



NEC3 Engineering & Construction Contract

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

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

for **Drakensberg Control Block Ventilation
Refurbishment**

Contents:	No of pages
Part C1 Agreements & Contract Data	[•]
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Part C4 Site Information	[•]

CONTRACT No. [Insert at award stage]

Part C1: Agreements & Contract Data

Contents:	No of pages
C1.1 Form of Offer and Acceptance	[•]
[to be inserted from Returnable Documents at award stage]	
C1.2a Contract Data provided by the <i>Employer</i>	[•]
C1.2b Contract Data provided by the <i>Contractor</i>	[•]
[to be inserted from Returnable Documents at award stage]	
C1.3 Proforma Guarantees	[•]

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:

Drakensberg Control Block Ventilation Refurbishment

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.

Options A	The offered total of the Prices exclusive of VAT is	R [●]
	Value Added Tax @ 15% is	R [●]
	The offered total of the amount due inclusive of VAT is ¹	R [●]
	(in words) [●]	

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

Signature(s)

Name(s)

Capacity

**For the
tenderer:**

(Insert name and address of organisation)

Name &
signature of
witness

Date

Tenderer's CIDB registration number (if applicable)

¹ This total is required by the *Employer* for budgeting purposes only. Actual amounts due will be assessed in terms of the *conditions of contract*.

Acceptance

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

The terms of the contract, are contained in:

Part C1	Agreements and Contract Data, (which includes this Form of Offer and Acceptance)
Part C2	Pricing Data
Part C3	Scope of Work: Works Information
Part C4	Site Information

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.

Signature(s)

Name(s)

Capacity

**for the
Employer**

(Insert name and address of organisation)

Name &
signature of
witness

Date

Note: If a tenderer wishes to submit alternative tenders, use another copy of this Form of Offer and Acceptance.

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.

No.	Subject	Details
1	[•]	[•]
2	[•]	[•]
3	[•]	[•]
4	[•]	[•]
5	[•]	[•]
6	[•]	[•]
7	[•]	[•]

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.

For the tenderer:

For the Employer

Signature

Name

Capacity

On behalf
of

(Insert name and address of organisation)

(Insert name and address of organisation)

Name &
signature
of witness

Date

C1.2 ECC3 Contract Data

Part one - Data provided by the *Employer*

Clause	Statement	Data
1	General	
	The <i>conditions of contract</i> are the core clauses and the clauses for main Option	
		A: Priced contract with activity schedule
	dispute resolution Option	W1: Dispute resolution procedure
	and secondary Options	
		X2 Changes in the law
		X7: Delay damages
		X16: Retention
		X18: Limitation of liability
		Z: Additional conditions of contract
	of the NEC3 Engineering and Construction Contract, April 2013 (ECC3)	
10.1	The <i>Employer</i> 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 <i>Project Manager</i> is: (Name)	Vuyokazi Mlungwana
	Address	15 Pasita Street
	Tel	021 941 5930
	e-mail	Mlungwav@eskom.co.za
10.1	The <i>Supervisor</i> is: (Name)	Kwanele Nkosi
	Address	Drakensberg Power Station
	Tel No.	036 438 2050
	e-mail	NkosiKN@eskom.co.za

11.2(13)	The <i>works</i> are	Control lock Ventilation Refurbishment	
11.2(14)	The following matters will be included in the Risk Register	None	
11.2(15)	The <i>boundaries of the site</i> are	Drakensberg Power Station	
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 <i>law of the contract</i> is the law of	the Republic of South Africa	
13.1	The <i>language of this contract</i> is	English	
13.3	The <i>period for reply</i> is	1 week before Implementation 1 day during Implementation Immediately for Safety related Incidents	
2	The Contractor's main responsibilities	Data required by this section of the core clauses is provided by the <i>Contractor</i> in Part 2 and terms in italics used in this section are identified elsewhere in this Contract Data.	
3	Time		
11.2(3)	The <i>completion date</i> for the whole of the <i>works</i> is	6 months	
11.2(9)	The <i>key dates</i> and the <i>conditions</i> to be met are:	Condition to be met	key date
		1 [•]	[•]
		2 [•]	[•]
		3 [•]	[•]
30.1	The <i>access dates</i> are:	Part of the Site	Date
		1 [•]	[•]
		2 [•]	[•]
		3 [•]	[•]
31.1	The <i>Contractor</i> is to submit a first programme for acceptance within	2 weeks of the Contract Date.	
31.2	The <i>starting date</i> is	TBC (Duration 6 months or less)	
32.2	The <i>Contractor</i> submits revised programmes at intervals no longer than	2 weeks.	
35.1	The <i>Employer</i> is not willing to take over the <i>works</i> before the Completion Date.		

4 Testing and Defects

42.2	The <i>defects date</i> is	52 weeks after Completion of the whole of the works.
43.2	The <i>defect correction period</i> is	1 week
5 Payment		
50.1	The <i>assessment interval</i> is	between the 25th day of each successive month.
51.1	The <i>currency of this contract</i> is the	South African Rand.
51.2	The period within which payments are made is	30 days
51.4	The <i>interest rate</i> is	<p>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</p> <p>(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 <i>mutatis mutandis</i> 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.</p>

6 Compensation events		
60.1(13)	<p>The place where weather is to be recorded is:</p> <p>The <i>weather measurements</i> to be recorded for each calendar month are,</p>	<p>Drakensberg</p> <p>the cumulative rainfall (mm)</p> <p>the number of days with rainfall more than 10 mm</p> <p>the number of days with minimum air temperature less than 0 degrees Celsius</p> <p>the number of days with snow lying at 09:00 hours South African Time</p> <p>and these measurements:</p>

and which are available from:

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

60.1(13)	Assumed values for the ten year return <i>weather data</i> for each <i>weather measurement</i> for each calendar month are:	As stated in Annexure A to this Contract Data provided by the <i>Employer</i> . Note: If this arrangement is used, delete the rows above for 60.1(13) and delete this note.	
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 <i>Employer's</i> risks	None	
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.	
		from [●]% to [●]%	[●]%
		less than [●]%	[●]%
		from [●]% to [●]%	[●]%
		from [●]% to [●]%	[●]%
		greater than [●]%	[●]%
11	Data for Option W1		
W1.1	The <i>Adjudicator</i> 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 <i>Adjudicator nominating body</i> 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 <i>tribunal</i> is:	arbitration.	
W1.4(5)	The <i>arbitration procedure</i> is	the latest edition of Rules for the Conduct of Arbitrations published by The Association of	

		<p>Arbitrators (Southern Africa) or its successor body.</p> <p>The place where arbitration is to be held is South Africa</p> <p>The person or organisation who will choose an arbitrator</p> <ul style="list-style-type: none"> - 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	
X2	Changes in the law	There is no reference to Contract Data in this Option and terms in italics are identified elsewhere in this Contract Data.
X7.1	Delay damages for Completion of the whole of the <i>works</i> are	R1 500.00 per day up to a limit of 10% of contract value
X16	Retention (not used with Option F)	
X16.1	The <i>retention free amount</i> is	R0.00
	The <i>retention percentage</i> is	10%, 5 % on completion, 5% on defects date
X18	Limitation of liability	
X18.1	The <i>Contractor's</i> liability to the <i>Employer</i> for indirect or consequential loss is limited to:	R0.0 (zero Rand)
X18.2	For any one event, the <i>Contractor's</i> liability to the <i>Employer</i> for loss of or damage to the <i>Employer's</i> property is limited to:	the amount of the deductibles relevant to the event
X18.3	The <i>Contractor's</i> liability for Defects due to his design which are not listed on the Defects Certificate is limited to	<p>The greater of</p> <ul style="list-style-type: none"> • the total of the Prices at the Contract Date and • the amounts excluded and unrecoverable from the <i>Employer's</i> assets policy for correcting the Defect (other than the resulting physical damage which is not excluded) plus the applicable deductible as at contract date.
X18.4	The <i>Contractor's</i> total liability to the <i>Employer</i> for all matters arising under or in connection with this contract, other than excluded matters, is limited to:	<p>the total of the Prices other than for the additional excluded matters.</p> <p>The <i>Contractor's</i> total liability for the additional excluded matters is not limited.</p> <p>The additional excluded matters are amounts for which the <i>Contractor</i> is liable under this contract for</p>

		<ul style="list-style-type: none"> • 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 <i>end of liability date</i> is	<p>(i) 3 years after the <i>defects date</i> for latent Defects and</p> <p>(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.</p> <p>A latent Defect is a Defect which would not have been discovered on reasonable inspection by the <i>Employer</i> or the <i>Supervisor</i> before the <i>defects date</i>, without requiring any inspection not ordinarily carried out by the <i>Employer</i> or the <i>Supervisor</i> during that period.</p> <p>If the <i>Employer</i> or the <i>Supervisor</i> do undertake any inspection over and above the reasonable inspection, this does not place a greater responsibility on the <i>Employer</i> or the <i>Supervisor</i> to have discovered the Defect.</p>
Z	The <i>Additional conditions of contract</i> are	Z1 to Z15 always apply.

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 when 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 Subcontractor 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.

- Z12.1 A Committing Party may not take any Prohibited Action during the course of the procurement of this contract or in execution thereof.
- Z12.2 The *Employer* may terminate the *Contractor's* obligation to Provide the Services 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 Services for this reason.
- Z12.3 If the *Employer* terminates the *Contractor's* obligation to Provide the Services for this reason, the amounts due on termination are those intended in core clauses 92.1 and 92.2.

Z12.4 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.

Z13 Insurance

Z 13.1 Replace core clause 84 with the following:

Insurance cover 84

- 84.1** When requested by a Party, the other Party provides certificates from his insurer or broker stating that the insurances required by this contract are in force.
- 84.2** The *Contractor* provides the insurances stated in the Insurance Table A.
- 84.3** The insurances provide cover for events which are at the *Contractor's* risk from the *starting date* until the earlier of Completion and the date of the termination certificate.

INSURANCE TABLE A

Insurance against	Minimum amount of cover or minimum limit of indemnity
Loss of or damage to the <i>works</i> , Plant and Materials	The replacement cost where not covered by the <i>Employer's</i> insurance The <i>Employer's</i> policy deductible, as Contract Date, where covered by the <i>Employer's</i> insurance
Loss of or damage to Equipment	The replacement cost
Liability for loss of or damage to property (except the <i>works</i> , Plant and Materials and Equipment) and liability for bodily injury to or death of a person (not an employee of the <i>Contractor</i>) caused by activity in connection with this contract	<u>Loss of or damage to property</u> <u>Employer's property</u> The replacement cost where not covered by the <i>Employer's</i> insurance The <i>Employer's</i> policy deductible, as Contract Date, where covered by the <i>Employer's</i> insurance <u>Other property</u> The replacement cost <u>Bodily injury to or death of a person</u> The amount required by applicable law
Liability for death of or bodily injury to employees of the <i>Contractor</i> arising out of and in the course of their employment in connection with this contract	The amount required by the applicable law

Z 13.2

Replace core clause 87 with the following:

The *Employer* provides the insurances stated in the Insurance Table B.

