

ESKOM HOLDINGS SOC Ltd

CONTRACT NUMBER _____

DESIGN OF THE SYSTEM, SUPPLY/MANUFACTURE, ASSEMBLY, CONSTRUCTION, INSTALLATION AND COMMISSIONING OF ELECTRIC FENCE AT NOOITGEDACHT AND BOSLOOP PUMP STATION SITE



NEC3 Engineering & Construction Contract

Between **ESKOM ROTEK INDUSTRIES SOC Ltd**
(Reg No. 1990/006897/30)

and

for **DESIGN, SUPPLY, ASSEMBLY, CONSTRUCTION,
INSTALLATION AND COMMISSIONING OF ELECTRIC
FENCE AT BOSLOOP AND NOOITGEDACHTPUMP
STATION SITE**

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CONTRACT No. [Insert at award stage]

Part C1: Agreements & Contract Data

Contents:	No of pages
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[to be inserted from Returnable Documents at award stage]	
C1.2a Contract Data provided by the <i>Employer</i>	13
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[to be inserted from Returnable Documents at award stage]	

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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:

DESIGN, SUPPLY, ASSEMBLY, CONSTRUCTION, INSTALLATION AND COMMISSIONING OF ELECTRIC FENCE AT BOSLOOP AND NOOITGEDACHTPUMP STATION SITES

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

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

Signature(s)

Name(s) _____

Capacity _____

For the tenderer: _____

Name & signature of 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*.

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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 Eskom Rotek Industries SOC Limited
 Lower Germiston Road
 Rosherville
 Johannesburg
 2022

Name & signature of witness _____ Date _____

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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	None	None

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		Eskom Rotek Industries SOC Limited Lower Germiston Road Rosherville Johannesburg 2022
Name & signature of witness		
Date		

C1.2 ECC3 Contract Data

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Part one - 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 conditions of contract before you enter data. 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.
1. Some ECC3 options are always selected by Eskom Holdings SOC Ltd. The remaining ECC3 options are identified by shading in the left hand column. In the event that the option is not required select and delete the whole row. Where the following symbol is used "[●]" - data is required to be inserted relevant to the specific option selected.]

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

Clause	Statement	Data
1	General	
	The <i>conditions of contract</i> are the core clauses and the clauses for main Option	
	dispute resolution Option and secondary Options	<p>A: Priced contract with activity schedule</p> <p>W1: Dispute resolution procedure</p>
		<p>X2 Changes in the law</p> <p>X5 & Sectional Completion & Delay Damages</p> <p>X7: Retention</p> <p>X16: Low service damages</p> <p>X17: Limitation of liability</p> <p>X18: Additional conditions of contract</p> <p>Z:</p>
	of the NEC3 Engineering and Construction Contract, April 2013 (ECC3)	
10.1	The <i>Employer</i> is (Name): Address	<p>Kefentse Letsoko</p> <p>Eskom Rotek Industries SOC Limited Lower Germiston Road Rosherville Johannesburg 2022</p>
10.1	The <i>Project Manager</i> is: (Name) Address Tel	<p>Kefentse Letsoko</p> <p>Eskom Rotek Industries SOC Limited Lower Germiston Road Rosherville Johannesburg 2022</p> <p>013 297 9932</p>

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	e-mail	Letsokkw@eskom.co.za	
10.1	The <i>Supervisor</i> is: (Name)	Lindy Nkonde	
	Address	Eskom Rotek Industries SOC Ltd Roshland Office Park Lower Germiston Road Rosherville	
	Tel No.	013 297 1100	
	e-mail	Nkondel@eskom.co.za	
11.2(13)	The <i>works</i> are	DESIGN, SUPPLY, ASSEMBLY, CONSTRUCTION, INSTALLATION AND COMMISSIONING OF ELECTRIC FENCE AT BOSLOOP AND NOOITGEDACHT PUMP STATION SITES	
11.2(14)	The following matters will be included in the Risk Register	<ol style="list-style-type: none"> 1. Weather conditions 2. Road Conditions 3. Community Protests 	
11.2(15)	The <i>boundaries of the site</i> are	Bosloop and Nooitgedacht Pump Stations.	
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 refers.	
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	<ul style="list-style-type: none"> • 2 days for emergency correspondence (EW, NCRs, and safety related matters). • 5 days for non-urgent/general correspondence 	
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	304 March-April 2024⁵	
11.2(9)	The <i>key dates</i> and the <i>conditions</i> to be met are:	<i>Condition to be met</i>	<i>key date</i>
		1 Bosloop Electric Fence complete (from point A to B)	

Commented [KL2R1]: Corrected

Commented [BS1]: Date to be corrected

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	2	Bosloop Electric Fence complete (from point B to C)
	3	Bosloop Electric Fence complete (from point C to D)
	4	Bosloop Electric Fence to be fully operational
	5	Nooitgedacht Electric Fence complete (from point A to B)
	6	Nooitgedacht Electric Fence complete (from point B to C)
	7	Nooitgedacht Electric Fence complete (from point C to D)
	8	Nooitgedacht Electric Fence to be fully operational

30.1	The <i>access dates</i> are:	Part of the Site	Date
		1 Bosloop Pump Station 2 Nooitgedacht Pump Station	

31.1	The <i>Contractor</i> is to submit a first programme for acceptance within	Two weeks of the Contract Date.
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31.2	The <i>starting date</i> is	01 August <u>October</u> 2024
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32.2	The <i>Contractor</i> submits revised programmes at intervals no longer than	Four weeks.
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4 Testing and Defects

42.2	The <i>defects date</i> is	52 weeks after Completion of the whole of the works.
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43.2	The <i>defect correction period</i> is	One week
	except that the <i>defect correction period</i> for	Safety related works is immediately

5 Payment

50.1	The <i>assessment interval</i> is	between the 25th day of each successive month.
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51.1	The <i>currency of this contract</i> is the	South African Rand.
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51.2	The period within which payments are made is	Four (4) weeks.
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>The <i>weather measurements</i> are supplied by</p> <p>The <i>weather data</i> are the records of past <i>weather measurements</i> for each calendar month which were recorded at:</p> <p>and which are available from:</p>	<p>KWS Pump stations (Bosloop and Nooitgedacht)</p> <p>As per appendix A</p> <p>the number of days with rainfall more than 10 mm</p> <p>SA Weather Bureau for WEATHER BUREAU 2908025, RAINFALL STATION NO: 480/184 (515), CAROLINA.</p> <p>Bosloop and Nooitgedacht Pump Stations</p> <p>the South African Weather Bureau and included in Annexure A to this Contract Data provided by the Employer</p>
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:	<p>As stated in Annexure A to this Contract Data provided by the Employer.</p> <p><small>Note: If this arrangement is used, delete the rows above for 60.1(13) and delete this note.</small></p>

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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	1. Weather Conditions 2. Community unrest
9	Termination	<p>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.</p> <ul style="list-style-type: none"> • Contractor Employees to have police clearance before accessing the site. Failure to do so may lead to contract termination. • In additional to those reasons listed in 91.1 to 91.7, the following additional reasons for termination will apply: • Low services damages table X1 • Notwithstanding the delay damages indicated in X7, the Employer may terminate this contract agreement due to the following: • Failure by the Contractor to mobilise resources as stated in the task order within 30 days after receipt of the task order. • Termination of the main contract agreement that the Employer has with its client, for any reason under the scope that is executed by the tenderer/contractor. Such termination will be applied as back-to-back contract condition to this agreement.
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.
60.6	The <i>method of measurement</i> is	Published by and amended as stated in Part C2.1, Pricing Assumptions.
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

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		Parties do not agree on an Adjudicator the Adjudicator will be appointed by the Arbitration Foundation of Southern Africa (AFSA).
	Address	N/A
	Tel No.	N/A
	Fax No.	N/A
	e-mail	N/A
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 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.
12	Data for secondary Option clauses	
X2	Changes in the law	Is a compensation event if it occurs after the Contract Date
X5 &	Sectional Completion	
X7	Delay Damages	1% deductible per day, capped at 10% of the contract
X16	Retention	
X16.1	The <i>retention free amount</i> is	
	The <i>retention percentage</i> is	5%
		• 50% will be released over the contract term upon completion certificate and 50% at end of defect liability period.
X17	Low Service Damages	1% deductible per day, capped at 10% of the contract
X18	Limitation of liability	
X18.1	The <i>Contractor's</i> liability to the <i>Employer</i> for indirect or consequential loss is limited	10% of the contract total amount

Commented [BS3]: Where is the Service Level Table?
Discuss with Lindy for guidance

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	to:	
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> <p>the total of the Prices at the Contract Date and</p> <ul style="list-style-type: none"> • 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> <p>Defects due to his design which arise before the Defects Certificate is issued,</p> <p>Defects due to manufacture and fabrication outside the Site,</p> <p>loss of or damage to property (other than the works, Plant and Materials),</p> <p>death of or injury to a person and</p> <p>infringement of an intellectual property right.</p>
X18.5	The <i>end of liability date</i> is	<p>(i) 2 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. 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.

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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 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*.

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- 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 to the following invoicing month without attracting any interest to the *Employer* nor. The *Contractor* will ensure that operations are not impacted nor effected its failure to submit valid and correct tax invoices

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on time.

- 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.
- Z11.2 Notwithstanding the Delay damages, failure for the *Contractor* to mobilise resources on site within 30 days after receipt of task order/conclusion of contract then ERI may terminate the contract.

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,

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- 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 works, 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

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	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	<p>Loss of or damage to property <i>Employer's property</i> The replacement cost where not covered by the <i>Employer's</i> insurance</p> <p>The <i>Employer's</i> policy deductible, as at Contract Date, where covered by the <i>Employer's</i> insurance</p> <p>Other property The replacement cost</p> <p>Bodily injury to or death of a person The amount required by 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

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 limit 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 Nuclear Liability

Z14.1 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,

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and is the holder of a nuclear licence in respect of the KNPS.

- Z14.2 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*.
- Z14.3 Subject to clause Z14.4 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*.
- Z14.4 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.
- Z14.5 The protection afforded by the provisions hereof shall be in effect until the KNPS is decommissioned.

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.

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- 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.

