



NEC3 Engineering and Construction

Short Contract (ECSC3)

A contract between Eskom Holdings SOC Ltd (Reg No. 2002/015527/30)

and

for **Camden Power Station Supply and Installation of
New Chlorine Dosing Systems and Plant Safety
Upgrade Project**

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Documentation prepared by: [•]

C1 Agreements & Contract Data

C1.1 Form of Offer and Acceptance

Offer

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

Camden Power Station Supply and Installation of New Chlorine Dosing Systems and Plant Safety Upgrade Project

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

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

The offered total of the Prices exclusive of VAT is	R[•]
Value Added Tax @ 15% is	R[•]
The offered total of the Prices inclusive of VAT is	R[•]
(in words) [•]	

This Offer may be accepted by the Employer by signing the form of Acceptance overleaf 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: _____

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 1 Agreements and Contract Data, (which includes this Form of Offer and Acceptance)
- Part 2 Pricing Data
- Part 3 Scope of Work: Works Information
- Part 4 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 Tender Schedules as well as any changes to the terms of the Offer agreed by the tenderer and the Employer during this process of Offer and Acceptance, are contained in the Schedule of Deviations attached to and forming part of this Form of Offer and Acceptance. No amendments to or deviations from said documents are valid unless contained in this Schedule, which must be signed by the duly authorised representative(s) for both parties.

The tenderer shall within one week 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 and signed copy of this document, including the Schedule of Deviations (if any) together with all the terms of the contract as listed above.

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 tender offers, further copies of this document may be used for that purpose, duly endorsed, 'Alternative Tender No. _____'.

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Schedule of Deviations

Note:

1. To be completed by the Employer prior to award of contract. 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	[•]	[•]

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	<i>(Insert name and address of organisation)</i>	<i>(Insert name and address of organisation)</i>
Name & signature of witness		
Date		

C1.2 Contract Data**Data provided by the Employer**

[Instructions to the contract compiler: (delete these two notes in the final draft of a contract)]

1. Please read the relevant clauses in the NEC3 Engineering and Construction Short Contract (April 2013) (ECSC3)¹ before you enter data. The number of the principal clause is shown for most statements however other clauses may also use the same data.

Completion of the data in full is essential to create a complete contract.

Clause	Statement	Data
General		
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 & 14.4	The <i>Employer's</i> representative to whom the <i>Employer</i> in terms of clause 14.4 delegates his actions ² is (Name):	[•]
	Address	[•]
	Tel No.	[•]
	Fax No.	[•]
	E-mail address	[•]
11.2(11)	The <i>works</i> are	Supply and Installation of New Chlorine Dosing Systems and Plant Safety Upgrade Project
11.2(13)	The Works Information is in	the document called 'Works Information' in Part 3 of this contract.
11.2(12)	The Site Information is in	the document called 'Site Information' in Part 4 of this contract.
11.2(12)	The <i>site</i> is	Camden Power Station
30.1	The <i>starting date</i> is.	TBC
11.2(2)	The <i>completion date</i> is.	TBC
13.2	The <i>period for reply</i> is	2 weeks
40	The <i>defects date</i> is	52 weeks after Completion
41.3	The <i>defect correction period</i> is	2 weeks
50.1	The <i>assessment day</i> is the	25th of each month.

¹ Available from Engineering Contract Strategies Tel 011 803 3008, Fax 086 539 1902 or www.ecs.co.za

² Except those actions which can only be done by the *Employer* as a Party to the contract.

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50.5	The <i>delay damages</i> are	R5000 per day
50.6	The retention is	2%
51.2	The interest rate on late payment is	[•]% [Insert a rate only if a rate less than 0.5% per week of delay has been agreed]
80.1	The <i>Contractor</i> is not liable to the <i>Employer</i> for loss of or damage to the <i>Employer's</i> property in excess of	the amount of the deductibles relevant to the event
	Does the United Kingdom Housing Grants, Construction and Regeneration Act (1996) apply?	No
93.1	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).
	Address	[•]
	Tel No.	[•]
	Fax No.	[•]
	e-mail	[•]
93.2(2)	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
93.4	The <i>tribunal</i> is:	arbitration.
	The <i>arbitration procedure</i> is	the latest edition of Rules for the Conduct of Arbitrations published by The Association of Arbitrators (Southern Africa) or its successor body.
	The place where arbitration is to be held is	[•] South Africa
	The person or organisation who will choose an arbitrator	
	- if the Parties cannot agree a choice or	the Chairman for the time being or his nominee
	- if the arbitration procedure does not state who selects an arbitrator, is	of the Association of Arbitrators (Southern Africa) or its successor body.

The conditions of contract are the NEC3 Engineering and Construction Short Contract (April 2013)³⁴ and the following additional conditions Z1 to Z11 which always apply:

³ If June 2005 Edition applies, delete April 2013 and insert June 2005

⁴ State whether attached as a 'PDF' file in terms of Eskom's licence, or to be obtained from Engineering Contract Strategies Tel 011 803 3008, Fax 086 539 1902 or www.ecs.co.za.

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

- Z2.1 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.
- Z2.2 The *Contractor* is required to submit an updated verification certificate and necessary supporting documentation confirming the change in his B-BBEE status to the *Employer* within thirty days of the notification or as otherwise instructed by the *Employer*.
- Z2.3 Where, as a result, the *Contractor's* B-BBEE status has decreased since the *starting date* the *Employer* may either re-negotiate this contract or alternatively, terminate the *Contractor's* obligation to Provide the Works.
- Z2.4 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 those stated in Clause 91.1 and the amount due on termination includes amounts listed in Clause 92.1 less a deduction of the forecast additional cost to the *Employer* of completing the works.

Z3 Confidentiality

- Z3.1 The *Contractor* does not disclose or make any information arising from or in connection with this contract available to others except where required by this contract. 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 where required by this contract the *Contractor* ensures that the provisions of this clause are complied with by the recipient.
- Z3.2 If the *Contractor* is uncertain about whether any such information is confidential, it is to be regarded as such until notified otherwise by the *Employer*.
- Z3.3 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.
- Z3.4 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 *Employer*. All rights in and to all such images vests exclusively in the *Employer*.
- Z3.5 The *Contractor* ensures that all his subcontractors abide by the undertakings in this clause.

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Z4 Waiver and estoppel: Add to clause 12.2:

- Z4.1 Any extension, concession, waiver or relaxation of any action stated in this contract by the Parties or their delegates 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.

Z5 Health, Safety and the Environment

- Z5.1 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.
- Z5.2 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.

Z6 Provision of a Tax Invoice and interest. Add to clause 50

- Z6.1 The *Contractor* provides the *Employer* with a tax invoice in accordance with the *Employer's* procedures stated in the Works Information, showing the correctly assessed amount due for payment.
- Z6.2 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 clause 51.2 is then calculated from the delayed date by when payment is to be made.
- Z6.3 The *Contractor* 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.

