



NEC3 Engineering & Construction Contract

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

and
(Reg No. _____)

for **Good Hope Textile 66-11kV Substation
Refurbishment and King Williams Town SS 66kV
Feeder Protection Upgrade**

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CONTRACT No. [Insert at award stage]

Part C1: Agreements & Contract Data

Contents:	No of pages
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C1.2a Contract Data provided by the <i>Employer</i>	[12]
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[to be inserted from Returnable Documents at award stage]	

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:

Good Hope Textile 66-11kV Substation Refurbishment and King Williams Town SS 66kV Feeder Protection Upgrade

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.

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

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

Signature(s)

Name(s)

Capacity

For the tenderer:

.....
(Insert name and address of organisation)

Name & signature of witness

Date

Tenderer's CIDB registration number (if applicable)

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

Acceptance

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

The terms of the contract, are contained in:

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

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

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

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

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

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

Signature(s)

Name(s) _____

Capacity _____

for the Employer

(Insert name and address of organisation)

Name & signature of witness _____

Date _____

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

Schedule of Deviations to be completed by the *Employer* prior to contract award

Note:

1. This part of the Offer & Acceptance would not be required if the contract has been developed by negotiation between the Parties and is not the result of a process of competitive tendering.
2. The extent of deviations from the tender documents issued by the Employer prior to the tender closing date is limited to those permitted in terms of the Conditions of Tender.
3. A tenderer's covering letter must not be included in the final contract document. Should any matter in such letter, which constitutes a deviation as aforesaid be the subject of agreement reached during the process of Offer and Acceptance, the outcome of such agreement shall be recorded here and the final draft of the contract documents shall be revised to incorporate the effect of it.

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

By the duly authorised representatives signing this Schedule of Deviations below, the Employer and the tenderer agree to and accept this Schedule of Deviations as the only deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Tender Schedules, as well as any confirmation, clarification or changes to the terms of the Offer agreed by the tenderer and the Employer during this process of Offer and Acceptance.

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

For the tenderer:

For the Employer

Signature

.....

Name

.....

Capacity

.....

On behalf of *(Insert name and address of organisation)*

(Insert name and address of organisation)

Name & signature of witness

.....

Date

.....

C1.2 ECC3 Contract Data

Part one - Data provided by the *Employer*

Clause	Statement	Data
1	General	
	The <i>conditions of contract</i> are the core clauses and the clauses for main Option	
	dispute resolution Option and secondary Options	<p>B: Priced contract with bill of quantities</p> <p>W1: Dispute resolution procedure</p> <p>X2: Changes in the law</p> <p>X5: Sectional Completion</p> <p>X7: Delay damages</p> <p>X15: Limitation of <i>Contractor's</i> liability for design to reasonable skill and care</p> <p>X16: Retention</p> <p>X18: Limitation of liability</p> <p>X20: Key performance indicators</p> <p>Z: <i>Additional conditions of contract</i></p>
	of the NEC3 Engineering and Construction Contract, April 2013 (ECC3)	
10.1	The <i>Employer</i> is (Name):	Eskom Holdings SOC Ltd (reg no: 2002/015527/30), a state owned company incorporated in terms of the company laws of the Republic of South Africa
	Address	Registered office at Megawatt Park, Maxwell Drive, Sandton, Johannesburg
10.1	The <i>Project Manager</i> is: (Name)	Siphamandla Ndabana
	Address	ESKOM HOLDINGS SOC LIMITED, Sunilaws Office Park, Beacon Bay EAST LONDON, 5205
	Tel	043 703 5725
	Fax	[•]
	e-mail	ndabas@eskom.co.za

10.1	The <i>Supervisor</i> is: (Name)	Siviwe Mpongwana	
	Address	ESKOM HOLDINGS SOC LIMITED, Sunilaws Office Park, Beacon Bay EAST LONDON, 5205	
	Tel No.	047 502 6754	
	Fax No.	[•]	
	e-mail	mpongwss@eskom.co.za	
11.2(13)	The <i>works</i> are	Substation refurbishment and protection upgrade	
11.2(14)	The following matters will be included in the Risk Register	Theft	
11.2(15)	The <i>boundaries of the site</i> are	Substation boundaries	
11.2(16)	The Site Information is in	Part 4: Site Information	
11.2(19)	The Works Information is in	Part 3: Scope of Work and all documents and drawings to which it makes reference.	
12.2	The <i>law of the contract</i> is the law of	the Republic of South Africa	
13.1	The <i>language of this contract</i> is	English	
13.3	The <i>period for reply</i> is	One week	
2	The Contractor's main responsibilities	Data required by this section of the core clauses is provided by the Contractor in Part 2 and terms in italics used in this section are identified elsewhere in this Contract Data.	
3	Time		
11.2(3)	The <i>completion date</i> for the whole of the <i>works</i> is	28 February 2023	
11.2(9)	The <i>key dates</i> and the <i>conditions</i> to be met are:	Condition to be met	key date
		1 Submit SHEQ file to Eskom SHEQ	22 July 2022
		2 Complete site establishment	01 August 2022
		3 Delivery Eskom/Contractors material	03 August 2022
		4 T&Q Material inspection	11 August 2022
		5 Construct pre-outage1	30 October 2022
		6 Pre-commission pre-outage 1 scope	30 Sept – 29 Nov 2022 (Eskom)

		7	Construct pre-outage 2	15 Dec 2022
30.1	The <i>access dates</i> are:	Part of the Site	Date	
		1	Access to site	30 Jun 2022
31.1	The <i>Contractor</i> is to submit a first programme for acceptance within	One weeks of the Contract Date.		
31.2	The <i>starting date</i> is	18 July 2022		
32.2	The <i>Contractor</i> submits revised programmes at intervals no longer than	Two weeks.		
35.1	The <i>Employer</i> is not willing to take over the <i>works</i> before the Completion Date.	[No data needed if this statement is included]		
4	Testing and Defects			
42.2	The <i>defects date</i> is	Fifty-two weeks after Completion of the whole of the works.		
43.2	The <i>defect correction period</i> is	Two weeks		
5	Payment			
50.1	The <i>assessment interval</i> is	Between the 25 to 30 day of each successive month.		
51.1	The <i>currency of this contract</i> is the	South African Rand.		
51.2	The period within which payments are made is	Depending on contractors' status		
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>On working site</p> <p>the cumulative rainfall (mm)</p> <p>the number of days with rainfall more than 10 mm</p> <p>the number of days with minimum air temperature less than 0 degrees Celsius</p> <p>the number of days with snow lying at 09:00 hours South African Time</p> <p>and these measurements:</p> <p>South African Weather Bureau</p> <p>King Williams Town</p> <p>the South African Weather Bureau and included in Annexure A to this Contract Data provided by the <i>Employer</i></p>
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60.1(13)	<p>Assumed values for the ten year return <i>weather data</i> for each <i>weather measurement</i> for each calendar month are:</p>	<p>As stated in Annexure A to this Contract Data provided by the <i>Employer</i>.</p> <p>Note: If this arrangement is used, delete the rows above for 60.1(13) and delete this note.</p>
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7	Title	<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>
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8 Risks and insurance

80.1	<p>These are additional <i>Employer's</i> risks</p>	<ol style="list-style-type: none"> 1. Inclement weather 2. Resident Complaints 3. Theft and vandalism (outside CONTRACTORS PREMISES)
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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>
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10 Data for main Option clause

B	Priced contract with bill of quantities	
60.6	<p>The <i>method of measurement</i> is</p>	<p>SANS published by [•] and amended as stated in Part C2.1, Pricing Assumptions.</p>

11 Data for Option W1

W1.1	The <i>Adjudicator</i> is	the person selected from the ICE-SA Division (or its successor body) of the South African Institution of Civil Engineering Panel of Adjudicators by the Party intending to refer a dispute to him. (see www.ice-sa.org.za). If the Parties do not agree on an Adjudicator the Adjudicator will be appointed by the Arbitration Foundation of Southern Africa (AFSA).
	Address	To be appointed when dispute arise
	Tel No.	[•]
	Fax No.	[•]
	e-mail	[•]

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.
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W1.4(2)	The <i>tribunal</i> is:	arbitration.
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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	East London 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	There is no reference to Contract Data in this Option and terms in italics are identified elsewhere in this Contract Data.
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X5 Sectional Completion

X5.1	The <i>completion date</i> for each <i>section</i> of the <i>works</i> is:		
		Section	Description
			Completion date
		1	Complete other works (Stone piling, control room, fence, weed killer)
		2	Pre- commission 11kV feeder complete
		3	Outage no 1
			15 November 2022
			14 Feb 2022
			30 Nov 2022