INSURANCE TABLE B

Insurance against or name of policy	Minimum amount of cover or minimum of indemnity
Assets All Risk	Per the insurance policy document
Contract Works insurance	Per the insurance policy document
Environmental Liability	Per the insurance policy document
General and Public Liability	Per the insurance policy document
Transportation (Marine)	Per the insurance policy document
Motor Fleet and Mobile Plant	Per the insurance policy document
Terrorism	Per the insurance policy document
Cyber Liability	Per the insurance policy document
Nuclear Material Damage and Business Interruption	Per the insurance policy document
Nuclear Material Damage Terrorism	Per the insurance policy document

Z14 Intellectual Property – Eskom owning Intellectual Property

“Intellectual Property” means (a) patents, trade marks, service marks, rights in designs, trade names, trade secrets, know how, copyrights and topography rights, in each case whether registered or not; (b) applications for registration of any of them; (c) rights under licences and consents in relation to any of them; (d) all forms of protection of a similar nature or having equivalent or similar effect to any of them which may subsist anywhere in the world.

“Background Intellectual Property” means any and all Intellectual Property rights that are not Foreground Intellectual Property, and are owned or controlled by the relevant party or licensed to the relevant party prior to or outside of the *works* but required for the purposes of the *works*.

“Foreground Intellectual Property” means all Intellectual Property rights and other matter capable of being the subject of intellectual property rights that is conceived, first reduced to practice or writing or developed in whole or in substantial part in the course of the execution of the *works* and rights which are developed substantially as a result of the *works*. Any *works* that will be developed, changed, modified and/or improved specifically for the Purposes will be Foreground Intellectual Property. Any data or any other information relating to *Employer’s* proprietary information generated from the use of the *Contractor’s* Background Intellectual Property.

Z14.1 The *Contractor* retains ownership of all Background Intellectual Property rights made by or on behalf of the *Contractor* as part of the *works* in information or material it uses in carrying out the *works*.

Z14.2 All Foreground Intellectual Property rights, contained in any developed materials which are created by the *Contractor* or on behalf of the *Contractor*, for the purposes of and in support of the execution of the *works* (*Employer’s* IP) vest with the *Employer*.

Z14.3 Any data or any other information relating to *Employer’s* proprietary information generated from the use of the *Contractor’s* Background Intellectual Property, the copyright therein shall be owned by the *Employer*.

- Z14.4** The *Contractor* acknowledges that all rights, title, and interest in and to the Foreground Intellectual Property that may result or originate from or be developed in execution of the *works* vests in the *Employer* and that the *Contractor* has no claim of any nature in and to the Foreground Intellectual Property.
- Z14.5** The *Contractor* ensures that a copyright notice is incorporated or embossed or labelled on the Foreground Intellectual Property, where the *Employer* is reflected as the owner of the Foreground Intellectual Property.
- Z14.6** The *Contractor* is obliged to provide Foreground Intellectual Property manufacturing documents, designs, processes and/or specifications to the *Employer* before/on the *completion*.
- Z14.7** The *Contractor* procures that each Sub-*Contractor* executes all and any *works*, and takes all and any other actions as may be required, in order to give effect to this Agreement.
- Z14.8** The *Employer* retains all Background Intellectual Property rights in all documents made by or on behalf of the *Employer* including all documents and requirements provided prior to or during the execution of the *works*. The *Contractor* does not, without the written consent, of the *Employer*, copy, use or issue to a third party any of the *Employer's* Background Intellectual Property documents and requirements except for the purposes of executing the *works*.
- Z14.9** Either party procures that any third party executes confidentiality undertakings not to disclose to any other third parties, any of the *Employer's* Background Intellectual Property and IP documents and requirements at all, in respect of the *Employer*, or the Background Intellectual Property, in respect of the *Contractor*.
- Z14.10 Third Party Claims:**
- Z14.10.1** In the event of any claims being made or actions brought against the *Employer*, on the ground that the *Contractor* infringed any patent, trade mark or copyright, the *Contractor* is notified thereof and at its own expense, conducts all negotiations in consultation with the *Employer* for the settlement of the claim and litigation that may arise from such alleged infringement, provided that the *Employer* will not bear any financial burden or losses.
- Z14.10.2** Save where the *Contractor* fails to take over the conduct of the negotiation or litigation within a reasonable time of the notification of the alleged infringement, the *Employer* does not make any admission which might be prejudicial to the *Contractor's* position. The *Employer*, at the request and the cost of the *Contractor* affords it all reasonable technical assistance that the *Employer* is able to provide for the purpose of contesting any such claim or action.
- Z14.10.3** Should it be held in any such action that any such protected rights have been infringed, as definitely stated by a judgment of the court before which the action is brought, the *Contractor*, at its own expense and in consultation with the *Employer*, either:
- procures for [Employer/Client/Purchaser] the right to continue to use the affected item or design, or
 - replaces the said affected item or design with a non-infringing item, or
 - provides a design of equivalent quality or modify such affected item or design so as to make it non-infringing without affecting the quality.
- Z14.10.4** Notwithstanding anything contained in this contract, the foregoing sets forth the entire responsibility of [Contractor / Consultant / Supplier] with respect to claims relating to infringement.
- Z14.10.5** Where it is alleged that the *Employer* has committed an infringement as intended vis-à-vis the *Contractor* as set out in the third party intellectual property infringement clause, the *Employer* has the same rights and obligations as the *Contractor*, mutatis mutandis, as regards such alleged infringement.

Z14.10.6 The *Contractor* herewith indemnifies the *Employer* and undertakes to keep the *Employer* indemnified against all claims of whatsoever nature, real or imagined, which may be made against the *Employer* arising from the infringement of any third party intellectual property rights.

Z15 Asbestos

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

AAIA	means approved asbestos inspection authority.
ACM	means asbestos containing materials.
AL	means action level, i.e. a level of 50% of the OEL, i.e. 0.1 regulated asbestos fibres per ml of air measured over a 4 hour period. The value at which proactive actions is required in order to control asbestos exposure to prevent exceeding the OEL.
Ambient Air	means breathable air in area of work with specific reference to breathing zone, which is defined to be a virtual area within a radius of approximately 30cm from the nose inlet.
Compliance Monitoring	means compliance sampling used to assess whether or not the personal exposure of workers to regulated asbestos fibres is in compliance with the Standard's requirements for safe processing, handling, storing, disposal and phase-out of asbestos and asbestos containing material, equipment and articles.
OEL	means occupational exposure limit.
Parallel Measurements	means measurements performed in parallel, yet separately, to existing measurements to verify validity of results.
Safe Levels	means airborne asbestos exposure levels conforming to the Standard's requirements for safe processing, handling, storing, disposal and phase-out of asbestos and asbestos containing material, equipment and articles.
Standard	means the <i>Employer's</i> Asbestos Standard 32-303: Requirements for Safe Processing, Handling, Storing, Disposal and Phase-out of Asbestos and Asbestos Containing Material, Equipment and Articles.
SANAS	means the South African National Accreditation System.
TWA	means the average exposure, within a given workplace, to airborne asbestos fibres, normalised to the baseline of a 4 hour continuous period, also applicable to short term exposures, i.e. 10-minute TWA.

Z15.1 The *Employer* ensures that the Ambient Air in the area where the *Contractor* will Provide the Services conforms to the acceptable prescribed South African standard for asbestos, as per the regulations published in GNR 155 of 10 February 2002, under the Occupational Health and Safety Act, 1993 (Act 85 of 1993) ("Asbestos Regulations"). The OEL for asbestos is 0.2 regulated asbestos fibres per millilitre of air as a 4-hour TWA, averaged over any continuous period of four hours, and the short term exposure limit of 0.6 regulated asbestos fibres per millilitre of air as a 10-minute TWA, averaged over any 10 minutes, measured in accordance with HSG248 and monitored according to HSG173 and OESSM.

Z15.2 Upon written request by the *Contractor*, the *Employer* certifies that these conditions prevail. All measurements and reporting are effected by an independent, competent, and certified occupational hygiene inspection body, i.e. a SANAS accredited and Department of Employment and Labour approved AAIA. The *Contractor* may perform Parallel Measurements and related control measures at the *Contractor's* expense. For the purposes of compliance

the results generated from Parallel Measurements are evaluated only against South African statutory limits as detailed in clause Z15.1. Control measures conform to the requirements stipulated in the AAIA-approved asbestos work plan.

- Z15.3 The *Employer* manages asbestos and ACM according to the Standard.
- Z15.4 In the event that any asbestos is identified while Providing the Services, a risk assessment is conducted and if so required, with reference to possible exposure to an airborne concentration of above the AL for asbestos, immediate control measures are implemented and relevant air monitoring conducted in order to declare the area safe.
- Z15.5 The *Contractor's* personnel are entitled to stop working and leave the contaminated area forthwith until such time that the area of concern is declared safe by either Compliance Monitoring or an AAIA approved control measure intervention, for example, per the emergency asbestos work plan, if applicable.
- Z15.6 The *Contractor* continues to Provide the Services, without additional control measures presented, on presentation of Safe Levels. The contractually agreed dates to Provide the Services, including the Completion Date, are adjusted accordingly. The contractually agreed dates are extended by the notification periods required by regulations 3 and 21 of the Asbestos Regulations, 2001.
- Z15.7 Any removal and disposal of asbestos, asbestos containing materials and waste, is done by a registered asbestos contractor, instructed by the *Employer* at the *Employer's* expense, and conducted in line with South African legislation.

Annexure A: One-in-ten-year-return *weather data* obtained from SA Weather Bureau for [weather station]

If any one of these *weather measurements* recorded within a calendar month, before the Completion Date for the whole of the *works* and at the place stated in this Contract Data is shown to be more adverse than the amount stated below then the *Contractor* may notify a compensation event.

	<i>Weather measurement</i>				
Month	Cumulative rainfall (mm)	Number of days with rain more than 10mm	Number of days with min air temp < 0 deg.C	Number of days with snow lying at 08:00 CAT	[Other measurements if applicable]
January	[•]	[•]	[•]	[•]	
February	[•]	[•]	[•]	[•]	
March	[•]	[•]	[•]	[•]	
April	[•]	[•]	[•]	[•]	
May	[•]	[•]	[•]	[•]	
June	[•]	[•]	[•]	[•]	
July	[•]	[•]	[•]	[•]	
August	[•]	[•]	[•]	[•]	
September	[•]	[•]	[•]	[•]	
October	[•]	[•]	[•]	[•]	
November	[•]	[•]	[•]	[•]	
December	[•]	[•]	[•]	[•]	

Only the difference between the more adverse recorded weather and the equivalent measurement given above is taken into account in assessing a compensation event.