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Annexure A: One-in-ten-year-return weather data obtained from SA Weather Bureau for WEATHER BUREAU 2908025, RAINFALL STATION NO: 480/184 (515), CAROLINA.

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.

Weather Measurements			
Month	Cumulative rainfall (mm)	Number of days with rain more than 10mm	[Other measurements if applicable]
January	127.8	4	
February	91.2	3	
March	82.1	3	
April	40.8	2	
May	17.9	0	
June	10.2	0	
July	6.7	0	
August	11.7	0	
September	26.4	1	
October	79.3	3	
November	135.1	5	
December	117.5	4	

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*

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	Bosloop and Noitgedacht Pump Station Sites only
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

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	3 Name:																
	Job																
	Responsibilities																
	Qualifications																
	Experience																
11.2(3)	The <i>completion date</i> for the whole of the works is	30+ March-April 2024 ⁵															
11.2(14)	The following matters will be included in the Risk Register	<ol style="list-style-type: none"> 1. Weather conditions 2. Road Conditions 3. Community Protests 															
11.2(19)	The Works Information for the <i>Contractor's</i> design is in:	Not applicable, designs issued by Eskom															
31.1	The programme identified in the Contract Data is	The contractor submits the first programme to the Project Manager for acceptance within the period stated in the Contract Data															
A	Priced contract with activity schedule																
11.2(20)	The <i>activity schedule</i> is in	C2.2 of the Contract Data															
11.2(30)	The tendered total of the Prices is																
A	Priced contract with activity schedule	Data for the Shorter Schedule of Cost Components															
41 in SSCC	The percentage for people overheads is:																
21 in SSCC	The published list of Equipment is the last edition of the list published by The percentage for adjustment for Equipment in the published list is	0%															
22 in SSCC	The rates of other Equipment are:	<table border="1"> <thead> <tr> <th>Equipment</th> <th>Size or capacity</th> <th>Rate</th> </tr> </thead> <tbody> <tr> <td>TLB</td> <td>7599kg</td> <td></td> </tr> <tr> <td>Tipper Truck</td> <td>10m3</td> <td></td> </tr> <tr> <td>Bobcat</td> <td>1283kg</td> <td></td> </tr> <tr> <td>Bomag</td> <td>8000kg</td> <td></td> </tr> </tbody> </table>	Equipment	Size or capacity	Rate	TLB	7599kg		Tipper Truck	10m3		Bobcat	1283kg		Bomag	8000kg	
Equipment	Size or capacity	Rate															
TLB	7599kg																
Tipper Truck	10m3																
Bobcat	1283kg																
Bomag	8000kg																
61 in SSCC	The hourly rates for Defined Cost of design outside the Working Areas are Note: Hourly rates are estimated 'cost to company of the employee' and not selling rates.	<table border="1"> <thead> <tr> <th>Category of employee</th> <th>Hourly rate</th> </tr> </thead> <tbody> <tr> <td>Supervisor</td> <td></td> </tr> </tbody> </table>	Category of employee	Hourly rate	Supervisor												
Category of employee	Hourly rate																
Supervisor																	

Commented [BS4]: Put a correct date
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62 in SSCC	<p>Please insert another schedule if foreign resources may also be used</p> <p>The percentage for design overheads is</p>	<p>Skilled Labour</p> <p>Semi-Skilled</p>		
63 in SSCC	<p>The categories of design employees whose travelling expenses to and from the Working Areas are included in Defined Cost are:</p>	<p>Not Applicable</p>		
24 in SCC	<p>The rates of special Equipment are:</p>	<p>Equipment</p> <p>Not Applicable</p>	<p>Size or capacity</p>	<p>Rate</p>
44 in SCC	<p>The percentage for Working Areas overheads is:</p>			
51 in SCC	<p>The hourly rates for Defined Cost of manufacture or fabrication outside the Working Areas are</p> <p>Note: Hourly rates are estimated 'cost to company of the employee' and not selling rates</p> <p>Please insert another schedule if foreign resources may also be used</p>	<p>Category of employee</p> <p>Welder</p> <p>Engineer</p> <p>Quality Controller</p>	<p>Hourly rate</p>	
52 in SCC	<p>The percentage for manufacture and fabrication overheads is</p>			

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.

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C2.2 the *activity schedule*

Activity Schedule Pricing:

Item	Activity	Price
1	Activity 1.1: Design of electrical Fence system and acceptance thereof	
	Activity 1.2 Site establishment	
	Activity 1.3 Security for 15 nights (as instructed by the Project manager)	
	Activity 1.4 Survey and Identification of below ground services and infrastructure	
	Activity 1.5 Removal of Existing Fence systems including bases/foundations (from point A to B) as per the works information item 3.1 and other relevant specifications and clauses in the contract	
	Activity 1.6 Anti-tunnelling beam complete (from point A to B) as per the works information item 3.1 and other relevant specifications and clauses in the contract	
	Activity 1.7 Vegetation Slab complete (from point A to B) as per the works information item 3.1 and other relevant specifications and clauses in the contract	
	Activity 1.8 Electric Fence complete (from point A to B) as per technical specification for energised fence (240-78980848)	
2	Activity 2.1 Removal of Existing Fence systems including bases/foundations (from point B to C) as per the works information item 3.1 and other relevant specifications and clauses in the contract	
	Activity 2.2 Anti-tunnelling beam complete (from point B to C) as per the works information item 3.1 and other relevant specifications and clauses in the contract	
	Activity 2.3 Vegetation Slab complete (from point B to C) as per the works information item 3.1 and other relevant specifications and clauses in the contract	
	Activity 2.4 Electric Fence complete (from point B to C) as per technical specification for energised fence (240-78980848)	
3	Activity 3.1 Removal of Existing Fence systems including bases/foundations (from point C to D) as per the works information item 3.1 and other relevant specifications and clauses in the contract	
	Activity 3.2 anti-tunnelling beam complete (from point C to D) as per the works information item 3.1 and other relevant specifications and clauses in the contract	
	Activity 3.3 Vegetation Slab complete (from point C to D) as per the works information item 3.1 and other relevant specifications and clauses in the contract	
	Activity 3.4 Electric Fence complete (from point C to D) as per technical specification for energised fence (240-78980848)	
4	Activity 4.1 upgrading of existing main access gate as per the works information item 3.1 and other relevant specifications and clauses in the contract	

ESKOM HOLDINGS SOC Ltd

CONTRACT NUMBER _____

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5	Activity 5.1 Disposal of spoil material to registered dump as per the works information item 2.4 and other relevant specifications and clauses in the contract	
	Activity 5.2 Rehabilitation of the site as per 240-165332855 Komati Water Scheme - Vegetation Management Work Instruction	
6	Activity 6.1 Electric Fence system, complete testing, commissioning, and handover of the entire system as per specification for energised fences, WI 5.5	
	Activity 6.2 Site de-establishment	

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

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ESKOM HOLDINGS SOC Ltd

CONTRACT NUMBER _____

DESIGN OF THE SYSTEM, SUPPLY/MANUFACTURE, ASSEMBLY, CONSTRUCTION, INSTALLATION AND COMMISSIONING OF ELECTRIC FENCE AT NOOITGEDACHT AND BOSLOOP PUMP STATION SITE

DESIGN OF THE SYSTEM, SUPPLY/MANUFACTURE, ASSEMBLY, CONSTRUCTION, INSTALLATION AND COMMISSIONING OF ELECTRIC FENCE AT NOOITGEDACHT AND BOSLOOP PUMP STATION SITE

1 Description of the works

2 Executive overview

The *works* is the design of the system, supply/manufacture (procurement, delivery and offloading) of all material as per accepted design, install/assembly, commissioning, and training of Eskom personnel for the electric fences (non-lethal) at Nooitgedacht and Bosloop Pump Station sites. This includes decommissioning and removal of the existing middle tier fence (energized fence) inclusive of the existing civil works (above and below ground), to a designated area within each pump station. The pump stations' layouts and approximate perimeter lengths are provided in the layout drawings (0.80/6133, sheets 2, 3 and 4) and figures 1, 2, 3 below in item 3.1. (**Note** the lengths/dimensions provided are approximate length for the outer fence, the *Contractor* confirms all dimension on site.)

The *Contractor's* design is performed by, or under the direction, control, and supervision of an ECSA registered professional engineer. The electrical design shall be as per Eskom's standard 240-78980848 *Specification for Non-Lethal Energized Perimeter Detection System (NLEPDS) for Protection of Eskom Installations and its Subsidiaries*.

Power supply points to the electric fence energizers will be provided by the *Employer* on each pump station site using the existing distribution boards. Cabling from the energizers to the electric fence will be re-used as far as possible. Where the re-use of cables is not possible, the replacement of such is agreed with the *Project Manager*. The *Contractor* replaces damaged/unsuitable cables with new cables using existing cable route.

3 Employer's objectives and purpose of the works

The objective and purpose of the *works* is to comply with the Eskom standard for energized fences 240-78980848 *Specification for Non-Lethal Energized Perimeter Detection System (NLEPDS) for Protection of Eskom Installations and its Subsidiaries*.

The works is detailed in the technical specifications 365-KOM-AABZ28-SP0004-20 *KWS Pump Stations Energized Fence Upgrade Technical Specification Rev. 1*.