Z7 Notifying compensation events

- Z7.1 Delete from the last sentence in clause 61.1, "unless the event arises from an instruction of the *Employer*."

Z8 Employer's limitation of liability; Add to clause 80.1

- Z8.1 The *Employer* liability to the *Contractor* for the *Contractor's* indirect or consequential loss is limited to R0.00 (zero Rand).

Z9 Termination: Add to clause 90.2, after the words "or its equivalent":

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Z9.1 or had a business rescue order granted against it.

Z10 Addition to Clause 50.5

Z10.1 If the amount due for the *Contractor's* payment of *delay damages* reaches the limits stated in this Contract Data (if any), the *Employer* may terminate the *Contractor's* obligation to Provide the Works.

If the *Employer* terminates in terms of this clause, the procedures on termination are those stated in Clause 91.1 and the amount due on termination includes amounts listed in Clause 92.1 less a deduction of the forecast additional cost to the *Employer* of completing the works.

Z11 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 Subconsultants or Subcontractor's employees, or any one or more of all of these parties' relatives or friends,
- Coercive Action** means to harm or threaten to harm, directly or indirectly, an Affected Party or the property of an Affected Party, or to otherwise influence or attempt to influence an Affected Party to act unlawfully or illegally,
- Collusive Action** means where two or more parties co-operate to achieve an unlawful or illegal purpose, including to influence an Affected Party to act unlawfully or illegally,
- Committing Party** means, as the context requires, the *Contractor*, or any member thereof in the case of a joint venture, or its employees, agents, or Subcontractors or the Subcontractor's employees,
- Corrupt Action** means the offering, giving, taking, or soliciting, directly or indirectly, of a good or service to unlawfully or illegally influence the actions of an Affected Party,
- Fraudulent Action** means any unlawfully or illegally intentional act or omission that misleads, or attempts to mislead, an Affected Party, in order to obtain a financial or other benefit or to avoid an obligation or incurring an obligation,
- Obstructive Action** means a Committing Party unlawfully or illegally destroying, falsifying, altering or concealing information or making false statements to materially impede an investigation into allegations of Prohibited Action, and
- Prohibited Action** means any one or more of a Coercive Action, Collusive Action, Corrupt Action, Fraudulent Action or Obstructive Action.

Z11.1 A Committing Party may not take any Prohibited Action during the course of the procurement of this contract or in execution thereof.

Z11.2 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.

Z11.3 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.

Z11.4 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.

Z12 Insurance

Z_12.1 Replace core clause 82 with the following:

Insurance cover 82

- 82.1 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.
- 82.2 The *Contractor* provides the insurances stated in the Insurance Table A, 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	Cover provided until
Loss of or damage to the works	The replacement cost where not covered by the <i>Employer's</i> insurance. The <i>Employer's</i> policy deductible as at contract date, where covered by the <i>Employer's</i> insurance	The <i>Employer's</i> certificate of Completion has been issued
Loss of or damage to Equipment, Plant and Materials	The replacement cost where not covered by the <i>Employer's</i> insurance The <i>Employer's</i> policy deductible as at contract date, where covered by the <i>Employer's</i> insurance	The Defects Certificate has been issued
The <i>Contractor's</i> liability for loss of or damage to property (except the works, Plant and Materials and Equipment) and for bodily injury to or death of a person (not an employee of the <i>Contractor</i>) arising from or in connection with the <i>Contractor's</i> Providing the Works	<u>Loss of or damage to property</u> <u><i>Employer's</i> property</u> The replacement cost where not covered by the <i>Employer's</i> insurance The <i>Employer's</i> policy deductible as at contract date where covered by the <i>Employer's</i> insurance	

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	<p><u>Other property</u> The replacement cost</p> <p><u>Bodily injury to or death of a person</u> The amount required by the applicable law</p>	
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	

- 82.3 The *Employer* provides the insurances as 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

Z13 Nuclear Liability

- Z13.1 The *Employer* is the operator of the Koeberg Nuclear Power Station (KNPS), a nuclear installation, as designated by the National Nuclear Regulator of the Republic of South Africa and is the holder of a nuclear licence in respect of the KNPS.
- Z13.2 The *Employer* is solely responsible for and indemnifies the *Contractor* or any other person against any and all liabilities which the *Contractor* or any person may incur arising out of or resulting from nuclear damage, as defined in Act 47 of 1999, save to the extent that any liabilities are incurred due to the unlawful intent of the *Contractor* or any other person or the presence of the *Contractor* or that person or any property of the *Contractor* or such person at or in the KNPS or on the KNPS site, without the permission of the *Employer* or of a person acting on behalf of the *Employer*.

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- Z13.3 Subject to clause Z13.4 below, the *Employer* waives all rights of recourse, arising from the aforesaid, save to the extent that any claims arise or liability is incurred due or attributable to the unlawful intent of the *Contractor* or any other person, or the presence of the *Contractor* or that person or any property of the *Contractor* or such person at or in the KNPS or on the KNPS site, without the permission of the *Employer* or of a person acting on behalf of the *Employer*.
- Z13.4 The *Employer* does not waive its rights provided for in section 30 (7) of Act 47 of 1999, or any replacement section dealing with the same subject matter.
- Z13.5 The protection afforded by the provisions hereof shall be in effect until the KNPS is decommissioned.

Z14 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.

- Z14.1 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

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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.

- Z14.2 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 Z14.1. Control measures conform to the requirements stipulated in the AAIA-approved asbestos work plan.
- Z14.3 The *Employer* manages asbestos and ACM according to the Standard.
- Z14.4 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.
- Z14.5 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.
- Z14.6 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.
- Z14.7 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.

Data provided by the Contractor (the Contractor's Offer)

The tendering contractor is advised to read both the NEC3 Engineering and Construction Short Contract (April 2013) and the relevant parts of its Guidance Notes (ECSC3-GN)⁵ 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 page 31 of the ECSC3 April 2013 Guidance Notes.

Completion of the data in full is essential to create a complete contract.

10.1	The <i>Contractor</i> is (Name):	[•]
	Address	[•]
	Tel No.	[•]
	Fax No.	[•]
	E-mail address	[•]
63.2	The percentage for overheads and profit added to the Defined Cost for people is	[•]%
63.2	The percentage for overheads and profit added to other Defined Cost is	[•]%
11.2(9)	The Price List is in	the document called 'Price List' in Part 2 of this contract.
11.2(10)	The offered total of the Prices is [Enter the total of the Prices from the Price List]:	R[•] excluding VAT [in words] [•] excluding VAT

⁵ Available from Engineering Contract Strategies Tel 011 803 3008, Fax 086 539 1902 or www.ecs.co.za.