		4	Outage no 2	15 Feb 2022
		5	Site closure & rehabilitation	28 Feb 2022
X5 & X7	Sectional Completion and delay damages used together			
X7.1 X5.1	Delay damages for late Completion of the <i>sections</i> of the <i>works</i> are:	section	Description	Amount per day
		1	Complete other works (Stone piling, control room, fence, weed killer)	R 2 500
		2	Pre- commission 11kV feeder complete	R 2 500
		3	Outage no 1	R 3 500
		4	Outage no 2	R 3 500
		5	Site closure & rehabilitation	R 2 500
	Remainder of the <i>works</i>			R 0
	The total delay damages payable by the <i>Contractor</i> does not exceed:	10% of the contract value		
X7	Delay damages (but not if Option X5 is also used)			
X7.1	Delay damages for Completion of the whole of the <i>works</i> are	0.1% per day up to a limit of 10% of the contract value		
X15	Limitation of the <i>Contractor's</i> liability for his design to reasonable skill & care	There is no reference to Contract Data in this Option and terms in italics are identified elsewhere in this Contract Data.		
X16	Retention (not used with Option F)			
X16.1	The <i>retention free amount</i> is	R 0.00		
	The <i>retention percentage</i> is	10%		
X18	Limitation of liability			
X18.1	The <i>Contractor's</i> liability to the <i>Employer</i> for indirect or consequential loss is limited to:	R0.0 (zero Rand)		
X18.2	For any one event, the <i>Contractor's</i> liability to the <i>Employer</i> for loss of or damage to the <i>Employer's</i> property is limited to:	the amount of the deductibles relevant to the event		
X18.3	The <i>Contractor's</i> liability for Defects due to his design which are not listed on the Defects Certificate is limited to	The greater of <ul style="list-style-type: none"> • the total of the Prices at the Contract Date and • the amounts excluded and unrecoverable 		

		from the <i>Employer's</i> assets policy for correcting the Defect (other than the resulting physical damage which is not excluded) plus the applicable deductible as at contract date.
X18.4	The <i>Contractor's</i> total liability to the <i>Employer</i> for all matters arising under or in connection with this contract, other than excluded matters, is limited to:	<p>the total of the Prices other than for the additional excluded matters.</p> <p>The <i>Contractor's</i> total liability for the additional excluded matters is not limited.</p> <p>The additional excluded matters are amounts for which the <i>Contractor</i> is liable under this contract for</p> <ul style="list-style-type: none"> • Defects due to his design which arise before the Defects Certificate is issued, • Defects due to manufacture and fabrication outside the Site, • loss of or damage to property (other than the <i>works</i>, Plant and Materials), • death of or injury to a person and • infringement of an intellectual property right.
X18.5	The <i>end of liability date</i> is	<p>(i) 7 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>
X20	Key Performance Indicators (not used when Option X12 applies)	
X20.1	The <i>incentive schedule</i> for Key Performance Indicators is in	Annexure [•] to this Contract Data
X20.2	A report of performance against each Key Performance Indicator is provided at intervals of	[•] months
Z	The <i>Additional conditions of contract</i> are	Z1 to Z15 always apply.

Z1 Cession delegation and assignment

- Z1.1 The *Contractor* does not cede, delegate or assign any of its rights or obligations to any person without the written consent of the *Employer*.
- Z1.2 Notwithstanding the above, the *Employer* may on written notice to the *Contractor* cede and delegate its rights and obligations under this contract to any of its subsidiaries or any of its present divisions or operations which may be converted into separate legal entities as a result of the restructuring of the Electricity Supply Industry.

Z2 Joint ventures

- Z2.1 If the *Contractor* constitutes a joint venture, consortium or other unincorporated grouping of two or more persons or organisations then these persons or organisations are deemed to be jointly and severally liable to the *Employer* for the performance of this contract.
- Z2.2 Unless already notified to the *Employer*, the persons or organisations notify the *Project Manager* within two weeks of the Contract Date of the key person who has the authority to bind the *Contractor* on their behalf.
- Z2.3 The *Contractor* does not alter the composition of the joint venture, consortium or other unincorporated grouping of two or more persons without the consent of the *Employer* having been given to the *Contractor* in writing.

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

- Z3.1 Where a change in the *Contractor's* legal status, ownership or any other change to his business composition or business dealings results in a change to the *Contractor's* B-BBEE status, the *Contractor* notifies the *Employer* within seven days of the change.
- Z3.2 The *Contractor* is required to submit an updated verification certificate and necessary supporting documentation confirming the change in his B-BBEE status to the *Project Manager* within thirty days of the notification or as otherwise instructed by the *Project Manager*.
- Z3.3 Where, as a result, the *Contractor's* B-BBEE status has decreased since the Contract Date the *Employer* may either re-negotiate this contract or alternatively, terminate the *Contractor's* obligation to Provide the Works.
- Z3.4 Failure by the *Contractor* to notify the *Employer* of a change in its B-BBEE status may constitute a reason for termination. If the *Employer* terminates in terms of this clause, the procedures on termination are P1, P2 and P3 as stated in clause 92, and the amount due is A1 and A3 as stated in clause 93.

Z4 Confidentiality

- Z4.1 The *Contractor* does not disclose or make any information arising from or in connection with this contract available to Others. This undertaking does not, however, apply to information which at the time of disclosure or thereafter, without default on the part of the *Contractor*, enters the public domain or to information which was already in the possession of the *Contractor* at the time of disclosure (evidenced by written records in existence at that time). Should the *Contractor* disclose information to Others in terms of clause 25.1, the *Contractor* ensures that the provisions of this clause are complied with by the recipient.
- Z4.2 If the *Contractor* is uncertain about whether any such information is confidential, it is to be regarded as such until notified otherwise by the *Project Manager*.
- Z4.3 In the event that the *Contractor* is, at any time, required by law to disclose any such information which is required to be kept confidential, the *Contractor*, to the extent permitted by law prior to

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

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

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

Z5 Waiver and estoppel: Add to core clause 12.3:

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

Z6 Health, safety and the environment: Add to core clause 27.4

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

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

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

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

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

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

Z7.3 The *Contractor* (if registered in South Africa in terms of the companies Act) is required to comply with the requirements of the Value Added Tax Act, no 89 of 1991 (as amended) and to

include the *Employer's* VAT number 4740101508 on each invoice he submits for payment.

Z8 Notifying compensation events

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

Z9 Employer's limitation of liability

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

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

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

Z10.1 or had a business rescue order granted against it.

Z11 Addition to secondary Option X7 Delay damages (if applicable in this contract)

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

Z12 Ethics

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

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

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

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

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

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

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

Obstructive means a Committing Party unlawfully or illegally destroying, falsifying, altering or

Action 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 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 works, 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	Loss of or damage to property <i>Employer's</i> property The replacement cost where not covered by the <i>Employer's</i> insurance

this contract	The <i>Employer's</i> policy deductible, as at Contract Date, where covered by the <i>Employer's</i> insurance <u>Other property</u> The replacement cost <u>Bodily injury to or death of a person</u> The amount required by applicable law
Liability for death of or bodily injury to employees of the <i>Contractor</i> arising out of and in the course of their employment in connection with this contract	The amount required by the applicable law

Z 13.2

Replace core clause 87 with the following:

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

INSURANCE TABLE B

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

Z14 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, 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.
SANAS	means the South African National Accreditation System.
TWA	means the average exposure, within a given workplace, to airborne asbestos fibres, normalised to the baseline of a 4 hour continuous period, also applicable to short term exposures, i.e. 10-minute TWA.

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

millilitre of air as a 10-minute TWA, averaged over any 10 minutes, measured in accordance with HSG248 and monitored according to HSG173 and OESSM.

- Z15.2 Upon written request by the *Contractor*, the *Employer* certifies that these conditions prevail. All measurements and reporting are effected by an independent, competent, and certified occupational hygiene inspection body, i.e. a SANAS accredited and Department of Employment and Labour approved AAIA. The *Contractor* may perform Parallel Measurements and related control measures at the *Contractor's* expense. For the purposes of compliance the results generated from Parallel Measurements are evaluated only against South African statutory limits as detailed in clause Z15.1. Control measures conform to the requirements stipulated in the AAIA-approved asbestos work plan.
- Z15.3 The *Employer* manages asbestos and ACM according to the Standard.
- Z15.4 In the event that any asbestos is identified while Providing the Services, a risk assessment is conducted and if so required, with reference to possible exposure to an airborne concentration of above the AL for asbestos, immediate control measures are implemented and relevant air monitoring conducted in order to declare the area safe.
- Z15.5 The *Contractor's* personnel are entitled to stop working and leave the contaminated area forthwith until such time that the area of concern is declared safe by either Compliance Monitoring or an AAIA approved control measure intervention, for example, per the emergency asbestos work plan, if applicable.
- Z15.6 The *Contractor* continues to Provide the Services, without additional control measures presented, on presentation of Safe Levels. The contractually agreed dates to Provide the Services, including the Completion Date, are adjusted accordingly. The contractually agreed dates are extended by the notification periods required by regulations 3 and 21 of the Asbestos Regulations, 2001.
- Z15.7 Any removal and disposal of asbestos, asbestos containing materials and waste, is done by a registered asbestos contractor, instructed by the *Employer* at the *Employer's* expense, and conducted in line with South African legislation.