4 Interpretation and terminology

The following abbreviations are used in this Works Information:

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Abbreviation	Description
AC	Alternating Current
AIA	Authorised Inspection Authority
AWS	American Welding Society
C&I	Control and Instrumentation
CAD	Computer-aided design
CoC	Certificate of Compliance
CV	Curriculum Vitae
DB	Distribution Box
DC	Direct Current
ECSA	Engineering Council of South Africa
EMS	Environmental Management System
EPC	Engineering Procurement and Construction
HMI	Human Machine Interface
HT	High Tension
I/O	Input Output
IP	Ingress Protection
ISO	International Standards Organisation
ITP	Inspection Test Plan
JB	Junction Box
K25	Specific Conductivity at a reference temperature of 25°C
kV	Kilo Volts
KVA	Kilo Volts Amperes
KWS	Komati Water Scheme
LCS	Local Control System
LV	Low Voltage
MCB	Miniature Circuit Breaker
NKP	National Key Point
OHSA	Occupational Health and Safety Act No. 85 of 1993
PED	Primary Energy Department
PLC	Programmable Logic Controller
PPE	Personal Protective Equipment
Pr. Eng.	Professional Engineer
Pr. Tech	Professional Engineering Technologist
QCP	Quality Control Plan
QMS	Quality Management System
RAM	Reliability, Availability and Maintainability
SANS	South African National Standard
SAQCC	South African Qualification and Certification Committee
SHE	Safety, Health and Environment
SHEQ	Safety, Health, Environmental and Quality
SOC	State Owned Company
SS	Stainless Steel
TOC	Total Organic Carbon
UPS	Uninterruptible Power Supply
V	Volts

Part C3: SCOPE OF WORK Page 22 C3.1 ECC3 EMPLOYER'S WORKS INFORMATION

DESIGN OF THE SYSTEM, SUPPLY/MANUFACTURE, ASSEMBLY, CONSTRUCTION, INSTALLATION AND COMMISSIONING OF ELECTRIC FENCE AT NOOITGEDACHT AND BOSLOOP PUMP STATION SITE

5 General Requirements

- (1) The *Contractor* designs the fence system, supply/manufacture, assemble, construct, installs and commissions the electric fence at Nooitgedacht and Bosloop Pump Station sites.

6 Project Execution Methodology

- (1) The *Contractor* is responsible for carrying out all activities and supplying all resources, machinery, equipment people, skills etc., required to provide the *works*. This includes clarification and co-ordination with the *Project Manager*.
- (2) The *Contractor* is responsible throughout the execution of the *works* to ensure the execution and completion of all activities shown in Appendix A: Project Methodology and submission.
- (3) All documentation submitted by the *Contractor* conform to all the requirements of the documentation synopsis and is in an adequate state of completeness.

7 Management and start up**8 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
Technical meeting (Risk register; compensation events; Issues)	Weekly on Fridays at Nooitgedacht/Bosloop Pump Station, Mpumalanga or as per <i>Project Managers</i> request.	Megawatt Park, Nooitgedacht/Bosloop Pump Station site in Mpumalanga
Overall contract progress and feedback	Monthly on the 25 th of each month at Nooitgedacht/Bosloop Pump Station site in Mpumalanga or the 1 st working day after the 25 th if the 25 th is over a weekend of public holiday	Nooitgedacht/Bosloop Pump Station site in Mpumalanga

Meetings of a specialist nature may be convened as required. Records of these meetings are submitted to the *Project Manager* by the person convening the meeting within five days of the meeting.

All meetings are recorded using minutes or a register prepared and circulated by the person who convened the meeting. Such minutes or register 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.

Meetings are arranged as per the specific contract requirements. During the design phase the progress feedback meetings are held at Megawatt Park (MWP) or via video conference on a bi-weekly basis. This meeting is attended by *Employer's* representatives and *Contractor* representatives.

9 Documentation control

- All verbal communication is followed up with written confirmation.
- All written communication should be on formal letters with corporate letter heads.
- An email system is used for general communication.
- Minutes of Meetings are held for all meetings relating to the project.
- Communication is extremely important and is managed to ensure maximum benefits to the project.

DESIGN OF THE SYSTEM, SUPPLY/MANUFACTURE, ASSEMBLY, CONSTRUCTION, INSTALLATION AND COMMISSIONING OF ELECTRIC FENCE AT NOOITGEDACHT AND BOSLOOP PUMP STATION SITE

- A document management system will be implemented.
- All communication to be directed to the *Project Manager*

10 Health and safety risk management

The *Contractor* shall comply with the health and safety requirements contained in Annexure C of this Works Information.

11 Environmental constraints and management

- The *Contractor* conforms to the Eskom SHEQ policy, KWS environmental emergency and response work instruction, spill handling work instruction, environmental incident management and waste management work instruction. An environmental induction will be provided before the *Contractor* commence work on site.
- The *contractor* manages environmental impacts as identified in the environmental risk assessment.
- The *contractor* is responsible for safe disposal of the existing fence and associated components by ensuring that the fence and components are taken to the authorised recycling site. The waste manifesto from the receiving site must be submitted to Eskom/KWS Environmental Officer within 7 days.
- The following environmental requirements will be included in the Tender/Request for Proposal (RFP):
 - Environmental Risks Assessment as per scope of the project
 - Environmental costing as per the scope of the project.

A template for compiling risks assessment and example of the environmental costing is included on SHEQ Documents (see Appendix B).

12 Quality assurance requirements

Quality requirements will be negotiated and linked to contract award. Quality objectives are as follows:

- Contract Quality Plan Requirement as per Scope of works.
- Quality Control Plan (Inspection and Test Plan) Requirements as per scope of works.
- The supplier shall complete and sign Form A (Enquiry/Contract/Quality Requirements for QM58 and ISO 9001).

The supplier shall submit objective evidence of a developed and implemented QMS that complies with ISO 9001:2015 or any applicable standard of quality management system (the latest applicable revision). The following documents (approved copies) shall be submitted:

- (1) Quality management system manual or a document that is defined and describes the QMS and its scope
- (2) Quality Policy
- (3) Quality Objectives
- (4) Control of documented information

DESIGN OF THE SYSTEM, SUPPLY/MANUFACTURE, ASSEMBLY, CONSTRUCTION, INSTALLATION AND COMMISSIONING OF ELECTRIC FENCE AT NOOITGEDACHT AND BOSLOOP PUMP STATION SITE

- (5) Records required by ISO 9001 standard (List of Records)
- (6) Internal audit procedure
- (7) Control of nonconformity outputs
- (8) Nonconformity and Corrective action procedure
- (9) Documented information for defined roles, responsibilities, and authorities
- (10) Documented information for Control of Externally Provided Processes, Products and Services
- (11) Latest copy of an internal management system audit report (with Nonconformity, Correction and/ or Corrective Action Reports)
- (12) Latest copy of an external management system audit report (with Nonconformity, Correction and/ or Corrective Action Reports)
- (13) Detailed objective criteria are attached in the Quality evaluation criteria form.

13 Programming constraints

The *contractor* is limited to the removal of the existing fence (non-lethal energised fence) on one site at a time, and only once commissioning is completed and the site of handover thereof, can the following site fences be removed and *works* commence.

14 Contractor's management, supervision, and key people

The *Contractor* submits an organogram with updated CVs of each employee on the project.

Reporting structures and responsibilities are to be included on the organogram or in an addendum to the organogram.

15 Invoicing and payment

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 showing the amount due for payment equal to that stated in the *Project Manager's* payment certificate.

The *Contractor* addresses the tax invoice to ERI (Eskom Rotek Industries) invoicing email address:

invoiceserilocal85@eskom.co.za or to the following address: The *Project Manager*, Eskom Rotek Industries SOC Ltd, Lower Germiston Road, Rosherville Johannesburg, P.O. Box 40698, Cleveland 2022 and include on each invoice the following information:

- Name and address of the Contractor
- The Contractor's Company name
- The Contractor's vendor number
- The Contractor Invoice number
- The Contractor's Order number
- The contract number and title.
- The *Employer's* registration number: 1990/006897/30
- Contractor's VAT registration number.

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- The *Employer's* VAT registration number 4330196330
- Description of service provided for each item invoiced based on the Price List.
- Total amount invoiced excluding VAT, the VAT and the invoiced amount including VAT.

Every 25th of each month, the *Employer* and *Contractor* will perform an assessment on the work completed for the month.

The assessment will be signed off by both parties.

The *Contractor* will submit an invoice to the *Project Manager* either hand delivery or a PDF document per email.

The *Project Manager* will submit the assessment with the invoice to Eskom Rotek Industries's Accounts Payable Section for payment.

16 Insurance provided by the *Employer*

Refer to Policy Number ESK 2015/6 ACAR.

17 Contract change management

All scope changes must be approved by the *Project Manager*.

18 Provision of bonds and guarantees

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.

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

All project related documents to be kept in either electronic format or hard copies in files at the *Contractor's* premises.

20 Training workshops and technology transfer

On *completion* of the *works*, Plant specific operating and maintenance philosophy training to be done with the *Employer's* staff. Three operators and one maintenance employee to be trained.

The *Contractor* is to supply all OEM manuals in A4 files which are clearly marked with the contract name and contract number.

21 Description of the *Works*

The *works* is the removal of the existing electric (non-lethal), design, construction and commission of electric fence that comply to the Eskom Standard: 240-78980848 *Specification for Non-Lethal Energized Perimeter Detection System (NLEPDS) for Protection of Eskom Installations and its Subsidiaries* at Nooitgedacht and Bosloop Pump Station sites.

The *works* also includes:

DESIGN OF THE SYSTEM, SUPPLY/MANUFACTURE, ASSEMBLY, CONSTRUCTION, INSTALLATION AND COMMISSIONING OF ELECTRIC FENCE AT NOOITGEDACHT AND BOSLOOP PUMP STATION SITE

- The decommissioning and removal and disposal of the existing middle tier fence (energized fence). The *Contractor* removes the insulators on all sites prior to the dismantling of the poles and hands over the same to the *Employer* for re-use (the contractor ensures that all isolators are removed in a manner that protects the insulator from any damage.) All the steel works/materials (poles, barbed wire etc, is removed and stored at a designated area at each station for the *Employer* to later sell off. Where the poles are cast in concrete and cannot be unbolted the *Contractor* cuts off the pole from the concrete and stores the steel poles as above.
- The *Contractor* removes all civil/concrete/foundations works (above and below ground), and stores at a designated area at each pump station for disposal later. All other material (concrete, cement, stones, bricks etc from the excavations and works of the contractor) is disposed at a registered/approved site.
- The *Contractor* removes the existing barbed wire, contactors and electric fence on the main access gates and replaces with new contactors and electrical fence as per the Eskom Specifications on the same gate frame/structure. The *Contractor* does not re-install barbed wire.
- The design of the electric fences system, including the anti-tunnelling beam and vegetation slab (selecting of poles/pots, wires, bobbins, etc) to meet the above standard with layout and detail section drawings for acceptance by the *Employer* prior to any purchase of materials or construction.
- The procurement and or manufacture, purchasing transporting, off-loading, and storing of materials as per accepted design, The *Employer* provides free issue steel mesh to the contractor as detailed below in 4.3.2. The *Contractor* includes in his tender for the cleaning, handling, loading and transport of the free issue material to where required.
- Supply, fabrication, installation, testing, commissioning, and handover of the electric fence system (fence, foundations, anti-tunnelling beams etc) and the system is tested in zones and in its entirety to meet the specification requirement with the accompanying certificate of compliance for electrical fences, with a spares list for the system and all drawings as well.
- The training of *Employers* personnel, which includes amongst others, the interpreting faults and reporting of the same, basic understanding of the system, and basic repairs of the structures (such as wire breaks)
- Connecting of HV cables is performed in accordance with SANS 10222-3 2016.