C2 Pricing Data

C2.1 Pricing assumptions

Entries in the first four columns in the Price List are made either by the *Employer* or the tendering contractor

If the *Contractor* is to be paid an amount for the item which is not adjusted if the quantity of work in the item changes, the tenderer enters the amount in the Price column only; the Unit, Quantity and Rate columns being left blank.

If the *Contractor* is to be paid an amount for the item of work which is the rate for the work multiplied by the quantity completed, the tenderer enters the rate which is then multiplied by the expected quantity to produce the Price, which is also entered.

All Prices are to be shown excluding VAT unless instructed otherwise by the *Employer* in Tender Data or in an instruction the *Employer* has given before the tenderer enters his Prices.

If there is insufficient space in the Price List which follows, state in which document the Price List is contained.

C2.2 Price List

Refer to attached BOQ.

Option B will be used.

C3: Scope of Work

C3.1 Works Information

Camden Power Station Supply and Installation of New Chlorine Dosing Systems and Plant Safety Upgrade Project.

Executive overview

Camden Power Station is obliged to comply with all applicable regulatory requirements, such as SANS 10298:2009 for small to medium sized chlorine gas installations and Occupational Health and Safety (OHS) Act 85 of 1993.

The Sewage System consists of an integrated set of constituent pieces that are combined in an operational / support environment to accomplish the treatment of sewer wastewater and allow safe removal of sludge. The Chlorine dosing plant in the STP forms part of this system with the sole purpose to disinfect the final effluent prior to discharge to the Reclamation Dam inlet.

Drinking water, also known as potable water, is water that is safe to drink or to use for food preparation, without risk of health problems. Potable Water is produced at the WTP through a series of filtration and chemical dosing processes. Chlorine is used to disinfect water by killing pathogens such as bacteria and viruses thereby making the water safe for human consumption.

The Chlorine dosing systems at the STP and WTP do not comply with the relevant health and safety standards. Furthermore, there are several other upgrades that are required at the STP to ensure safe working conditions for personnel. The main objective of this project is therefore to outline the necessary refurbishment of existing plant/infrastructure required to ensure compliance to regulatory requirements.

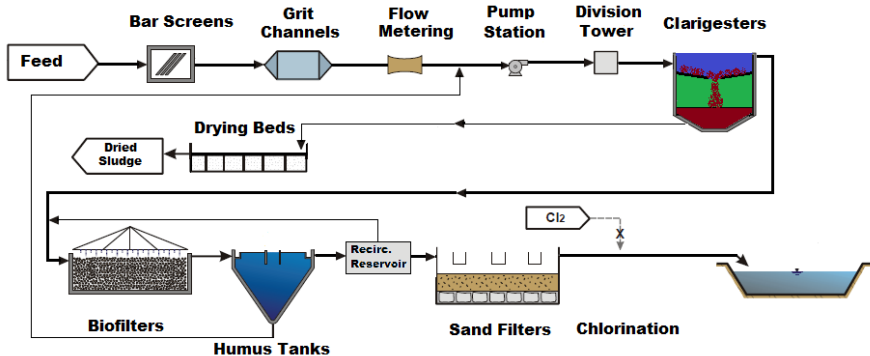
The Contractor is responsible for the supply, installation, testing and commissioning of two new chlorine dosing systems for the STP and WTP and the additional safety upgrades required at the STP as per the detailed Mechanical and Civil designs in Appendix A and B respectively.

Existing System

The works applies to disinfection at the STP and WTP. Below is an overview of each plant and a description of the deficiencies:

Sewage Treatment Plant:

The Sewage System consists of an integrated set of constituent pieces that are combined in an operational / support environment to accomplish the treatment of sewer wastewater and allow safe removal of sludge. The Chlorine dosing plant forms part of this system with the sole purpose to disinfect the final effluent prior to discharge to the Reclamation Dam inlet.



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Figure 1: Process Flow Diagram for the Waste Water Treatment Plant (STP)

During the rain readiness assessment, it was found that the chlorine dosing system at the STP is not compliant with SANS 10298:2009 for small to medium sized chlorine gas installations and OHS Act 85 of 1993. Some of the findings from the assessment were as follows:

- The dosing pump and the cylinder have been placed in the same chamber.
- There is no leak warning system at the Chlorine dosing station.
- There is no emergency breathing apparatus available.
- There is no standby bottle.
- Also, there is no contact tank installed to allow 40-minute contact time between the chlorine gas and final effluent before discharge into the reclamation dam inlet.

After further assessments with the Operating staff of the STP, other safety requirements were also identified in need to be addressed namely:

- Unsafe working conditions when working around the tanks (ground floor and on elevated tanks) – risk of falling inside.
- Unsafe working surfaces during heavy rainfall, also contributing to water ingress into the humus tank and sand filters specifically.
- Lack of information when starting raw sewage pumps – no flow indication

Water Treatment Plant:

Drinking water, also known as potable water, is water that is safe to drink or to use for food preparation, without risk of health problems. Potable Water is produced at the WTP through a series of filtration and chemical dosing processes. Chlorine is used to disinfect water by killing pathogens such as bacteria and viruses thereby making the water safe for human consumption.

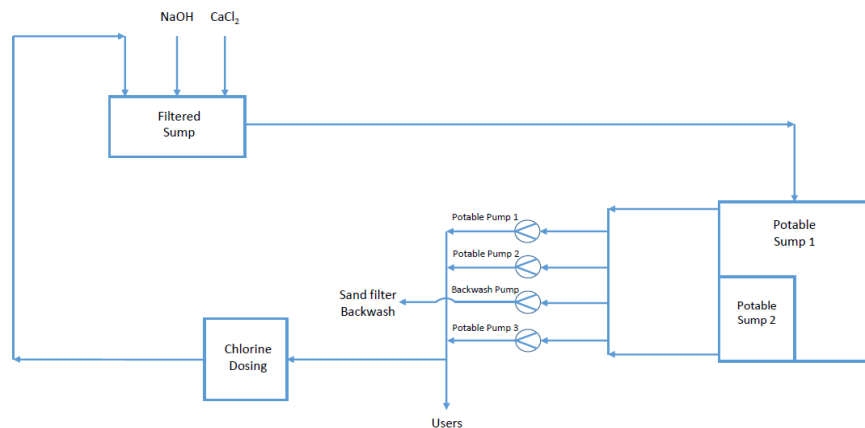


Figure 2: Process Flow Diagram for the Potable Water Production (WTP Plant)

The Chlorine storage room at the WTP was also found to be non-compliant with SANS 10298:2009 for small to medium sized chlorine gas installations and OHS Act 85 of 1993. The findings were as follows:

- The storage room is not gas tight as the walls and doors are fitted with louvres.

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- The room is fitted with a manually operated extraction fan which is not connected to the leak detector. Furthermore, the outlet of the extraction fan discharges into a below ground level valve pit which is frequently used by operators.
- There is no safety shower available.
- Empty and full cylinders are stored in the same room.