C1.2 Contract Data

Part two - Data provided by the Contractor

[Instructions to the contract compiler: (delete this notes before issue to tenderers with an enquiry)

Whenever a cell is shaded in the left hand column it denotes this data is optional. If not required select and delete the whole row, otherwise insert the required Data.]

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.

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

² Available from Engineering Contract Strategies Tel 011 803 3008, Fax 011 803 3009 or see www.ecs.co.za

		CV's (and further key persons data including CVs) are appended to Tender Schedule entitled .
11.2(3)	The <i>completion date</i> for the whole of the <i>works</i> is	
11.2(14)	The following matters will be included in the Risk Register	
11.2(19)	The Works Information for the <i>Contractor's</i> design is in:	
31.1	The programme identified in the Contract Data is	
A	Priced contract with activity schedule	
11.2(20)	The <i>activity schedule</i> is in	(in figures) (in words), excluding VAT
11.2(30)	The tendered total of the Prices is	

PART 2: PRICING DATA
ECC3 Option A

Document reference	Title		No of pages
C2.1	Pricing assumptions: Option A		
C2.2	The <i>activity schedule</i>		

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	
	11.2	(20) The Activity Schedule is the <i>activity schedule</i> 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:

Item No.	Programme Reference	Activity description	Price
		Design	
		Manufacturing	
		Delivery to Site	
		Decommisioning	
		Installation	
		Test and commissioning	

C2.2 the *activity schedule*

Use this page as a cover page to the *Contractor's activity schedule* or provide the schedule here

Item No.	Programme Reference	Activity description	Price
		Design	
		Manufacturing	
		Delivery to Site	
		Decommissioning	
		Installation	
		Test and commissioning	

PART 3: SCOPE OF WORK

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C3.2	<i>Contractor's Works Information</i>	
	Total number of pages	

C3.1: EMPLOYER'S WORKS INFORMATION

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1 Description of the works

1.1. Executive overview

Design, manufacture, supply, delivery, installation, testing and commissioning of the new Drakensberg Control Block HVAC system and the decommissioning and removal of the old Drakensberg Control Block HVAC system equipment at Drakensberg Station.

The scope of the Drakensberg Control block refurbishment project shall include but not limited to the following:

- Replacement of the two old Chiller Units with new chillers of equivalent cooling capacity (88 kW each)
- Replacement of the Refrigerant Pipeline from Chiller Units to the Cooling Coil of the Air Handling Unit and back to the Chiller Units.
- Replacement of the condensate drain pipeline.
- Replacement of the Cooling Water Pipeline from the supply and return isolation valves to the Chiller Condenser inside the Chiller Condenser plant room.
- Inspect power cables for any physical damage and check insulation resistance (megger test) before termination is done.
- Earthing and bonding of the chiller motor to the Station earth.
- Connection of the chiller motors to the existing switchgear. Dimensions of the existing functional unit are 600x625x400mm. Existing drive size is for 25kW.
- Application and verification of compressor protection settings.
- Confirm correct rotation direction.
- Connection of the chiller motors to the existing switchgear and verification of switchgear electrical protection settings.
- Decommissioning, removal from site and disposal of the 2 x old chiller units, including the recovery and/or safe disposal of the R12 refrigerant.
- Design, supply and installation of a chiller controller, which will stop, start and load the chillers based on the cooling demand; determined from the air temperature set point and from the cooling coil inlet/outlet temperatures.
- Remote switching and monitoring of the chillers and fans statuses in the Control Room.
- Verify fire damper operation in the Control Room.
- Remote monitoring of the air flow in the Battery Room from Control Room HMI.
- Development and submission of drawings, manuals and design details in accordance with Eskom Standard.

2 Employer's objectives and purpose of the works

The objective and purpose of the Works are to mitigate the current identified risks about the Drakensberg Control Block Ventilation. To refurbish the system to optimal performance.

3 Interpretation and terminology

The following abbreviations are used in this Works Information:

Abbreviation	Meaning given to the abbreviation
NEC	New Engineering Contract
QCP	Quality Control Plan

4 Management and start up.

5 Management meetings

Regular meetings of a general nature may be convened and chaired by the *Project Manager* as follows:

Title and purpose	Approximate time & interval	Location Drakensberg/ MS Teams	Attendance by: <i>Employer</i> and <i>Contractor</i>
Risk register and compensation events	Ad hoc	Contractor's premises, Drakensberg/ MS Teams	<i>Employer, Contractor, Supervisor, and Others as requested</i>
Overall contract progress and feedback	Weekly before execution Daily during execution		<i>Employer, Contractor, Supervisor, and Others as requested</i>

Meetings of a specialist nature may be 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 shall be submitted to the *Project Manager* by the person convening the meeting within five days of the meeting.

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

6 Documentation control

The Contractor keeps a record of all documentation related to this contract.

All documentation is provided to the Employer in an electronic media format using Microsoft Office, unless otherwise stated.

All documentation complies with Peaking Procedures 167A/143 rev3, Documentation Management Procedure, and 167A/49 rev 2, Standard Drawing Office Practice, and OPS 0002 rev2, Generation Training, Operating and Maintenance Documentation. The documentation and drawings (where applicable) supplied are in South African English, and SI units are used

7 Health and safety risk management

The *Contractor* shall comply with the health and safety requirements contained in Annexure B and C1 to this Works Information.

8 Environmental constraints and management

The *Contractor's* rates tendered shall cover all costs that will be incurred to comply with all requirements of the environmental requirements. Special attention is drawn inter alia to the following aspects:

- The *Contractor's* attention is drawn to the fact that the Power Station is situated in a highly sensitive environmental area and that any incident that may result in an environmental impact must be brought to the attention of the Project Manager as soon as it is possible. The site is managed in accordance with an ISO 14001 certified management system, and the contractor will be expected to manage all processes in line with environmentally sound principles.

- The *Contractor*, in and about the execution of the service, complies with all applicable national, provincial and Municipal environmental legislation and by laws.
- Comply with all environmental legislation of South Africa, including but not limited to:
National Environmental Management Act 107 of 1998
National Environmental Management Waste Act 59 of 2008
National Water Act 36 of 1998
Eskom Waste Standard latest revision
Waste Management: Norms and standards: Act 59 of 2008 latest revision
- The *Contractor* shall comply to all National and Local legislation requirements as well as Eskom procedures and policy. Eskom's goal is to ensure zero harm to the environment, and to ensure that any possible impact is mitigated or managed. The Duty of Care and implementation of best practice is critical during operations, and full communication on environmental issues is required at all times.
- Site/laydown demarcation: The *Contractor* shall demarcate his camp site, be restricted to that specific area and take full responsibility to restore the area to its original condition before the contract commenced.
- Waste management: The *Contractor* shall dispose of all waste off-site at a licensed waste disposal facility and submit proof to Eskom. The method statement on waste management will need to include the identification of possible waste streams, temporary storage and disposal options for each waste type, and contingency plans in the case of any environmental incident. A Safety Data Sheet must be supplied for all chemical or hazardous / potentially hazardous material brought onto site."
- **Recover and not vent R12:**
- R12 is ozone-depleting and regulated under the Montreal Protocol. [appliancesfirst.com]
- Recovery must be done with certified refrigerant technicians using proper recovery equipment.
- Dispose of R12 legally
- R12 disposal must be done by an approved hazardous waste/refrigerant destruction facility.
- Work must comply with South Africa's regulations for refrigerant phase-out and the HVAC-R transition framework.
- **Provide documentation for R12 disposal:**
- Recovery log sheet
- Chain of custody
- Destruction certificate
- Sanitation: The *Contractor* shall provide an appropriate enclosed temporary sanitation facility
- Dust control: The *Contractor* shall be responsible to apply effective dust control measures.
- Fire prevention: It shall be the responsibility of the *Contractor* to prevent fires at all times during the contract.
- The *Contractor* shall take full responsibility for protecting the natural environment and eliminating or minimising the negative impacts of construction on the environment during construction. Nothing specified herein shall relieve the *Contractor* of any obligations or responsibilities in this regard.
- The *Contractor* shall implement an Environmental Policy and plan, in line with relevant various compliance obligations, statutory regulations, including all national, provincial and municipal legislation/regulations.
- Method statements which include environmental protection shall be submitted to the Project Manager within 14 days after the.
- The *Contractor* shall conduct his activities so as to cause the least possible disturbance and adverse impact to the existing amenities, whether natural or man-made, in accordance with all the currently applicable statutory requirements. Special care shall be taken by the *Contractor* to prevent irreversible damage to the environment.
- The *Contractor* shall take adequate steps to educate all members of his workforce as well as his *Supervisory* staff on the relevant environmental laws and regulations. The *Contractor* shall

supplement these steps by prominently displayed notices and signs in strategic locations to remind personnel of environmental concerns.

Method Statements

The *Contractor* shall submit, before 14 calendar days of commencement of any activity, a Method Statement containing details of all site layouts and environmental protection measures proposed to the *Project Manager* for review and acceptance.

- These shall include but not limited to: i. Site establishment layout;
- ii. Pollution prevention measures;
- iii. Waste including water management plan;
- iv. Incident and emergency management

In addition, the *Contractor* shall provide detailed method statements on how he intends to carry out the *works*; this shall apply to all, and any part of the *works* as provided in the *conditions of contract*.

Temporary Services and Facilities

- All fuel storage tanks shall be banded to 110 % of the total storage capacity. Fuel dispensing areas and workshop areas shall be provided with concrete hard standing draining to oil separators. This will also apply to other areas with pollution potential.
- Cleaning, maintenance and repairs of vehicles shall be done off site.

Protection of Rivers, Streams and Watercourses

- All rivers, streams and watercourses shall be protected from direct or indirect spills of pollutants such as garbage, sewage, cement, oils, fuels, chemicals, aggregate tailings, silt and wastewater or organic material resulting from the Contractor's activities. In the event of a spill prompt action shall be taken to clear polluted or affected areas.
- The Contractor shall not work within river flood lines, streams, water courses and wetlands without the written acceptance of the Project Manager as required for the execution of the work.