The works excludes:

- Power supply: The *Contractor* excludes the supply of electric fence energizers as this will be provided by the *Employer* on each pump station site using the existing distribution boards. Cabling from the energizers to the electric fence will be re-used as far as possible. Where the re-use of cables is not possible, the replacement of such is agreed with the *Project Manager* and will be done by others.

Commented [AS6]: Check if this statement does not conflict with the highlighted section under environmental

Commented [NM7R6]: @Lindy Nkonde please confirm how you would like to handle removal of waste.

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DESIGN OF THE SYSTEM, SUPPLY/MANUFACTURE, ASSEMBLY, CONSTRUCTION, INSTALLATION AND COMMISSIONING OF ELECTRIC FENCE AT NOOITGEDACHT AND BOSLOOP PUMP STATION SITE

- The gate structure is excluded from the scope of work, but the replacement of electric fence and removal of barbed wire is included.



Figure 1: Layout of Nooitgedacht Pump Station



Figure 2: Layout of Bosloop Pump Station

22 Removal

- The *Contractor* removes the insulators on all sites prior to the dismantling of the poles and hands over the same to the *Employer* for re-use (the contractor ensures that all insulators are removed in a manner that protects the insulator from any damage.) All the steel *works/materials* (poles, barbed wire etc, is removed and stored at a designated area at each station for the *Employer* to later sell off. Where the poles are cast in concrete and cannot be unbolted the *Contractor* cuts off the pole from the concrete and stores the steel poles as above.

DESIGN OF THE SYSTEM, SUPPLY/MANUFACTURE, ASSEMBLY, CONSTRUCTION, INSTALLATION AND COMMISSIONING OF ELECTRIC FENCE AT NOOITGEDACHT AND BOSLOOP PUMP STATION SITE

- The *Contractor* removes all civil/concrete/foundations *works* (above and below ground), and stores at a designated area at each pump station for disposal later. All other material (concrete, cement, stones, bricks etc from the excavations and *works* of the contractor) is disposed at a registered/approved site.
- The *Contractor* removes the existing barbed wire, contactors and electric fence on the main access gates and replaces with new contactors and electrical fence as per the Eskom Specifications on the same gate frame/structure. The *Contractor* does not re-install barbed wire.

23 Design

24 Contractor's Design

1. The *Contractor* takes full professional accountability and liability for the *works* designed by the *Contractor* and provides the following to the *Employer*, for review and acceptance:
 - A Level 4 schedule (schedule with defined activities) for the *works* highlighting all activities involved, major milestones and provision.
 - Detailed Electrical/Civil Design report signed by a Professional Engineer/Technologist. The *Contractor* uses (where possible) existing civil foundation on bridges and other structures that cross over channels, pipes and culverts.
 - Detailed commissioning procedure indicating the tests to be conducted on the electric fence and associated power supply.
 - Detailed Electrical drawings. Drawings are also submitted in CAD formats (.DGN) e.g., drawings showing the energiser connection to the electric fence conductors, conductor spacing etc. and excel format e.g., load schedules.
 - Operating and maintenance manual for the electrical installation. The Operating & Maintenance Manuals describe how the facility is to be operated/maintained and by whom. The operating and maintenance manuals as a minimum, consist of the following:
 - List of Contents (Index)
 - Introduction
 - General description of the functions of each of the systems including detailed description of each element of the electric fence, how it functions, how it operates and how to maintain it.
 - Full alarm descriptions with procedures on the fault finding or clearing of alarms.
 - Full as-built drawings, brochures and catalogues for the system and each component.
 - The format of the O & M documentation shall be A4 and shall be a specially bound document with hard cover and with metal ring binding. (All drawings and details shall be reduced to A3 format and folded into A4 format.)
 - The names address and telephone numbers/email addresses of all responsible persons and manufacturers/suppliers shall be listed in the O&M document.

DESIGN OF THE SYSTEM, SUPPLY/MANUFACTURE, ASSEMBLY, CONSTRUCTION, INSTALLATION AND COMMISSIONING OF ELECTRIC FENCE AT NOOITGEDACHT AND BOSLOOP PUMP STATION SITE

- Documentation as per the Employer's 240-78980848 standard.
2. Any discrepancy or ambiguity between the *Employer's* Specifications or requirements is immediately brought to the attention of the *Project Manager* for clarification.
 3. The electrical design shall be as per Eskom's standard 240-78980848 *Specification for Non-Lethal Energized Perimeter Detection System (NLEPDS) for Protection of Eskom Installations and its Subsidiaries*.

25 Employer's Civil Design

The *Employer* has conducted the detailed design only for the civil works of the fence structure which is constructed by the *Contractor* in accordance with the drawings and specifications included within and referenced in this specification. The *Contractor* may choose to propose an alternative design, however, should the *Contractor* accept the *Employer's* design he/she also accepts the accountability of the design. The *Contractor* uses (where possible) existing civil foundations, beams and bridges and other structures that cross over channels, pipes, and culverts. Any changes are submitted to the *Project Manager* for approval.

26 Temporary Works

The *Contractor* is mandated in terms of Construction Regulations 2014: Duties of Designer, 6(1) a - j and 6(2) a - d, to fulfil the duties described therein for the detailed and temporary works designs done by the *Contractor*. Any risk associated with the *Contractor's* design is highlighted to the *Employer* together with mitigation measures. The *Contractor* is responsible for construction monitoring at the level required to certify that the works have been constructed in accordance with the *Contractor's* design.

27 Electrical

The electrical scope is detailed in the *Eskom's standard 240-78980848 Specification for Non-Lethal Energized Perimeter Detection System (NLEPDS) for Protection of Eskom Installations and its Subsidiaries*.

28 Energized Fence

The energized fence scope is detailed in the *Employer's* specification: 240-78980848 *Specification for Non-Lethal Energized Perimeter Detection System (NLEPDS) for Protection of Eskom Installations and its Subsidiaries*.

1. The *Contractor* is responsible for the construction of the works, including all temporary works and design thereof, and all associated services in accordance with the detailed drawings and specifications.
2. The civil works includes the fence posts, struts, foundations, anti-tunnelling beam, anti-vegetation slab and associated works and is constructed in accordance with the *Employer's* detailed drawings 0.80/6133 Sheets 2, 3 and 4.
3. The electrical works are in accordance with the *Contractor's* detailed design which is in accordance with the specifications indicated herein.
4. The *Contractor* disposes of all demolition waste at a licenced waste disposal site to be accepted by the *Project Manager*. The waste disposal site is selected to suit the classification of the materials to be disposed of. Certificates of disposal are required to be submitted to the *Employer*.

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5. The *Contractor* is required to remove existing middle tier fence, and all associated infrastructure (e.g., posts, foundations, and concrete works). The infrastructure is to be assessed by the *Contractor* together with the *Employer* to determine how much of the existing infrastructure can be reused.
6. The *Contractor* removes the structure with no damage to the steel components that could be reused.
7. The *Contractor* submits an assessment report to the *Project Manager* for review indicating which of the existing infrastructure can be reused to upgrade the fence in accordance with the required specifications in this Works Information.

29 Power Supply and Cabling works

1. The existing power supply points, inclusive of MCB's and associated cabling for the existing electric fence shall be used for the new electric fence. The existing distribution boards (DB) located in the security guard house on each pump station shall be used as an interface/ power supply point to the energized electric fence.
2. The *Contractor* shall isolate the existing power supply to the existing electric fence on decommissioning of the existing electric fence.
3. There are currently 2 energizers on each pump station, with a single-phase supply from the DB (located in the security guard house) with 2 output HT cables per energizer and one common earth cable from these energizers. On installation of the electric fence system, insulation resistance and continuity tests on the cables shall be conducted as part of the commissioning tests. A Certificate of Compliance shall be provided by the *Contractor* and shall be as per the requirements of 240-78980848 *Specification for Non-Lethal Energized Perimeter Detection System (NLEPDS) for Protection of Eskom Installations and its Subsidiaries*.
4. Existing cable routing shall be used as far as practically possible.

30 Earthing and Lightning Protection

1. Earthing and lightning protection is detailed in the *Employer's* specification: 240-78980848 *Specification for Non-Lethal Energized Perimeter Detection System (NLEPDS) for Protection of Eskom Installations and its Subsidiaries*.
2. The *Contractor* provides earthing drawings, reflective of As-built status of the newly installed electric fence. Drawings shall indicate, as a minimum, the connection points on the electric fence and on the earth mat.

31 Construction and Commission**32 General**

The *Contractor*:

DESIGN OF THE SYSTEM, SUPPLY/MANUFACTURE, ASSEMBLY, CONSTRUCTION, INSTALLATION AND COMMISSIONING OF ELECTRIC FENCE AT NOOITGEDACHT AND BOSLOOP PUMP STATION SITE

1. Adheres to the South African Environment Protection Act, the waste management code of practice and the South African Occupational Health and Safety Act No. 85 of 1993, the regulations promulgated thereunder and Eskom Safety, Health, Environment and Quality (SHEQ) Policy 32-727 and Waste Management Procedure, as well as the plan from KWS for all *works*.
2. Submits to the *Project Manager* a construction method for acceptance 2 weeks prior to any construction activities commencing on site. The method statement must cover, not limited to, the following areas of construction:
 - Construction of anti- tunnelling beam in areas with a grade greater than 1:20m
 - Crossing of culverts and underground *works*, preference is given to the use of existing structures such as bridges and beams over culverts
3. Submit a project specific safety file to the *Employer* for acceptance, prior to the start of the *works*.
4. Submit a detailed level 4 schedule for the *works* to the *Project Manager* for acceptance after contract award.
5. Manage access to the working areas and the site to ensure none of the existing plant that is not in the scope is damaged during removal of the middle tier fence.
6. Manage his activities on *Site* to ensure that no interference takes place between his work and that of others.
7. Continuously monitor the condition in demolition areas and surrounding areas for any hazardous substances and in such case, the *Contractor* is required to take necessary precautionary measures.
8. Complete "Contract Activities Daily Reports".
9. Liaise with the *Supervisor* regarding utilities and telephone facilities required for his *Site* establishment.
10. Identifies a registered waste disposal site, outside the pump station for dumping of waste, which must be approved by the *Supervisor*.
11. Maintain and promote labour harmony on the *Site* and in the working environment.
12. Immediately report any potential labour disharmony to the *Supervisor*.
13. Not recruit or employ any personnel from the *Employer* and Others, without prior acceptance of the *Project Manager*.