Scope of Work

- The Contractor ensures that the chlorine dosing systems are upgraded to dose chlorine for disinfection at the Sewage Treatment Plant and Water Treatment Plant as per the requirements of 3.5.
- The Contractor will be responsible for supplying all equipment and plant necessary for execution of the Mechanical (including Electrical and C&I) and Civil scopes as detailed in Appendix A and B respectively.

Detailed Requirements**Mechanical:**

- Both Chlorine Dosing Systems at the WTP and the STP has been designed according to SANS 10298:2009 for small to medium sized chlorine gas installations.
- The STP has been designed to produce final effluent with a minimum residual Chlorine of 0.1 mg/l as per Government Gazette 18 May 1984 NO. 9225, Regulation No. 991 18 May 1984 - Requirements for the Purification of Wastewater or Effluent
- The WTP has been designed to produce final potable water with a maximum residual Chlorine of 5 mg/l as per Eskom document 240-55864764 - Chemistry Standard for Potable Water
- The Contractor ensures that the material of construction used for all equipment forming part of the scope of the Chlorine dosing systems is compatible and suitable for the environment it is housed in and the fluids it comes into contact with.
- The Contractor ensures that the arrangement of the equipment is such that any equipment can be operated, serviced, or maintained without removal or disruption of any nearby piping, tubing or fitting.
- In executing the works, the Contractor takes due cognisance of existing plant and equipment as well as safety and housekeeping constraints.
- It is the responsibility of the Contractor to overcome any issues that may arise due to space constraints with prior consent from project management and no extra payment or claim of any kind will be allowed on account of difficulties of access to the works or for the requirements of working adjacent to or in the same area as others.
- Adequate working space is to be provided by the Contractor for all new plant and existing plant for inspection, testing, operating and maintenance purposes.
- The Contractor is fully responsible for integrating the new installations with the existing installed plant and equipment. The works is to comply with professional engineering practice and standards for fossil fuel power plants.
- All chlorine dosing pipework shall be manufactured from UPVC. The use of any other material in contact with the chlorine solution shall be subject to approval.
- Plastics to conform to the appropriate national or international standard published by an institution acceptable to Eskom, but where none exists, the approval of Eskom shall be obtained.
- Surfaces shall be finished to the requirements of the corrosion protection specification associated with the particular plant, where applicable. Paint shall be removed or excluded from the threads of tapped holes, the bores of clearance holes, bearing housings, interference holes and mating faces.
- All corrosion protection must be in accordance with Eskom's corrosion protection standards i.e., 240-106365693 - Standard for the External Corrosion Protection of Plant, Equipment and Associated

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Piping with Coatings and 240-101712128: Standard for the Internal Corrosion Protection of Water Systems, Chemical Tanks and Vessels and Associated Piping with linings.

- All welding to be done by qualified welders in accordance with 240-106628253 Standard for Welding Requirements on Eskom Plant
- The Contractor provides all relevant welding procedures for acceptance by the Employer prior to commencement.
- All final welds must be tested as per 240-83539994 Standard for Non-Destructive Testing (NDT) on Eskom Plant. NDT's to be conducted by an Eskom approved NDT company.
- The integrity of the current motive water and dosing lines to be tested to verify if the pipework can be utilized in the new Chlorine dosing systems.
- Pipe Routing:
 - The routing of the pipe will be proposed by the Contractor for acceptance by Eskom. The Contractor develops layout drawings, isometrics along with surveyor profile.
 - All pipelines to be neatly routed to an Eskom approved route.
 - Care to be taken to ensure that the lines are not obstructed, particularly where joined by COC or where the lines are bent on site.
- Valves:

Isolation valves shall be mounted in accessible locations. If normal access is not available along the relevant section of piping, the access shall be ensured by the provision of a suitable, permanently fixed access ladder and platform. All valves to be material suitable for use on Chlorine plants and of suitable temperature and pressure ratings.

Civil:

- All new plant ancillary equipment and machinery, including pipes, valves and analysers to be equipped with adequate structural supports.
- All structural supports to cater for the imposed loading due to the new equipment and to ensure proper load distribution to the ground without compromising the structural integrity of the surrounding equipment and affecting the operability of the plant.

Electrical:

Detailed works information and drawings related to electrical plant scope of work are listed in APPENDIX A.

As per Classification of Hazardous Locations at Camden Power Station, all equipment must comply with the requirements of SANS 10108, 1489, 1654, 10119, 60079 and 10142-1 and relevant Eskom Standards dependent upon design and location of equipment. If equipment is not located in a Hazardous Location as per classification, the electrical requirements of SANS 10142-1 shall apply noting that the requirements of SANS 10142-1 alone may not be sufficient dependent on design. The Contractor shall adhere to Generation Plant Safety Regulations for all Electrical Works. The Contractor shall assess the impact on the electrical network with implementation of project requirements. The electrical scope of work envisaged consists of the following:

General requirements

- The Contractor shall supply and install power supply to all containers and relevant equipment as per mechanical design (listed in APPENDIX A). Power supply shall include all relevant distributions boards, cabling, switchgear equipping and labelling requirements as per Eskom Plant Labelling Standard - 240-71432150
- All the cabling shall be executed in accordance with "Requirements for Control and power cables for power stations standard".
- The electrical wiring system will be in accordance with "The wiring of premises Part 1" and "Requirements for Control and power cables for power stations standard".

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- The metal conduit and supports (bosal) shall be utilised and both the conduits and supports shall be earthed to prevent any exposed conductors livening the conduits.
- Metal conduit (bosal) shall be used on all external surfaces exposed to the elements and weather.
- A cable schedule shall be provided that indicates the routes of the cables from the incoming supply to the terminating electrical equipment, describing the protection devices and rating.
- Electrical equipment shall be on standard and of good quality. Defective equipment shall be replaced by the Contractor on the Contractors account.

Cable Routes:

- a. The Employer shall provide drawings detailing the main routes provided for cables. The Contractor shall verify the routes and scan for services (power cables, obstructions, sewage lines, pipelines, water services) and issue the scan report to the Employer. The Contractor shall provide the detailed cable route proposal including the cabling requirements, cable rack requirements and earthing that shall comply to the applicable Eskom and SANS standards. The Employer shall review the proposal and approve before any cabling, material or relevant equipment is ordered or supplied by the Contractor. Electrical equipment shall be on standard and of good quality. Defective equipment shall be replaced by the Contractor on the Contractors account.
- b. Cables schedules of the cable types, sizes, source, destination earthing requirements and unique identification alpha numeric number shall be provided by the contractor to the Employer.
- c. Cables schedules detailing the main power supply source, destination, earthing requirements and unique identification alpha numeric number shall be provided by the employer. The information shall be used for labelling purposes.
- d. All necessary diligence should be exercised when preparing the trench as unidentified services may be scattered along the selected route and the requirements of SANS and OSHA shall be strictly followed.
- e. Cable calculations shall be performed by the Contractor and verified by Camden Electrical Engineering to ensure compliance to SANS 10142-1
- f. Prospective cable route to be determined by contractor and all methods of installation to be approved by Electrical Engineering and be in accordance with SANS and Eskom standards.
- g. Cable shall be made from stranded copper conductors and shall be 600/1000V rated at the minimum.
- h. Cables shall be PVC insulated, single wire armoured and PVC sheathed.
- i. The Contractor to determine cable size and number of cores as per Contractor design required for the interface, electrical supply and operation of the entire electrical AC and DC plant.
- j. Separate green and yellow earth cables shall be installed from point of supply to load.
- k. Cable trench excavations and backfilling shall comply to Eskom standards.
- l. Any damage to the Eskom plant by the Contractor while cable trench excavations or backfilling are performed by the Contractor, shall be indicated to the Employer by the Contractor. The Contractor shall be responsible to repair the damages on his/her cost.
- m. Cable joints shall not be permitted unless prior approval is obtained (Cable joining methodology and installation shall be approved by Electrical Engineering and perform by qualified personnel). Cables to be firmly affixed to assembly and (or) support structure to which they are mounted to prevent damage from any reasonable or foreseeable forces that may act upon them.
- n. The Contractor issue COC for the electrical installation and the electrical works performed.

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Panels and Distribution Boards

- Be purpose built and ensure all components are able to fit.
- Manufactured from folded sheet steel.
- Have IP rating that is appropriate to all possible environmental exposure. An IP rating of IP 65 as a minimum will be accepted.
- Be able to isolate components without interruption of other equipment during a maintenance activity (lock out facility fitted)
- Standalone or wall mounted panel will be acceptable dependant on location of installation no more than 1.5m above floor level to the top of the panel.
- Access to the interior of the panel shall be from a single front door leaf type, with handles capable of being padlocked.
- Latches to be capable of accepting a standard 9mm lock hole or be secured using 2 square keys in which at least 1 is capable of locking preventing access to the square cam.
- All components to be mounted using din rail clip-on type and shall be fitted with end clips to keep equipment aligned.
- Panel to be powder coated electric orange as per SANS 1091
- Panel size is to ensure sufficient space is available for manoeuvring and connection of cables.
- Board labelling shall be determined and required to be mounted on the front face of the panel inclusive of interior component labelling with applicable equipment legend.
- Panel to have labels indicating the manufacturer, dimensions, standards complied with, date of manufacturing and have rated fault level of 5kA.
- MCB's shall be rated 5kA.
- Panel to be sized to ensure possible expansion of 30% for all MCB's and Cable entries.
- Spares to be blanked appropriately.
- Contractor to assess current power supply available at 380V boards identified by the Employer in the vicinity and determine if modifications are required and implement as such with approval from Employer.

Cables

Reference shall be made to Eskom cable standard (240-56227443 Requirements for Control and Power Cables for Power stations Standard).

The Contractor will be responsible for the cable sizing and volt drop shall be less than 5%. The Contractor utilises the existing cable racks. Should modifications via extensions of cable racks present themselves the following specification is adhered to: 240-53114214 – Cable and Racking.

- Must be made from stranded copper.
- Halogen free low smoke flame retardant sheathed.
- Resistant to flame propagation.
- Have a separate green and yellow covered earth cable.
- Ensure earthing is done as per Eskom and SANS standard.
- No cable joins permitted unless approved by Employer.
- To be firmly affixed to assembly and (or) support structure to which they are mounted to prevent damage from any reasonable or foreseeable forces that may act upon them.
- No more than 2 lugged or otherwise cables shall be permitted to be connected on one side of a terminal with approval from Employer.

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- Cable labelling shall be done as per Eskom standard with details to be provided.
- Wire colouring to be:
 - Red, White and Blue for phases (Yellow may be used to replace white phase provided appropriate tag is placed on both ends of cable)
 - Black for neutral
 - Green with yellow tracer for earth
- Glands and Shrouds
 - Shrouds and Glands to be fitted to all cables rated according to environmental conditions (engineer to be consulted upon placement position is identified)
 - Glands to be threaded type.
 - Any blanks used are to be of the threaded type and ensure they maintain IP rating of the enclosure.
 - All cables to be fitted with glands and shrouds. Glands to be of the threaded type. Blanks shall be utilised to maintain IP rating of enclosure.
 - Bosal steel conduit shall be used.
- For the cabling and cable racking Works, the Contractor shall:
 - Ensure interfacing with all the other system requirements of the plant/installation according to the design documentation provided in Appendix A
 - Ensure that the works are implemented as prescribed in the corresponding Eskom standards.
 - Optimised and perform cable routing.
 - Perform exact cable routing of all the cables.
 - Produce all documentation and drawings.

Motors and Actuators

- Have IP rating that is appropriate to all possible environmental exposure. An IP rating of IP 65 as a minimum will be accepted
- Be compliant to hazardous locations if required
- Have highest possible efficiency rating
- Terminal box to ensure the same IP rating
- Be supplied from a nominal 230/400V supply at 50Hz
- Ignition temperature of hazardous area to be verified for motor specification if applicable

Low Voltage Electrical System:

A single 380V AC power supply point will be allocated to the Contractor at the relevant switchgear by the Employer. Contractor to assess if switchgear needs to be additionally equipped with the approval from the Employer. The dosing stations equipment requires 220V AC Power Supply, the contractor shall supply and fit the LV electrical distribution boards in order to meet the power supply requirements of all the loads according to the project and as identified and listed in Appendix A. The contractor shall ensure that the electrical supply phases are electrically balanced as reasonably possible by distributing the loads accordingly between the main distribution board and sub distribution boards.

There are existing boards per plant location that can provide 380V (three phase plus neutral) power supply, the circuits in these boards will need to be equipped by the Contractor as necessary to ensure successful project completion. The Contractor shall fit and commission three phase and single phase electrical installations that meets the requirements of Appendix A.

The Contractor shall include new cables to provide power to each container in the design.

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The power supply will be made available at the respective container by the Contractor and the Contractor shall ensure that all equipment in the container is supplied accordingly.

LV Switchgear Design requirements:

The required power supply should be taken from any available spare three phase MCB's for the Containers noting that the equipping of the switchgear shall be done by the Contractor. Main supply points shall be identified and supplied to the Contractor.

All material shall comply with Eskom standards 240-56227516 - LV Switchgear Control Gear Assembly Associated Equipment for Voltage 1000V AC and 1500V Standard. The requirements of SANS 10142-1 must be complied additionally.

The preparations and terminations of the LV power supply cables are done in accordance with 240-56227443 (Requirements for Control and Power Cables for Power Stations Standard).

The requirement for creating the independence between the power supply of the containers and the power supply of the chillers and sockets outlets is created by the Contractor in the DB board.