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

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

												
RAINFALL ANALYSIS FOR: 0079712 X KING WILLIAMS TOWN Lat:-32.8700 Lon:27.4000 Height:400 m DATA REQUESTED 1990 to 2010												
Data for the Average Calculation is not used if: There are more than five consecutive days of accumulation The data for certain days in the month is not available The accumulation period occurred at the end of the month												
Data for the Frequency calculation is not used if: The data for certain days in the month is not available The accumulation period occurred at the end of the month												
Month	Average Monthly Rainfall (mm)	Standard Deviation	Average Number of Rain Days per Month	Number of Months	Average Number of Rain Days in the Specified Range:						Maximum 24-hour Rainfall (mm)	Date of Maximum 24-hour Rainfall
					1 - 5 mm	5.1 - 10mm	10.1 - 20mm	20.1 - 50mm	50.1 - 100 mm	> 100 mm		
JAN	69,9	33,9	10,6	20,0	4,1	2,0	1,3	0,7	0,1	0,0	56,2	2002/01/06
FEB	48,8	24,4	8,8	20,0	3,8	1,8	1,1	0,3	0,0	0,0	47,5	1995/02/28
MAR	75,7	52,2	11,1	20,0	4,2	1,4	1,3	0,9	0,1	0,0	69,2	2003/03/04
APR	45,2	26,6	8,4	19,0	3,7	1,6	0,8	0,3	0,1	0,0	55,0	2005/04/10
MAY	16,6	20,1	4,5	20,0	2,2	0,5	0,3	0,1	0,0	0,0	48,5	2006/05/20
JUN	21,6	32,6	3,9	19,0	1,8	0,4	0,3	0,2	0,1	0,0	72,0	1997/06/12
JUL	15,4	21,1	3,4	21,0	1,2	0,4	0,3	0,2	0,0	0,0	37,0	1999/07/27
AUG	29,9	32,0	5,8	21,0	2,1	0,8	0,6	0,2	0,0	0,0	58,4	2006/08/02
SEP	40,4	41,1	7,6	21,0	3,2	1,1	0,4	0,2	0,1	0,0	91,2	2004/09/24
OCT	56,3	42,5	11,7	20,0	5,5	1,8	0,8	0,7	0,0	0,0	37,5	2006/10/08
NOV	73,4	60,6	10,1	19,0	4,0	2,1	1,1	0,9	0,1	0,0	97,5	2005/11/06
DEC	79,9	50,9	10,7	21,0	4,5	2,2	1,3	0,8	0,1	0,0	86,0	1994/12/24
YR	573,2		96,5		40,3	15,8	9,4	5,5	0,6	0,0		
Limitation The User shall not at any time, disclose or divulge the Specified Data to any person whomsoever except on a need to know basis to those of its employees and officers who require knowledge thereof. The User will treat the Information as private and confidential to SAWS and will take all reasonable precautions to protect the Information from unauthorised use, reproduction or distribution. The South African Weather Service (SAWS) does not give any representation or warranty that the Specified Data contains no errors, is complete or up to date or will not infringe any third party intellectual property rights. The User assumes the sole risk of interpreting and applying the Specified Data and SAWS is not in any way liable for any loss, damage or injury suffered by the User or any other person, due to the use or possession of the Specified Data or the existence of errors in the Specified Data.												

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*

Clause	Statement	Data
10.1	The <i>Contractor</i> is (Name): Address Tel No. Fax No.	
11.2(8)	The <i>direct fee percentage</i> is The <i>subcontracted fee percentage</i> is	% %
11.2(18)	The <i>working areas</i> are the Site and	
24.1	The <i>Contractor's</i> key persons are: 1 Name: Job: Responsibilities: Qualifications: Experience: 2 Name: Job: Responsibilities: Qualifications: Experience:	CV's (and further key persons data including CVs) are appended to Tender Schedule entitled .
11.2(3)	The <i>completion date</i> for the whole of the <i>works</i> is	
11.2(14)	The following matters will be included in the Risk Register	
11.2(19)	The Works Information for the <i>Contractor's</i> design is in:	
31.1	The programme identified in the Contract Data is	
B	Priced contract with bill of quantities	

11.2(21)	The <i>bill of quantities</i> is in							
11.2(31)	The tendered total of the Prices is	(in figures) (in words), excluding VAT						
	Data for Schedules of Cost Components	<i>Note "SCC" means Schedule of Cost Components starting on page 60, and "SSCC" means Shorter Schedule of Cost Components starting on page 63 of ECC3 (April 2013).</i>						
B	Priced contract with bill of quantities	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	Minus %						
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> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Equipment	Size or capacity	Rate			
Equipment	Size or capacity	Rate						
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. Please insert another schedule if foreign resources may also be used	<table border="1"> <thead> <tr> <th>Category of employee</th> <th>Hourly rate</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> </tr> </tbody> </table>	Category of employee	Hourly rate				
Category of employee	Hourly rate							
62 in SSCC	The percentage for design overheads is	%						
63 in SSCC	The categories of design employees whose travelling expenses to and from the Working Areas are included in Defined Cost are:							

PART 2: PRICING DATA

ECC3 Option B

Document reference	Title	No of pages
C2.1	Pricing assumptions: Option B	
C2.2	<i>The bill of quantities</i>	

C2.1 Pricing assumptions: Option B

1. How work is priced and assessed for payment

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

Identified and defined terms	11	
	11.2	(21) The Bill of Quantities is the <i>bill of quantities</i> as changed in accordance with this contract to accommodate implemented compensation events and for accepted quotations for acceleration.
		(28) The Price for Work Done to Date is the total of <ul style="list-style-type: none">• the quantity of the work which the <i>Contractor</i> has completed for each item in the Bill of Quantities multiplied by the rate and• a proportion of each lump sum which is the proportion of the work covered by the item which the <i>Contractor</i> has completed. Completed work is work without Defects which would either delay or be covered by immediately following work.
		(31) The Prices are the lump sums and the amounts obtained by multiplying the rates by the quantities for the items in the Bill of Quantities.

This confirms that Option B is a re-measurement contract and the bill comprises only items measured using quantities and rates or stated as lump sums. Value related items are not used. Time related items are items measured using rates where the rate is a unit of time.

2. Function of the Bill of Quantities

Clause 55.1 in Option B states, "Information in the Bill of Quantities 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 Bill, 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 Bill of Quantities. The Bill of Quantities is only a pricing document.

3. Guidance before pricing and measuring

Employers preparing tenders or contract documents, and tendering contractors are advised to consult the sections dealing with the bill of quantities in the NEC3 Engineering and Construction Contract Guidance Notes before preparing the *bill of quantities* or before entering rates and lump sums into the *bill*.

There is no general provision in Option B for payment for materials on Site before incorporation into the *works*. If secondary Option X14 Advanced payment has not been used then the tendering contractor may obtain the same effect by inserting appropriate items in the method related charges where the *method of measurement* allows, or alternatively making allowance in the rates of the *bill of quantities* for the financing of Plant and Materials until they are incorporated in the *works*.

When compensation events arise, the default position is that the Bill of Quantities is not used to calculate the cost effect of the event. Defined Cost and the resulting Fee is used and Defined Cost includes all components of cost which the *Contractor* is likely to incur, including so called P & G items. Rates and lump sums from the Bill of Quantities, or from any other source, may be used instead of Defined Cost and the Fee only if the *Contractor* and *Project Manager* agree. If they are unable to agree, then Defined Cost

plus Fee is used.

4. Measurement and payment

4.1. Symbols

The units of measurement described in the Bill of Quantities are metric units abbreviated as follows:

Abbreviation	Unit
%	percent
h	hour
ha	hectare
kg	kilogram
kl	kilolitre
km	kilometre
km-pass	kilometre-pass
kPa	kilopascal
kW	kilowatt
l	litre
m	metre
mm	millimetre
m ²	square metre
m ² -pass	square metre pass
m ³	cubic metre
m ³ -km	cubic metre-kilometre
MN	meganewton
MN.m	meganewton-metre
MPa	megapascal
No.	number
sum	Lump sum
t	tonne (1000kg)

4.2. General assumptions

- 4.2.1. Unless otherwise stated, items are measured net in accordance with the drawings, and no allowance has been made in the quantities for waste.
- 4.2.2. The Prices and rates stated for each item in the Bill of Quantities shall be treated as being fully inclusive of all work, risks, liabilities, obligations, overheads, profit and everything necessary as incurred or required by the *Contractor* in carrying out or providing that item.
- 4.2.3. An item against which no Price is entered will be treated as covered by other Prices or rates in the *bill of quantities*.
- 4.2.4. The quantities contained in the Bill of Quantities may not be final and do not necessarily represent the actual amount of work to be done. The quantities of work assessed and certified for payment by the *Project Manager* at each assessment date will be used for determining payments due.
- 4.2.5. The short descriptions of the items of payment given in the *bill of quantities* are only for the purposes of identifying the items. Detail regarding the extent of the work entailed under each item is provided in the Works Information.

4.3. Departures from the *method of measurement*

4.3.1.

4.4. Amplification of or assumptions about measurement items

The following is provided to assist in the interpretation of descriptions given in the *method of measurement*. In the event of any ambiguity or inconsistency between the statements in the *method of measurement* and this section, the interpretation given in this section shall be used.

4.4.1.