33 Temporary works, Site services & construction constraints**34 Employer's Site entry and security control, permits, and Site regulations.**

1. The *contractor* abides by security protocols and access control procedures.
2. Alcohol testing will be conducted at any time on all employees entering the Eskom premises. All staff that tested positive for alcohol abuse will not be allowed on site.
3. The contractor will undergo plant Induction.

DESIGN OF THE SYSTEM, SUPPLY/MANUFACTURE, ASSEMBLY, CONSTRUCTION, INSTALLATION AND COMMISSIONING OF ELECTRIC FENCE AT NOOITGEDACHT AND BOSLOOP PUMP STATION SITE

4. When entering the site, the contractor or visitors will be requested to come out from their vehicle in front of the gate and identify them self by means of ID card/document.
5. The contractor/visitor will be always subjected to be search before entering the site.
6. The contractor shall have their tools list when entering the site.
7. The contractor will be requested to fill in the register when entering site.
8. The contractor will strictly follow safety rules.

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

1. All vehicles must comply with the National Road Traffic Act, 1996 (Act No. 93 Of 1996)
2. Vehicle inspections will be conducted daily and check sheets must be kept at the *Contractor's* offices.
3. The contractor is restricted from entering the plant (Pump Station, Switchgear Room, Distribution Yard etc.) without authorisation by the *Project Manager* or *Employer's* representative. The following is prohibited:
 - Firearm not allowed on site.
 - No alcohol on site.
 - Not making fire on site.

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

1. Restrictions and hours of work may apply on Sites.
2. It is very important that the *Contractor* keeps records of his people and plant on Site, including those of his Subcontractors which the *Project Manager* or *Supervisor* have access to at any time. These records may be needed when assessing compensation events.
3. No weekend *work* is permitted without the acceptance of the *Project Manager/Employer* and *Contractor's* working hours will be aligned from 07:00 to 12:00 and 12:30 – 16:30 from Monday to Friday. Health and safety facilities on Site
4. The Contractor to supply the following for his employees:
 - Job Specific Safety training
 - Personal Protective Equipment
 - Toolbox talks
 - Safety Representatives to be trained for all areas of the *works*.
 - Qualified First aiders to be appointed for all areas of the *works*.

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

Not applicable.

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38 Title to materials from demolition and excavation

The *Contractor* submits an assessment report to the *Project Manager* for review indicating which of the existing infrastructure can be reused to upgrade the fence in accordance with the required specifications in this Works Information

All steel, metal, isolators, and concrete lintels removed from the existing *works* is handed over to the *Employer*.

All discard concrete, stone, cement from the existing *works* and any discard created because of the *Contractors* activities are disposed by the *Contractor* to a registered/approved disposal facility.

39 Cooperating with and obtaining acceptance of Others

The *Contractor* will interact with the following stakeholders:

- Primary Energy representatives – end users
- Eskom Rotek Industries Bulk Material Services representatives – Site management
- Department of Water Affairs and Sanitation (DWS)
- PED appointed consultants and contractor (CCTV contractor)
- Internal and external auditors

40 Publicity and progress photographs

1. SHE requirements must be clearly identified on notice boards.
2. A complaints register must be maintained. The *Contractor* shall seek *Employer's* approval prior to engaging with the authorities.
3. No pictures will be taken without the written authorisation of the *Project manager*.

41 Contractor's Equipment

1. The *Contractor* submits a list of all tools and equipment entering site. Equipment and tools not declared will become the *Employer's* property.
2. On completion of the project, all tools and equipment will be removed only with permission from the Project Manager on the applicable approved *Employer* documents.

42 Equipment provided by the Employer

Not Applicable.

43 Site services and facilities

None.

44 Facilities provided by the Contractor

1. The *Contractor* provides accommodation for his/her team. No accommodation will be allowed on site.
2. An open storage area will be available on site.

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3. All drivers' fitness to operate specified vehicles and licenses to be always available for inspections by the *Employer*.
4. The *Contractor* provides temporary office space for the duration of the contract for *Contractor* employees at the site where the *works* is executed (Nooitgedacht and Bosloop Pump Station sites).
5. All equipment must comply with the OHSAct.

45 Existing premises, inspection of adjoining properties and checking work of *Others*

Not applicable.

46 Survey control and setting out of the *works*

1. The *Contractor* is responsible for the complete surveying and setting out of the *works* including establishment and protection of any benchmarks required to complete the *works*.
2. The *Contractor* is required to consult the Surveyor-General's office to obtain information on available registered beacons near the Site to use for the establishment of any required benchmarks close to the *works*.
3. The *Contractor* is required to submit as-built data for the civil *works* in the form of redlined marked up drawings to the *Project Manager* upon handover.
4. Signed as-built drawings are submitted for the designs done by the *Contractor* and complies with the requirements indicated in Section 3.5.1.2.
5. The *Contractor* is responsible for the verification of all survey data relating to setting out and to immediately inform the *Project Manager* of any discrepancies as soon as these are discovered.
6. The new middle tier fence is to be erected adjacent to the existing middle fence except where it is not feasible to erect. The *Contractor* shall design such area to ensure compliance with 240-56364545 *Structural Design and Engineering*.

47 Excavations and associated water control

All excavations to be verified by the *Project Manager*.

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

1. Geophysical scanning is done by the *Contractor* to locate sub-surface utilities both metallic and non-metallic prior to any excavations.
2. Scans are required to be conducted for the footprint of the support structure.
3. The type of Geophysical scanning employed is at the discretion of the *Contractor*, taking note of the required output. The *Contractor* therefore considers the working environment prior to selection of test methodology and equipment.
4. The *Contractor* considers possible signal interferences which may be experienced by the geophysical scanning equipment caused by equipment, and services stray current in and around the areas.
5. Scanning is required to be conducted to a minimum depth of 3 m.

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6. The *Contractor* submits the results of the scanning to the *Project Manager* and indicates and possible services which may interfere with the *works*.

49 Control of noise, dust, water and waste

1. To be included in Risk Assessment.
2. As per authorisations and the *Employer's* policies, procedures, and work instructions.

50 Sequences of construction or installation

Contractor to develop a sequence of construction that will minimize delays to the project.

51 Giving notice of work to be covered up

All intended activities must be captured in the scope of work and on the project schedule. The project schedule will be reviewed and updated weekly by the Project Manager.

52 Hook ups to existing works

Not applicable.

53 Completion, testing, commissioning, and correction of Defects**54 Work to be done by the completion date**

All work to be completed by completion date. Commissioning is to be done after completion of each main activity which includes:

	Item of work	To be completed by
1	As built drawings of All plant	Within 30 days after Completion of each site.
2	Performance testing of the <i>works</i> at each site	Various completion days as per particular test specified in the specification.

55 Use of the works before completion has been certified

The use of the *works* before completion is not allowed. Plant only to be used after clearance and commission certificate is issued.

56 Materials facilities and samples for tests and inspections

1. All concrete work is required to be in accordance with SANS 2001-CC1 and SANS 10100-2 unless otherwise stated.
2. All concrete surfaces and cast-in items are required to be inspected and accepted by the Project Manager in writing before casting of concrete may commence.
3. The *Contractor* is required to obtain written acceptance from the Project Manager for the use of any admixture or the use of ready mixed concrete, to pump concrete, or to use cement or cement blends other than ordinary Portland cement (OPC)
4. Compaction of concrete is required to be done by means of mechanical vibrators only.

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5. The *Contractor* is required to submit the concrete mix design to the Project Manager for acceptance.
6. The *Contractor* is required to demonstrate, by means of a report from an approved laboratory, that the aggregates do not exhibit excessive shrinking properties in accordance with SANS 1083 and is also required to demonstrate that the aggregates do not have a potential alkali silica reaction.
7. The *Contractor* is required to perform a slump test on the same batch of concrete every time a sample is taken, and the result recorded.

The table below indicates specifications pertaining to SANS 2001-CC1 and must be read in conjunction with the code.

Clause	Specification
3.5	Concrete – Strength characteristics
3.4.3	Concrete Grade is required to be: <ul style="list-style-type: none"> • Class 15 MPa/ 19 mm for Blinding Concrete (28 days), • Class 35 MPa/ 19 mm for Structural Concrete (28 days).
4.2	Materials
4.2.7	In general, one of the following types of non-shrink grout are required to be used: <ul style="list-style-type: none"> • Cement-based non-shrink grout, not less than 50 MPa. • Special proprietary non-shrink or expansive grout, not less than 50 MPa.
4.4	Reinforcement
4.4	Add the following: All reinforcement is stamped with a SANS quality assurance mark
4.4.3.1	Cast in-situ concrete cover is required to be a minimum of: <ul style="list-style-type: none"> • 60 mm for exposed to earth or water. • 40 mm for above ground or not in contact with soil.
4.7	Quality of Concrete
4.7.1.1	<ul style="list-style-type: none"> • <i>Contractor</i> submits to the <i>Supervisor</i> full details and samples of all materials which he proposes to use for making concrete at least 28 days before the concreting of the <i>works</i> is due to commence.
4.7.10	Add the following: <ul style="list-style-type: none"> • The <i>Supervisor</i> approves the size, shape and depth of any excavation before concrete is placed. • Unless otherwise approved by the <i>Supervisor</i>, no concrete is placed until the fixed reinforcement has been accepted in writing by the <i>Supervisor</i>
4.7.12.2.3	<ul style="list-style-type: none"> • All angled corners are chamfered 20 mm x 20 mm, unless such other larger size is detailed on the Drawings.
4.7.19.3	<ul style="list-style-type: none"> • <i>Contractor</i> submits a detailed procedure for acceptance by the <i>Supervisor</i>

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Clause	Specification
	on how he intends to carry out the repairs of structural concrete defects
4.7.22	<ul style="list-style-type: none"> For concrete pour records, the <i>Contractor</i> submits a detailed Quality Control Plan to the <i>Supervisor</i> for acceptance. In addition, the <i>Contractor</i> supplies the <i>Supervisor</i> with two copies of these records each day covering <i>works</i> carried out the preceding day.
5.1	Testing
5.1.1.4	<ul style="list-style-type: none"> Six 150 mm cube samples taken from each batch or place of concrete deposition, four cubes are tested at 7 days and four at 28 days. Strength at 7 days is required to be at least two thirds of 28-day strength.
5.1.2.1	<ul style="list-style-type: none"> Any of the cube samples tested indicating a result more than 3 MPa below the specified strength is disregarded.
5.2	Tolerances
5.2.1	<ul style="list-style-type: none"> Tolerances on all concrete work is required to be a level II degree of accuracy as specified in SANS 2001-CC1 with and is to be carefully maintained throughout the construction.