Contractor to ensure connection is done according to SANS 10142-1 and 240-56227516 – LV Switchgear Control Gear Assembly Associated Equipment for Voltage 1000V AC and 1500V Standard.

Any preparations required on the cable (i.e. termination kit) for the purpose of proper termination on the container distribution board are the responsibility of the Contractor.

Lighting and small power

For the lighting works, the Contractor shall:

- Supply, Install and Commission the lighting and small power circuits (distribution boards, plug sockets, etc. as required in Appendix A
- Ensure the compliance of the required layout in Appendix A, with the SANS 10114-1 and SANS 10142 requirements
- Ensure that interfacing with all the other system requirements of the plant/installation
- Produce all documentation and drawings
- Issue COC as per SANS10142-1

Earthing and Lightning protection

Earthing shall be in accordance with Eskom standard (240-56356396-Earthing and Lightning Protection standard).

For the earthing and lightning protection works, the Contractor shall:

- Ensure compliance to SANS 10142-1
- Perform earth resistance and earth continuity tests and ensure compliance to SANS1042-1
- Supply, Install and Commission lightning protection
- Supply, Install and Commission the earthing and lightning protection system and its components, in line with the relevant Eskom standards
- Ensure interfacing with all the other system requirements of the plant/installation
- Produce all documentation and drawings

Distribution Boards (DB):

There shall be a Main DB located in each Container connected to the LV cable feeding to that Container and the Contractor will be responsible to make all power available for the equipment inside the Containers.

Cable from the LV switchgear shall feed Main DB in each Container located on each floor outside the Unit.

The preparations and terminations of the power supply cables is done in accordance with 240-56227443 (Requirements for Control and Power Cables for Power Stations Standard)

The independence between the power supply of the container and the power supply of the new analysers is created by the Contractor through the connection on the supply side of the container distribution board.

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Hazardous Areas:

The standard, SANS 10108, "The classification of hazardous locations and the selection of electrical apparatus for use in such locations", shall be used for classifying hazardous locations and selecting electrical Plant for use in such locations. Table below indicates where power is supplied from for each unit.

Power Supply Available at the LV Switchgear Rooms:

Power supply for the containers shall be supplied from the 380V boards listed in the table below. The switchgear shall be equipped with MCB's and cabling from the busbars to the MCB's. DIN rail shall be fitted. Terminal blocks shall be fitted, and the installation shall comply to SANS 10142-1 and Eskom standards. The boards have available space for the MCB's fitment. Equipment types and sizing, fitted, shall be similar to the existing equipment in the switchgear. Cable installation and trenching shall comply to Eskom standards. COC's shall be issued as per SANS 10142-1. Earthing and shall comply to SANS 10142-1. Earth continuity shall be tested with Micro Ohm testers and shall comply to SANS 10142-1.

Table 1: Power Supply

Equipment Name	Supply Point (Switchboard)	Circuit No	Voltage Bulk supply	Load Rating	Power Rating	Cable type
Sewage Treatment Plant						
Container	380V Sewerage Plant Board 00BJL	00BJL +04 DA001	380V, 1PH+N	25A MCB 20A Load	4.6kW max Single Phase	SWA PVC 16mm2 3 core 203 meters
Water Treatment Plant						
Container	380V Water Plant Board 3 03 BHA	03BHA +02 BA001	380V, 1PH+N	25A MCB 20A Load	4.6kW max Single Phase	SWA PVC 10mm2 3 core 111 meters

Applicable Eskom and SANS Standards

Parties using this document shall apply the most recent edition of the documents listed below and shall be read in conjunction with this document. In cases of conflict, the requirements of this specification shall take precedence upon consultation with the Employer or the duly authorised engineering representative.

The latest revision and amendments of the listed documents shall apply and is the responsibility of the Contractor to ensure that these are applied to all works.

All reference documents are obtainable from the Employer's documentation centre except for:

- The OHS 85 of 1993
- All relevant SANS standards
- The SABS Codes of Practice
- Relevant International Standards

Item No.	Document or Specification Number	Document or Specification Description
1.	240-56227516	LV Switchgear Cntr Gear Assembly Associated Equipment for Voltage 1000V AC and 1500V Standard
2.	240-56227443	Requirements for Control and Power Cables for Power stations Standard
3.	240-56227426	Management of Power Station MV and LV Protection and Settings Standard
4.	240-56360387	Storage of Power Station Electric Motors Standard

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Item No.	Document or Specification Number	Document or Specification Description
5.	240-56361435	Transport of Power Station Electric Motors Standard
6.	240-55714363	Coal Fired Power Stations Lightning and Small Power Installation Standard
7.	240-56535964	Management of Power Station MV and LV Protection Standard
8.	240-56536505	Hazardous Locations Standard
9.	240-56535950	Electrical Plant Information Files Standard
10.	240-56356396	Earthing and Lighting Protection
11.	240-56356510	Definitions of Terms Applicable to DC Emergency Supplies Standard
12.	240-56357424	MV and LV Switchgear Protection Standard
13.	Act 85 of 1993	Occupational Health and Safety Act
14.	SANS 152	Low-voltage air-break switches, air-break disconnectors, air-break switch disconnectors and fuse-combination units
15.	SANS 156	Moulded case circuit breakers.
16.	SANS 1019	Standard voltages, currents and insulation levels for electricity supply
17.	SANS 1091	National colour standards for paint
18.	SANS 1274	Coatings applied by the powder-coating process
19.	SANS 1507	Electric cables with extruded solid dielectric insulation for fixed installations (300/500 V to 1900/3300 V)
20.	SANS 9000 to 9004	Quality management systems and standards.
21.	SANS 10108	The classification of hazardous locations and the selection of electrical apparatus for use in such locations
22.	SANS 10142-1	Wiring of premises Part 1: Low-voltage installation
23.	SANS 10198	Part 13 - The selection handling and selection of electric power cables of rating not exceeding 33 kV
24.	SANS 60439	Low-voltage switchgear and controlgear assemblies
25.	IEC 60071	Insulation Co-ordination
26.	IEC 60034-1	Rotating electrical machines Part 1: Rating and performance
27.	IEC 60034-5	Rotating electrical machines Part 5: Classification of degrees of protection provided by enclosures of rotating electrical machines
28.	IEC 60044-1	Instrument transformers Part 1: Current transformers
29.	IEC 60044-2	Instrument transformers Part 2: Inductive voltage transformers

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Item No.	Document or Specification Number	Document or Specification Description
30.	IEC 60051	Direct-acting analogue electrical measuring instruments and their accessories
31.	IEC 60269	Low-voltage fuses
32.	IEC 60529	Degrees of protection provided by enclosures (IP code)
33.	IEC 60898	Electrical accessories – Circuit-breakers for overcurrent protection for household and similar installations
34.	IEC 60947	Low voltage switchgear and controlgear - Part 2 (circuit-breakers)

C&I:

- (1) All field equipment installations are required to comply with Field Instrument Installation Standard, 240-56355754.
- (2) All field equipment installations IP ratings are to be at least IP65, and are required to comply with the hazardous classifications as listed in the Camden Power Station Classification of Hazardous Areas , 0044 593. Sewage plant is classified as zone 02 which require instrumentation with Flameproof (Exn IIC T1) rating.
- (3) All cabling installations are required to comply with 240-56227443 requirements for Control and Power Cables for Power Stations Standard.

