completion of the whole of the works.

43.2 The defect correction period is 4 weeks

5 Payment

50.1 The assessment interval is 25th day of each successive month.

51.1 The currency of this contract is the South African Rand.

51.2 The period within which payments are made is 30 days.

51.4 The interest rate is

the publicly quoted prime rate of interest (calculated on a 365 day year) charged from time to time by the Standard Bank of South Africa Limited (as certified, in the event of any dispute, by any manager of such bank, whose appointment it shall not be necessary to prove) for amounts due in Rands and

(ii) the LIBOR rate applicable at the time for amounts due in other currencies. LIBOR is the 6 month London Interbank Offered Rate quoted under the caption “Money Rates” in The Wall Street Journal for the applicable currency or if no rate is quoted for the currency in question then the rate for United States Dollars, and if no such rate appears in The Wall Street Journal then the rate as quoted by the Reuters Monitor Money Rates Service (or such service as may replace the Reuters Monitor Money Rates Service) on the due date for the payment in question, adjusted mutatis mutandis every 6 months thereafter and as certified, in the event of any dispute, by any manager employed in the foreign exchange department of The Standard Bank of South Africa Limited, whose appointment it shall not be necessary to prove.

6 Compensation events

60.1(13) The place where weather is to be recorded is: Weather Station Gariep Dam

The weather measurements to be recorded for each calendar month are,

the cumulative rainfall (mm)

the number of days with rainfall more than 10 mm
the number of days with minimum air temperature less than 0 degrees Celsius

the number of days with snow lying at 09:00 hours South African Time

and these measurements:

The weather measurements are supplied by

South African Weather Bureau

The weather data are the records of past weather measurements for each calendar month which were recorded at:

Weather Station Gariep Dam

and which are available from:

the South African Weather Bureau and included in Annexure A to this Contract Data provided by the Employer

7 Title

There is no reference to Contract Data in this section of the core clauses and terms in italics used in this section are identified elsewhere in this Contract Data.

8 Risks and insurance

80.1 These are additional Employer's risks

1. Slip and fall on uneven surfaces

2. Falling from an elevated position

3. Burning, electrocution, cuts

84.1 The Employer is to provide insurances as stated in the Insurance Table

<table>
<thead>
<tr>
<th>Insurance against</th>
<th>Minimum amount of cover or minimum limit of indemnity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets All Risk</td>
<td>As per the insurance policy document.</td>
</tr>
<tr>
<td>Project insurance</td>
<td>As per the insurance policy document.</td>
</tr>
<tr>
<td>Environmental Liability</td>
<td>As per the insurance policy document.</td>
</tr>
<tr>
<td>General and Public Liability</td>
<td>As per the insurance policy document.</td>
</tr>
<tr>
<td>Transportation (Marine)</td>
<td>As per the insurance policy document.</td>
</tr>
<tr>
<td>Motor Fleet and Mobile Plant</td>
<td>As per the insurance policy document.</td>
</tr>
<tr>
<td>Terrorism</td>
<td>As per the insurance policy document.</td>
</tr>
<tr>
<td>Cyber Liability</td>
<td>As per the insurance policy document.</td>
</tr>
</tbody>
</table>

84.1 The Contractor provides the insurances stated in the Insurance Table.

The insurances provide cover for events which are at the Contractor's risk from the starting date until the Defects Certificate or a termination certificate has been issued.

<table>
<thead>
<tr>
<th>Insurance against</th>
<th>Minimum amount of cover or minimum limit of indemnity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of or damage to the works, Plant and Materials</td>
<td>The replacement cost where not covered by the Employer's insurance.</td>
</tr>
<tr>
<td><strong>Loss of or damage to Equipment</strong></td>
<td>The replacement cost</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td><strong>Liability for loss of or damage to property (except the works, Plant and Materials and Equipment) and liability for bodily injury to or death of a person (not an employee of the Contractor) caused by activity in connection with this contract</strong></td>
<td><strong>Loss of or damage to property</strong>&lt;br&gt;Employer’s property&lt;br&gt;The replacement cost where not covered by the Employer’s insurance.&lt;br&gt;The Employer’s policy deductible as at contract date, where covered by the Employer’s insurance.&lt;br&gt;Other property&lt;br&gt;The replacement cost.&lt;br&gt;Bodily injury to or death of a person&lt;br&gt;The amount required by applicable law.&lt;br&gt;Liability for death of or bodily injury to employees of the Contractor arising out of and in the course of their employment in connection with this contract&lt;br&gt;The amount required by the applicable law.</td>
</tr>
</tbody>
</table>

### 9 Termination

There is no reference to Contract Data in this section of the core clauses and terms in italics used in this section are identified elsewhere in this Contract Data.

### 10 Data for main Option clause

**A** Priced contract with activity schedule

There is no reference to Contract Data in this Option and terms in italics are identified elsewhere in this Contract Data.

### 11 Data for Option W1

**W1.1** The *Adjudicator* is the person selected from the ICE-SA Division (or its successor body) of the South African Institution of Civil Engineering Panel of Adjudicators by the Party intending to refer a dispute to him. (see www.ice-sa.org.za). If the Parties do not agree on an Adjudicator the Adjudicator will be appointed by the Arbitration Foundation of Southern Africa (AFSA).

**W1.2(3)** The *Adjudicator nominating body* is: the Chairman of ICE-SA a joint Division of the South African Institution of Civil Engineering and the London Institution of Civil Engineers. (See www.ice-sa.org.za) or its successor body.

**W1.4(2)** The *tribunal* is: arbitration.

**W1.4(5)** The *arbitration procedure* is the latest edition of Rules for the Conduct of Arbitrations published by The Association of Arbitrators (Southern Africa) or its successor body.
The place where arbitration is to be held is Cape Town (Western Cape) South Africa

The person or organisation who will choose an arbitrator - if the Parties cannot agree a choice or - if the arbitration procedure does not state who selects an arbitrator, is the Chairman for the time being or his nominee of the Association of Arbitrators (Southern Africa) or its successor body.

12 Data for secondary Option clauses

<table>
<thead>
<tr>
<th>X1</th>
<th>Price adjustment for Inflation</th>
<th>TBC</th>
</tr>
</thead>
<tbody>
<tr>
<td>X2</td>
<td>Changes in the law</td>
<td>There is no reference to Contract Data in this Option and terms in italics are identified elsewhere in this Contract Data.</td>
</tr>
<tr>
<td>X7</td>
<td>Delay damages</td>
<td></td>
</tr>
<tr>
<td>X7.1</td>
<td>Delay damages for Completion of the whole of the works are</td>
<td>0.2% per day (6% per month) Up to a maximum of 15% of the Prices</td>
</tr>
<tr>
<td>X15</td>
<td>Limitation of the Contractor’s liability for his design to reasonable skill &amp; care</td>
<td>There is no reference to Contract Data in this Option and terms in italics are identified elsewhere in this Contract Data.</td>
</tr>
<tr>
<td>X16</td>
<td>Retention</td>
<td></td>
</tr>
<tr>
<td>X16.1</td>
<td>The retention free amount is</td>
<td>R0.00</td>
</tr>
<tr>
<td></td>
<td>The retention percentage is</td>
<td>10% of the Prices (5% on completion, 5% when defects certificate is issued)</td>
</tr>
<tr>
<td>X18</td>
<td>Limitation of liability</td>
<td></td>
</tr>
<tr>
<td>X18.1</td>
<td>The Contractor’s liability to the Employer for indirect or consequential loss is limited to:</td>
<td>R0.0 (zero Rand)</td>
</tr>
<tr>
<td>X18.2</td>
<td>For any one event, the Contractor’s liability to the Employer for loss of or damage to the Employer’s property is limited to:</td>
<td>the amount of the deductibles relevant to the event</td>
</tr>
</tbody>
</table>
| X18.3       | The Contractor’s liability for Defects due to his design which are not listed on the Defects Certificate is limited to | The greater of
  • the total of the Prices at the Contract Date and
  • the amounts excluded and unrecoverable from the Employer’s assets policy for correcting the Defect (other than the resulting physical damage which is not excluded) plus R15M first amount payable in terms of the Employer’s assets policy. |
| X18.4       | The Contractor’s total liability to the Employer for all matters arising under or in connection with this contract, other than excluded matters, is limited to: | the total of the Prices other than for the additional excluded matters. |
|             | The Contractor’s total liability for the additional excluded matters is not limited. |
|             | The additional excluded matters are amounts |
for which the Contractor is liable under this contract for

- Defects due to his design which arise before the Defects Certificate is issued,
- Defects due to manufacture and fabrication outside the Site,
- loss of or damage to property (other than the works, Plant and Materials),
- death of or injury to a person and
- infringement of an intellectual property right.

X18.5 The end of liability date is

(i) 15 years after the defects date for latent Defects and

(ii) the date on which the liability in question prescribes in accordance with the Prescription Act No. 68 of 1969 (as amended or in terms of any replacement legislation) for any other matter.