57 Steelwork

- All work is required to be in accordance with the latest edition of SANS 2001-CS1
- The *Contractor* is responsible for the stability of the entire structure and all structural elements during all the erection stages.
- All dimensions are required to be verified on site by the Contractor before any fabrication of steelwork commences.
- All welding is required to be conducted by coded welders in the workshop only. Supporting documentation is also required to be submitted to the Project Manager for acceptance. All welding is required to comply with AWS D1.1.
- All welds are required to be inspected using visual aids
- The *Contractor* is required to supply all bolts, washers, nuts etc. for the structural steelwork.
- All steelwork is required to be hot dipped galvanised.
- All galvanising is required be done in accordance with SANS 121. Preparation of steel prior to galvanising and coating thickness is also required to be in accordance with SANS 121.

The table below indicates specifications pertaining to SANS 2001-CS1 and must be read in

Clause	Specification
4.1	Materials

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Clause	Specification
4.1.1	Add the following: <ul style="list-style-type: none"> All structural steelwork is required to be grade S355JR
4.1.4.1	<ul style="list-style-type: none"> Electrodes for electric welding are required to be E7018.
4.6	Workmanship - Erection
4.6.5	<ul style="list-style-type: none"> On site welding is not permitted
5.3	Non-destructive testing of welds
5.3.3	<ul style="list-style-type: none"> Fillet welds are required to undergo magnetic particle inspection (20 % of welds)
5.3.4	<ul style="list-style-type: none"> All butt welds and full penetration welds are required to undergo ultrasonic non-destructive testing (100 % of welds)

58 Commissioning

The *Contractor* is required to test, verify, and commission the fence according to the manufacturer's specification and approved drawings in the presence of the *Employer* and ensures that zoning is working.

The *Contractor* submits all drawings and relevant paperwork for the electric fence system to the *Project Manager*.

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

The *Contractor* submits start-up procedures that may be applicable to the system should a system shutdown occur.

60 Take over procedures

1. The *Contractor* compiles data packs progressively for all manufacturing and construction/erection inspection, operating manuals and test records and documents for every piece of plant worked on. The *Contractor* submits data packs to the *Supervisor* and *Project Manager* for their review for all equipment and works undertaken with the applicable requirements and specifications.

2. Apart from any statutory data packages required, the *Contractor* also compiles and signs off a data package of the relevant drawings, test certificates etc. to the *Project Manager* for acceptance. These include, but are not limited to:

- Surveys.
- Approved ITP's, QCP's.
- Method statements and specifications adhered to.
- Risk assessments.
- Approved Drawings.
- Design Calculation Reports
- Fabrication Drawings.

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- Material Certificates.
- Weld Map.
- Weld Matrix Sheet.
- Weld Sequence.
- Welding Consumables Certificates.
- Welding Procedure Specifications.
- Welders' Qualifications.
- Eskom approved NDT Contractor.
- Approved NDT procedure.
- NDT Technician Qualifications.
- NDT Reports/ Results.
- Weld test certificates
- Certificate of Manufacture.
- Inspection Reports.
- Spares list
- Cable test certificates,
- Load schedule, using 240-77301384 LV Load Schedule Template.

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

Access shall be granted by the *Project Manager* to the *Contractor* for correction of Defects.

62 Performance tests after Completion

Performance tests are done by the *Contractor* before sectional completion of the *works* as per the described execution methodology.

63 Training and technology transfer

1. Product specific training is required to enable the installation, testing, commissioning, fault finding, maintenance and configuration of the equipment by Eskom personnel or appointed contractors.
2. The training shall be a supplier-accredited course to ensure correct installation and use of the equipment within Eskom. The content of the training manual is based on the content of the technical, operating and maintenance manuals for the electric fence.

64 Operational maintenance after Completion

Not applicable.

65 Commissioning

The *Contractor* is required to test, verify and commission the fence according to the manufacturer's specification and approved drawings in the presence of the *Employer* and ensures that zoning is working. The *Contractor* submits all drawings and relevant paperwork for the electric fence system to the *Project Manager*.

66 Handover

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The *Contractor* compiles data packs progressively for all manufacturing and construction/erection inspection, operating manuals and test records and documents for every piece of plant worked on. The *Contractor* submits data packs to the *Supervisor* and *Project Manager* for their review for all equipment and *works* undertaken with the applicable requirements and specifications.

Apart from any statutory data packages required, the *Contractor* also compiles and signs off a data package of the relevant drawings, test certificates etc. to the *Project Manager* for acceptance. These include, but are not limited to:

- Surveys.
- Approved ITP's, QCP's.
- Method statements and specifications adhered to.
- Risk assessments.
- Approved Drawings.
- Design Calculation Reports
- Fabrication Drawings.
- Material Certificates.
- Weld Map.
- Weld Matrix Sheet.
- Weld Sequence.
- Welding Consumables Certificates.
- Welding Procedure Specifications.
- Welders' Qualifications.
- Eskom approved NDT Contractor.
- Approved NDT procedure.
- NDT Technician Qualifications.
- NDT Reports/ Results.
- Weld test certificates
- Certificate of Manufacture.
- Inspection Reports.
- Corrosion Protection Consumables Certificates.
- Calibration Certificates.
- Notifications.
- Modifications.
- Concessions.
- Technical Queries, Engineering Responses and communications with Project Manager/ *Employer*
- Non-conformance reports.
- Internal Release Notes.
- Transport notifications.
- Calculations for any temporary *works* that may be required for the safe execution of the *works*.

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- Concrete 7 day and 28-day cube test results.
- Slump test results.
- Concrete mix designs including all required test results e.g. aggregate test results.
- Pre-concrete and post concrete surveys.
- Batch Plant certificates.
- Slump tests certificates.
- Compaction tests.
- Material certificates.
- Certificate of Compliance (CoC) for the electrical installation including energised fence.
- Load schedules

Wiring drawings inclusive of conductor spacing, energiser connection to the conductors, zoning of the electric fence etc.

67 Procedure for Submission and Acceptance of Contractor's Design

1. The *Contractor* submits all designs to the *Project Manager*.
2. The *Employer* reserves the right to review any design in the detail that is deemed necessary. The *Employer* accepts no accountability and liability due to the review of any designs or if any acceptance is given.

68 Other requirements for the works**69 Documentation and Configuration Management****(1) Document identification**

All documents supplied by the *Contractor* are subject to the *Employer's* acceptance. The language of all documentation is required to be in English. The *Contractor* includes the *Employer's* drawing number in the drawing title block. This requirement only applies to design drawings developed by the *Contractor* and his *Subcontractors*. Drawing numbers are assigned by the *Employer* as drawings are developed.

(2) Document Submission

The *Contractor* is required to submit documents as electronic (native and digitally signed PDF's), and ink signed hard copies and both copies must be delivered to the Eskom Representative with a transmittal note. The *Contractor* adheres to the following standard: Technical Documents and Records Management Work Instruction (240-76992014). For bulk document submission, the following link can be used <https://zendto.eskom.co.za/>.

(3) Drawings Format and Layout

1. The creation, issuing and control of all Engineering Drawings will be in accordance with the latest revision of 240-86973501 - *Engineering drawing Standard*.
2. Drawings issued will be a minimum of one hardcopy and an electronic copy.
3. Drawings issued by the *Contractor* to the *Project Manager* may not be "Right Protected" or encrypted.

70 Quality Management

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1. The *Contractor* submits a fully detailed Quality Control Plan (QCP) for acceptance within 2 weeks of the Contract Date.
2. The *Contractor* submits a schedule of unpriced orders to be placed and this is updated regularly.
3. The *Contractor* is responsible for defining the level of QA/QC (intervention Points) or inspection to be imposed on his Subcontractors and suppliers of material in the Quality Control Plans (QCPs). This level is based on the criticality of equipment and be submitted to the *Project Manager* for acceptance.
4. The *Contractor* submits monthly, the following QA returns:
 - A register of Defects with those older than 30 days being flagged, and an explanation attached
 - Register of accepted Defects
 - A register of Non-Conformance Report
 - Monthly Project Quality Report
 - Monthly updated Site and pre-site programmes
 - Inspection dates
 - Site Acceptance Tests
 - Inspections completed / outstanding
5. All quality control documentation is submitted to the *Project Manager* within 2 weeks of Contract date.

71 Training Requirements

1. Product specific training is required to enable the installation, testing, commissioning, fault finding, maintenance and configuration of the equipment by Eskom personnel or appointed contractors.
2. The training shall be a supplier-accredited course to ensure correct installation and use of the equipment within Eskom. The content of the training manual is based on the content of the technical, operating and maintenance manuals for the electric fence.

72 Procurement**73 People****74 Minimum requirements of people employed on the Site**

Local employees to be employed as far as reasonably practicable.

75 BBBEE and preferencing scheme

The standard Z3 Clause included in this contract is applicable.

76 Supplier Development & Localisation

1. The *Contractor* shall keep accurate records and provide the Project Manager with reports on the Contractor's actual delivery against the above stated SD&L criteria.
2. The Contractor's failure to comply with his SD&L obligations constitutes substantial failure on the part of the Contractor to comply with his obligations under this contract.