Refuse and Waste Control

- The management of solid waste on Site shall be strictly controlled and monitored. Only licenced waste disposal landfill sites shall be used.
- The quantities of waste generated on Site shall be minimised; Labelled recycling bins shall be used and waste separated where possible. In addition, a recycled-material collection schedule shall be established and the bins shall be collected regularly;
- Eating areas for the construction staff shall be designated and supplied with waste bins.
- No on-site burying or dumping or unauthorised burning of any waste materials, vegetation, litter, or refuse shall occur;
- Bins provided must have lids and will be sufficient to store the solid waste produced on a daily basis;
- The bins should be emptied at least once a day;
- Waste from bins may be temporarily stored on Site in a central waste area that is weatherproof and scavenger-proof and which the *Project Manager* has accepted;
- All solid waste shall be disposed of off site, at a licenced landfill site. The *Contractor* shall supply the *Project Manager* with a certificate of disposal; and Waste shall be separated into domestic waste, building/construction rubble, scrap metal, oil and grease and hazardous waste and dealt with in the following manner:

Protection of Flora

- The removal, damage and disturbance of indigenous flora are prohibited.

Protection of the Fauna

- The *Contractor* shall protect fauna living within the Site and shall ensure that hunting, snaring, poisoning, shooting, nest raiding, or egg-collecting and disturbance does not occur.

- The *Contractor* is to ensure that his employees are instructed not to feed wild animals.
- The use of pesticides is prohibited unless accepted by the *Project Manager*.
- No domestic pets or livestock are permitted on Site.

Dust

- A dust control programme shall be implemented by the *Contractor* to maintain a safe and healthy working environment/.
- The *Contractor* shall act appropriately to minimise the generation of dust resulting from his works operations and activities.
- The *Contractor* shall prepare and submit a Dust Control Method Statement to the *Supervisor* within 14 days after the Starting Date.

9 Quality assurance requirements

Category 3: Quality Requirements

- The supplier shall complete and sign Form A (Enquiry/Contract/Quality Requirements for Supplier Quality Management Specification 240-105658000/ QM 58 and ISO 9001).
- The supplier shall submit objective evidence of a developed QMS that complies with ISO 9001 (or the latest applicable revision). The following documented information (approved/ signed copies) shall be submitted:
 - o Quality management system manual or a (documented information) that have defines and describes the QMS and its scope
 - o Quality Policy, aligned with the supplier's strategic direction (documented information)
 - o Quality Objectives (documented information)
 - o Control of documented information (both maintain and retain documented information)
 - o Internal audit procedure (documented information)
 - o Control of nonconforming outputs (documented information)
 - o Nonconformity and Corrective action procedure (documented information)

The supplier shall submit a draft contract quality plan that is specific to the scope of work as described in the tender documents. The plan must address the minimum requirements as per ISO 10005.

- Where applicable; the supplier shall submit an example inspection and test plan (ITP) or quality control plan (QCP).
- The supplier shall submit documented information for Control of Externally Provided Processes, Products and Services.
- The supplier shall submit a copy of documented information for roles, responsibilities and authorities in relation to the QMS. Examples of relevant documented information are; organization charts, job descriptions, work instructions, duty statements, manuals, procedures.

10 Programming constraints

- The Contractor is to submit a bar chart program
 - o detailing how he is to execute the works within the stipulated dates.
 - o The program must indicate the start and completion dates and the duration of activities.
 - o Take full cognizance of the Contractor's risk and obligations in terms of the contract.
 - o The program is subject to acceptance by the Project Manager.
- The availability of materials intended for use, including the approval timeframe thereof, is indicated on the plan.
- If the program has to be revised because the Contractor is falling behind, the Contractor submits a revised program showing how he intends to meet the completion date.
- Any proposal by the Contractor to accelerate work must incorporate positive steps to increase production either by the provision of more labour and plant on the site at Contractor's cost or by using the available labour and plant more efficiently.

- The Contractor submits with his quote, day work rates for all personnel, materials, and equipment to be used in the execution of the works.

11 Contractor's management, supervision and key people

- The Contractor provides sufficient staffing to meet the needs of the work.
- Where applicable, the qualifications of the Contractor's personnel are to be in line with the National Qualifications Framework. Qualifications of all staff are agreed with the Project Manager before the start date of the works.
- Contractor's key people to provide their CVs before the start of a task order. The Project Manager provides a list of key people for whom CVs are required.
- The Contractor provides, at the time of tendering and as a compulsory returnable document, a detailed project organogram of the Company's Branch, indicating specifically Operating officers, Communication/ liaison personnel, and technical staff intended for this contract.
- Changes in the structure are communicated to the Project Manager immediately upon coming into effect. The Organogram includes contact details and emergency response (24-hour) information.

12 Invoicing and payment

Within one week of receiving a payment certificate from the Services 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 Services Manager's payment certificate.

- a) The Services Manager to be copied in on all electronic invoices emailed.
- b) Failure to submit the invoice to the correct address could result in delays in payment.
- c) The Contractor's Tax Invoices comply with the requirements as stated in clause Z7 of the Contract Data
- d) Invoices are submitted electronically to:
 - Local Eskom Invoices - invoiceseskomlocal@eskom.co.za
 - Foreign Eskom Invoices - invoiceseskomforeign@eskom.co.za
- e) 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 are be sent in PDF format only
 - Attach the proof of delivery to your invoice
 - Where applicable, supporting documents are be attached to the scanned PDF invoice as one attachment
 - A copy of the signed assessment certificate
 - Any other appropriate documents, e.g.
 - o For shipping invoices, please ensure the following documents are attached
 - o Invoice (this should only reflect the shipping cost)
 - o Commercial invoice
 - o Delivery note
 - o Your shipping costs calculation relevant to that invoice – not a generic calculation (The amount of the shipping costs calculation balances on the amount on the invoice.)
 - o Forwarding agent's invoice
 - o The customs document
 - o Please do not attach unnecessary documents as this will make the file too large

The Contractor shall address the tax invoice to
Eskom Holdings SOC Limited
P O Box 1091
Johannesburg
2000
and include on each invoice the following information

- Name and address of the Contractor and the Service Manager;
- The contract number and title;
- Contractor's VAT registration number;
- The Employer's VAT registration number 4740101508;
- Total amount invoiced excluding VAT, the VAT and the invoiced amount including VAT;
- Contractor's company registration number if applicable
- Contractor's banking details
- Name and address of recipient
- Tax invoice number and date of issue,
- Description of goods/service provided,
- Quantity or volume of goods/services
- Period time for which the Tax Invoice is being rendered,
- Relevant Purchase Order Number (commencing with a 45 prefix),
- Relevant line item number,
- Statement whether value added tax is included or excluded

Payment Queries

For all queries and follow-ups on invoice payments, kindly contact the Finance Shared Services Contact Centre

- Tel: 011 800 5060
- Email: fss@eskom.co.za

Avoid Payment Delays

- Failure to submit a PDF invoice with accompanying assessment electronically to Invoiceseskomlocal@eskom.co.za could result in payment delays.
- Contractor to ensure the Service Manager has an updated valid certified copy of BBBEE certificate or sworn affidavit, tax certificate and Letter of Good standing during contract period. Failure to do so, could result in Eskom Vendor Management Dept blocking vendor details on Eskom vendor management system which affects payment processing of invoices.
- It is important that the value stated on the invoice must be the same as the value stated on the Purchase order. If the invoice value is different from the Purchase order value, payment of the invoice will be delayed.
- It is strongly recommended that if there are any discrepancies on the invoice, it will be rectified with the Service Manager before it is submitted for payment.
- Ensure remittance email address and name on invoice are correct and that Eskom has received the same information to update its records. If different in Eskom's system, it will delay processing of invoice.

13 Insurance provided by the *Employer*

Refer to C1 2a ECC Data by Employer. Queries regarding insurance claims and/or procedures can be addressed with the Project Manager.

14 Contract change management

Contract change management is managed and supported by an instruction to the Contractor by Clause 14.3 of the NEC ECC.

15 Provision of bonds and guarantees

The form in which a bond or guarantee required by the *conditions of contract* (if any) is to be 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.

16 Records of Defined Cost, payments & assessments of compensation events to be kept by the *Contractor*

The Project Manager requires the following information to assess each compensation event

- 1) Labor cost and time allocation for each category or skill level required
- 2) List of individual materials used and associated cost.
- 3) List of individual components and equipment used and associated costs.
- 4) Any other cost not listed above.

17 Training workshops and technology transfer

Refer to 74

18 Engineering and the *Contractor's* design

Employer's design

Not Applicable

Parts of the *works* which the *Contractor* is to design

Design Conditions

The *Contractor* will design the new HVAC system taking into consideration the specified technical data below:

Outdoor conditions

The outdoor design conditions for HVAC are based on the Weather Bureau data. The mean maximum temperature (DB) for summer and mean minimum temperature for winter is taken as a design condition. The Weather Bureau does not list temperature and associated relative humidity (RH) as one set of data.

The Drakensberg PS climate conditions are as follows:

- a) Summer: Ambient Temperature = 36°C DB 11.5°C WB
- b) Winter: Ambient Temperature = -3°C DB -3°C WB
- c) Elevation = 1187 m above sea level

Condensing Unit

- a) Cooling Capacity: 88kW, existing rating per condenser
- b) Quantity: Two
- c) ☐ Compressor motor voltage: 380V/3ph/50Hz
- d) Operating mass: 650 kg
- e) Length: 2500mm
- f) Width: 600mm
- g) Height 1000mm
- h) Operating pressure (condenser side): 1750kPa
- i) Condenser tube material: 90/10 Copper Nickel corrosion proof

- j) Cooling water maximum temperature in summer: 25 °C
- k) Cooling water minimum temperature in winter: 8 °C
- l) Condensing pressure drop: 16 kPa
- m) Condensing water flow rate: 3.2kg/s
- n) Total power input: 25kW

Valves and Piping

- Condenser water piping: 75NB
- Pipe coating internal: Galvanize
- Pipe coating external: Enamel paint to colour code
- Valve seats and discs material: Cast steel
- Valves body material: Cast steel

The plant and material are to be designed and selected with due regard to the installation site conditions, particularly with respect to altitude, ambient temperatures and atmospheric conditions. The plant and material are to be selected to operate within the limits recommended by the manufacturers and where equipment will be required to operate at conditions deviating from the manufacturer's standard selection tables, re-rating is to be done strictly in accordance with the manufacturer's selection procedures.

The *Contractor's* design is to comprise detailed design package which will be reviewed and approved in accordance with *Employer's* design review procedure 240-53113685.

The design data specified in this Specification and those dimensions shown on the tender drawings are intended for tendering purposes only. The *Contractor* is required to take the actual measurements onsite before proceeding with design & manufacture of the complete *Works*, as dimension accuracy remains the responsibility of the *Contractor*.