A latent Defect is a Defect which would not have been discovered on reasonable inspection by the Employer or the Supervisor before the defects date, without requiring any inspection not ordinarily carried out by the Employer or the Supervisor during that period. If the Employer or the Supervisor do undertake any inspection over and above the reasonable inspection, this does not place a greater responsibility on the Employer or the Supervisor to have discovered the Defect.

Z The Additional conditions of contract are

Z1 Cession delegation and assignment

Z1.1 The Contractor does not cede, delegate or assign any of its rights or obligations to any person without the written consent of the Employer.

Z1.2 Notwithstanding the above, the Employer may on written notice to the Contractor cede and delegate its rights and obligations under this contract to any of its subsidiaries or any of its present divisions or operations which may be converted into separate legal entities as a result of the restructuring of the Electricity Supply Industry.

Z2 Joint ventures

Z2.1 If the Contractor constitutes a joint venture, consortium or other unincorporated grouping of two or more persons or organisations then these persons or organisations are deemed to be jointly and severally liable to the Employer for the performance of this contract.

Z2.2 Unless already notified to the Employer, the persons or organisations notify the Project Manager within two weeks of the Contract Date of the key person who has the authority to bind the Contractor on their behalf.

Z2.3 The Contractor does not alter the composition of the joint venture, consortium or other
unincorporated grouping of two or more persons without the consent of the Employer having been given to the Contractor in writing.

Z3 Change of Broad Based Black Economic Empowerment (B-BBEE) status

Z3.1 Where a change in the Contractor’s legal status, ownership or any other change to his business composition or business dealings results in a change to the Contractor's B-BBEE status, the Contractor notifies the Employer within seven days of the change.

Z3.2 The Contractor is required to submit an updated verification certificate and necessary supporting documentation confirming the change in his B-BBEE status to the Project Manager within thirty days of the notification or as otherwise instructed by the Project Manager.

Z3.3 Where, as a result, the Contractor’s B-BBEE status has decreased since the Contract Date the Employer may either re-negotiate this contract or alternatively, terminate the Contractor's obligation to Provide the Works.

Z3.4 Failure by the Contractor to notify the Employer of a change in its B-BBEE status may constitute a reason for termination. If the Employer terminates in terms of this clause, the procedures on termination are P1, P2 and P3 as stated in clause 92, and the amount due is A1 and A3 as stated in clause 93.

Z4 Confidentiality

Z4.1 The Contractor does not disclose or make any information arising from or in connection with this contract available to Others. This undertaking does not, however, apply to information which at the time of disclosure or thereafter, without default on the part of the Contractor, enters the public domain or to information which was already in the possession of the Contractor at the time of disclosure (evidenced by written records in existence at that time). Should the Contractor disclose information to Others in terms of clause 25.1, the Contractor ensures that the provisions of this clause are complied with by the recipient.

Z4.2 If the Contractor is uncertain about whether any such information is confidential, it is to be regarded as such until notified otherwise by the Project Manager.

Z4.3 In the event that the Contractor is, at any time, required by law to disclose any such information which is required to be kept confidential, the Contractor, to the extent permitted by law prior to disclosure, notifies the Employer so that an appropriate protection order and/or any other action can be taken if possible, prior to any disclosure. In the event that such protective order is not, or cannot, be obtained, then the Contractor may disclose that portion of the information which it is required to be disclosed by law and uses reasonable efforts to obtain assurances that confidential treatment will be afforded to the information so disclosed.

Z4.4 The taking of images (whether photographs, video footage or otherwise) of the works or any portion thereof, in the course of Providing the Works and after Completion, requires the prior written consent of the Project Manager. All rights in and to all such images vests exclusively in the Employer.

Z4.5 The Contractor ensures that all his subcontractors abide by the undertakings in this clause.

Z5 Waiver and estoppel: Add to core clause 12.3:

Z5.1 Any extension, concession, waiver or relaxation of any action stated in this contract by the Parties, the Project Manager, the Supervisor, or the Adjudicator does not constitute a waiver of rights, and does not give rise to an estoppel unless the Parties agree otherwise and confirm such agreement in writing.
Z6 Health, safety and the environment: Add to core clause 27.4

Z6.1 The Contractor undertakes to take all reasonable precautions to maintain the health and safety of persons in and about the execution of the works. Without limitation the Contractor:

- accepts that the Employer may appoint him as the “Principal Contractor” (as defined and provided for under the Construction Regulations 2014 (promulgated under the Occupational Health & Safety Act 85 of 1993) (“the Construction Regulations”) for the Site;
- warrants that the total of the Prices as at the Contract Date includes a sufficient amount for proper compliance with the Construction Regulations, all applicable health & safety laws and regulations and the health and safety rules, guidelines and procedures provided for in this contract and generally for the proper maintenance of health & safety in and about the execution of works; and
- undertakes, in and about the execution of the works, to comply with the Construction Regulations and with all applicable health & safety laws and regulations and rules, guidelines and procedures otherwise provided for under this contract and ensures that his Subcontractors, employees and others under the Contractor’s direction and control, likewise observe and comply with the foregoing.

Z6.2 The Contractor, in and about the execution of the works, complies with all applicable environmental laws and regulations and rules, guidelines and procedures otherwise provided for under this contract and ensures that his Subcontractors, employees and others under the Contractor’s direction and control, likewise observe and comply with the foregoing.

Z7 Provision of a Tax Invoice and interest. Add to core clause 51

Z7.1 Within one week of receiving a payment certificate from the Project Manager in terms of core clause 51.1, the Contractor provides the Employer with a tax invoice in accordance with the Employer's procedures stated in the Works Information, showing the amount due for payment equal to that stated in the payment certificate.

Z7.2 If the Contractor does not provide a tax invoice in the form and by the time required by this contract, the time by which the Employer is to make a payment is extended by a period equal in time to the delayed submission of the correct tax invoice. Interest due by the Employer in terms of core clause 51.2 is then calculated from the delayed date by when payment is to be made.

Z7.3 The Contractor (if registered in South Africa in terms of the companies Act) is required to comply with the requirements of the Value Added Tax Act, no 89 of 1991 (as amended) and to include the Employer's VAT number 4740101508 on each invoice he submits for payment.

Z8 Notifying compensation events

Z8.1 Delete from the last sentence in core clause 61.3, “unless the Project Manager should have notified the event to the Contractor but did not”.

Z9 Employer’s limitation of liability

Z9.1 The Employer's liability to the Contractor for the Contractor’s indirect or consequential loss is limited to R0.00 (zero Rand)

Z9.2 The Contractor's entitlement under the indemnity in 83.1 is provided for in 60.1(14) and the Employer's liability under the indemnity is limited.

Z10 Termination: Add to core clause 91.1, at the second main bullet point, fourth sub-bullet point, after the words "against it":

Z10.1 or had a business rescue order granted against it.
Z11 Addition to secondary Option X7 Delay damages (if applicable in this contract)

Z11.1 If the amount due for the Contractor's payment of delay damages reaches the limits stated in this Contract Data for Option X7 or Options X5 and X7 used together, the Employer may terminate the Contractor's obligation to Provide the Works using the same procedures and payment on termination as those applied for reasons R1 to R15 or R18 stated in the Termination Table.

Z12 Ethics

For the purposes of this Z-clause, the following definitions apply:

Affected Party means, as the context requires, any party, irrespective of whether it is the Contractor or a third party, such party's employees, agents, or Subcontractors or Subcontractor’s employees, or any one or more of all of these parties’ relatives or friends,

Coercive Action means to harm or threaten to harm, directly or indirectly, an Affected Party or the property of an Affected Party, or to otherwise influence or attempt to influence an Affected Party to act unlawfully or illegally,

Collusive Action means where two or more parties co-operate to achieve an unlawful or illegal purpose, including to influence an Affected Party to act unlawfully or illegally,

Committing Party means, as the context requires, the Contractor, or any member thereof in the case of a joint venture, or its employees, agents, or Subcontractors or the Subcontractor's employees,

Corrupt Action means the offering, giving, taking, or soliciting, directly or indirectly, of a good or service to unlawfully or illegally influence the actions of an Affected Party,

Fraudulent Action means any unlawfully or illegally intentional act or omission that misleads, or attempts to mislead, an Affected Party, in order to obtain a financial or other benefit or to avoid an obligation or incurring an obligation,

Obstructive Action means a Committing Party unlawfully or illegally destroying, falsifying, altering or concealing information or making false statements to materially impede an investigation into allegations of Prohibited Action and

Prohibited Action means any one or more of a Coercive Action, Collusive Action Corrupt Action, Fraudulent Action or Obstructive Action.

Z 12.1 A Committing Party may not take any Prohibited Action during the course of the procurement of this contract or in execution thereof.

Z 12.2 The Employer may terminate the Contractor's obligation to Provide the Works if a Committing Party has taken such Prohibited Action and the Contractor did not take timely and appropriate action to prevent or remedy the situation, without limiting any other rights or remedies the Employer has. It is not required that the Committing Party had to have been found guilty, in court or in any other similar process, of such Prohibited Action before the Employer can terminate the Contractor's obligation to Provide the Works for this reason.