C2.2 the *bill of quantities*

Bill of Quantities: Good Hope Textile & King Williamstown S/S Project Rev. 3

Item No.	Ref. DRG. No. Proj. Spec.	Description of the item	Unit	Quantity	Material Rate	Labour Rate	Total Price Rands
C5		Good Hope Textile Substation Secondary Plant					
5,1		Trenching (Depth 0 - 600mm):					
5.1.1		Excavate for all secondary protection cables in natural ground.	m	68	n/a		
5,2		Protection cables:					
5.2.1		Take delivery and lay.	m	6068	n/a		
5,3		Telecoms cables:					
5.3.1		Take delivery and lay	m	273	n/a		
5,4		Remote engineering access cables:					
5.4.1		Take delivery and lay.	m	560	n/a		
5,5		GPS antenna including cable and labels:					
5.5.1		Take delivery, prepare and install.	no	1	n/a		
5,6		Cable numbers (Remote access, protection & telecoms):					
5.6.1		Supply, prepare and install.	no	0			
5,7		Core numbers & lugs (Remote access, protection & telecoms):					
5.7.1		Supply.	no	2744			
5,8		Glands & shrouds (No.1):					
5.8.1		Supply, prepare and install.	no	266			
5,9		Glands & shrouds (No.2):					
5.9.1		Supply, prepare and install.	no	144			
5,10		Glands & shrouds (No.3):					
5.10.1		Supply, prepare and install.	no	46			
5,11		Glands & shrouds (No.4):					
5.11.1		Supply, prepare and install:	no	0			
5,12		Holes for glands:					
5.12.1		Drill holes.	no	5			
5,13		Swing frame cabinets:					
5.13.1		Take delivery and install.	no	0	n/a		
5,14		Loom, number & terminate (LV protection):					
5.14.1		Make off cable cores.	no	2046	n/a		
5,15		Loom, number & terminate (Telecoms & Telecontrol):					
5.15.1		Make off cable cores.	no	770	n/a		
5,16		Loom, number & terminate (Remote Eng. Access & recorders):					
5.16.1		Make off cable cores.	no	368	n/a		
5,17		Junction boxes (CT / VT / Iso):					
5.17.1		Take delivery and install.	no	5	n/a		
		Balance C/F					

Bill of Quantities: Good Hope Textile & King Williamstown S/S Project Rev. 3

Item No.	Ref. DRG. No. Proj. Spec.	Description of the item	Unit	Quantity	Material Rate	Labour Rate	Total Price Rands	
C5		Good Hope Textiles Secondary Plant (Continued)	Balance B/F					
5,18		Bus Section scheme:						
5.18.1		Take delivery and install.	no	0	n/a			
5,19		Bus Coupler scheme:						
5.19.1		Take delivery and install.	no	1	n/a			
5,20		Bus Zone scheme:						
5.20.1		Take delivery and install.	no	0	n/a			
5,21		Distance Feeder scheme:						
5.21.1		Take delivery and install.	no	1	n/a			
5,22		Rural Feeder scheme:						
5.22.1		Take delivery and install.	no	0	n/a			
5,23		Cable Feeder scheme:						
5.23.1		Take delivery and install.	no	0	n/a			
5,24		Diff / Distance Feeder scheme:						
5.24.1		Take delivery and install.	no	0	n/a			
5,25		Current Diff scheme						
5.25.1		Take delivery and install.	no	0	n/a			
5,26		OLTC scheme:						
5.26.1		Take delivery and install.	no	1	n/a			
5,27		Transformer scheme:						
5.27.1		Take delivery and install.	no	1	n/a			
5,28		UFLS scheme:						
5.28.1		Take delivery and install.	no	1	n/a			
5,29		AC/DC Modules:						
5.29.1		Take delivery and install.	no	0	n/a			
5,30		Remote Access SS PC:						
5.30.1		Take delivery and install.	no	1	n/a			
5,31		Generator Supply Interface:						
5.31.1		Take delivery and install.	no	1	n/a			
5,32		Remote Access Module:						
5.32.1		Take delivery and install.	no	7	n/a			
5,33		Meinberg GPS:						
5.33.1		Take delivery and install.	no	1	n/a			
5,34		Recorder (Sherlog / PvZ):						
5.34.1		Take delivery and install.	no	0	n/a			
		Balance C/F						

Bill of Quantities: Good Hope Textile & King Williamstown S/S Project Rev. 3

Item No.	Ref. DRG. No. Proj. Spec.	Description of the item	Unit	Quantity	Material Rate	Labour Rate	Total Price Rands
C5		King Williams Town Substation Secondary Plant					
5.40		Take delivery and lay LV protection cables including cable labels:					
5.40.1		Install LV protection cable. Provisional (see item 10 in Project specifications)	m	2224	N/A		
5.41		Take delivery and lay telecomms cables including cable labels:					
5.41.1		Install telecomms cable. Provisional (see item 10 in Project specifications)	m	180	N/A		
5.42		Take delivery and lay remote engineering access cables including cable labels:					
5.42.1		Install access cable. Provisional (see item 10 in Project specifications)	m	200	N/A		
5.43		Excavate for all control plant cables in natural ground:					
5.43.1		Excavate 0-500mm (Provisional)	m	30	N/A		
5.44		Supply of glands and shrouds and make off protection cables complete:					
5.44.1		Gland protection cables with Pratley No. 1 Armoured glands and shrouds (Provisional)	no	172			
5.45		Supply of glands and shrouds and make off protection cables complete:					
5.45.1		Gland protection cables with Pratley No. 2 Armoured glands and shrouds (Provisional)	no	22			
5.46		Supply of glands and shrouds and make off protection cables complete:					
5.46.1		Gland protection cables with Pratley No. 3 Armoured glands and shrouds (Provisional)	no	20			
5.47		Supply of glands and shrouds and make off protection cables complete:					
5.47.1		Gland protection cables with Pratley No. 4 Armoured glands and shrouds (Provisional)	no	0			
5.48		Drill holes for glands where required:					
5.48.1		Drill holes complete (Provisional)	no	2	N/A		
5.49		Take delivery and install swing frame cabinets complete:					
5.49.1		Bolt cabinets in place (see item 10 in Project specifications)	no	2	N/A		
5.50		Loom, number & terminate LV protection cores complete:					
5.50.1		Make off cable cores (Provisional amount)	no	616	N/A		
5.51		Loom, number & terminate Telecomms & Telecontrol cores complete:					
5.51.1		Make off cable cores (Provisional amount)	no	280	N/A		
5.52		Loom, number & terminate Remote Eng. Access & Recorders cores complete:					
5.52.1		Make off cable cores (Provisional amount)	no	800	N/A		
5.53		Take delivery and install junction boxes complete:					
5.53.1		Install junction boxes (VT/CT/ISOLATOR).	no	0	N/A		
5.54		Take delivery and install Bus Section scheme complete:					
5.54.1		Bolt in place.	no	0	N/A		
5.55		Take delivery and install Bus Coupler scheme complete:					
5.55.1		Bolt in place.	no	0	N/A		
5.56		Take delivery and install Bus Zone scheme complete:					
5.56.1		Bolt in place.	no	0	N/A		
		Balance C/F					

Bill of Quantities: Good Hope Textile & King Williamstown S/S Project Rev. 3

Item No.	Ref. DRG. No. Proj. Spec.	Description of the item	Unit	Quantity	Material Rate	Labour Rate	Total Price Rands
C5		King Williamstown Secondary Plant (Continued)		Balance B/F			
5.57		Take delivery and install Distance Feeder scheme complete:					
5.57.1		Bolt in place.	no	0	N/A		
5.58		Take delivery and install iBox, Mounting Hardware and PSU complete:					
5.58.1		Assemble and bolt in place.	no	0	N/A		
5.59		Take delivery and install Rural Feeder scheme complete:					
5.59.1		Bolt in place.	no	0	N/A		
5.60		Take delivery and install Cable Feeder scheme complete:					
5.60.1		Bolt in place.	no	0	N/A		
5.61		Take delivery and install Diff/Distance Feeder scheme complete:					
5.61.1		Bolt in place.	no	2	N/A		
5.62		Take delivery and install Current Diff Feeder scheme complete:					
5.62.1		Bolt in place.	no	0	N/A		
5.63		Take delivery and install OLTC scheme complete:					
5.63.1		Bolt in place.	no	0	N/A		
5.64		Take delivery and install Transformer scheme complete:					
5.64.1		Bolt in place.	no	0	N/A		
5.65		Take delivery and install Capacitor Bank scheme complete:					
5.65.1		Bolt in place.	no	0	N/A		
5.66		Take delivery and install UFLS scheme complete:					
5.66.1		Bolt in place.	no	0	N/A		
5.67		Take delivery and install AC/DC Panels complete:					
5.67.1		Bolt in place.	no	2	N/A		
5.68		Take delivery and install AC/DC Modules complete:					
5.68.1		Bolt in place.	no	0	N/A		
5.69		Take delivery and install Oil Sump Pump complete:					
5.69.1		Bolt in place.	no	0	N/A		
5.70		Take delivery and install Generator Supply Interface complete:					
5.70.1		Assemble and bolt in place.	no	0	N/A		
5.71		Take delivery and install Remote Access SS PC complete:					
5.71.1		Bolt in place.	no	1	N/A		
5.72		Take delivery and install Remote Access RASM complete:					
5.72.1		Bolt in place.	no	7	N/A		
5.73		Take delivery and install Remote Access Module (Mario Box) complete:					
5.73.1		Bolt in place.	no	0	N/A		
		Balance C/F					