The *Contractor* is to design, produce required drawings and select plant & material which satisfies:

- a) The overall plant performance and efficiency specification.
- b) The specified reliability; and keep maintenance costs to a minimum.
- c) Local and statutory authorities and construction requirements.
- d) Space constraints; and
- e) Local content

Contractor produces self-explanatory operating and maintenance manuals. The Operating and maintenance manuals are to include the following however not limited to:

- a) Description of *Works*
- b) Operation
- c) Maintenance
- d) As Built drawings & Commissioning Results

The *Contractor* is to execute the following:

- a) Detailed design
- b) Plant and material acceptance testing
- c) Testing and commissioning
- d) Training of operators
- e) Troubleshooting

The *Contractor* is responsible for the detailed design of the *Works* below and that such designs are submitted to the *Employer* and approved prior to procurement and manufacture of any plant and material.

19 Procedure for submission and acceptance of *Contractor's* design

The *Contractor* is the Design Authority for HVAC system, Controls, Electrical, and Building related Works of the contract as defined in the Design Review Procedure 240-53113685. The *Contractor* is responsible for following this design procedure and conducts all the design reviews as specified in this procedure. The *Contractor* is responsible for conducting the following reviews:

- a) Design Freeze Review
- b) Construction Completion Review
- c) Acceptance Testing Review

The following process will be followed during submission of documents:

- a) The *Contractor* submits the documents/drawings to the Project Manager.
- b) The *Employer's* Document Controller registers the documents.

- c) The *Employer's* Document Controller will supply the documents/drawings to all relevant parties within the *Employer's* project team.
- d) The *Employer's* project team reviews the documents/drawings and will submit all comments or inputs to the *Employer's* representative and the *Employer's* representative submits to the *Contractor* for consideration.
- e) If the *Employer* finds major deficiencies in the submitted documents/drawings, the *Contractor* revises the documents/drawings and resubmits to the Project Manager.
- f) The *Employer* reviews the documents/drawings and if no major deficiencies are found, the *Contractor* organises a review session.
- g) The *Employer* and the *Contractor* conduct a review.
- h) If any fundamental errors were found in the review or further actions are required, the *Contractor* record all concerns raised and revises the documents/drawings.
- i) The *Contractor* organises a review session once all documents/drawings have been revised according to the concerns raised by the *Employer*.
- j) If no fundamental errors were found in the documents/drawings during the review session, the *Contractor* compiles the review minutes or report and submits it to the *Employer*.
- k) The *Employer's* Document Controller registers the report.
- l) The *Employer's* project team reviews the *Contractor's* report/minutes. If the report/minutes are not acceptable, the *Contractor* revises the report/minutes and resubmits to the *Employer*.
- m) The *Employer* will accept the *Contractor's* documents/drawings once the report/minutes are accepted by the *Employer's* project team. The *Employer* will have 4 weeks to reply to the *Contractor*.

The *Contractor* is to implement the following activities for approval:

- a) The *Contractor* reviews, stamps, dates and signs to signify his approval and submit in the manner required by the *Employer* in orderly sequence to cause no delay in the work, all *Contractor's* drawings, equipment selections and/or samples required by the *Works* or subsequently by the *Employer*. *Contractor's* drawings, equipment selections and samples are to be properly identified as specified or as the *Employer* may require.
- b) At the time of submission, the *Contractor* informs the *Employer* in writing of any deviation in the *Contractor's* drawings, equipment selection or samples from the requirements of the *Works*.
- c) By submitting drawings, plant & material selections and/or samples, the *Contractor* represents that he has determined and verified all site measurements, site instruction criteria, materials, catalogue numbers and similar data, and that he has checked and co-ordinated each services drawing and sample with the requirements of the *Works*.
- d) The *Employer* reviews *Contractor's* drawings, plant & material selections and samples to cause no delay, but only for conformance with the design of the *Works*. The *Employer's* approval of a separate item does not indicate approval of an assembly in which the item functions.
- e) The *Contractor* makes any corrections required by the Project Manager and re-submits the required number of corrected copies of the *Contractor's* drawings, plant & material selections or new samples until approved. The *Contractor* directs specific attention in writing on resubmitted drawings to revisions other than the corrections required by the Project Manager on previous submissions.

The following documents are supplied to the *Employer* by the *Contractor* as a minimum:

- a) Documents including equipment data sheets and specifications for selected equipment, electrical cabling and other associated equipment.
- b) Dimensioned shop drawings showing the general arrangement of all plant and equipment including isometrics and P&ID's or PFD's where required. Sufficient views must be given to ensure clarity and the drawings are to have at least a plan and two different elevations or sections giving overall dimensions.
- c) Dimensioned shop drawings showing proposed method of fixing of all the plant and equipment
- d) Detailed electrical wiring diagrams including schematic and control circuits.

- e) Detailed sequencing manner for installation procedure of Works
- f) Detailed programme for the *Works* in sufficient detail as to represent the units of work to enable the representative to assess the progress of the *Works*
- g) Technical specification and literature for all items of equipment that forms part of the complete installation, including, evaporators, condensing units, refrigerant circuits, ventilation fans, electrical and control circuits etc.
- h) Proposed corrosion protection systems, including data sheets for coating of proposed equipment
- i) List of recommended spares and technical specifications for the spares, part numbers and the stock levels required
- j) Detailed maintenance, reliability, control and operating philosophies
- k) Testing, balancing and commissioning procedures
- l) Plant and material acceptance testing
- m) Detailed operation & maintenance manuals with As-Built drawings & Commissioning Results
- n) Plant codification lists for each section of the Works
- o) Construction completion reviews
- p) Accepted testing reviews
- q) ITP or QCP
- r) Close out report

Use of Contractor's design

The *Contractor* grants to the *Employer*, with effect from the starting date, an irrevocable royalty-free non-exclusive licence to use all the documents provided to provide the *Works* (including, but not limited to calculations, drawings, manuals, models and other documents of a technical nature). This is for any purpose whatsoever, including for the purpose of operating, repairing, maintaining, dismantling, re-assembling and making adjustments to all parts of the *Works*.

20 Other requirements of the Contractor's design

The Contractor is to comply with all legislated safety requirements as well as Eskom's health and safety standards.

The decommissioning, removal of all redundant equipment and making good where required is to include the following, however not limited to:

- a) The Contractor is responsible for decommissioning, dismantling, removal, lifting, transport and storing (including making good thereof) of existing redundant or retired equipment to the allocated space provided by the Employer.

The term "making good" refers to the following, however not limited to:

- a) All areas where old plant or material is removed on the plant are made neat by means of closing of holes, grinding of old anchor points and welding, repainting and resurfacing.
- b) The interface point between the new system and existing plant or material is made neat and functional to prevent weak points in the final delivered product e.g. the fixing of brackets and supports of interface boxes, covers, locking nuts etc.

The Contractor provides all scaffolding, crane, transport, etc necessary for decommissioning, dismantling, removal, lifting and transportation of the existing redundant or retired equipment. The Contractor provides dust sheets and everything necessary for clearing and removal of all rubble due to the work, for the protection of the work from damage due to the operations. Contractor is to take adequate precautions to the satisfaction of the Employer to prevent damage to existing apparatus during erection operations.

The retired HVAC equipment is to be decommissioned and dismantled according to the manufactures' instructions and the relevant codes & standards. The retired HVAC equipment containing a refrigerant is to be pumped down of both refrigerant & oil and should be labelled as containing no refrigerant as soon as it's been decommissioned, dismantled and stored away.

Items to be removed are marked clearly before decommissioning start to avoid the removal of incorrect plant or material.

All existing plant that is removed is deemed re-usable and remains the property of the Employer. Decommissioning and dismantling of retired HVAC equipment that maybe required for future use should include the following however not limited to:

- a) Disconnection of power supply and making safe thereof.
- b) Disconnecting of water supply and draining of, to nearest drain point.
- c) Removal of all refrigerant into approved recovery approved containers for retention or returned to the supplier or manufacturer for reclaiming as defined by SANS 10147, SANS 10250, ISO 11650, BS EN 378-4 or any relevant standard.
- d) Safe dismantling of the existing machines and the safe removal from site to the allocated storage area provided by Employer.

Design of Equipment

The minimum general equipment design criterion that is to be met is as follows:

- a) The equipment is to be designed to facilitate efficient manufacture, inspection, transportation, installation, maintenance, cleaning and repairs.
- b) The equipment is to be designed to ensure safe and satisfactory operation for at least 15 years for Direct Expansion under the conditions prevailing at Drakensberg Power Station.
- c) The equipment is to be designed to prevent undue stresses being produced by expansion and contraction due to temperature change and other local natural and manmade conditions.
- d) The equipment is to be designed to keep maintenance costs to a minimum.
- e) The equipment is to be designed to comply with all the legal requirements in respect of safety and the prevention of environmental pollution.
- f) The equipment is to be designed to satisfy any specific requirements contained in the relevant statutory codes and standards.
- g) The equipment is to be designed for operation of 365 day per annum, 24hrs per day.
- h) The equipment is to be designed such that all material from which the equipment is manufactured from is compatible with the intended duty and service conditions. All equipment is suitable treated and protected from corrosion.
- i) After the design freeze, the information stated in the data sheets is to be fully complied with through the installation, unless otherwise agreed upon by both the Employer & Contractor in writing.

Equipment required to be included in the works

The *Contractor* is required to provide lifting facilities (hoist/crane) and other equipment required for the execution of the complete *Works* as detailed by the Scope of Work. All such equipment shall be adequately designed, tested and installed in accordance with the lifting equipment regulations and shall remain behind to form part of the works, to be used by the *Employer* for maintenance.

As-built drawings, operating manuals and maintenance schedules

The importance of managing the "as-built", "operate-to" and the "maintain-to" operation and maintenance manuals including maintenance schedules for each piece of equipment of the equipment is critical to the life of the plant. The operating & maintenance manuals are to be detailed enough to operate, maintain, dismantle, reassemble, adjust and repair plant & equipment.

As – built Drawings

The *Contractor* is to provide "As Built" drawings based on the shop drawings embodying all modifications made during construction. The "As Built" drawings are to include general arrangement and sections of all plant and equipment including isometrics and P&ID's or PFDs. Safety, instrumentation, control and operation drawings are also to be included "As Built" drawings indicating the intended functioning, capacity data and control functioning of all systems.

The As-Built drawing is to indicate all relevant plant coding and labelling. The determination of these codes and labels is to be done in accordance with the documents listed in this Scope of Work.

Two hard copies of "As Built" drawings are to be submitted to the *Employer* for approval.

5.8.1.1 Transfer of Rights

The *Contractor* to transfer rights over drawings, documents, designs and the like to the *Employer* after *Completion* of the services.

5.8.2 Operating Manuals and Maintenance Schedules

The Operating & Maintenance Manual must describe how the facility is to be operated and by whom, as well as the desired level of training and orientation required for the building occupants.