Z 12.3 If the Employer terminates the Contractor's obligation to Provide the Works for this reason, the procedures and amounts due on termination are respectively P1, P2 and P3, and A1 and A3.
Z 12.4 A Committing Party co-operates fully with any investigation pursuant to alleged Prohibited Action. Where the Employer does not have a contractual bond with the Committing Party, the Contractor ensures that the Committing Party co-operates fully with an investigation.
C1.2 Contract Data

Part two - Data provided by the Contractor

Notes to a tendering contractor:

1. Please read both the NEC3 Engineering and Construction Contract (April 2013) and the relevant parts of its Guidance Notes (ECC3-GN)\(^2\) in order to understand the implications of this Data which the tenderer is required to complete. An example of the completed Data is provided on pages 156 to 158 of the ECC3 (April 2013) Guidance Notes.
2. The number of the clause which requires the data is shown in the left hand column for each statement however other clauses may also use the same data.
3. Where a form field like this [ ] appears, data is required to be inserted relevant to the option selected. Click on the form field once and type in the data. Otherwise complete by hand and in ink.

Completion of the data in full, according to Options chosen, is essential to create a complete contract.

<table>
<thead>
<tr>
<th>Clause</th>
<th>Statement</th>
<th>Data</th>
</tr>
</thead>
</table>
| 10.1   | The Contractor is (Name):  
          Address  
          Tel No.  
          Fax No. |  
| 11.2(8) | The direct fee percentage is  
          The subcontracted fee percentage is | %  
| 11.2(18)| The working areas are the Site and |  
| 24.1   | The Contractor's key persons are:  
          1 Name:  
          Job:  
          Responsibilities:  
          Qualifications:  
          Experience: |  
|        | 2 Name:  
          Job  
          Responsibilities:  
          Qualifications:  
          Experience: |  

CV’s (and further key persons data including CVs) are appended to Tender Schedule entitled

---

\(^2\) Available from Engineering Contract Strategies Tel 011 803 3008, Fax 011 803 3009 or see www.ecs.co.za
| 11.2(3) | The completion date for the whole of the works is |
| 11.2(14) | The following matters will be included in the Risk Register |
| 11.2(19) | The Works Information for the Contractor's design is in: |
| 31.1 | The programme identified in the Contract Data is |

### A Priced contract with activity schedule

| 11.2(20) | The activity schedule is in |
| 11.2(30) | The tendered total of the Prices is **(in figures)** |

**(in words), excluding VAT**

### Data for Schedules of Cost Components

*Note “SCC” means Schedule of Cost Components starting on page 60, and “SSCC” means Shorter Schedule of Cost Components starting on page 63 of ECC3 (April 2013).*

**A Priced contract with activity schedule**

<table>
<thead>
<tr>
<th>Data for the Shorter Schedule of Cost Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>41 in SCC</td>
</tr>
<tr>
<td>21 in SCC</td>
</tr>
<tr>
<td>22 in SCC</td>
</tr>
<tr>
<td><strong>Equipment</strong></td>
</tr>
<tr>
<td>61 in SCC</td>
</tr>
<tr>
<td><strong>Category of employee</strong></td>
</tr>
</tbody>
</table>

*Note: Hourly rates are estimated ‘cost to company of the employee’ and not selling rates. Please insert another schedule if foreign resources may also be used.*
<table>
<thead>
<tr>
<th></th>
<th></th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>62 in</td>
<td>The percentage for design overheads is</td>
<td></td>
</tr>
<tr>
<td>SSCC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>63 in</td>
<td>The categories of design employees whose travelling expenses to and from the Working Areas are included in Defined Cost are:</td>
<td></td>
</tr>
<tr>
<td>SCC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>63 in</td>
<td>The categories of design employees whose travelling expenses to and from the Working Areas are included as a cost of design of the works and Equipment done outside the Working Areas are:</td>
<td></td>
</tr>
<tr>
<td>SCC &amp;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCCC</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PART 2: PRICING DATA
ECC3 Option A

<table>
<thead>
<tr>
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<th>Title</th>
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<tbody>
<tr>
<td>C2.1</td>
<td>Pricing assumptions: Option A</td>
</tr>
<tr>
<td>C2.2</td>
<td>The activity schedule</td>
</tr>
</tbody>
</table>
C2.1 Pricing assumptions: Option A

How work is priced and assessed for payment

Clause 11 in NEC3 Engineering and Construction Contract, (ECC3) Option A states:

Identified and defined terms 11
(20) The Activity Schedule is the activity schedule unless later changed in accordance with this contract.

(27) The Price for Work Done to Date is the total of the Prices for

- each group of completed activities and
- each completed activity which is not in a group.

A completed activity is one which is without Defects which would either delay or be covered by immediately following work.

(30) The Prices are the lump sum prices for each of the activities on the Activity Schedule unless later changed in accordance with this contract.

This confirms that Option A is a lump sum form of contract where the work is broken down into activities, each of which is priced by the tendering contractor as a lump sum. Only completed activities are assessed for payment at each assessment date; no part payment is made if the activity is not completed by the assessment date.

Function of the Activity Schedule

Clause 54.1 in Option A states: “Information in the Activity Schedule is not Works Information or Site Information”. This confirms that specifications and descriptions of the work or any constraints on how it is to be done are not included in the Activity Schedule but in the Works Information. This is further confirmed by Clause 20.1 which states, “The Contractor Provides the Works in accordance with the Works Information”. Hence the Contractor does not Provide the Works in accordance with the Activity Schedule. The Activity Schedule is only a pricing document.

Link to the programme

Clause 31.4 states that “The Contractor provides information which shows how each activity on the Activity Schedule relates to the operations on each programme which he submits for acceptance”. Ideally the tendering contractor will develop a high level programme first then resource each activity and thus arrive at the lump sum price for that activity both of which can be entered into the activity schedule.

Preparing the activity schedule

Generally it is the tendering contractor who prepares the activity schedule by breaking down the work described within the Works Information into suitable activities which can be well defined, shown on a programme and priced as a lump sum.

The Employer, in his Instructions to Tenderers or in a Tender Schedule, may have listed some items that he requires the Contractor to include in his activity schedule and be priced accordingly.

It is assumed that in preparing his activity schedule the Contractor:
Has taken account of the guidance given in the ECC3 Guidance Notes pages 19 and 20;
Understands the function of the Activity Schedule and how work is priced and paid for;
Is aware of the need to link the Activity Schedule to activities shown on his programme;
Has listed and priced activities in the activity schedule which are inclusive of everything necessary and incidental to Providing the Works in accordance with the Works Information, as it was at the time of tender, as well as correct any Defects not caused by an Employer’s risk;
Has priced work he decides not to show as a separate activity within the Prices of other listed activities in order to fulfil the obligation to complete the works for the tendered total of the Prices.
Understands there is no adjustment to the lump sum Activity Schedule price if the amount, or quantity, of work within that activity later turns out to be different to that which the Contractor estimated at time of tender. The only basis for a change to the Prices is as a result of a compensation event.

An activity schedule could have the following format:

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Programme Reference</th>
<th>Activity description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>Design Accepted</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Manufacturing Complete</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>Pre-implementation Documentation</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>Delivery to site</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>Installation Completed</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>Commissioning Completed</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>As Built Drawings and documentation</td>
<td></td>
</tr>
</tbody>
</table>
C2.2 the *activity schedule*

Use this page as a cover page to the Contractor's *activity schedule*.
PART 3: SCOPE OF WORK

<table>
<thead>
<tr>
<th>Document reference</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>This cover page</td>
</tr>
<tr>
<td>C3.1</td>
<td>Employer’s Works Information</td>
</tr>
<tr>
<td>C3.2</td>
<td>Contractor’s Works Information</td>
</tr>
</tbody>
</table>
C3.1: EMPLOYER'S WORKS INFORMATION

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1 Description of the works

1.1 Executive overview

The works makes provision for the design, manufacture, factory acceptance testing, supply, transport, delivery and offloading, installation, and commissioning of four submersible sump pump/motors and associated equipment such as discharge connections, piping, valves, fittings and other accessories to enable satisfactory operation and fitness for purpose of the drainage system for Gariep Power Station.

Gariep Hydro Power Station has a nominal generating capacity of 360 MW which is produced from four 90 MW Francis type vertical turbine generator/pump sets. The power station is situated just north of Colesberg, on the banks of the Gariep Dam and Orange River. Construction of the station started in 1970's and the station has been in operation ever since commissioning.

The power station is installed with three principle sumps for the collection of waste water, these sumps being the Main Drainage Sump and the Station Auxiliary Sump and the Drainage Gallery Sump.

All waste water from the power station is collected in these sumps and is periodically pumped out into the river. The Main Sump and the Auxiliary Sump are drained automatically by the action of pumps controlled by a system of level sensing detectors.

There are 2 Auxiliary sumps, one for units 1 & 2 (Sump A) and one for units 3 & 4 (Sump B). The existing Auxiliary sumps at Gariep are equipped with 2 vertical turbine pumps per sump and the sumps are 5.5m deep. Each pump has 3 stages and has a total capacity of 22.5 litres per second. The pumps are driven by 11kW rated motors. The auxiliary sumps are of the open design type and collects from adjacent machines general leakage water and/or seepage water in the power station.