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77 Subcontracting

78 Preferred subcontractors

Contractor to inform the *Employer* if any subcontractors are appointed.

79 Subcontract documentation, and assessment of subcontract tenders

Not applicable.

80 Limitations on subcontracting

Contractor informs the *Employer* if any subcontractors are appointed. Subcontractors will be required to comply with all Eskom specifications.

81 Attendance on subcontractors

Contractor to inform the *Employer* if any subcontractors are appointed.

82 Plant and Materials

83 Quality

As per quality requirements document QM – 58 Supplier contract quality requirements specification.

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

The *Employer* provides:

1. Water and electrical supply are available on site.
2. 563 sheets of Mesh Ref. 395 located at Vygeboom and Nooitgedacht pump stations. The *Contractor* includes in his/her tender any additional mesh required for the *works*.

85 *Contractor's* procurement of Plant and Materials

3. All Plant & and Materials supplied by the *Contractor* must comply with the *Employer's* quality requirements
4. All test certificates and quality inspection documents to be included in the O&M manuals
5. Materials to be sourced locally as far as possible.

86 Spares and consumables.

Contractor to supply a list of all spares and consumables. The life-cycle of the product must be further supported in terms of spares availability for a minimum period of seven (7) years after discontinuation of the product.

87 Tests and inspections before delivery

The *Contractor* is responsible for all necessary tests and inspections before delivery to ensure successful testing and construction of the *works*.

88 Tender Demonstration Test

1. The *Contractor* submits evidence, during the tender phase, that plant and equipment meet the specifications defined in the Works Information and is compliant with 240-78980848 *Specification for Non-Lethal Energized Perimeter Detection System (NLEPDS) for Protection of Eskom Installations and its Subsidiaries*.

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2. The demonstration tests are locally based at a suitable venue arranged by the *Contractor*.
3. The *Contractor* arranges a time, date and venue with the *Project Manager*.
4. The *Employer* requires representation during the demonstration tests to confirm and accept the plant and equipment has met the requirements of the *Employer*.

The demonstration test allows for one retest/retune/reconfiguration of plant and equipment for each test point.

89 Factory Acceptance Test

1. The *Contractor* submits factory acceptance test procedures in accordance with the *240-78980848 Specification for Non-Lethal Energized Perimeter Detection System (NLEPDS) for Protection of Eskom Installations and its Subsidiaries*.
2. The factory acceptance tests are locally based at a suitable venue arranged by the *Contractor*.
3. The *Contractor* arranges a time, date and venue with the *Project Manager*.
4. The *Employer* requires representation at the acceptance tests to confirm and accept the plant and equipment has met the requirement of the *Employer*.

90 Marking Plant and Materials outside the Working Areas

1. Plant and Materials must be clearly marked with the project name.
2. Project designated area will be barricaded and access control will be implemented.
3. All equipment to be safely stored as per the OHSAct and environmental requirements.
4. All plant and equipment Materials to be removed from the designated area can only be removed with the permission of the *Contractor* and Project Manager.
5. Markings on the energizer to comply with *240-78980848 Specification for Non-Lethal Energized Perimeter Detection System (NLEPDS) for Protection of Eskom Installations and its Subsidiaries*.

91 Contractor's Equipment (including temporary works).

The *Contractor* is liable for all plant & equipment in the designated area under his control. The *Employer* will not take any responsibility for any loss or damage to the equipment.

92 Plant and Materials standards and workmanship**93 Investigation, survey, and Site clearance**

1. The *Contractor* is responsible for the complete surveying and setting out of the *works* including establishment and protection of any benchmarks required to complete the *works*.
2. The *Contractor* is required to consult the Surveyor-General's office to obtain information on available registered beacons near the Site to use for the establishment of any required benchmarks close to the *works*.
3. The *Contractor* is required to submit as-built data for the civil *works* in the form of redlined marked up drawings to the *Project Manager* upon handover.

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4. Signed as-built drawings are submitted for the designs done by the *Contractor* and complies with the requirements indicated in Section 3.5.1.2 of *365-KOM-AABZ28-SP0004-20 KWS Pump Stations Energized Fence Upgrade Technical Specification Rev. 1*.
5. The *Contractor* is responsible for the verification of all survey data relating to setting out and to immediately inform the *Project Manager* of any discrepancies as soon as these are discovered.
6. The new middle tier fence is to be erected in the same position of the existing middle fence.

94 Civil engineering and structural works

The *Employer* has conducted the detailed design only for the civil *works* of the fence structure which is constructed by the *Contractor* in accordance with the drawings and specifications included within and referenced in this specification. The contractor may choose to propose an alternative design –however should the contractor accept the *Employer's* design he/she also accepts the accountability of the design.

95 Electrical engineering works

The requirements of the electrical *works* to be complied with *240-78980848 Standard for Non-Lethal Energized Perimeter Detection System (NLEPDS) Electrical Components* and *365-KOM-AABZ28-SP0004-20 KWS Pump Stations Energized Fence Upgrade Technical Specification Rev. 1*

96 Process control and IT works**97 Control unit**

1. All settings of the system including energizer configurations and alarm settings shall be configurable from the control unit.
2. Alarm conditions shall be resettable and acknowledgeable from the configuration PC and the user interface (locally and remotely).
3. The monitoring system for the alarm must be compatible with the current energiser.

98 User interface/Display unit

1. The display unit shall be able to display the configured zones or sectors of the fence including all fence alarms.
2. Alarmed zone(s) or sector(s) of the fence shall be clearly depicted (shape and size) on the display unit.
3. The User interface shall be used to view and acknowledge alarms.
4. The Control unit and the user interface/display unit can be separate units or configured as a combined system. Strict configuration rights management shall be applied such that only authorised users can make configuration changes to the system.

99 Concrete

1. All concrete *work* is required to be in accordance with SANS 2001-CC1 and SANS 10100-2 unless otherwise stated.
2. All concrete surfaces and cast-in items are required to be inspected and accepted by the *Project Manager* in writing before casting of concrete may commence.

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3. The *Contractor* is required to obtain written acceptance from the *Project Manager* for the use of any admixture or the use of ready mixed concrete, to pump concrete, or to use cement or cement blends other than ordinary Portland cement (OPC)
4. Compaction of concrete is required to be done by means of mechanical vibrators only.
5. The *Contractor* is required to submit the concrete mix design to the *Project Manager* for acceptance.
6. The *Contractor* is required to demonstrate, by means of a report from an approved laboratory, that the aggregates do not exhibit excessive shrinking properties in accordance with SANS 1083 and is also required to demonstrate that the aggregates do not have a potential alkali silica reaction.
7. The *Contractor* is required to perform a slump test on the same batch of concrete every time a sample is taken, and the result recorded.

The table below indicates specifications pertaining to SANS 2001-CC1 and must be read in conjunction with the code.

Clause	Specification
3.5	Concrete – Strength characteristics
3.4.3	Concrete Grade is required to be: <ul style="list-style-type: none"> • Class 15 MPa/ 19 mm for Blinding Concrete (28 days), • Class 35 MPa/ 19 mm for Structural Concrete (28 days).
4.2	Materials
4.2.7	In general, one of the following types of non-shrink grout are required to be used: <ul style="list-style-type: none"> • Cement-based non-shrink grout, not less than 50 MPa. • Special proprietary non-shrink or expansive grout, not less than 50 MPa.
4.4	Reinforcement
4.4	Add the following: All reinforcement is stamped with a SANS quality assurance mark
4.4.3.1	Cast in-situ concrete cover is required to be a minimum of: <ul style="list-style-type: none"> • 60 mm for exposed to earth or water. • 40 mm for above ground or not in contact with soil.
4.7	Quality of Concrete
4.7.1.1	<ul style="list-style-type: none"> • <i>Contractor</i> submits to the <i>Supervisor</i> full details and samples of all materials which he proposes to use for making concrete at least 28 days before the concreting of the <i>works</i> is due to commence.
4.7.10	Add the following: <ul style="list-style-type: none"> • The <i>Supervisor</i> approves the size, shape and depth of any excavation before concrete is placed.

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Clause	Specification
	<ul style="list-style-type: none"> Unless otherwise approved by the <i>Supervisor</i>, no concrete is placed until the fixed reinforcement has been accepted in writing by the <i>Supervisor</i>
4.7.12.2.3	<ul style="list-style-type: none"> All angled corners are chamfered 20 mm x 20 mm, unless such other larger size is detailed on the Drawings.
4.7.19.3	<ul style="list-style-type: none"> <i>Contractor</i> submits a detailed procedure for acceptance by the <i>Supervisor</i> on how he intends to carry out the repairs of structural concrete defects
4.7.22	<ul style="list-style-type: none"> For concrete pour records, the <i>Contractor</i> submits a detailed Quality Control Plan to the <i>Supervisor</i> for acceptance. In addition, the <i>Contractor</i> supplies the <i>Supervisor</i> with two copies of these records each day covering <i>works</i> carried out the preceding day.
5.1	Testing
5.1.1.4	<ul style="list-style-type: none"> Six 150 mm cube samples taken from each batch or place of concrete deposition, four cubes are tested at 7 days and four at 28 days. Strength at 7 days is required to be at least two thirds of 28-day strength.
5.1.2.1	<ul style="list-style-type: none"> Any of the cube samples tested indicating a result more than 3 MPa below the specified strength is disregarded.
5.2	Tolerances
5.2.1	<ul style="list-style-type: none"> Tolerances on all concrete work is required to be a level II degree of accuracy as specified in SANS 2001-CC1 with and is to be carefully maintained throughout the construction.

100 Steelwork

- All *work* is required to be in accordance with the latest edition of SANS 2001-CS1.
- The *Contractor* is responsible for the stability of the entire structure and all structural elements during all the erection stages.
- All dimensions are required to be verified on site by the *Contractor* before any fabrication of steelwork commences.
- All welding is required to be conducted by coded welders in the workshop only. Supporting documentation is also required to be submitted to the *Project Manager* for acceptance. All welding is required to comply with AWS D1.1.
- All welds are required to be inspected using visual aids.
- The *Contractor* is required to supply all bolts, washers, nuts etc. for the structural steelwork.
- All steelwork is required to be hot dipped galvanised.
- All galvanising is required to be done in accordance with SANS 121. Preparation of steel prior to galvanising and coating thickness is also required to be in accordance with SANS 121.