Bill of Quantities: Good Hope Textile & King Williamstown S/S Project Rev. 3

Item No.	Ref. DRG. No. Proj. Spec.	Description of the item	Unit	Quantity	Material Rate	Labour Rate	Total Price Rands
C6		Good Hope Textile Control Building					
6.1	SoW	Timer (DC Lights):					
6.1.1		Supply and install surface mounted DC light timer and trunking above trench.	no	1			
6.2		Lighting (DC):					
6.2.1		Supply & Install 2 x surface mounted single 1.2m tube florescent light.	no	2			
6.3		Lighting (DC):					
6.3.1		Supply & Install 2 x 110V - 220V DC/AC inverter for DC light .	no	2			
6.4		Electrical (control room):					
6.4.1		Re-wire 2 x DC lights and timer.	item	sum			
6.5		Electrical (control building COC):					
6.5.1		Supply COC for Control room, Store room and Toilet.	item	sum	n/a		
6.6	5.17/3855	Air condenser:					
6.6.1	Sht 1 Rev 1	Remove aircon condenser unit brackets and wiring.	no	1	n/a		
6.7		Air condenser:					
6.7.1		Supply and install aircon condenser unit.	no	1			
6.8	SoW	Floor finish (Control room, Store room & Toilet):					
6.8.1		Remove exing floor paint for the Control room, Store room & Toilet.	m ²	60	n/a		
6.9		Floor finish (Control room, Store room & Toilet):					
6.9.1		Supply, prepare area and apply paint for the Control room, Store room & Toilet.	m ²	60			
6.10	SoW & D-SR-228	Checker plate (Vastrap):					
6.10.1	Set 114, Sht 1, Rev 5	Supply and install new checker plate trench covers (4.5mm thickness).	m ²	10			
6.11		Checker plate supports:					
6.11.1		Take delivery of checker plate supports, supply 2x M10 bolts, nut & 2 washers and bolt into position.	no	3			
6.12	SoW	Water tank tap:					
6.12.1		Supply and install tap on water tank.	no	1			
6.13		Water tank stainless steel straps:					
6.13.1		Supply and install stainless steel to secure.	no	1			
6.14		Water pump:					
6.14.1		Supply and install water tank pump with pressure control unit, inclusive of electrical installation.	item	sum			
6.15		Water supply pipe:					
6.15.1		Supply and install water supply pipes for toilet equipment.	m	15			
6.16		Toilet sink accessories:					
6.16.1		Supply and install basin tap and plumbing complete.	item	sum			
6.17		Door (Toilet and Store room):					
6.17.1		Supply and install door for the toilet and store room.	no	1			
		Total C/F					

PART 3: SCOPE OF WORK

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C3.1: EMPLOYER’S WORKS INFORMATION

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1 Description of the works

1.1 Executive overview

King Williams Town Substation

Complete the Refurbishment project of the 66kV yard.

- Completing the 66kV King Williams Town 1 feeder bay upgrade
- Install 66kV busbar isolators for King Williamstown 66kV feeder bay and 66kV Trfr 1 & 2 Bays
- Upgrade protection for 66/11kV TRFR 1- TRFR 2 bays and replace 66kV CT's.
- Install equipment labels
- Install jumpers and clamps

Good Hope Textile

This project is required due to the following factors;

- 66kV Isolators, Current Transformers, Voltage Regulators, Surge Arresters and Breakers are obsolete and without spares should there be a failure.
- Linegear Isolators have no SCADA support.
- TSG make use of secondhand spares to repair which is not guaranteed and can last up to 8 hours.
- OSM10 Breakers are no longer manufactured as per the Technical Bulletin no. SRTB02/2010.

See Annexure for full scope details.

1.2 Employer's objectives and purpose of the works

Outline of work required:

- 1) The project shall be tendered for on the basis of the technical specifications and layout drawings forming part of the Final Design Package supplied as a separate attachment and forms part of the Works Information.

1.3 Interpretation and terminology

The following abbreviations are used in this Works Information:

Abbreviation	Meaning given to the abbreviation
PM	Project Manager
CPE	Contract Project Engineer
CPM	Contract Project Manager
EMP	Environmental Management Program
PE	Project Engineer
PES	Project Engineer Specialist
FDP	Final Design Package
T&Q	Technology and Quality Department - Eskom
ECOU	Eastern Cape Operating Unit

2 Management and start up.

2.1 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	Attendance by:
Risk register and compensation events	As and when required.	At the site office	<i>Employer, Contractor, Supervisor, CPM and CPE.</i>
Overall contract progress and feedback site meeting.	Monthly : Date & Time to be advised	At the site office	<i>Employer, Contractor, Supervisor, CPM and CPE.</i>
Technical meeting	Monthly : Date & Time to be advised	At the site office	<i>Contractor, Supervisor, and CPE.</i>
Health & Safety Meeting	Monthly : Date & Time to be advised	At the site office	<i>Contractor with all his staff.</i>

Meetings of a specialist nature may be convened as specified elsewhere in this Works Information or if not so specified by persons and at times and locations to suit the Parties, the nature and the progress of the *works*.

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

2.2 Documentation control

All contractual documentation and communication will be in the form of properly compiled letters, email or forms attached to email.

2.3 Health and safety risk management

The *Contractor* shall comply with the SHE specification requirements contained in the Annexures to this Works Information and consists of the following documentation to comply with:

- **32-136 - Contractor Health and Safety Requirements**
- **PROJECT SPECIFIC SHE SPECIFICATION**

2.4 Environmental constraints and management

The *Contractor* shall at all times adhere to recommendations as per the **Environmental Programme (EMP)** and all applicable permits.

2.5 Quality assurance requirements

Quality Control

- An approved Quality Control Programme is to be implemented in conjunction with, and to the approval of, the *Project Manager*.

Quality Engineering

- All construction and installation methods are to comply with the Distribution Standards & Technical Drawing requirements as per the FDP document.
- The *Contractor* shall comply with the Project Specifications included in the FDP document. Any changes proposed during the construction phase shall be done via the **Design Change**

Request approval process.

- The appointed *Supervisor (Clerk of Works)* must be allowed access to the site at any time during the construction to carry out an inspection of the works.
- Before the start of the construction stage, the *Contractor* will confirm with the *Supervisor (Clerk of Works)* which activities are identified as *Holding Points* and which activities he would like to be photographed as proof for compliancy if not present. A *Holding Point* is an activity for which arrangements have to be made for the *Supervisor (Clerk of Works)* to be present and to witness the work procedure and activity.
- Each stage, once completed by the contractor, will be signed off by both the *Contractor* and *Supervisor (Clerk of Works)*.
- Once all the activities have been completed, the **Quality Check Sheets** shall be presented to the *Project Manager* to sign off the **Handover Certificate** of each stage.

2.6 Programming constraints

The contractor shall submit his construction program in terms of the conditions of contract. This program shall be submitted according to Part one – Data provided by the *Employer* (Time).

This program shall contain at least the following activities with scheduled start and completion dates:

Every activity on the programme will be clearly linked to a **labour** resources and **equipment** required to perform the specific activity.

Weather delays based on the rainfall data supplied under Part 2 (C1.2 Annexure A), must be included in the programme. Only weather delays over and above the specified number of rain days will qualify for evaluation as delays.

Completion and hand-over dates for formal inspection by the site supervisor must be indicated.

Project expenditure (cash flow projection) on a monthly basis for the entire duration of the contract must be indicated.

The Contract Program will be on display in the *Contractors Site Offices* and will be updated weekly.

In addition to the maintaining of this programme, the Contractor will report progress to the Project Manager on a weekly basis.

Should any deviations to the program be found, the *Contractor* shall submit a revised program to the *Project Manager* within one week.

The *Project Manager* retains the right to alter the Accepted Program should circumstances on *site* necessitate such a change.

The following Statutory non-working days are included within the contract period:

- All Public Holidays for the duration of the contract.
- The programme must clearly indicate the working days for the entire construction period or alternatively all the non-working days within the construction period.

2.7 Contractor's management, supervision and key people

The *Contractor* shall also provide an organisation organogram showing the personnel to be employed during the contract period to complete the *works*, along with a detailed CV of all key personnel.

2.8 Invoicing and payment

At the *assessment* stage a Payment Certificate will be prepared by the *Project Manager* in conjunction with the *contractor*. After the submission and approval of the Payment Certificate, 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* shall address the tax invoice to

ESKOM HOLDINGS SOC LIMITED
Reg No: 2002/015527/06

and include on each invoice the following information:

- Name and address of the *Contractor* and the *Project Manager*;
- The contract number and title;
- The project Purchase Order number;
- *Contractor's* VAT registration number;
- The *Employer's* VAT registration number 4740101508;
- 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;

Financial records are to be kept by the Contractor on any additional items not included in the original Scope of Works/Activity List.