The Auxiliary Sumps are located at 1190.23 masl, three levels below the surface floor level of the machine hall in the Main Inlet Valve Pit Area.

The following sources leads into the auxiliary sump:

- Leakage water from the turbine covers (shaft seal and the top guide vane seals)
- Overflow from the treated sewage settling tank,
- Spiral casing air release valve run-off and
- Stator coolers

After more than 40 years of operation, the auxiliary pumps are experiencing repetitive failures and have reached the end of their design life, hence the reason for replacement of the pumps.

To maintain the integrity of the station drainage system, the old sump pumps is replaced with new submersible sump pumps and interfaces to the existing control system.
1.2 **Employer's objectives and purpose of the works**

The Employer's objective is the installation of new sump pumps and other necessary equipment replacing the existing APE vertical shaft drainage pumps. The pumps have the capacity to remove water from the auxiliary sump at sufficient flow rates. Pumps meet all technical requirements as a minimum and are fit for purpose.

1.3 **Interpretation and terminology**

Submersible pump - The submersible pump refers to the close couple fully submersible sump pump used for drainage purposes.

The following abbreviations are used in this Works Information:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning given to the abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Ampere</td>
</tr>
<tr>
<td>AFC</td>
<td>Approved for construction</td>
</tr>
<tr>
<td>DOL</td>
<td>Direct OnLine</td>
</tr>
<tr>
<td>Iₙ</td>
<td>Nominal Current</td>
</tr>
<tr>
<td>ISO</td>
<td>International standardization organization</td>
</tr>
<tr>
<td>OBL</td>
<td>Outside battery limits</td>
</tr>
<tr>
<td>PQP</td>
<td>Project Quality Plan</td>
</tr>
<tr>
<td>PVC</td>
<td>Polyvinyl Chloride</td>
</tr>
<tr>
<td>QA</td>
<td>Quality Assurance</td>
</tr>
<tr>
<td>QC</td>
<td>Quality Control</td>
</tr>
<tr>
<td>QCP</td>
<td>Quality Control Plan</td>
</tr>
<tr>
<td>SWA</td>
<td>Steel Wired Armoured</td>
</tr>
<tr>
<td>TOR</td>
<td>Thermal Overload Relay</td>
</tr>
</tbody>
</table>
2 Management and start up.

2.1 Management meetings
Meetings of a specialist nature are convened as specified elsewhere in this Works Information or if not so specified by persons and at times and locations to suit the Parties, the nature and the progress of the works. Records of these meetings are submitted to the Project Manager by the person convening the meeting within five days of the meeting.

All meetings are recorded using minutes or a register prepared and circulated by the person who convened the meeting. Such minutes or register is not used for the purpose of confirming actions or instructions under the contract as these are done separately by the person identified in the conditions of contract to carry out such actions or instructions.

2.2 Documentation control
All contractual communications will be through formal compiled letters or forms on the company's letterhead, attached to e-mails and not as a message in the e-mail itself.

2.3 Health and safety risk management
The Contractor complies with the health and safety requirements contained in Annexure A to this Works Information.

2.4 Environmental constraints and management
- The Contractor's attention is drawn to the fact that the Employer's Power Station is situated in highly sensitive areas with respect to the environment.
- The Contractor acquaints himself with all statutory and local environment regulations and adheres to these without exception.
- The Contractor complies with the Hazardous Chemical Regulations when using any hazardous chemicals, as well as complying with the requirements of the National Environmental Management Act of 1988.

2.5 Quality assurance requirements
- The programming of inspections, hold and witness points is agreed between the Employer and the Contractor prior to undertaking any work.
- The program of inspections must contained all relevant referenced documentation and drawings for each inspection, hold and witness points as agreed between the Employer and Contractor.
- In the event of sub-contracting, the Contractor must define the level of QA/QC or inspection imposed on his Sub-Contractors and suppliers.
- All technical design and implementation documentation and PQP are submitted to the Employer for Acceptance prior to the works.
- The Contractor is made aware that all documents or designs submitted for review to the Employer for Acceptance, requires a process of review.

2.6 Programming constraints
The Contractor submits a bar chart programme in MS Project format, detailing how the works are executed within the stipulated dates.
The programme indicates the starting date, completion date and duration of each activity.
2.7 **Contractor’s management, supervision and key people**

- The Contractor does not modify any plant or materials unless accepted by the Project Manager prior to implementation.
- The Contractor notifies the Project Manager at least three days in advance of a Hold or Witness point on the works.
- The Contractor informs the Project Manager of any Defect found.
- The Contractor does not operate any Equipment on Site, unless specific authorisation is obtained from the Employer.
- The Contractor makes arrangements for the use of the available workshop Equipment and Site specific tools.

2.8 **Invoicing and payment**

- a) Within one week of receiving a payment certificate from the Project Manager in terms of core clause 51.1, the Contractor submits a tax invoice to the Employer, showing the amount due for payment equal to that stated in the Project Manager’s payment certificate.
- b) The Project Manager to be copied in on all electronic invoices emailed.
- c) Failure to submit the invoice to the correct address could result in delays in payment.
- d) The Contractor’s Tax Invoices comply with the requirements as stated in clause Z7 of the Contract Data
- e) Invoices are submitted electronically to:
  - Local Eskom Invoices - invoiceseskomlocal@eskom.co.za
- f) Details required when submitting invoices and additional data:
  - The subject line on your email should only contain your vendor number
  - Each invoice in PDF should be named with your invoice number only
  - All electronic invoices must be sent in PDF format only
  - Attach the proof of delivery to your invoice
  - Where applicable, supporting documents must be attached to the scanned PDF invoice as one attachment
  - A copy of the signed assessment certificate
  - CPA calculation sheet
  - Retention Certificate where it is a retention invoice
  - Any other appropriate documents, e.g.
    - For shipping invoices, please ensure the following documents are attached
    - Invoice (this should only reflect the shipping cost)
    - Commercial invoice
    - Delivery note
    - Your shipping costs calculation relevant to that invoice – not a generic calculation (The amount of the shipping costs calculation must balance on the amount on the invoice.)
    - Forwarding agent’s invoice
    - The customs document
  - Please do not attach unnecessary documents as this will make the file too large
- g) Other requirements:
  - For foreign invoices, suppliers will still be required to physically deliver hard copies of original documents to the respective Document Management centres even though the invoices have been submitted electronically
  - Ensure compliance with the tax requirements for submitting invoices electronically
  - Each PDF should contain one credit note, one debit note or one credit note only. More than one invoice can be submitted per email
  - Any CPA applicable must be invoiced separately, so that if there are issues on the CPA, the rest of the invoices can be paid while the CPA issues are resolved
- h) Include the following information on the Invoice:
2.9 Insurance provided by the Employer
Insurance by the Employer is managed in accordance with section 87 of the core clauses in ECC3.

2.10 Contract change management
Contract change management is managed in accordance with section 6 of the core clauses in ECC3. In summary, in the event that the Employer/Contractor notices a change, an event register is issued. If the event/change has cost implications then a quotation is submitted with the event register. The Project Manager assesses the quotation and gives an instruction in writing to the Contractor.

2.11 Provision of bonds and guarantees
The form in which a bond or guarantee required by the conditions of contract (if any) is provided by the Contractor is given in Part 1 Agreements and Contract Data, document C1.3, Sureties.

The Employer may withhold payment of amounts due to the Contractor until the bond or guarantee required in terms of this contract has been received and accepted by the person notified to the Contractor by the Project Manager to receive and accept such bond or guarantee. Such withholding of payment due to the Contractor does not affect the Employer’s right to termination stated in this contract.

2.12 Records of Defined Cost, payments & assessments of compensation events kept by the Contractor
In order to substantiate the Defined Cost of compensation events, the Employer requires the Contractor to keep records of amounts paid by him, in the following format:

<table>
<thead>
<tr>
<th>Type of cost</th>
<th>Type of Record</th>
</tr>
</thead>
<tbody>
<tr>
<td>People employed by the Contractor (labour)</td>
<td>Signed timesheets</td>
</tr>
<tr>
<td>Materials</td>
<td>Register of materials used</td>
</tr>
<tr>
<td>Equipment</td>
<td>Register of Equipment used</td>
</tr>
</tbody>
</table>

2.13 Training workshops and technology transfer
- Training for maintenance personnel is included to insure the safe operation and proper maintenance requirements are met. The Employer's Maintenance staff is involved in the installation and of the equipment.

- Maintenance manuals are required for routine and corrective maintenance.
3 Engineering and the Contractor’s design

3.1 Employer’s design

3.1.1 System Overview
The Auxiliary sump system collects gland and guide vane leakage water from the turbine into the auxiliary sump and evacuates the water into the tailrace via pumping systems. There are 2 auxiliary sumps located in the station, sump A which services Unit 1, and 2 and sump B which services units 3 and 4.