The table below indicates specifications pertaining to SANS 2001-CS1 and must be read in conjunction with the code.

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Clause	Specification
4.1	Materials
4.1.1	Add the following: <ul style="list-style-type: none"> All structural steelwork is required to be grade S355JR
4.1.4.1	<ul style="list-style-type: none"> Electrodes for electric welding are required to be E7018.
4.6	Workmanship - Erection
4.6.5	<ul style="list-style-type: none"> On site welding is not permitted
5.3	Non-destructive testing of welds
5.3.3	<ul style="list-style-type: none"> Fillet welds are required to undergo magnetic particle inspection (20 % of welds)
5.3.4	<ul style="list-style-type: none"> All butt welds and full penetration welds are required to undergo ultrasonic non-destructive testing (100 % of welds)

101 Excavations

- All areas in which excavation is to take place or that are to be covered by terraces, banks, or structures, shall be cleared in terms of SANS 2001-BS1 and stripped of all remaining vegetation to a depth of 150 mm.
- Topsoil shall be conserved for later use. Topsoil together with grass and other suitable vegetation are removed and placed in stockpiles not higher than 1.5m within the site.

102 List of drawings

Document Number / ID	Document Title	Revision	Status
0.80/6133 - Sheet 1	Vygeboom Pump Station - Security Fence Upgrade – Layout and Details	Rev 1	 Vyge-KWS security-210921_rev1
0.80/6133 - Sheet 4	Komati Water Scheme – Security Fence Upgrade – Energized Fence	Rev 0	 0.80-6133 - Sheet 4 - Energised Fence.pdf
Documents issued for additional information only			
0.52/30115 – Sheet 6	Non-Lethal Electrified Fence - Conductors Looping Arrangement	Rev 0	 0.52-30115 - Sheet 6.pdf

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240-77301384	Low Voltage Load Schedule	Rev 2	 240-77301384 Electrical LV Load Sch
365-KOM-AABZ28-SP0004-20	Komati Water Scheme Pump Stations – Energized Fence Upgrade – Technical Specification	Rev 1	 365-KOM-AABZ28-S P0004-20 KWS Pump
240-78980848	STANDARD FOR NON-LETHAL ENERGIZED PERIMETER DETECTION SYSTEM (NLEPDS) ELECTRICAL COMPONENTS	Rev 4	 Standard for Non-Lethal Energized

103 Standards issued by the *Employer* (excluding local and international standards)

1. 240-56364545 Structural Design and Engineering Standard
2. 240-86973501 Engineering drawing Standard
3. 240-66920003 Documentation Management Review and Handover Procedure for Gx Coal Projects
4. 240-76992014 Project / Plant Specific Technical Documents and Records Management Work Instruction
5. 240-78980848 Specification for Non-Lethal Energized Perimeter Detection System (NLEPDS) for Protection of Eskom Installations and its Subsidiaries
6. AWS D1.1 American Welding Society - Structural Welding Code - Steel
7. SANS 10044-1 Welding Part 1: Glossary of terms
8. SANS 2553 Welded, brazed, and soldered joints - Symbolic representation on drawings
9. SANS 9606-1 Approval testing of welders - Fusion welding Part 1: Steels
10. SANS 10064 The preparation of steel surfaces for coating
11. SABS 471/ SANS 50413 & SANS 50196 Portland cement (ordinary, rapid hardening and sulphate resisting)
12. SANS 50196 Series Methods of testing cement
13. SANS 50197-1 Cement Part 1: Composition, specifications, and conformity criteria for common cements
14. SANS 50197-2 Cement Part 2: Conformity evaluation
15. SANS 1083 Aggregates from natural sources - Aggregates for concrete
16. SANS 2001-BE1 Construction works Part BE1: Earthworks (general)
17. SANS 2001-BS1 Construction works Part BS1: Site clearance
18. SANS 2001-CC1 Construction works Part CC1: Concrete works (structural)

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19. SANS 2001-CS1 Construction works Part CS1: Structural steelwork
20. SANS 50025 Series Hot rolled products of structural steels Parts 1-6
21. SANS 5831 Presence of chlorides in aggregates
22. SANS 5861-2 Concrete tests - Sampling of freshly mixed concrete
23. SANS 5862-1 Concrete tests - Consistence of freshly mixed concrete - Slump test
24. SANS 5863 Concrete tests - Compressive strength of hardened concrete
25. SANS 5864 Concrete tests - Compressive strength of hardened concrete
26. SANS 10400 The Application of the National Building Regulations
27. SANS 10142-1 The wiring of premises Part 1: Low-voltage installations

104 Drawings issued by the Employer

The following drawings are issued to the *Contractor* to be used for tender. The *Employer* provides the *Contractor* with drawings issued for construction after contract award. Drawings for Tender are not used for procurement, fabrication, or construction.

Document Number / ID	Document Title	Revision	Status
0.80/6133 - Sheet 2	Bosloop Pump Station - Security Fence Upgrade – Layout and Details	0	For Tender
0.80/6133 - Sheet 3	Wintershoek Pump Station - Security Fence Upgrade – Layout and Details	0	For Tender
0.80/6133 - Sheet 4	Komati Water Scheme – Security Fence Upgrade – Details of Posts and Struts	0	For Tender
Documents issued for additional information only			
0.52/30115 – Sheet 6	Non-Lethal Electrified Fence - Conductors Looping Arrangement	0	For Information
240-77301384	Low Voltage Load Schedule	N/A	For Information

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APPENDIX A: PROJECT METHODOLOGY

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APPENDIX B: TECHNICAL SPECIFICATIONS INDEX

The Contractor is required to adhere to the latest editions of and the normative references within the following SANS standards and other codes of practice, regulations & standards:

Item	Folder	Number	Title
1	Standards		
		240-56364545	Structural Design and Engineering Standard
		240-86973501	Engineering drawing Standard
		240-66920003	Documentation Management Review and Handover Procedure for Gx Coal Projects
		240-76992014	Project / Plant Specific Technical Documents and Records Management Work Instruction
		240-78980848	Specification for Non-Lethal Energized Perimeter Detection System (NLEPDS) for Protection of Eskom Installations and its Subsidiaries
		240-165332855	Komati Water Scheme - Vegetation Management Work Instruction
		AWS D1.1	American Welding Society - Structural Welding Code - Steel
		SANS 10044-1	Welding Part 1: Glossary of terms
		SANS 2553	Welded, brazed, and soldered joints - Symbolic representation on drawings
		SANS 9606-1	Approval testing of welders - Fusion welding Part 1: Steels
		SANS 10064	The preparation of steel surfaces for coating
		SABS 471/ SANS 50413 & SANS 50196	Portland cement (ordinary, rapid hardening and sulphate resisting)
		SANS 50196 Series	Methods of testing cement
		SANS 50197-1	Cement Part 1: Composition, specifications and conformity criteria for common cements
		SANS 50197-2	Cement Part 2: Conformity evaluation
		SANS 1083	Aggregates from natural sources - Aggregates for concrete
		SANS 2001-BE1	Construction works Part BE1: Earthworks (general)
		SANS 2001-BS1	Construction works Part BS1: Site clearance
		SANS 2001-CC1	Construction works Part CC1: Concrete works (structural)
		SANS 2001-CS1	Construction works Part CS1: Structural steelwork
		SANS 50025 series	Hot rolled products of structural steels Parts 1-6
		SANS 5831	Presence of chlorides in aggregates
		SANS 5861-2	Concrete tests - Sampling of freshly mixed concrete
		SANS 5862-1	Concrete tests - Consistence of freshly mixed concrete - Slump test
		SANS 5863	Concrete tests - Compressive strength of hardened

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Item	Folder	Number	Title
			concrete
		SANS 5864	Concrete tests - Compressive strength of hardened concrete
		SANS 10400	The Application of the National Building Regulations
		SANS 10142-1	The wiring of premises Part 1: Low-voltage installations
		200-11768	Station Cabling and Racking Standard
2	Drawings		
		0.80/6133 - Sheet 2	Bosloop Pump Station - Security Fence Upgrade – Layout and Details
		0.80/6133 - Sheet 3	Wintershoek Pump Station - Security Fence Upgrade – Layout and Details
		0.80/6133 - Sheet 4	Komati Water Scheme – Security Fence Upgrade – Energized Fence
		0.52/30115 – Sheet 6	Non-Lethal Electrified Fence - Conductors Looping Arrangement
		0.54/393	Earthing Standards
		240-77301384	Low Voltage Load Schedule
	Tender Evaluation Criteria		
	SHEQ Documents		KWS Electric Fence SHE Specification

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Annexure C: KWS Electric Fence SHE Specification

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Annexure D: Quality Requirements

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 subheadings could be

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

PART 4: SITE INFORMATION

4.1. General description

The *works* is situated at Bosloop and Nooitgedacht Pump Stations in the Mpumalanga province of South Africa. Drawings of the general layout of the sites have been provided in Technical Specifications Supporting Documents in C3.1: EMPLOYER'S WORKS INFORMATION Appendix A.

The Pump Stations are access controlled. The *Project Manager* arranges site access on request from the *Contractor* prior to site establishment. The sites are accessible from public roads and dirt roads.

The Contractor confines his activities to designated sites unless he has made prior formal arrangements with the owners. The Contractor is liable for all claims resulting from damages caused by him.

The Employer expects the Contractor, his staff or agents to maintain good public relations with Land owners and members of the public at all times.

The Contractor maintains access to site in good order at his own expense during period of use. All workers will be subjected to do the induction before they can be given access.

All safety and covid19 rules will be strictly adhered to. Access control rules and Eskom procedure will be followed accordingly.

4.2. Existing buildings, structures, and plant & machinery on the Site

Existing infrastructure at the sites are shown on the layout and facilities drawings provided in C3.1: EMPLOYER'S WORKS INFORMATION.

4.3. Subsoil information

The subsoil is estimated to have 85% soft soil, 10% medium soil and 5% hard soil including rocks.

4.4. Hidden services

The contractor must scan for any underground infrastructure prior to any digging is done. Any damage to infrastructure, caused by the Contractor, from access site or performing the *works* remains the responsibility of the Contractor to make good.