An **EPWP (Expanded Public Works Programme)** report must accompany each invoice as part of the approval and acceptance process of the monthly assessment and reporting stage.

2.9 Insurance provided by the *Employer*

The insurance provided by the *Employer*, is addressed under the contract data by the *Employer* under Annexure B "Insurance provided by the Employer". In this case Format Dx is applicable for this contract.

2.10 Contract change management

For any compensation event refer to clauses under section 6 of the core clauses of the NEC3.

2.11 Provision of bonds and guarantees

No performance bond or guarantees required – only retention as specified under secondary option X16.

3 Procurement

Supplier Development, Localisation and Industrialisation Imperatives

3.1.1 PPPFA Regulation 8.2 (2017) requirements

The *Contractor* must adhere to the local production and content thresholds as submitted for the tender. Designated materials and their thresholds for this contract are as follows:

Commodity	Components	Local Content Threshold
Steel substation Structures	Substation steel support structures	100%
Steel construction materials	Steel straps, checker plate, checker plate supports, taps, trench cover, angle iron etc.	100%
Pump	Water Pump	70%
Cement – Cem I	Ready-mix	100%
Fasteners	Bolts, nuts, clamps, rivets, screws, washers, glands and shrouds etc.	100%
Plastic wheelie bins	Waste bins	100%
Electrical cables	Flexible earth leads	90%

Local Procurement Content” refers to value added in South Africa by South African resources. Where a single contract involves a combination of local and imported goods and/or services, the tender response must be separated into its components as per the Price Schedule included with the tender documents. Local procurement content is total spending minus the imported component.

SABS is the appointed verifier of compliance to the local production and content for items identified in this contract and the Contractor must keep all records for auditing and verification purposes and co-operate with the verification body as appointed by the dtic.

3.1.2 Local Labour

The use of unskilled and semiskilled local labour from the different municipality wards around the project site and work site(s) will be a requirement.

Subcontracting

3.2.1 Preferred subcontractors

EME B-BBEE Level 1 resident in the Eastern Cape. Any appointment of a *Sub Contractor* by the *Contractor* is to be approved by the *Project Manager*.

The *Sub Contractor* must be CIDB registered for the class of works that is to be subcontracted to them.

3.2.2 Subcontract documentation, and assessment of subcontract tenders

The *Sub Contractor* will need to submit valid commercial documents (CSD registration, CIDB registration for the required class of works, valid B-BBEE certificate / sworn affidavit, business registration documents etc as required for the main contractor) for evaluation before acceptance and confirmation from *Project Manager*. The use of the NEC3 - ECSC is required between the *Principal Contractor* and *Sub- Contractor*.

3.3 Plant and Materials

3.3.1 Quality

All materials shall be new and of the best quality and shall conform to the requirements of the Eskom Buyers Guide. With regards to the material supply chain, the approved materials manufacturer and marking requirements shall be set out on a schedule and approved before construction.

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

The “free issue” materials supplied by the *Employer*:

Any material shortages regarding free issue materials must be identified by the *Contractor* at least 3 weeks in advance. The *Contractor* will notify the *Project Manager* of such shortages within two days of the identification of a shortage.

3.3.3 *Contractor's* procurement of Plant and Materials

All material is to comply with the **latest** Eskom Approved Manufacturer's List as published in the ECOU by the Eskom T&Q Department. Any non-standard material items are to be approved by Eskom Holdings Limited before use on the project. Acceptance sampling is to be carried out on receipt of material on site to inspect the outward condition of the material item.

In exceptional cases which require materials and/or techniques which are not contemplated in the various Distribution standards shall be approved by the nominated **Senior Engineer, Ralph Reddy, Phone No: 043-703 2294**. The written approval shall be submitted together with the tender.

The *Contractor* will be required to arrange a material sample inspection on site according to the requirements supplied by the PE. At this inspection materials will be recorded and approved per item by the PE, the Eskom PES and the T&Q Department.

3.3.4 Title to site materials

On completion of the site establishment, materials supplied by the contractor must be delivered to site, recorded in the material management system, and neatly and safely stacked and stored by the contractor. Once the material components are inspected and approved and accepted by the Project Manager and *Employer* Design representatives, the material value can be certified for payment by the Employer. The Contractor claims for the material value and supply invoices as proof of the Contractor's title to the materials in support of the claim.

3.4 Tests and inspections before delivery

The *Contractor* will be required to arrange and supply the following:

Material Sample Inspection: - A sample of each material item is to be presented for an inspection by the Eskom T&Q Department. A 2-week notification period required.

A material sample list is to be compiled beforehand, and to be presented as part of the inspection request. Sample testing to be performed on a crimped dead-end and mid span joint by the CSIR for both conductor and OPGW.

3.5 *Contractor's* Equipment (including temporary works).

The *Contractor* is to provide the necessary equipment to complete the *Works* safely and by the *completion date*. (Refer to item 5.9)

4 Construction

4.1 Temporary works, Site services & construction constraints

4.1.1 *Employer's* Site entry and security control, permits, and Site regulations

The contractor provides a secure and accessible area for the Site Camp, which includes secure storage facilities and areas, etc. Palisade fencing should be considered for the site camp (300-meter perimeter, +/- 1,8 meter high), commercially local/standard readily available palisade fence. The location of the site camp shall be determined in consultation with the *Project Manager*, local communities, and the relevant authorities.

The *Contractor* is to provide a 24 hour, 7 days a week, access, and perimeter control unarmed security service from a reputable security firm. The security firm shall be registered with PSIRA and shall have a Grade D classification. At least two guards during the day and four guards during night-time is required for the duration of this contract. The *Contractor* must provide a suitable guard house for the security guards and to be priced as under item B5 in the Bill of Quantities (Preliminary & General).

On completion of the contract, the contractor removes the site camp and offices, and the area will be left in its original state to the satisfaction of the employer's representative and the Environmental Officer.

Site Establishment Costs

The *Contractor* shall take note that the total cost involved in establishing site services, facilities, and temporary works shall be incorporated in the Fixed and Time Related Preliminary & General costs part of the Bill of Quantity.

4.1.2 **Health and Safety facilities on Site**

The *Contractor* shall always adhere to the **Safety Health & Environmental Specification** attached in the Annexure of the contract document.

A Health & Safety Plan as well as the Health & Safety File as specified in the **Safety Health & Environmental Specification** must be kept on site and updated on a regular basis. Daily safety tailgate talks with task risk analysis shall be held and recorded to discuss the safety aspects and risks involved in the day's work to ensure safe operation through out the contract period.

Health & Safety meetings shall be held at least once a month and records of minutes kept in the H&S file on site. The following items on the agenda to be discussed as a minimum requirement:

- Eskom Incident Case Studies and Recommendations
- OHS Act appointments – Updates, Validity, Expiry dates etc.
- PPE – issued and required.
- Safe Work procedures (Method Statements) – updates/changes
- Equipment – Inspection records updated
- Training requirements
- Staff Medicals
- Environmental issues

The *Contractor* shall not **be allowed to work on any "live" structures. All live structures are to be identified beforehand and shown to all the contractor's staff – notification to be official recorded and kept in the SHE files on site.**

The *Contractor* shall not be **allowed to leave any excavation open** without supervision. If poles cannot be planted on the same day of the excavation, holes are to be closed over the night period or full-time security guard to be arranged.

Machinery that can encroach on the safe working clearances regarding live lines and equipment, are not to be operated within nine metres of live reticulation lines, without the direct supervision of a qualified supervisor under the *Employer's* HV Regulations and the OHS Act.

Precautions against Damage

The *Contractor* shall take precautions for the protection of life and property on, or about, or in connection with the contract. The *Contractor* shall be held liable for any damage arising from negligence on the part of himself and his employees. The *Contractor* will ensure that excavations are done carefully as per the construction drawings. The damages occurring during any required excavations will be for the contractor's risk and must therefore be repaired by the contractor.

Customer & Client liaison

The contractor will ensure that all required outages be communicated to the *Project Manager* and that the necessary outage requests are tabled for approval at the Monthly Outage meetings of the applicable area.

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

The *Contractor* shall always adhere to recommendations as per the **Environmental Programme (EMP)** and all applicable permits.

4.1.4 Title to materials from demolition and excavation

The *Contractor* has no such title. All equipment and materials dismantled to be stored inside the *Contractor's* site camp. Disposal of this equipment and materials to be liaise with the Project Manager.

4.1.5 Cooperating with and obtaining acceptance of Others

The *Contractor* is responsible to ensure that the landowners and/or local authority have been informed before any work is carried out on site. It is also the *Contractor's* responsibility to maintain a good relationship with the landowners and to ensure that the following procedures are in place:

- 1) Access arrangements to the property
- 2) Access roads and entrances via the property to the line servitude to be agreed and documented.
- 3) Gates to be left closed or open – information to be documented
- 4) Allowable construction times on the property to be agreed and documented
- 5) New gates required by the landowner to provide access to the line servitude

4.1.6 *Contractor's* Equipment

The *Contractor* is to provide equipment necessary to complete the *Works* safely and by the *completion date*. An equipment asset register is to be kept on site record is to be kept on site.