Plant Interfaces and Battery Limits:**Sewage Treatment Plant:***Mechanical*

The mechanical battery limit is the chlorine dosing system from the sand filter outlet to the Reclamation Dam inlet including pipework, injector, non-return valves, isolation valves and a customised container to house the Chlorine dosing system.

Electrical

The electrical scope boundary of the Works to be executed by the Contractor includes the 380V LV Switchgear, the new supply point and its auxiliaries, and the interface and connection to the 380V LV Switchgear up to and including the 230V Distribution Boards and the termination points of the electrical dependant equipment to be installed. The Contractor is responsible for to the electrical requirements of the Employer stated in the Works Information and Scope of Work. The Contractor ensures that the electrical requirements are made known to the Employer. The Contractor to equip the LV Switchgear.

C&I

C&I scope of work entails the supply and installation of the field instruments, power cabling and associated racking as indicated in Limit of Supply and Services (LOSS) diagram in Appendix E.

Civil

The Civil Scope entails installation of safety hand railings, ground grading for storm water channelling away from the tanks, ground preparation for the dosing unit and truck off-loading bay.

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List the specifications that apply to this contract. Some typical headings have been provided as a minimum; delete if not required or expand and include correct titles as applicable.

Title	Date or revision	Tick if publicly available
General Specifications:		
Health and Safety requirements		
Environmental requirements		
Site regulations and access control		
Technical specifications:		

4. Constraints on how the Contractor Provides the Works

4.1 Meetings

Title and Purpose	Interval	Location	Attendees
Progress and Feedback	As and when required.	Site/MS team	Employer, Contractor, Supervisor, others as required
Risk Reduction	As and when required.	Site/MS team	Employer, Contractor, Supervisor, others as required
Safety	As and when required	Site/MS team	Employer, Contractor, Supervisor, Safety representatives of Employer and Contractor
Early Warning Meeting	As and when required.	<i>Project Managers Office</i>	<i>Contractor, Supervisor, and Project Manager</i>
Risk register and compensation events	As and when required.	<i>Project Managers Office</i>	<i>Contractor, Supervisor and Project Manager</i>

4.2 Use of standard forms

NEC3 Engineering & Construction Short Contract (ECSC) standard templates shall be used at all times in the administration of the contract, for example early warnings and compensation events notifications.

4.3 Invoicing and payment

The Z clauses make reference to invoicing procedures stated here in this Works Information. Also include a list of information which is to be shown on an invoice. The following text is provided as a guide; revise to suit actual requirements.

In terms of core clause 50 the *Contractor* assesses the amount due and applies to the *Employer* for payment. The *Contractor* applies for payment with a tax invoice addressed to the *Employer* as follows:

The *Contractor* includes the following information on each tax invoice:

- Name and address of the *Contractor*
- The contract number and title;
- *Contractor's* VAT registration number;
- The *Employer's* VAT registration number 4740101508;
- The total Price for Work Done to Date which the *Contractor* has completed;
- Other amounts to be paid to the *Contractor*;
- Less amounts to be paid by or retained from the *Contractor*;
- The change in the amount due since the previous payment being the invoiced amount - excluding VAT, the VAT and including VAT;
- (add other as required)

The *Contractor* attaches the detail assessment of the amount due to each tax invoice showing the Price for Work Done to Date for each item in the Price List/ BOQ for work which he has completed.

4.4 Records of Defined Cost

In order to substantiate the Defined Cost of compensation events, the *Employer* may require the *Contractor* to keep records of amounts paid by him for people employed by the *Contractor*, Plant and Materials, work subcontracted by the *Contractor* and Equipment. [See clause 11.2(5) and 63.2]. State in what form these records are to be kept and how accessed by the *Employer*.

4.5 Accelerated Shared Growth Initiative – South Africa (ASGI-SA)

The *Contractor* complies with and fulfils the *Contractor's* obligations in respect of the Accelerated and Shared Growth Initiative - South Africa in accordance with and as provided for in the *Contractor's* ASGI-SA Compliance Schedule stated below

[Insert the agreed ASGI-SA Compliance Schedule here]

The *Contractor* shall keep accurate records and provide the *Employer* with reports on the *Contractor's* actual delivery against the above stated ASGI-SA criteria. [Elaborate on access to and format of records and frequency of submission etc.]

The *Contractor's* failure to comply with his ASGI-SA obligations constitutes substantial failure on the part of the *Contractor* to comply with his obligations under this contract.

4.6 BBBEE and preferencing scheme

Skills development

The *Contractor* allows secondment of the *Employer's* staff to benefit from the technical and/or project management services to be provided by assigning its' staff full time to the project. The *Employer's* personnel are assigned to the *Contractor* to actively mentor the *Employer's* personnel and allow for skills transfer. The

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assigned Employer's personnel shall perform as much as possible of the specific tasks under the guidance of the Contractor and in line with the scope of work.

4.7 Facilities to be provided by the Contractor

The Contractor will make provision for all temporary accesses and utilities required to ensure completion of the Works. This will include but is not limited to:

- Temporary access roads
- Provision for temporary site offices
- Provision for temporary supply of potable water and electricity
- Storage and/or stockpiling of construction material
- Security, if the Contractor deems this to be necessary (the Employer is not held responsible of any loss/damage of equipment or material)
- The Contractor must provide all the material needed for the works. The safeguarding, care and security of all equipment and materials while the Contractor is performing the works is the responsibility of the Contractor.
- The Contractor shall provide everything else necessary for providing the Works.
- The Contractor adheres to the site services requirements and procedure.

4.8 Title to material from excavation and demolition

- Read clause 70.2 then provide details as required. Particularly relevant in demolition where substantial amounts of copper are involved.
- Test required before excavation examine any underground pipes, cable and etc.
- The Contractor needs to excavate manually where test results for underground pipes and cables are Inconclusive.
- An excavation permit is required before any excavation is carried out.

4.9 Design by the Contractor

N/A

4.10 Cataloguing requirements by the Contractor

N/A

5. Requirements for the programme

Contractor submits a signed programme for the Employer's acceptance two week before starting dates. The program should be on MS Project format and PDF format. This programme should show the starting dates, access dates, key dates, planned completion dates. The Contractor must submit updated program every week.