3.1.2 System Description
The Auxiliary Sump System is comprised of the following equipment and components:

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Quantity</th>
<th>Informative</th>
<th>Replacement/Modification/Removal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auxiliary Sump</td>
<td>2 off</td>
<td>Sump A and Sump B</td>
<td>-</td>
</tr>
<tr>
<td>Sump Pump-Motor Set</td>
<td>4 off, 2 per sump</td>
<td>Vertical Turbine Pump</td>
<td>Replacement</td>
</tr>
<tr>
<td>Sump Pump Local Control Panel</td>
<td>2 off, 1 per sump</td>
<td>Level Control for Sump</td>
<td>-</td>
</tr>
<tr>
<td>Instrumentation</td>
<td>4 off, 2 per sump</td>
<td>Level Sensor for control and alarms</td>
<td>-</td>
</tr>
<tr>
<td>Discharge Piping</td>
<td>2 off, 1 per sump</td>
<td>Spool Piece between pump discharge and Non-return Valve</td>
<td>Replacement</td>
</tr>
<tr>
<td>Oil Lubrication System</td>
<td>2 off, 1 per sump</td>
<td>Lubrication system for vertical pump</td>
<td>Removal</td>
</tr>
<tr>
<td>Rope Oil Skimmer</td>
<td>2 off, 1 per sump</td>
<td>Hydrocarbon removal system for sump</td>
<td>-</td>
</tr>
<tr>
<td>Sump Floor Grating</td>
<td>2 off, 1 per sump</td>
<td>Cover for walkway and safety</td>
<td>Modification / Replacement</td>
</tr>
<tr>
<td>Thermal Overload Relay</td>
<td>4 off, 1 per board</td>
<td>Sprecher &amp; Schuh CT1-25 (Existing)</td>
<td>Replacement</td>
</tr>
<tr>
<td>Contactor</td>
<td>4 off, 1 per board</td>
<td>Sprecher &amp; Schuh CA1-150 (Existing)</td>
<td>Replacement</td>
</tr>
<tr>
<td>Mounting board/s</td>
<td>4 off, 1 per board</td>
<td>To mount TOR, contactor and fuses inside switchgear panel</td>
<td>Replacement</td>
</tr>
<tr>
<td>Power Fuses &amp; Fuse base and holder</td>
<td>12 off, 3 per board</td>
<td>Power fuses for motor protection Type 2 coordination, (fuse switch disconnectors)</td>
<td>Replacement</td>
</tr>
<tr>
<td>Junction Box</td>
<td>4 off, 1 per sump</td>
<td>Termination point for power supply, separation between submersible and non-submersible supply (Not currently installed)</td>
<td>Modification</td>
</tr>
<tr>
<td>Power Supply Cable</td>
<td>4 off, 1 per motor</td>
<td>3 Core PVC SWA,16mm² PVC</td>
<td>Modification</td>
</tr>
</tbody>
</table>
3.1.3 Technical Specification

3.1.3.1 Pump Specifications
- The pumps are of the fully submersible pump/motor type.
- The pumps are of centrifugal type.
- Pump/motor set dimensions are suitable for the sump.
- Design head of 24 m with minimum of 22 l/s flowrate.
- The maximum flowrate to not exceed 47.5 l/s.
- Operation from a range of 20 m to 24 m head.
- The pump has a maximum shut-off head below 40 m.
- The NPSH required of the pump is below 8m

3.1.3.2 Motor Specifications
- The motor specification is dependent on the pumping requirements as the pump/motor is a readily assembled unit.
- The power supply is 380V, 3phase, 50Hz.
- The motor is a 4 pole motor with a rated power of 10 kW – 13.5 kW, and a starting current of 6-8 times In for a DOL start up.
- A submersible cable connected to the motor/pump including a junction box which is mounted next to the control panel. The termination box with be the point of connection for the old/currently used cable and the new submersible cable. The Termination box allows for segregation between the different phases and it is lockable.
- Cable currently supplying the individual motors is 3 Core PVC SWA,16mm² PVC, cables are reused as mentioned above.

3.1.3.3 Piping Specifications
The discharge pipe has a socket welded on for the installation of an isolating valve and a pressure gauge. The layout of the piping design is fabricated according to Figure 1.
The discharge and instrumentation piping conforms to the following design specifications.

- The discharge pipe interfaces to the existing 150 NB pipe work.
- Piping and associated components on the pipe discharge system is rated for a design pressure of 4 Bar.
- Slip-on flanges are used for the discharge piping.
- All carbon steel piping and fittings conform to SANS 62.
- All flanges conform to SANS1123:2017
- The pipes classifications are of seamless type and medium class.
- All piping is hot dip galvanized according to SANS 121:2009/ISO 1461:2009.

Figure 1 Layout of Discharge Piping and Instrumentation for the Auxiliary Sump
3.1.3.4 Switchgear Specification

- The four existing aux. sump motors receive power from the existing electrical infrastructure which is from 380V Station Board 2, Essential supply circuits. The motors have type 2-coordination thermal overload and power fuses. The currently installed motors are started direct on line. This method of motor starting will be re-used, however with a possible change in protection settings as per the operating parameters of the new motors. The existing power cables from the 380V Station boards will be re-used. If the position of the existing motor changes and the cable slag is not sufficient to reach the new motor position, the existing cables will be re-routed to a newly installed cable junction box (interconnecting point). New additional cable of the same size will be terminated from the cable junction box to new motor position in the Auxiliary sump. No joints in the cables are allowed.

- The **Contractor** is responsible for the design, specification, supply, routing (and re-routing of existing and/or new cables where needed) and installation of cables to interconnect between the different components of the electrical systems and the plant as per Eskom standard and specifications, referenced in section 6.1 and Technical Schedule A&B.

- The Auxiliary sump pump plant is designed with a full integrated control, monitoring and protection system. The **Contractor** ensures a fully compliant control systems design capable of detecting overcurrent, under voltage and earth fault plant conditions with an embedded overload motor protection scheme. The rest of the components, i.e. Trip relay, timer relay, interposing relays and contactor are replaced.

- The **Contractor** checks where needed all new protection settings against existing protection settings of the thermal overload relays and whether the contactors currently in use is sufficient for the new motor installation, if not, the **Contractor** must recommend changes to the switchgear and these settings.

- The **Employer** reviews the recommended protection settings against the existing protection settings and accepts where needed.

- The **Contractor** provides LV motors as part of the auxiliary sump pumps in accordance with requirement specified in Eskom standard 240-57617975 – New LV Motor Procurement Standard.

3.1.3.4.1 Motor starter circuits

- The panel remains the same and all components in the functional units should be replaced with new. Short circuit protection devices, in this case fuses should be replaced with fuse switch disconnectors that will safely provide over current protection and isolation. This fuse switch disconnector shall be operated behind closed doors, which means it will have shaft protruding through the door to a handle. This fuse switch disconnector shall be padlockable and interlocked with the door in order to prevent the door from opening while the fuse switch disconnector is in a closed position. All openings caused by modifications on the panel are closed. All openings to have a fire seal with a relevant fire seal material.

- Contactors are of the electromagnetic, air-break type and be arranged to interrupt all poles of the supply simultaneously. Contactors are of the held-in or latched type as specified. Latched contactors are provided with a trip coil as well as a closing coil. Contactors are required for the operation of motors and as such are rated that they comply with type 2 co-ordination and correct utilisation categories. Each contactor is provided with a sufficient number of normally open and normally closed auxiliary contacts to suit the circuit served.

3.1.3.4.2 Measurements and Indications

New operating, annunciating, measurement and indicating switchgear devices are required on the panel doors as follows:
PART C3: SCOPE OF WORK

C3.1 ECC3 EMPLOYER’S WORKS INFORMATION

- Padlockable fuse switch disconnectors
- Auto/Test selectors
- Amperage meters
- Panel door Lamp indications:
  - DRIVE RUNNING (red)
  - DRIVE STOP (green)
  - FAULT TRIP (white)
  - DRIVE START (green)
  - DRIVE STOP (red)

3.1.4 Auxiliary Sump System Philosophy

3.1.4.1 Engineering Philosophy

The auxiliary sump collects general leakage and seepage water in the power station. The pumps periodically pump the water into the tailrace according to the level control system. There are two sumps in the power station and two pumps per sump. The Maximum Total Dynamic Head for the system is 22.8m. The pumps have a life expectancy of 20 – 25 years.

3.1.4.2 Maintenance Philosophy

The spares inventory strategy is one complete set of spare components and in addition to hold in stock all common spare’s for the first pump service. The pump spares are locally sourced and have a minimum support period of 15 years. Pump materials are selected carefully to minimise wear and corrosion and therefore maintenance. The maintenance on the systems in general is low and minimal human intervention is required. The strategy for the systems consists of a combination of corrective and preventative type maintenance. The Employer implements all maintenance activities that has to be performed on pre-determined intervals as well as attend to failures on the systems.

3.1.4.3 Operating Philosophy

The auxiliary pumps can be operated in three ways:
- Manual operation from station board 2 (located at 1204.57 masl).
- Manual operation from the local control panel near the auxiliary sump (located at 1191.463 masl).
- Automatic operation with reference to the control philosophy in section 3.5.3.2.