4.1.7 Equipment provided by the *Employer*

None

4.1.8 Site services and facilities

The *Contractor* shall provide on *Site* a minimum of one well illuminated, insulated, and ventilated *site* office for utilisation by the *Employer / Project Manager* or their representatives. This *site* office shall have as a minimum the following:

- A Suitable water supply and sanitary facilities (chemical toilet).
- First aid facilities
- Telecommunication facilities (downloading of electronic communications and printing of it)
- Access to Eskom website to download latest information.
- 1 x Table, 10 x chairs required, and a suitable office required to hold a site meeting.
- Site diary.

4.1.9 Facilities provided by the *Contractor*

Material Storage Area

The *Contractor* shall provide a secure fenced-in yard for the whole of the contract period. Storage facilities must be of such a nature that all the *Contractors* materials, including free issue materials (*Employer's* materials) are safe from theft, fire hazards and vandalism. Fire breaks around the storage area, and fire-fighting equipment must be in accordance with the OHS Act, and of sufficient capacity to ensure the security of stored materials.

The *Contractor* shall provide a qualified storeman to receive and issue materials. This storeman shall maintain a proper administrative record reflecting all materials received and issued as described elsewhere in this document. The Cardex system or equivalent as specified by the *Employer* will be used as a material management system. An example of this system is available to the contractor on request. This system will be updated continuously for ad-hoc inspections by the *Employer* or his representatives.

4.1.10 Survey control and setting out of the *works*

The *Contractor* must appoint an approved contract surveyor to assist with the pegging of all poles and stay positions. The appointed surveyor must provide feedback to the PE after pegging to ensure all possible problems with regards to landowners, obstacles, clearances are highlighted.

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

The *Contractor* shall be liable for any damages caused during construction to exist services such as, underground water pipes, electrical cables, telecommunication cables, overhead lines, storm water pipes and existing roads.

4.1.12 Control of noise, dust, water and waste

The Contractor shall within reason try and keep noise levels, dust and wastage to a minimum.

4.2 Construction Activities

The *contractor* shall decommission, dismantle, layout, excavate, assemble, and erect structures and equipment as per the detail project specifications in the FDP document.

4.3 Completion, testing, commissioning, and correction of Defects

4.3.1 Work to be done by the Completion Date

The whole of the *Works* as described by the *Works Information* of this contract shall be completed on or before the *Completion Date*. Completion includes the completion and submission of hand-over documentation, as-built drawings, and completed defect lists. The *Contractor* pays delay damages for late completion in terms of the *Conditions of Contract*.

The following information to be included in the “Line Handover & Quality Control Documentation”:

- Copies of the “Introduction Agreements” and “Indemnity Agreements” between Eskom, the Contractor and all the Landowners on the power line.
- As Built Line Route Data (Gate Installation/Refurbishment; Bush Clearing).

4.3.2 Commissioning

The commissioning of the works will be done after final inspections and handover documentation have been completed.

5 List of drawings

5.1 Drawings issued by the *Employer*

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

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

Drawing number	Revision	Title
As per FDP package issued by Eskom Network Engineering Design (NED)	Rev0	GOOD HOPE TEXTILE 66-11KV SUBSTATION REFURBISHMENT AND KING WILLIAMS TOWN SS 66KV FEEDER PROTECTION UPGRADE

PART 4: SITE INFORMATION

Document reference	Title	No of pages
	This cover page	01
C4	Site Information	01
	Total number of pages	02

PART 4: SITE INFORMATION

In Contract Data, reference has been made to this Part 4 of the contract for the location of Site Information.

1. Description of the Site and its surroundings

1.1. General description

King Williamston substation is situated at **GPS co-ordinates 32°54'21.8" S and 27°25'46.8" E** and is an existing substation.

Good Hope Textile substation is situated at **GP co-ordinate S 27° 23' 8.9"E; 32° 53' 4.4"S.** and is an existing substation

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

Some of the existing infrastructure is indicated on the spanning sheets provided. Though it is the *Contractor's* responsibility, to familiarise himself with all existing infrastructure in and around the working place.

1.3. Subsoil information

All excavations and associated soil information are described under the Works information and Bill of Quantities. No geotechnical study or report provided.

1.4. Hidden services

In the event of a discrepancy between physical condition and the information on a drawing, the *Contractor* shall notify the *Project Manager* immediately if the physical condition found on *site* is such that the deviation from the drawing requires a change in the design of the *works*.

PART 5: ANNEXURES

C5 Annexures

GENERAL SPECIFICATIONS

NO	REFERENCE NUMBER	R E V.	TITLE	TYPE *SPEC/PF	ATTACHED YES/NO
A1	PFMA 1 of 1999		Public Finance Management Act		No
			<u>Integrated Risk Management - Safety</u>		
A2	OHS Act. 85 of 1993		Occupational Health and Safety Act	SPEC	No
A3	COID 130 of 1993		Compensation Health and Safety Act		
A4	SCSAMAAE4	0	Safety Risk Management Process Manual	Manual	No
A5	SCSPVABM9	0	Co-Ordination of safety on capital projects	Procedure	No
A6	SCSASAAW8	4	Standards applicable for Contractors working in close proximity to live apparatus	Standard	No
A7	DPC34-333	0	OHS Act requirements to be met by principal contractors employed by Eskom Distribution	Procedure	YES Contractor Must sign
A8	SCSPVACK0	0	Identifying, analyzing, documenting and observing dangerous/hazardous tasks.	Procedure	No
A9	SCSPVACU1	1	Pres-Task Planning and Feedback process	Procedure	No
A10	SCSPVABP6	1	Procedure for refusal to work on the grounds of health, safety and environmental concerns.	Procedure	No
A11	34-350	0	Reporting, recording, investigating, costing and follow-up of incident/accidents.	Procedure	No
A12	34-332	0	First Aid Standard	Standard	No
A13	ESKPVAEY6	0	Operating Regulations for High Voltage Systems	Procedure	No
A14	34-163	1	Portfolio of evidence for Authorisation	Guide	No
A15	NWS 1494		Fire Prevention and Protection of Contractor's Premises on New Work Sites	SPEC	No
			<u>Operational</u>		
A16	ESKARAAG4	6	Operating Regulations for High Voltage Systems	Procedure	No
A17	SCSPVABN2	0	Training, Testing and Authorization of persons for the operating and maintenance of the Power System	SPEC	No
A18	SCSAMAAE5	1	The training logbooks for Authorization of persons working on high voltage systems.	SPEC	No
A19	SCSAAAR0		GUIDE FOR THE STORAGE, TRANSPORT AND HANDLING OF COMPOSITE INSULATORS	Guide	No
A20	ESKASAAU7	0	Quality Requirements for the procurement of Assets, Goods and Services.	Standard	No
A21	SCSAGAAW2	0	Building line restrictions, servitudes widths, line separations and clearances from power lines	Guide	No
A22	DISPVABY3	0	Procedure for handling Auditing and stacking of new wooden poles	Procedure	No.
A23	DISPVAB17	1	Procedure for manual handling of rural line poles.	Standard	No
A24	ESKASABG3	1	Standards for bush clearance and maintenance within overhead powerline servitudes	Standard	No
A25	SCSSCAAY5	2	Specifications for phase conductor for distribution lines (See 4.6 Conductor markings)	SPEC	No
A26	DISADABQ9		Access to farms	Guide	No.
			<u>Contractor Site Requirements</u>		
A27	STR103/2006 10 TI-012		Transporting person on back of vehicles Prohibition of transportation of employees in crew cabs mounted on the back of trucks	Technical Instr.	No
A28	Work Instruction		Expanded Public Works Report – Divisional Capital Programme & Manhour Report		No
A29			Eskom Distribution Standard including all Technical Bulletins issued till Tender Issue date	SPEC	No
A30			Electrical Clearances and Safe Working Clearances	SPEC	No
A31			Tax Declaration and Tax Clearance	SPEC	No
A32			Section 28 of the National Environmental Management Act	SPEC	No

			10 of 1998		
			Project Specific Documentation:		
A33		0	Final Design Package	FDP	Yes
A34		0	Environmental Documents: <ul style="list-style-type: none"> • ENVIRONMENTAL MANAGEMENT PLAN - ENVIRONMENTAL AUTHORISATION • ENVIRONMENTAL IMPACT ASSESSMENT PROCESS FINAL BASIC ASSESSMENT REPORT 	SPEC	Yes
A35		0	SHE SPECIFICATION	SPEC	Yes

Eskom Holdings Limited's Standard and Specifications are available at www.eskom.co.za and all Procurement offices.

August 2021

GOOD HOPE TEXTILE SUBSTATION

**SCOPE FOR REFURBISHMENT
PROJECT
REV. 3**

WEF116 (C.DS00074)

Scope of Works

1. LOCATION OF SITE

This is an existing substation situated at GPS co-ordinates 32°54'21.8" S and 27°25'46.8" E close to King Williamston.

2. HIGH LEVEL SCOPE OF WORK:

Complete the Refurbishment project of the 66kV yard.