6. Services and other things provided by the Employer

Note: The Information Below only applies when work is done on Camden Power Station

The Employer will provide tie-in point for Electrical and Water

The Employer will ensure access to the site for personnel qualifying as per the Employers requirements for access control.

The Employer will do the induction training for the Contractor.

Contractor has to submit the valid Certificate of Compliance.

- **Potable Water Supply**

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- The *Employer* supplies, free of charge, reasonable quantities of potable water required for the purposes of this contract from the existing points. The Contractor provides, at his own cost, all connection fittings, pipe work, temporary plumbing, and pumps necessary to lead the water from the Employer's points of supply to the various points where it is required.

- **Electrical Power Supply**

Power is available at the existing points.

- The *Contractor* provides his own portable 380V electrical distribution boards, and supply cables to and from the boards, for all his power supply requirements to execute the works.
- Contractor's Electrical Distribution Boards complies with OHSA as referred to in the Electrical Installation Regulations and the Electrical Machinery Regulations. Each board brought onto site has a Certificate of Compliance issued by an accredited person.

- **Site yard**

- The *Employer* will provide a site for the Contractor's yard at a location that is indicated to the Contractor. The Contractor provides all the facilities required by him for such a site at his cost (Including fencing of area as per requirements).

C4: Site Information

C4.1: Information about the *site* at time of tender which may affect the work in this contract

1. Access limitations

The *Contractor* makes his own assessment of and allows in his rates for those access problems that may be encountered. No extra payment or claim of any kind is allowed on account of difficulties of access to the works, or for the requirement of working adjacent to or in the same area as others.

Access to site shall be in line with the Camden Power Station's access procedure. The *Contractor* shall be required to make an application to enter site for the duration of the contract, including the warranty and defect period. A permit shall only be issued once the *Contractor* has attended the safety induction and has undergone medical checks.

All the assets must be declared and registered with security upon entering site. This includes portable assets such as a laptop. The record must be kept on the OV18 form. No asset shall be removed from site if the OV18 form is not attached.

The *Contractor* shall have no claim against the *Employer* in respect of delay at the security main gate.

All *Contractors'* permits must be returned to Protective Services on completion of the works.

Equipment

Any 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 *Project Manager* has the right to stop the *Contractor's* use of any equipment which, in the opinion of *Project Manager*, does not conform to the foregoing.

Off-loading and material handling equipment is not available on site and if required, is to be provided by the *Contractor*.

Site Regulations

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Note that the speed limit on the site is 40 Km/h unless otherwise specified. Vehicle permit of any persons contravening any traffic act on will be cancelled.

The *Contractor* complies with the Camden Site Regulations, a copy of which is available for perusal at the *Employer's* offices.

Any subject within the authority of the Employer may be addressed by a Site Regulation. Before work starts on site, an inaugural meeting is held with the *Contractor* and the Employer to explain all requirements of the Site Regulations.

The *Contractor* allocates staff to be trained and authorised as Responsible Persons according to *Employer's* Plant Safety Regulations and/or High Voltage Regulations. These Responsible Persons are available on site as and when required to take out permits to work.

Permits

Daily meetings shall be held and chaired by the production department to discuss the next day's permit requirements. All permit requests are required by 15:00 on the day prior to the permit being required. A 'no work' period between 06:00 and 07:00 is enforced during which the requested changes to the permit take place.

No work commences without the acceptance of the permit to work by the *Contractor's* responsible person and all workers sign the workman's register. The *Contractor* arranges for three people to be appointed as responsible persons for permit requirements. The plant safety regulations course can be done at any Eskom Power Station but the practical course is done at Camden Power Station specifically.

Accommodation and Transportation

The *Contractor* provides his own accommodation and transport for all his employees engaged in the execution of the works. This includes the needs of his subcontractors. The cost for accommodation, as well as for transportation to and from site is included in the Prices. No accommodation is available at Camden Power Station.

Security

The *Contractor* provides security necessary for the protection of the works at all times until the completion of the whole of the *works*.

The *Contractor* is informed of the access procedures through Site Regulations and note that such procedures may change depending on the prevailing security situation.

All persons entering the Camden site pass through the control points at the main access gate and are required to have temporary permits that are issued to *Contractor's* staff on request. All persons submit ID documents with the application for temporary permits. If it is necessary to bring equipment onto site a list is submitted which is verified by security staff prior to equipment entering the security area.

If any *Contractor's* staff are transferred from Camden or leave site, the person's permit is handed over to the *Supervisor*. The *Contractor* ensures that personnel leaving site are transported out of the security area and that the permit is returned.

No firearms, weapons, alcohol, illegal substances and cameras (including cell phones with cameras) are permitted on site. Any person suspected of being under the influence of alcohol is tested and if proved positive, is refused entry to the security area.

No "private work" is carried out for or on behalf of any Eskom employee.

The generator area and the other units are barricaded and out of bounds and only authorised persons are permitted. Areas outside the site are out of bounds to the *Contractor's* staff.

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Under no circumstances shall the *Contractor* recruit outside Camden Power Station's security gate. An applicable local office for recruitment shall be used.

Safety

The *Contractor* implements a safety plan and maintains the safety system until the completion of the whole of the *works*. The plan, will as a minimum, contain PPE information, written safe work procedures, job specific risk assessments, safety meetings, etc. The plan will be to the *Employer's* satisfaction and will be accepted prior to the commencement of any work.

The *Contractor* will be subject to periodic audits by the *Employer* to ensure compliance with the plan. Any deviations will be corrected to the *Employer's* satisfaction.

The *Employer* has the right to stop the *Contractor's* work activities which, in the opinion of the *Employer*, is un-safe. The *Contractor* may only continue with work activities when all safety deficiencies have been corrected to the *Employer's* satisfaction. The *Contractor* shall have no claim against the *Employer* in respect of delay due to the above.

Environment

The *Contractor* shall comply with Camden Power Station's environmental management system. This includes the identification, collection, storage, transportation and disposal of waste. Hazardous waste shall be disposed off in line with the applicable environmental legislation. It is important to note that all spillages must be cleaned immediately and reported to the *Employer* as soon as possible. It is the responsibility of the polluter to clean all spillages and for the rehabilitation of the polluted land.

2. Ground conditions in areas affected by work in this contract

If earthworks are included in the Scope of Work, provide details of the ground conditions the *Contractor* is likely to encounter when doing the work. This could vary from indicating where a test pit has been opened up for the *Contractor* to make his own observations to providing full borehole logs and associated geotechnical report. Natasha to assist.

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3. Hidden and other services within the site

The Camden Site is to be considered as operational at all times and it is the responsibility of the *Contractor* to locate such as electrical cables, water, sewer, storm water, power lines, gas lines, airlines, pipelines, etc from damage during the execution of this contract.

4. Details of existing buildings / facilities which *Contractor* is required to work on

Please refer to attached Technical Specifications.

ESKOM HOLDINGS SOC Ltd

CONTRACT NUMBER _____

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