For abnormal situations the following operations can be used: at the bottom of the auxiliary sump there is a 200mm pipe drain that interconnects this sump with the 450mm draft tube dewatering main which leads into the main sump. The interconnecting drain pipeline is fitted with two gates and one non-return valve. These gate valves should normally be left closed. In the event that both the auxiliary sump pumps fail or should cleaning of the sumps be required, then the water in this sump could be passed onto the main sump via this interconnection.

3.1.4.4 Control Philosophy

The pumps are controlled automatically with reference to the water level in the sump and manually through human intervention.

Each sump has two Prosonic FMU 860 level detection equipment, one for the operation of the pumps at four different water levels and the other for system alarms. When water in the sump falls to the 915mm level, the standby and duty pumps stop. As water rises to 2745mm, duty pump starts. If water increases to 3050mm level while duty pump is in operation, standby pump cuts in. Should the level of water continues to rise when both pumps are in operation and reaches 3355mm water level, the alarm for high sump level is initiated.
3.2 Parts of the works for the Contractor

3.2.1 Scope of work

- Design the system
- Manufacture equipment
- Supply equipment
- Delivery and off-loading of equipment and material
- Installation the new system
- Commission the new system
- Provide Training
- Provide As-built drawings and documentation

3.2.1.1 Design

- Perform Selection of the new pump/motor sets and all necessary equipment to ensure fitness for purpose.
- Design of the associated pipework and pipe supports
3.2.1.2 Installation

- Disconnect and remove the existing sump pumps and lubrication oil system.
- Remove supply components of the pump from the switchgear, the contactor, thermal overload relay, the power fuses and the space heater, which are replaced with new components.
- Redirecting the inflow of the sump into the sump overflow line as required.
- Install new pumps and associated equipment which include but are not limited to the following:
  - Discharge connection.
  - Rail guide.
  - Pump discharge pipework.
  - Pressure gauge on pipe section that is visible to maintenance staff.
  - Necessary pipe supports.
  - Necessary lifting equipment.
- Install new power supply components for the pumps and associated equipment which include but are not limited to the following:
  - Thermal overloads
  - Contactors
  - Trip relay
  - Timer relay
  - Interposing relay
  - Power Fuses, fuse base & fuse covers/holders
  - Switchgear mounting board/s
  - Junction box and termination accessories
  - Submersible cable (which is supplied with the pump)
- Provide labelling of equipment.
- Provide all necessary equipment, tools & material required to complete the works.
- Provide supervision and resources to complete the works.
- Repositioning of the oil rope skimmer if the new pump installation obstructs the operability or maintainability of the rope skimmer.

3.2.1.3 Manufacture

- Fabrication of discharge pipework.
  - The pump discharge connection inside the sump is pre-fabricated with flanges and is hot dip galvanized.
  - The discharge pipe section that interfaces with this section is fit up in situ and fabricated on site after the pumps, guide rails and the aforementioned pipe section has been fully installed. This pipe section is fabricated afterwards to ensure proper alignment with the existing pipe section and to ensure minimal downtime of the auxiliary sump system.
  - Provide all necessary requirements for all weld fabricated components.
    - A suitable qualified welder is used.
    - Welding requirements is in accordance with Eskom Standard 240-106628253 - Standard for Welding Requirements on Eskom Plant.
C3.1 ECC3 EMPLOYER'S WORKS INFORMATION

- Provide a Welding Procedure Specification (WPS) supported by a valid Weld Procedure Qualification Record (WPQR)/Procedure Qualification Record (PQR) and Weld Qualification Record (WQR) for welding that is performed during fabrication of the discharge piping.
- Weld procedure qualification for all welds is in accordance with the appropriate welding standard incorporated into the relevant design and construction code.
- The WPS and WPQR/PQR is approved by a registered IWE or IWT with the minimum requirements as defined in the Eskom Standard 240-106628253.
- The WPQR/PQR is submitted with its relevant NDT and DT reports.
- The WPS with associated weld maps relevant discharge piping are provided.
  - Provide Non-Destructive Testing (NDT) of all welds
    - All welded connections are subjected to dye penetrant testing.
    - NDT on welds are performed according to the requirements of the relevant design and construction codes and Eskom Standards 240-83539994.
    - Provide qualifications of the NDT personnel.
    - Provide NDT procedures.
  - Provide hydrostatic pressure testing of pipework.
    - All weld fabricated pipework is subjected to hydrostatic pressure testing following the NDT process.
    - Hydrostatic pressure testing performed at 1.5 times the design pressure.
    - Hydrostatic testing is done prior to hot dip galvanizing
  - All pipework is transported away for sandblasting and hot dip galvanizing according to SANS 121.
  - The galvanized piping is then coated externally in accordance with site approved pipe identification specification protection specification.
- Supply of new or modify existing sump cover grating for sump floor opening to accommodate any new installation.
- Labelling of the new pumps and installed equipment.

3.2.1.4 Supply

The Contractor supplies all equipment for the execution of the works.

3.3 Procedure for submission and acceptance of Contractor’s design

3.3.1 Process for Submission of Documents

The process for the submission of documents is described below and applicable to the End-of-phase Design review:

a. The Contractor submits the documents/drawings to the Project Manager.

b. The Employer's project team reviews the documents/drawings and submits all comments or inputs to the Project Manager. The Project Manager submits to the Contractor for acceptance.

c. The Contractor revises the documents/drawings and resubmits to the Project Manager for acceptance.

d. The Employer and the Contractor conducts a Design Review.

e. The Contractor corrects the deviations arising from the Design Review.

f. The Project Manager accepts the Contractor's design.
3.3.2 Time Required for Acceptance of Designs

The Contractor notes that a design review by the Employer takes up to four (4) weeks.

The Project Manager returns one copy of the drawing marked “Accepted”; “Accepted as Noted” or “Not Accepted”, as may be appropriate. The notations “Accepted” and “Accepted as Noted” authorize the Contractor to proceed with the manufacture of the Plant covered by such drawings subject to the corrections, if any, indicated thereon.

Where prints or drawings have been “Not Accepted” or “Accepted as Noted” the Contractor makes the necessary revisions on the drawings and submit further copies for acceptance in the same procedure as for the original submission of drawings. Every revision shows by number, date and subject in the revision block on the drawing.

3.3.3 Other requirements of the Contractor’s design

The Contractor submits all technical documentation and drawings for acceptance by the Project Manager prior to manufacture. The Contractor submits two hardcopies plus electronic copy.

3.3.4 Design Freeze

After Contract Award, the Contractor performs the Design in accordance to Employer’s requirements. The design is agreed with the Employer to achieve Design Freeze status.

The Contractor submits for acceptance a minimum the following data in neat files for acceptance by the Project Manager before the Design Freeze status can be declared:

The Contractor provides a preliminary design of the works for review and acceptance by the Employer prior to the commencement of manufacturing. The Contractor only proceeds with manufacturing upon acceptance of the design by the Employer and when notified by the Employer that the design is acceptable. As a minimum, the preliminary design includes:

- Design calculations.
- Equipment specifications and data sheets
- Cable specifications and test records
- Documentation and cabling layout diagrams including cable numbering.
- Layout drawings indicating the position of the pumps, piping and supporting equipment.
- Power consumption calculations.
- Power supply calculations detailing the sizing of the power cabling.
- Interfaces.
- Fault-finding guide that includes:
  - All of the different types of faults
  - The indications relating to the faults
  - Probable causes
  - Corrective action

3.4 Other requirements of the Contractor’s design

3.4.1 Plant coding and labelling

Labelling is provided by the Contractor and is in accordance with the Eskom Standard 240-71432150 [Plant Labelling and Equipment Description Standard].

a) The Contractor ensures that all equipment is properly labeled for operating purposes.
b) All panels and equipment are provided with appropriate labels stating the name of the panel and equipment.

c) The Contractor ensures that all plant, materials, component and documentation to supply the works is labelled correctly.

d) The type, location and designation of labels are for the Employers acceptance.

3.4.1.1 Labels and cable numbering

For control and indicating equipment panels, cubicles, and equipment, labels are made according to the Eskom Standard 240-71432150 [Plant Labelling and Equipment Description Standard].

Where new cables are installed, a range of cable numbers is issued by the Employer. The Contractor completes the schedules included in the cable numbering information manual. All existing cable numbers connected to the new equipment are included in the new drawings.

All labels removed during installation are restored if application still requires.

3.5 Use of Contractor’s design

All Designs, drawings, specifications, instructions, manuals and other documents created, produced by or on behalf of the Contractor for the purposes of Providing the Works (collectively, the “Contractor’s copyright documents”) and copyright therein and all intellectual property rights relating thereto, remains the property of the Contractor.

The Contractor hereby grants to the Employer, with effect from the Contract Date or in the case of documents or other matter not yet in existence, with the effect from the creation thereof (and notwithstanding the Completion or abandonment of the works or termination of this Agreement) an irrevocable, royalty-free, non-exclusive and perpetual licence to use those of the Contractor’s documents and other matter supplied to the Contractor under this contract, for any purpose whatsoever connected with the works, including for the purpose of maintenance, operation, construction, retrofit, refurbishment, upgrade, repair or demolition of the works or any parts thereof.