The operation and maintenance manuals are to consist of the following as the minimum:

- a) List of Contents (Index)
- b) Introduction
- c) General description of the functions of each of the systems including detailed description of each element of each system, how it functions, how it operates and how to maintain it and what attic stock or tools to carry.
- d) Full as-built drawings and detailed drawings, brochures and catalogues for each system and each element of each system.
- e) The format of the O&M documentation is to be A4 and is to be a specially bound document with hard cover and with metal ring binding. (All drawings and details are to be reduced to A3 format and folded into A4 format). A soft copy is to be provided as well
- f) The names, addresses and telephone/fax numbers/email addresses of all responsible persons and manufacturers/suppliers are to be listed in the O&M document.
- g) Colour diagrams are to be provided to illustrate the operation and function of each system with reference to the relevant as-built drawings or brochures of equipment. These diagrammatic drawings are to also indicate the locations of valves with their numbers.

21 Procurement

22 People

23 Minimum requirements of people employed on the Site

Contractor personnel are to have good verbal and written skills in English.

A full staffing complement is always in place. The Contractor ensures that complementary staff is available during any absence of a worker or any abnormal situation, inter alia, leave, training.

The Contractor complies with the South African Labour Relations Act and ensures that their staff is compensated with a fair and reasonable wage

24 BBBEE and preferencing scheme

Contractor to ensure the Project Manager has an updated, valid, certified copy of the BBBEE certificate or affidavit during the contract period. Failure to do so could result in Eskom Vendor Management.

Dept blocking vendor details on the Eskom vendor management system, which affects payment processing of invoices.

25 Subcontracting

All matters about subcontractors (including nominated subcontractors) and the work executed by them are dealt with directly between the Employer and the Contractor in the context of all subcontract work being an integral part of the works for which the Contractor is responsible.

The Employer does not liaise directly with any subcontractor nor issue instructions concerning the subcontract works directly to any subcontractor.

All matters arising out of the subcontract agreements are dealt with directly between the Contractor and the subcontractor, and the Employer is not involved.

26 Preferred subcontractors

Not Applicable

27 Subcontract documentation, and assessment of subcontract tenders

Not Applicable

28 Limitations on subcontracting

Not Applicable

29 Attendance on subcontractors

Not applicable

30 Plant and Materials

31 Quality

The *Contractor* is not to use Plant or Materials, which are generally recognised as being unsuitable or otherwise to be avoided for the purpose for which they are intended.

Only components of high reliability are to be utilised, with a proven operating history, to enable the Plant to achieve required reliability and availability. Plant and Material design, engineering and manufacture to accord with the best modern practice applicable to high-grade products of the type to be furnished, to ensure the efficiency and reliability of the Works and the strength and suitability of the various parts for the Works.

Plant and Materials withstand ambient conditions and the variations of temperature arising under working conditions without distortion, deterioration or undue strains in any part.
All parts are made accurately, and where practicable, to standard gauges to facilitate replacement and repairs. Like parts are interchangeable.

No repair of defective Plant and/or Materials are to be permitted without the *Employer's* approval and any such repair, if approved, are to be carried out to the satisfaction of the *Employer*.
The *Employer* is free to specify hold and witness points during the installation and on-site testing stages of the project. The *Contractor* issues preliminary notification of such hold and witness points as per agreed schedule to the *Employer* and confirms such hold and witness points at least seven working days prior to the activity.

The suggested minimum project hold points are listed below:

- a) Design Review
- b) Factory Acceptance Test
- c) Erection Completion
- d) Commissioning

Documentation regarding quality procedures is to be submitted to the Employer after Contract Award. The Employer is to review and comment on the acceptability of these documents in a time frame as per the requirements of the contract for contractual correspondence. If controlled copies of

these documents have been submitted to the Employer, then the controlled copy numbers may be quoted in the submission.

Product Support

The *Contractor* is to select product from an OEM who is available locally. The *Contractor* shall hand over to the *Employer* any warranty balance with the OEM

Defects correction

The *Contractor* is to correct all defects arising from the work done by the *Contractor*. The *Contractor* shall have 12 months period to correct all defects. A maximum response time of 2 days will be allowed for all failures from the time the notification had been delivered to the contractor.

32 Plant & Materials provided “free issue” by the *Employer*

None

33 *Contractor's* procurement of Plant and Materials

The *Contractor* is responsible to procure all plant and materials that is required for them to complete the *Works*.

The *Contractor* is to take all necessary steps to ensure that all Plants and Materials are adequately protected against damage during shipping, transport and storage

34 Spares and consumables

A critical and recommended spares list must be supplied and is priced separately. All basic routine maintenance spares shall be available.

The *Contractor* ensures that all critical spares are available during commissioning to prevent any delays due to equipment failure.

A complete recommended spares list includes the following details:

- Detailed description, including dimensions and material specification
- Part number
- Special storage requirements
- Replacement part or routine maintenance part
- Quantity
- Cost
- Lead time
- Supplier full contact details and address
- Applicable test/calibration/material certificates
- The *Contractor* provides a list of all suppliers used to supply components for the works, including the components that have been supplied by each supplier.
- The *Contractor* submits a completed pre-delivery checklist to ensure all prerequisites have been complied with for the equipment to be transported to the site. The Project Manager signs off on the checklist before the equipment is transported to the site.

35 Tests and inspections before delivery

The *Employer* carries out quality inspections at own discretion. The Employer is to inspect and approve stages of manufacture of all equipment necessary to ensure the correct quality of equipment as prescribed in the approved project quality plan.

All inspections and testing to be performed in accordance with the Quality Control Procedure (QCP) developed by the *Contractor* after approval by the *Employer*.

The *Contractor* is to provide facilities for inspection of all items of equipment at the place of the manufacture and this requirement is to be extended to all Sub-contractors and suppliers. All material labour or assistance, tools, gauges, articles or apparatus that the *Employer* may require for the purpose of testing, gauging and inspection, are to be provided by the *Contractor*. The *Contractor* is to provide all such facilities for testing, and the contract price is to include for this.

The *Employer* reserves the right to reject items that do not conform to the *Employer's* requirements. When the plant has passed the test referred to in this Scope of Work document, the *Employer* is to furnish to the *Contractor* a certificate or endorse the *Contractor's* test certificate to that effect. Examination by the *Employer* is not to relieve the *Contractor* from the responsibility of carrying out all tests which may be necessary to ensure the required standard of manufacture or from any obligations in terms of the contract.

The achievement of adequate standards during the tests at the place of manufacture, if performed, is only the first requirement. The final criterion is the performance onsite, and any of the requirements which prove defective due to bad workmanship or material are to be replaced forthwith by the *Contractor* at his/her own cost on the instruction of the *Employer*.

The following tests are conducted by the *Contractor* and are to be witnessed by the *Employer* at the manufacturer's *Works* or *Contractor's* premises as a minimum requirement:

- a) Visual inspection of the equipment.
- b) Review of the certification requirements.
- c) Functional tests of the systems and controls including starting & stopping procedures.
- d) Inspection of paint work and corrosion protection.
- e) Verification that all components are delivered to the *Contractor's* premises.
- f) Verification that all power plugs is correct.
- g) Verification that components installed is correct.
- h) Verification that all labels are correct.
- i) Phase rotation.

36 Marking Plant and Materials outside the Working Areas

All Plant and Material paid for by the *Employer* must be clearly labelled as being the *Employer's* property.

37 Contractor's Equipment (including temporary works).

The *Contractor* provides the following to complete the *Works*:

- a) All scaffolding required.
- b) Any equipment necessary to complete the *Works*.
- c) Lifting facilities.

The *Contractor* supplies, installs, maintains and removes all temporary construction facilities and utilities necessary to provide the *Works*.

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38 Cataloguing requirements by the Contractor

None

39 Construction

40 Temporary works, Site services & construction constraints

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

General access to the power station is controlled, and Site induction is completed before *Works* is allowed to start. It is the responsibility of the *Contractor* to ensure that all employees have attended the Site Induction.

Before work starts on the Site, a Site inaugural meeting is held between the *Contractor* and the Employer, where details of the work are discussed and clarified.

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.

The *Contractor's Site Supervisor* is on Site for the entire duration of the *Works*.

The *Contractor* must adhere to all security regulations in force during the period of the contract.

Before entry to the Site will be allowed, everyone must undergo an alcohol breathalyser test, which needs to be passed to be allowed on site. This is one of the five Life-saving Rules to which the *Contractor* is required to adhere at all times.

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

The *Contractor* satisfies himself and complies with the Site conditions presented during induction.

The *Contractor* is required to comply with all Site restrictions about the Site's roads, walkways, and barricades.

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

The working hours at Drakensberg Power Station are as follows:

Monday to Friday: 07h00 – 16h30

44 Health and safety facilities on Site

The health and safety facilities on the Site are discussed in detail during the Site induction and comply with the requirements as stipulated under 2.3.

45 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 environmental area and that any incident that may result in an environmental impact must be brought to the attention of the Project Manager as soon as it is possible. The site is managed by an ISO 14001 certified management system, and the *Contractor* is expected to manage all processes in line with environmentally sound principles.

46 Title to materials from demolition and excavation

The *Contractor* has no title to materials from the *Works*.

47 Cooperating with and obtaining acceptance of Others

The *Contractor* liaises and interacts with the power station operating staff and, from time to time, all other *Contractors* working on other projects. Proper coordination and work must be done when working in any area of the plant, and where others are also performing work or activities. Interfacing is required with the site personnel and others. The *Contractor* ensures that access routes remain open throughout service

48 Publicity and progress photographs

The *Contractor* requests permission for photography and progress photographs, if required. Approval must be obtained from the Plant Manager

49 Contractor's Equipment

The *Contractor* shall submit to the *Employer* a method statement describing the proposed procedures and sequences for the delivery to site and hoisting into final position of the mechanical and electrical services equipment for each stage of the project

50 Site services and facilities

a) General

Access to the Power Station is restricted to authorized personnel only. All *Contractors'* staff is required to be cleared by security. *Contractor* gives 24 hours' notice to the Employer of his intention to enter security-controlled areas.