The Employer uses the Contractor’s copyright documents and all intellectual property rights relating thereto for the sole purpose of all its needs at Gariep Power Station, which includes any Employer processes and procedures pertaining to use, maintenance, operation, construction, retrofit, refurbishment, upgrade, repair or demolition of the works.

The Employer may copy and submit, without restriction, all documentation to others employed or contracted by the Employer who has duly signed a confidentiality agreement with the Employer.

The Contractor may not use any copyright documents (and the copyright therein and all intellectual property rights relating thereto), which are owned by the Employer and/or Others and provided to the Contractor, for any other purpose than to Provide the Works. The Contractor may not copy and therefore not retain copies of any such copyright documents. At Completion of the whole of the works, or earlier termination, the Contractor returns to the Employer all such documentation provided to him by the Employer and/or Others.

3.6 Design of Equipment

Not Applicable.

3.7 Equipment required that is included in the works

The Contractor supplies and delivers all Equipment, Plant and Materials, design drawings, labour, tools, consumables, storage facilities and accommodation and anything deemed necessary to Provide the Works.
a) All measuring and calibration equipment used by the Contractor to Provide the Works are provided with a valid SANAS (South African National Accreditation System) Calibration Laboratory test certificate.

b) The Contractor supplies all special or dedicated test Equipment for testing, commissioning, fault finding and maintenance of the systems as part of the requisite criteria for Completion of the works.

c) The Contractor furthermore, describes the operation and use of the Equipment in the relevant operating, maintenance and training manuals.

d) The Contractor supplies all special or dedicated test equipment to the Employer new, as part of the requisite criteria for Completion of the works.

e) The Contractor supplies all special tools and Equipment required for the engineering and to Provide the Works. All Equipment other than normal hand tools, measuring and test equipment are considered special tools.

3.8 As-built drawings, operating manuals and maintenance schedules

3.8.1 Documentation and drawing general requirements

All documentation provided with the works conforms to the following Eskom’s Engineering Drawing Standard – Common Requirements, 240-86973501 rev1. All drawings are issued to Eskom in electronic MicroStation (DGN) format”.

3.8.2 Pre-implementation Documentation

The Contractor provides the following for acceptance by the Employer prior to implementation:

- Method Statements
- Quality Control Plans and Check Sheets
- Design standards, codes of practice, design guidelines
- Third party documentation, drawings, as built settings
- Installation, Test and Commissioning Procedures
- Design documentation detailing verification, calculations and philosophies
- All drawings, manuals and schematics
- A bar chart program (preferably in MS Project format) detailing all scope of work activities.
- Hard copies of the following: Material, Dimensional and Test certificates
- Signed off Preliminary Drawings
- Safety File

3.8.3 Post-implementation Documentation

The Contractor supplies the Employer with the following:

- Signed-off test/commissioning certificates
- Signed-off Quality Control Plan and Check sheets
- Standard brochures, catalogues, descriptions
- Spares listings
- Operating and Maintenance Manuals
- Maintenance plan
- “As built” drawings
- Fault-finding guides

The final issues of all manuals and drawings are submitted (4) weeks after Completion for acceptance by the Project Manager. Photo-stat copies are unacceptable.
4 Procurement

4.1 People

4.1.1 Minimum requirements of people employed on the Site
The Contractor ensures that all on-site personnel that are of not RSA nationality or permanent residence have the relevant permit to work. The Contractor ensures that there are at all times sufficient suitably qualified, experienced and skilled staff to carry out and supervise all activities.

4.1.2 BBBEE and preferencing scheme
The Contractor complies with and fulfils the Contractor’s obligations in respect of the Broad Based Black Economic Empowerment (as per clause Z3).

4.2 Subcontracting

4.2.1 Preferred subcontractor’s
None

4.2.2 Subcontract documentation, and assessment of subcontract tenders

4.2.3 Limitations on subcontracting
Not Applicable

4.2.4 Attendance on subcontractor’s
Not applicable.

4.3 Plant and Materials

4.3.1 Quality
• The quality requirements are as per ISO 9001:2008 and as per Eskom document 240-105658000, SUPPLIER CONTRACT QUALITY REQUIREMENTS SPECIFICATION.
• The Contractor establishes and implements a system that, as a minimum, meets the requirements of the ISO 9000 series for quality management systems.
• The Contractor defines the level of QA/QC or inspection imposed on his subcontractors and suppliers.
• The programming of inspections, hold and witness points is agreed between the Employer and the Contractor prior to undertaking any work.
• The Contractor ensures that appropriate quality requirements are placed to comply with the services.
• The Contractor notifies the Employer of any proposed changes to the quality management system that affects the contract quality requirements, prior to implementing such changes.
• The Contractor rectifies, at his own cost and to the satisfaction of the Employer all Defects, or other faults, which may appear during the defect correction period.
• In case of specialized work based on the Contractor's own design and their standard manufacturing product in the works being defective or any components used found being defective due to manufacturing Defects and thus forcing, any improvement to be implemented to rectify such inherent Defects, the cost of such an undertaking would be the responsibility of the Contractor.

4.3.2 Plant & Materials provided “free issue” by the Employer
None
4.3.3 **Contractor’s procurement of Plant and Materials**

The Contractor provides vendor data which the Employer may need after Completion of the whole of the works.

4.3.4 **Spares and consumables**

The Contractor also includes a spares for the first pump services.

4.4 **Tests and inspections before delivery**

4.4.1 **Factory acceptance testing**

4.4.1.1 **General**

Factory acceptance tests (FAT) are performed, if the Contractor is the OEM of the equipment, to test the functionality of equipment and to test whether the equipment meets the requirements in the Works Information. These tests are performed by the Contractor and are witnessed by the Employer. This takes place prior to the delivery of equipment. If the Contractor is not the OEM of the equipment then test certificates issued by the OEM are provided.

Each item that forms part of the acceptance test is detailed and signed off indicating acceptance by both the Contractor and the Employer. Any exceptions or deviations are noted as a Defect and are analysed by the Contractor and the solution reported to the Project Manager.

The Project Manager determines if the Defect is of a minor or major nature. The Contractor rectifies the Defect and the item is re-tested for minor Defects, for major Defects the Contractor re-starts the FAT test.

The Project Manager selects a representative or group of representatives to inspect all parts during the manufacture of equipment and is present at any of the tests being performed.

4.4.1.2 **Pre - FAT**

During Pre - FAT, the Contractor conducts a pre - factory acceptance test at the Contractor’s factory as preparation for the factory acceptance test with the Project Manager’s representatives.

All pre - FAT tests are documented as part of the quality assurance and control procedures by the Contractor’s engineers and are available to the Project Manager prior to the beginning of the FAT.

4.4.1.3 **Factory Acceptance Test**

The test procedure is compiled by the Contractor and presented to the Project Manager for acceptance during the technical clarification phase and it is shown in the Accepted Programme.

Correct functioning of all equipment is demonstrated in terms of the Works Information requirements.

The applicable test procedure together with the test dates is prepared by the Contractor and submitted to the Project Manager for acceptance during the design phase. The final test procedures are prepared by the Contractor and submitted to the Project Manager at least 10 working days prior to the scheduled test dates. The Contractor shows these dates in the Accepted Programme.

4.5 **Marking Plant and Materials outside the Working Areas**

- The Contractor is requested to mark all identified items of Plant and Material with the Contract and Order numbers.
- Plant and Material is delivered to either the Site or the Contractor’s works.
- The following requirements apply to the off-Site marking of Plant, Materials and Equipment:
a) The Contractor gives two (2) weeks’ notice to the Project Manager and it is shown in the Accepted Programme.
b) Only Plant, Materials and Equipment physically located at the Contractor’s facility are considered ready for marking.

4.6 Contractor’s Equipment (including temporary works).

The Contractor ensures that any sophisticated or highly specialised equipment that is required to complete the works, is put forward on notice to the Employer. Any constraints and hence liability with regard to such equipment remains with the Contractor.
5 Construction

5.1 Temporary works, Site services & construction constraints

5.1.1 Employer's Site entry and security control, permits, and Site regulations

- The Contractor is informed of the access procedures through Site regulations and that such procedures may change depending on the prevailing security situation.
- The Contractor complies with all Site regulations and instructions. The onus is on the Contractor to ensure his familiarity with the Employer's Site regulations and inspections.
- Before work starts on Site, a Site inaugural meeting is held between the Contractor and the Employer, where details of the works are discussed and clarified.
- The Contractor's Site Supervisor is on Site for the entire duration of the works.
- General access to the power station is controlled and Site induction is completed before work is allowed to start.
- It is mandatory that the Contractor adheres to all security regulations in force during the period of the contract.
- Ad-hoc alcohol breathalyser test may be performed which needs to be passed. This is enforcing one of the five Life-saving Rules to which the Contractor is required to adhere to at all times.

5.1.2 Restrictions to access on Site, roads, walkways and barricades

- The Contractor satisfies himself and complies with Site conditions presented during induction.
- The Contractor is required to comply with all Site restrictions pertaining to the Site's roads, walkways and barricades.