As the *Works* are performed within an operating power station environment, the *Contractor* liaises and interacts with the power station operating staff and from time to time all other *Contractors* working on other projects. The *Contractor* ensures that access routes remain open throughout the period of construction.

b) Source of Water Supply

The nearest potable water connections will be indicated but it is the *Contractor's* responsibility to arrange for all such services required in the execution of the *Works*. No warranty is offered or given by the *Employer* that the existing water supply availability will be adequate for the *Contractor's* purpose nor is that such supply in any way guaranteed. *Contractor* makes his own provision for standby supplies to maintain continuity of *works*. Claims of any nature relating to discontinuity of water supply are not considered

c) Source of Power Supply

- The nearest electrical power supply will be indicated but it is the *Contractor's* responsibility to arrange for all such services required in the execution of the *Works*.
- There is no energy charge for electricity used. No connection is made to the permanent installation at the power station without the prior acceptance of the Project Manager.
- No guarantees of power supply quality are given and power supply breaks of some duration may occur without warning. However, every longer interruption of more than 1 hour per week has as a minimum impact on the time schedule. Solutions must be considered mutually.
- Any electrical equipment, or appliances used by the *Contractor* conforms to the applicable OHS ACT safety standards and is maintained in a safe and proper working condition. The *Employer* has the right to stop the *Contractor's* use of any electrical equipment, or appliance, which, in the opinion of Project Manager, does not conform to the foregoing.
- The *Contractor* provides at his own expense, all temporary wiring and cabling to lead power from the *Employer's* supply points, to where it is required, maintain same and remove on completion. These points of supply are the points designated by the *Employer*

d) Ablution facilities

The *Employer* indicates which ablution facilities including toilets may be used

e) Telephones

- No telephones will be provided.
- The *Contractor* shall plan for his own telephone facilities.

f) Lighting

Temporary local lighting in accordance with the requirements of the OH&S ACT as amended is provided by the *Contractor* at his own expense. No local lighting is provided

by the *Employer*. All construction lighting is the responsibility of the *Contractor*.

g) Site Induction

- The *Employer* performs a Safety and Environmental induction on site.
- This will be arranged prior to commencement of the *Works*.

h) Accommodation and office space.

The *Employer* will not be responsible for accommodation or provision of office space. The *Contractor* will have to make arrangement for this.

i) Vehicles

No vehicle will be allowed underground unless it is required for transportation of material or equipment.

51 Facilities provided by the *Contractor*

The *Contractor* provides all facilities and services required for completion of the works as detailed in the Scope of *Works*, including site medical and fire-fighting facilities.

52 Existing premises, inspection of adjoining properties and checking work of Others

The *Contractor* will inspect the work of others on the adjoining properties, which can affect the work done by the *Contractor*

53 Survey control and setting out of the works

The *Contractor* will conduct surveys of the site before any *Works* commence.

54 Excavations and associated water control

No excavations will be necessary. The *Contractor* will utilise the existing water supply point at the station.

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

The *Contractor* will not disturb other existing services while undertaking the new HVAC *Works*.

56 Control of noise, dust, water and waste

Medical surveillance is conducted annually, and the prescribed personal protective equipment should be adhered to. Segregation of waste is identified on site with a label and marked waste bins. Signage is identified on site for potable and drinking water.

57 Sequences of construction or installation

The *Contractor* ensures that the construction will be conducted in a systematic manner to avoid delays in the completion as per agreed program.

58 Giving notice of work to be covered up

Not applicable

59 Hook ups to existing works

The *Contractor* will utilise the existing HVAC services to complete the HVAC *Works*.
The Existing Structural Features/Improvised Anchors may need to be verified by a qualified engineer or competent person to ensure that the anchor point has adequate capacity to be used as an anchor point. Movement can be restricted.

60 Completion, testing, commissioning and correction of Defects

61 Work to be done by the Completion Date

The contract is deemed to be complete when the following have been completed in accordance with the relevant specifications:

The Plant is erected, and commissioned

b) Signed erection and safety clearance certificates.

c) The final drawings have been submitted and accepted

d) All documentation has been submitted including testing reports and the associated certificates received. All Quality Control Plan (QCP) documentation received. Final Draft of the Technical, Operating, Maintenance manuals delivered

e) The Plant and all documentation I drawings are coded and labelled.

f) All special tools have been supplied

On or before the Completion Date the *Contractor* shall have done everything required to Provide the Works except for the work listed below which may be done after the Completion Date but in any case before the dates stated. 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.

	Item of work	To be completed by
	As built drawings of all parts of the Works	Within 30 days after Completion
	Performance testing of the <i>works</i> in use as specified in paragraph 5.2.1 of this Works Information.	See performance testing requirements.

62 Use of the works before Completion has been certified

Employer may not use any part of the *Works* before Completion has been certified.

63 Materials facilities and samples for tests and inspections

The *Contractor* provides all Materials, facilities and/or samples required for tests and inspections.

The *Employer* reserves the right to call for samples of equipment offered to inspect the workmanship as the work proceeds and either accept or reject the equipment or workmanship. The *Employer's* approval of the design, material and workmanship are to in no way reduce the *Contractor's* liability to provide a complete and proper working plant which is abreast with modern technology.

The *Contractor* must allow for control samples of the following which are to be approved by the *Employer* and are to be held in the site office to establish the quality standards:

- Control sample of ducting to establish the ductwork quality standard

- b) Control sample of welded, insulated, and cladded piping to establish the pipework quality standard.

64 Commissioning

The *Contractor* is to submit a consolidated commissioning plan to the *Employer* for acceptance. The consolidated commissioning plan will be compiled following SANS and CIBSE codes or other commissioning procedure or code approved by the *Employer*.

The *Contractor* does comprehensive pre-commissioning, commissioning as well as quality monitoring on all the HVAC and its sub-systems and is to provide a report with the following details.

- a) Demonstrate that the services were commissioned in compliance with SANS OR CIBSE Commissioning Codes or ASHRAE Commissioning Guideline for all mechanical services.
- b) Include commissioning dates, records of all functional/commissioning testing undertaken, a list of any future seasonal testing, and a written list of outstanding commissioning issues.
- c) Include the outcomes and changes made to the building as a result of the commissioning process, accounting for all the recommendations; and
- d) Reference appended extracts of commissioning records for major plant and equipment.
- e) Ensures that the correct performance of the equipment, safety of plant and personnel, and compliance with the Technical Information before commissioning of plant commences is achieved.

The commissioning procedure is to be prepared by the *Contractor*. During commissioning the *Contractor* set the installation to work and competent personnel demonstrates and explain the operation and maintenance procedures for the installation and for each item of plant to the *Employer*. During commissioning if any item is found to be unsatisfactory the fault is rectified and/or new components fitted and commissioned by the *Contractor* at their own expense. The *Contractor* then rebalances and commission the system or part thereof affected at their own expense.

After successful completion of the commissioning and proof period of the installation and any maintenance materials as listed in the Specification and those normally supplied by equipment manufacturer are handed over, the maintenance period commences. Items of equipment which are of a specialist nature e.g. automatic controls etc. are to be commissioned by the manufacturer's representative who instruct the *Employer* on the function and proper operation of the equipment.

65 Start-up procedures required to put the works into operation

No alterations or adjustments are to be made to the *Works* after functional checks are done without the *Employer's* written permission.

At this stage the following is to be achieved:

- a) Installation and pre-commissioning completed.
- b) Testing report and the associated certificates received.
- c) Signed erection and safety clearance certificates.
- d) Final Draft of the Technical, Operating, Maintenance manuals delivered.
- e) All Quality Control Plan (QCP) documentation received.

66 Take over procedures

The *Employer* takes over the *Works* after successful commissioning.

67 Access given by the *Employer* for correction of Defects

The *Contractor* will correct all defects resulting in the *Works* undertaken by the *Contractor*. The *Employer* allows the *Contractor* access and sufficient time to correct defects after the completion of *Works*

68 Performance tests after Completion

The *Contractor* performs a pressure test on the condensing unit as specified in section Condensing unit

69 Training and technology transfer

After completion of the contract, the *Contractor* is required to provide training and transfer system knowledge to the *Employer*. This is done by submitting the documented Design Intent, As-built drawings, Operational and Maintenance Manual, Commissioning Records, Commissioning Report and by providing training on all the systems to the *Employer's* personnel to ensure that they have all the information and understanding needed to operate and maintain the features and systems in the various areas.

The *Contractor* is to provide on-site training and training material to the Engineers, Operators and Maintenance personnel prior to taking-over of the *Works*. The training is preferable to be offered during the commissioning and testing for a minimum of ten (10) personnel. The *Contractor* is to, prior to handing over of the *Works*, satisfy the *Employer* that maintenance and operational personnel are competent and adequately trained to maintain and operate the equipment supplied.

The training is to cover the following, however not limited to:

- a) Information provided in the design intent report (including energy/environmental features)
- b) Review of controls set up, programming, alarms and troubleshooting
- c) Review of O&M manuals
- d) Building operation (start up, normal operation, unoccupied operation, seasonal changeover, shutdown)
- e) Measures that can be taken to optimise energy efficiency
- f) Occupational health and safety (OH&S) issues
- g) Maintenance requirements and sourcing replacements
- h) Obtaining and addressing occupant satisfaction feedback

Steps for conducting On-site Training are to include:

- a) Preparation
- b) Introduction
- c) Explanation
- d) Demonstration
- e) Practice Under Supervision
- f) Conclusion

The operating and maintenance manual are to be available during the training of *Employer's* personnel. *Employer's* personnel are to be made familiar with the contents of that manual.

70 Operational maintenance after Completion

None

71 Plant and Materials standards and workmanship

72 Investigation, survey and Site clearance

The design data specified in this Scope of Work and those dimensions shown on the tender drawings are intended for tendering purposes only. The *Contractor* is required to take the actual measurements onsite before proceeding with design & manufacture of the *Works* as dimension accuracy remains the responsibility of the *Contractor*.

73 Building works

Not applicable

74 Civil engineering and structural works

The *Contractor* will design, the chillers of the new HVAC system to be supported by the existing supports of the old HVAC system. The *Contractor* shall assess the existing chiller supports for adequacy, if the existing chiller supports are found to be inadequate, the *Contractor* shall design manufacture, install, test and commission the new supports for the chillers.

75 Electrical & mechanical engineering works

The *Contractor* is responsible for the design and provision of the following, as a minimum:

- a) The *Contractor's* electrical discipline allows for the detail design; supply, delivery, installation, testing, commissioning and handing over of the HVAC related electrical *Works*. The *Contractor* also needs to verify the protection set points on the switchgear for the chiller.
- b) Plant and material selection; installation and as built drawings; testing, balancing and commissioning Documentation; Operating Instruction and Maintenance Manuals; and Inspection Record Cards/Checklists.
- c) The *Contractor* will use the existing cables as far as possible to execute the *Works*.
- d) The *Contractor* is responsible for the design and provision of all necessary earthing material for the plant. Earthing of the plant complies with the requirements set out in 240-56356396. The *Contractor* connects all earthing bars to the nearest existing earth mat bar.
- e) Testing and commissioning of HVAC related Electrical *Works*

Electrical Power Supply

- a) The parameters of the existing motor starter functional unit are as follows:
 - dimensions 600x625x400mm as shown in drawing 0.48/4138
 - drive size 25kW
- b) It is the responsibility of the *Contractor* to perform the temperature rise verification, as per *Contractor's* design based on the given functional unit dimensions. In a situation that verification indicate that the functional unit volume is inadequate, the *Contractor* makes provision for a stand-alone control panel, conversion of existing motor starter circuit to a feeder circuit and the cables from that feeder circuit to a new control panel.

The following shall be incorporated when designing the HVAC power supply:

- a) All electrical cabling and Earthing & lighting protection standard will comply with Eskom specification 240-56227443 and 240-56356396 respectively.
- b) All cables and plant equipment shall be labelled (Electrical warning signs, Arc flash sticker and KKS coding)
- c) All cable to be secured on cable racks.

HVAC Distribution Panel

The *Contractor* submits the designs to the *Employer* as per section 5.3 (PROCEDURE FOR SUBMISSION AND ACCEPTANCE OF CONTRACTOR'S DESIGN) of this document for acceptance. It is responsibility of the *Contractor* to ensure that the designs comply with requirements specified in 240-56227516 and SANS 10142-1.

Cable and Racking

The *Contractor* designs and provides all power and control cables, cable racking and support structures required for the provision of the *Works*. Provision of cabling is in accordance with 240-56227443. The *Contractor* is responsible for sizing, selection and installation of all cables from Air Conditioning Control Block board to the HVAC plant.

The *Contractor* provides cable schedules and cable termination schedules using the templates provided by the *Employer*.

Existing cables and cable racks are to be used as far as possible, and it is the *Contractor's* responsibility to perform all the cable tests

The Employer provides the following documentation/templates for Electrical plant:

- a) Applicable Eskom standards and specifications.
- b) Electrical Load List Template (240-56227927)
- c) Electrical LV Switchgear Schedule Template (240-56356421)
- d) Electrical Cable Schedule (240-56176097)
- e) Electrical Termination Schedule Template (240-77302094)

All *Employer* information and property made available to the *Contractor*, including the work done by the *Contractor* for the *Employer*, is confidential and may not be disclosed.

The Employer will accept the following set of drawings:

- a) General Arrangement drawings for each panel
- b) Single line drawings
- c) Schematic diagrams for each circuit (this must include all the wire numbers, termination numbers, termination strip numbers, fuse sizes and spare contacts).
- d) Electrical Load List.
- e) Electrical Cable Schedule.
- f) Electrical Termination Schedule and
- g) Technical Manuals

Mechanical Works

The *Contractor* will design the new HVAC system as per scope of work in section 2.1, taking into consideration the operating condition and existing HVAC equipment technical data in section 5.2. The scope of supply shall include, but is not limited to the following:

Supply of the two Chiller Units, each with the following specification:

Parameter	Dimensions
Mass	650kg
Cooling Capacity	88kW
Compressor Motor Voltage	380V, 3ph, 50Hz
Length	2500
Width	600mm
Height	1000mm
Operating Pressure	1750kPa

Supply of the cooling water supply piping valves and joints to the Chillers and return piping

Item	Material	Dimensions	Quantity
Gate Valves	Cast Iron	3" (75NB)	6
Throttle/Control Valve	Cast Iron	3" (75NB)	2
Y strainer connected to 3" (75NB) Carbon Steel pipe	Carbon Steel	3" (75NB)	2
90 Deg Elbow Bends	Carbon Steel	3" (75NB)	4
Return Pipeline Length	Carbon Steel	10m	
T Junction	Carbon Steel	3" (75NB)	2

Refrigerant supply pipeline to the AHU and return pipeline from the AHU

Item	Material	Dimensions	Quantity
Refrigerant Supply Pipe Diameter	Copper	1" (25NB)	
Return Refrigerant Pipe Diameter	Copper	2" (50NB)	

Refrigerant Supply Pipe Length	Copper	9m	2
Return Refrigerant Pipe Length	Copper	10m	2
Solenoid Operated Valves connected to 2" (50NB) copper pipe	Brass	2" (50NB)	4
Gate valves	Brass	2" (50NB)	10
Y strainer	Brass	2" (50NB)	2
Filters	Brass	2" (50NB)	2

C&I Works

The *Contractor* shall ensure that the supplied equipment is capable of communicating with the Control Room HMI via IEC 61850 ((preferred option) or Modbus TCP/IP. The communication shall support the transmission of all required operational feedbacks, status indications, and alarm signals to enable full remote monitoring and alarm annunciation on the Control Room HMI.

The *Contractor* shall ensure remote switching and monitoring of the chiller status and fans in the control room.

The *Contractor* shall verify fire damper operation in the control room. The *Contractor* shall also ensure that in the Battery Room there is full remote airflow monitoring and alarm annunciation on the Control Room HMI

Commissioning and Hand over Documentations:

The *Contractor* submits commissioning documentation to the *Employer* for approval. The *Contractor* follows the 240-60665215 – Project Delivery Commissioning Management Procedure, when compiling commissioning documentation.

The *Contractor* will submit to the *Employer* hand over documentation for approval. The *Contractor* will follow 240-124341168 – Project/Plant Specific Technical Documents Handover Work Instruction, when compiling the hand over documentation. The *Contractor* shall ensure that the documentation is complete, correct and up to date.

76 Process control and IT works

- The *Contractor* designs, procures, installs, engineers, tests and commissions HVAC plant controllers for the new HVAC plant.
- The *Contractor* will use a proprietary control system for the new HVAC chiller.

77 Other

8.9.1 Applicable Standards and Codes

Number	Title
SANS 10400	The Application of the National Building Regulations
SANS 10108	The Classification of Hazardous Locations and the Selection of Equipment for Use in Such Locations
SANS 10103	The measurement and rating of environmental noise with respect to annoyance and to speech communication
SANS 61800	Adjustable speed electrical power drive Systems
SANS 10140-3	Identification colour marking Part 3: Contents of pipelines
SANS 10142-1	The wiring of premises Part 1: Low-voltage installations
SANS 10147	Refrigerating Systems including plants associated with air-conditioning Systems

Number	Title
SANS 1551-1	Check valves (flanged and wafer types) Part 1: PN series
SANS 1551-2	Check valves (flanged and wafer types) Part 2: Class series
SANS 1849	Butterfly valves for general purposes
ASHRAE 15	Safety Codes for mechanical refrigeration
ASHRAE 62	American Society of Heating Refrigeration and Air Conditioning Engineers. Ventilation for acceptable indoor air quality
ASHRAE 55	Thermal environmental condition for human occupancy
ASHRAE 52/76	Standard test method for filters
ASHRAE G1	Guideline for commissioning of air conditioning System
240-56355754	Field Instrumentation Installation Standard
240-56355815	Field Instrument Installation Standard - Junction Boxes and Cable Termination
240-56227443	Requirements for Control and Power Cables for Power Stations Standard
240-56356396	Earthing and Lightning Protection Standard
240-40643427	Coding and Labelling Standard
240-56227516	LV Switchgear and Control Gear Assemblies and Associated Equipment for Voltage up to and Including 1000V AC and 1500V Standard
240-56176097	Electrical Cable Schedule Template
240-56227927	Electrical Load List Template
240-56356421	Electrical LV Switchgear Schedule Template
240-56356465	Electrical LV List of Switchboards Template
240-77302094	Cable Termination Schedules
240-70164623	Design Guideline for HVAC in the Eskom Coal Fired Power Stations
240-102547991	General Technical Specification for HVAC Systems Standard
NFPA 70	National Electrical Code
240-56364545	Structural Design and Engineering Standard
SANS 2001-CC1: 2012	South African Standard Construction Works Part CC1: Concrete Works (structural)
Government Gazette No. 36750	Proposed Regulations regarding the phasing-out and management of ozone-depleting substances.

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78 List of drawings

79 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.

Drawing number	Revision	Title
0.48/2503	-	Control Block 1190.250 & 1194.100 Levels Air Conditioning
0.48/5670	-	Station Control Block Air Ventilation System P&ID
0.48/2504	-	Control Block 1187.150 Level Air Conditioning
0.48/2505	-	Control Block 1184.000 Level Air Conditioning
0.48/2506	-	Control Block 1180.750 Level Air Conditioning
0.48/2507	-	Control Block 1170.500 Level Air Conditioning
0.48/3110	-	Control Room and Equipment 1190 & 1194.100 Level Air Conditioning Layout Arrangement and Detail
0.48/3111	-	Control Room Air Conditioning 1190.200 & 1191.150 Levels Builders Details
0.48/3112	-	Control Block Air Conditioning Duct Riser Builders Work Details
0.48/3113	-	Communications Offices and Toilets 1187.150 Level Air Conditioning Duct Arrangement and Details
0.48/3114	-	Communications Offices and Toilets 1187.150 Level Air Conditioning Builders Details
0.48/3115	-	Control Block Air Conditioning Duct Risers
0.48/3215	-	Control Block Air Conditioning Layout 1180,720 Level Cable Spreading Detail
0.48/3216	-	Control Block Battery Room Air Conditioning 1117,550 Level Layout
0.48/3291	-	Control Block 1184,000 Level Switchgear Area Air Conditioning Layout
0.48/3412	-	Control Block Air Conditioning and Ventilation Fresh Air Duct Riser Arrangement and Details
0.48/3735	-	Air Conditioning 1187,150 Level Control Block Wiring and Electric Diagram

0.48/3737	-	Air Conditioning 1187-150 Level Control Block Wiring and Schematic Diagram
0.48/3758	-	Plant Room Control Block Level 1187,150 Air Conditioning Layout
0.48/3816	-	Air Conditioning Control Block 1187,150 Level Wiring Electric Diagram
0.48/3817	-	Control Block 1187,150 Level Air Conditioning Wiring Diagram
0.48/3818	-	Control Block 1187,150 Level Air Conditioning Wiring Diagram
0.48/3819	-	Control Block 1187,150 Level Air Conditioning Wiring Diagram
0.48/3842	-	Control Block Mezzanine and Ground Floor Air Conditioning Ducting Layout
0.48/4065	-	Air Conditioning Control Block Board Layout
0.48/4138	-	Air Conditioning Control Block Board Layout

C3.2 *CONTRACTOR'S WORKS INFORMATION*

This section of the Works Information will always be contract specific depending on the nature of the *works*.

It is most likely to be required for design and construct contracts where the tendering contractor will have proposed specifications and schedules for items of Plant and Materials and workmanship, which once accepted by the *Employer* prior to award of contract now become obligations of the *Contractor* per core clause 20.1.

Typical sub headings could be

- a) *Contractor's* design
- b) Plant and Materials specifications and schedules
- c) Other

This section could also be compiled as a separate file.