5.1.3 People restrictions on Site; hours of work, conduct and records

Normal working hours are as follows:

Monday to Thursday: 07:00 – 16:15
Fridays: 07:00 – 12:00

5.1.4 Health and safety facilities on Site

The health and safety facilities on Site are discussed in detail during the Site induction.

5.1.5 Environmental controls, fauna & flora, dealing with objects of historical interest

- The Contractor's attention is drawn to the fact that the Power Station is situated in a highly sensitive area with respect to the environment.
- The Contractor acquaints himself with all statutory and local environment regulations and adheres to these without exception.
- The Contractor complies with the Hazardous Chemical Regulations when using any hazardous chemicals, as well as complying with the requirements of the National Environmental Management Act of 1988.

5.1.6 Title to materials from demolition and excavation

The Contractor has no title to plant and/or materials resulting from him carrying out the works.
5.1.7 Cooperating with and obtaining acceptance of Others

Not Applicable.

5.1.8 Publicity and progress photographs

No notice boards, advertising rights, media relations, photography and progress photographs are allowed without the Employer’s authorisation.

5.1.9 Contractor’s Equipment

- The Contractor provides the Employer with a complete list of materials, tools, Equipment and or machinery before bringing it onto Site.
- Records of Equipment are kept on Site including whether it is owned or hired. The Contractor is responsible to provide his own lifting equipment, mobile cranes and fork lifts where required.
- The Contractor provides and maintains all tests and measuring Equipment required for all tests to the required accuracy. The accuracy of test Equipment is better than ± 0.1 %.
- The type and class of Equipment used is subject to the Acceptance by the Employer.
- The Contractor’s measuring Equipment is accompanied by valid calibration certificates from an approved authority.
- The Project Manager may at any stage during the Contract require that such Equipment is checked by an approved laboratory or the South African Bureau of Standards.

5.1.10 Equipment provided by the Employer

None

5.1.11 Site services and facilities

5.1.12 Overhead Crane

- A 100 Ton main hook and a 20 Ton auxiliary hook are available in the station main Machine Hall.
- The Contractor ensures that the crane is capable of handling the loads that require lifting. The Contractor makes provision for any limitations with respect to height and operation of the Employer’s crane.
- The crane is operated by the Employer only.

5.1.13 Electricity Supply

- Electricity supply can only be provided in terms of availability and location on the power station
- The Employer indicates which supply points may be used.
- The Contractor verifies extension lead requirements and provides extension leads to Provide the Works.

5.1.14 Water Supply

- Water supply points of can only be provided in terms of availability and location
- The Employer indicates which supply points may be used.
5.1.15 Area for Site establishment and Storage

- A storage area is indicated to the Contractor
- An area for Site Establishment is indicated to the Contractor
- Security to the Contractor's storage is the responsibility of the Contractor.
- The area allocated to the Contractor is reinstated to their former condition on takeover of the works.

5.1.16 Ablution facilities

- The Contractor makes use of the Employer's facilities in the power station.

5.1.17 Facilities provided by the Contractor

- The Contractor provides own accommodation and office equipment
- The Contractor provides own telecommunication and internet access.
- The Contractor ensures that the above mentioned facilities and all waste generated are removed on Completion of the works.

5.1.18 Existing premises, inspection of adjoining properties and checking work of others

Not Applicable.

5.1.19 Survey control and setting out of the works

Not Applicable.

5.1.20 Excavations and associated water control

Not Applicable.

5.1.21 Underground services, other existing services, cable and pipe trenches and covers

Not Applicable.

5.1.22 Control of noise, dust, water and waste

Not Applicable.

5.1.23 Sequences of construction or installation

Not Applicable.

5.1.24 Giving notice of work to be covered up

Not Applicable.

5.1.25 Hook ups to existing works

Not Applicable.
5.2 Completion, testing, commissioning and correction of Defects

5.2.1 Work to be done by the completion date
On or before the completion date the Contractor has done everything required to Provide the Works. The Project Manager cannot certify Completion until all the work except that listed below has been done and is also free of Defects which would have, in his opinion, prevented the Employer from using the works and others from doing their work.

5.2.2 Use of the works before Completion has been certified
After successful commissioning of the plant, the Employer takes over the works or section of the works by means of a Take-over certificate listing all Defects that may still be outstanding from the works, however not hindering the successful operation of the plant.

5.2.3 Materials facilities and samples for tests and inspections
Not Applicable.

5.2.4 Commissioning
Commissioning is done in accordance with approved procedure which are submitted by the Contractor to the Project Manager for acceptance. As a minimum requirement commissioning includes flow and pressure verification.

5.2.5 Start-up procedures required to put the works into operation
None

5.2.6 Take over procedures
None

5.2.7 Access given by the Employer for correction of Defects
The Project Manager arranges for the Employer to allow the Contractor access to and use of a part of the works which has been taken over if needed to correct a Defect.

5.2.8 Performance tests after Completion
None

5.2.9 Training and technology transfer
Included in the works is extensive training for the Employer's personnel on all aspects for the Engineering, Maintenance and Operating personnel.

- Maintenance
Prior to commencement of commissioning of the works, the Contractor provides training for relevant site staff in the inspection and maintenance of the systems. Training is provided to the site's maintenance staff and it is arranged on site.

5.2.10 Operational maintenance after Completion
Not Applicable.
6 Plant and Materials standards and workmanship

6.1 Electrical & mechanical engineering works

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<th>Title</th>
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<tr>
<td>SANS 62</td>
<td>Steel pipes</td>
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<td>SANS 121</td>
<td>Hot dip galvanized coatings on fabricated iron and steel articles – Specifications and test methods</td>
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<td>SANS 1123</td>
<td>Pipe Flanges</td>
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<td>Standard for Non-Destructive Testing (NDT)on Eskom Plant</td>
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<td>Specification for LV switchgear and control gear assemblies and associated equipment for voltages up to and including 1000 V AC and 1500 V DC.</td>
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<td>MV and LV Switchgear Protection Standard</td>
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6.2 Other

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<td>240-71432150</td>
<td>Plant Labelling and Equipment Description Standard</td>
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<td>240-54179170</td>
<td>Classification and designation of technical documentation</td>
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<tr>
<td>240-86973501</td>
<td>Engineering drawing standard – common requirements</td>
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* Available on request. The revisions and amendments of the above documents that apply are the latest revision and amendments in force at the time of the Contract award. This Contract is carried out in accordance with this Specification (including Schedule B and Contract drawings) and with the documents listed above. Nothing in this specification lessens the Contractor's obligations detailed in any other documents forming part of the Contract.
### List of drawings

#### 7.1 Drawings issued by the Employer

This is the list of drawings issued by the Employer at or before the Contract Date and which apply to this contract.

Note: Some drawings may contain both Works Information and Site Information.

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<td>Sets 1 – 4 General Compressed Air Generation Pipework and Valve Schematic Diagram</td>
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<td>Gariep Power Station Units 1 – 4 Compressed Air Generation (SCA) Drainage and Dewatering System Piping and Instrumentation Diagram</td>
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<td>Gariep Power Station Dewatering and Drainage System General Arrangement</td>
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<td>Hendrik Verwoed Power Station Pumpset Lubricating System</td>
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<td>0.38/2074</td>
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<td>Detail of Oil Tank</td>
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<td>Auxiliary Sump Pumps – Control Station Wiring Diagram</td>
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<td>Hendrik Verwoed Power Station Sets 3 &amp; 4 Auxiliary Sump Arrangement</td>
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<td>Auxiliary Sump Cover and Pump Supporting Steelwork Arrangement</td>
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<td>Drainage Pump General Arrangement of 3 Stage 10 LC Pump</td>
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<td>380V Station Board 2 Aux. Sump Pumps B1 &amp; B2 Key/Cabling Diagram</td>
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<td>380V Station Board 2 Aux. Sump Pumps A1 &amp; A2 Key/Cabling Diagram</td>
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<td>038/1082-1</td>
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<td>Electrical Power System (B) 380V Station Board 1&amp;2 Equipment Schedule</td>
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<td>038/1154-1</td>
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<td>Power Station Electrical Power System (B) Station Services Cable Block Diagram</td>
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## PART 4: SITE INFORMATION

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PART 4: SITE INFORMATION

1. General description

Location: 300 metres downstream of the Gariep Dam wall on the banks of the Orange River, near Norvalspont in the Eastern Cape.

History: Gariep's first two machines went into commercial service in 1971 and the last two in March 1976. The station was originally named after its political sponsor, Hendrik Verwoerd, and is 31 years old this year.

General: A feature of Gariep's machines is that they can be used as synchronous condensers, helping to stabilise the operation of the high-voltage interconnected system. Electricity from Gariep is fed into the Eskom network at the Hydra Distribution Station near De Aar, which is one of the distribution stations fed by the transmission lines linking the Western Cape with the power stations in Mpumalanga.

GPS Co-ordinates: S30.62396 / E25.50403
2. Existing buildings, structures, and plant & machinery on the Site  
   N/A

3. Subsoil information  
   N/A

4. Hidden services  
   N/A

5. Other reports and publicly available information  
   N/A