- Completing the 66kV King Williams Town 1 feeder bay upgrade
- Install 66kV busbar isolators for King Williamstown 66kV feeder bay and 66kV Trfr 1 & 2 Bays
- Upgrade protection for 66/11kV TRFR 1- TRFR 2 bays and replace 66kV CT's.
- Install equipment labels
- Install jumpers and clamps

3. PHASING OF THE PROJECT

The following is the proposed implementation program. The phasing discussed below relates to a construction plan for outage related work.

3.1 PRE-OUTAGE 1:

- Complete the refurbishment of the 66kV King Williams Town 1 Feeder Bay.
- Complete the scope for the 66kV Bus coupler.
- Complete the scope for the Trfr 1 66/11kV bay.
- Erect all remaining 66kV busbar isolators.

N.B. Note: An outage will required to connect the above mentioned bays to the 66kV busbars as the 66kV Busbar is live and all work to be done and planned in accordance with the ORHVS.

3.2 OUTAGE 1

- Commission 66kV King Williams Town 1 Feeder Bay.
- Commission the 66kV Bus coupler.
- Commission the Trfr 1 66/11kV bay.
- Decommission Trfr 2 Bay from the 66kV Busbar.

3.3 PRE-OUTAGE 2:

- Complete the scope for the Trfr 2 66/11kV bay.

N.B. Note: An outage will required to connect the above mentioned bay to the 66kV busbars as the 66kV Busbar is live and all work to be done and planned in accordance with the ORHVS.

3.4 OUTAGE 2

- Commission the Trfr 2 Bay

4. SCOPE FOR 66KV YARD WORKS AND DECOMMISSIONING

4.1 ORDERING OF CONTRACTOR SUPPLY MATERIAL

There is existing material on site and the contractor is to evaluate the existing material with the COW to identify material which is available for re-use before ordering any new material indicated in the BOQ. Note: New isolator support are to be ordered.

4.2 FORT MURRAY 1 66KV FEEDER BAY

Install phasing discs for the feeder bay as indicated on D-EC-1541-11-06.

4.3 KING WILLIAMS TOWN 1 66KV FEEDER BAY

Complete the refurbishment of this bay by;

- Remove the existing 66kV Bkr support and secure the new support (which is erected already) in position. Install new 132kV single pole breaker inclusive of a breaker kiosk foundation indicated on D-EC-1541-11-05.
- Install busbar isolators complete with support, note that the isolator foundations are existing.
- Install isolator JB.
- The jumpers can be installed and connected as shown on D-EC-1541-11-08.

4.4 TRANSFORMER 2 AND 3 66/11KV BAY

Complete the refurbishment of this bay by;

- Replace 66kV CT's for the Trfr 2 bay, note Trfr 1 CT's have already been replaced.
- Install busbar isolators complete with support, note that the isolator foundations are existing.
- Install M1 Cap on the small equipment supports for the CT's. Note additional holes will need to drilled for to fit the cap to the support and these holes are to be drilled by the steelwork supplier prior to galvanising.
- Install cable support brackets. Note the cable support bracket for the CT's are to be modified to fit the small equipment support.
- Install isolator JB.
- The jumpers can be installed and connected as shown on D-EC-1541-11-08.

4.5 66KV VOLTAGE TRANSFORMER

Complete the refurbishment of this bay by;

- Install cable support brackets.

Install jumpers for the 66kV VT's.

Install jumpers, the jumpers can be installed and connected as shown on D-EC-1541-11-08.

4.6 66KV BUS COUPLER

Complete the installation of this bay by;

- Install busbar isolators complete with support, note that the isolator foundations are existing.
- Install item EW6-9 and EW6-10 detailed on 0.54/327 for EW9.
- The jumpers can be installed and connected as shown on D-EC-1541-11-08.

4.7 66KV BUSBAR & STRINGERS

Install busbar jumpers below beam to extend Busbar 1 & 2.

4.8 EARTHING

All steelwork is to be earthed to the foundation HD bolts inclusive of the columns. The Voltage Transformer and Current Transformers are to be earthed in accordance with the Project Specification and earthing Standard.

Install portable earthing balls on the equipment steelwork supports as illustrated on D-EC-5141-11-04 and final positions are to be confirmed by the Technical Services Officer for King Williams Town Technical Services Centre. The isolator mechanical boxes and handles are to be earthed in accordance with the manufacture's isolator specification.

The protection panels must be earthed using 2 x (25 x 3mm) flat copper earth tails per panel, bolted to the panel and brazed to the flat copper in the trench.

Install shield wire from EW3 to EW9 to EW10.

4.9 STONING

Stockpile the existing stone yard before work commences and re-spread on completion.

Spread yard stone in the substation yard, where required, after the work has been completed as indicated on D-EC-1541-11-05 (Project Specifications).

4.10 TRENCHING

Replace the existing covers when work has been completed. Note an activity has been included in the BOQ to replace missing/damaged trench covers. There are covers on site which are smaller than 750mm, when replacing these smaller trench covers the existing covers are to be measured and the new covers are to match the existing covers. The smaller trench covers are to be manufactured in accordance with D-DT-5254-1 Rev.0.

4.11 DECOMMISSIONING

Decommission all HV equipment, steelwork and foundation as specified on the BOQ.

Decommissioned material e.g. supports and equipment is to be placed in a demarcated area on site. Eskom PPM will evaluate equipment and Eskom will arrange for the removal of equipment from site, the contractor is to allocate time for this the construction program. When decommissioning temporary fence and temporary woodpole cable supports, suitable material is to be used and costed for to backfill the holes to the required compaction (See project specification for compaction). The material is to be included in the decommissioned activity in the BOQ.

4.12 WEED KILLER

Spray weed killer in the substation on stoned areas where work has been carried out (Project Specification).

4.13 LABELS

Install equipment labels, busbar labels and phasing discs as indicated on D-EC-1541-11-01 and label schedule. The existing busbar label brackets are to be re-used in their existing positions.

4.14 EXISTING SUPPORTS

All newly erected supports on the previous contract are to be checked and torqued.

4.15 LV CONTROL CABLES

Install the control plant cables where required. Note; The cable block diagram will be issued once the contract is awarded.

4.16 CONTROL BUILDING

- **DC mechanical timer and DC light fittings:**

Supply and install a JSGUS or equally approved 60-minute mechanical timer mounted on a 100x100mm box 1,2m above floor level. The timer is positioned inside the relay room, near the main door.

Install one tube, per light fitting, that will be connected to the DC side of the distribution panel via the mechanical timer. Install these DC tubes and electrical accessories on the two light fittings in the centre of the relay room.

- **Air condenser unit:**

Remove the existing wall mounted air condenser unit brackets and the associated electrical equipment. The existing air condenser unit brackets are positioned outside of the control building (near the store-room door).

Install a new air condenser unit for the Control building on the position indicated on 5.17/3855 Rev 1. The air condenser unit must be positioned 2500mm above the ground level. The air condenser is to be compatible with the existing air conditioning unit.

- **Floor finish**

Remove existing floor paint on the relay room, store-room & toilet and make good.

Prepare the area and apply epoxy-based paint on the relay room, store-room and toilet floor. Prepared and apply paint to the manufacturer's specification. Paint colour to be light ship grey.

- **Checker plates and checker plates supports**

Supply new checker plates for the relay room extension. Checker plates should have red oxide primer, 1x universal undercoat and 2x finishing coats of approved Gloss enamel panel. Final coat colour to be light grey. Checker plates to have 2x 25mm diameter lifting holes on opposite ends.

Bolt the checker plate's supports (angle iron's) behind the control panel to provide support for the checker plates. Contractor to supply 2x M10 galvanised bolts, 2x nut and 2x flat washers per bracket.

- **Water tank tap**

Supply new water tank tap and secure to the existing water tank.

- **Water tank stainless steel straps**

Supply and install 19mm stainless steel strap to secure water tank to the existing water tank base. Existing hook bolts are in place to connect the stainless steels to the concrete base. See Picture 1 on Annexure A for water tank and water tank base.

- **Water pump**

Supply and install a water pump and bolt to the water tank base floor. The water pump must be a Jet Smart Composite 0.85kW pump. The water pump to have dry run protection with integrated automatic reset, spring loaded non-return valve and 32mm discharge port. The water pump should be complete with a PC15 pressure control unit. Use uPVC pipes to connect the water tank to the water pump.

- **Water supply pipe**

Supply and install a suitably sized uPVC water supply pipe and fittings from the water tank to the WC suite and toilet sink.

- **Toilet sink**

Supply and install water tap and plumbing accessories for the toilet sink as indicated on 5.17/3855 Sheet 1 Rev 1. See Picture 2 on Annexure A for existing toilet sink. Supply COC on completion of building electrical works.

- **Security gate**

Supply and install security gates for the store-room and toilet door. Single door security gates are to be manufactured and install as indicated on D-DT-5281 Sheet 4D. The padlock box is to be modified to be able to fit the Eskom padlock. Prior to manufacturing, the proposed modification should be provided to Eskom for approval.

- **Burglar bars**

Design a suitably sized burglar bar made out of 16mm round bars. The burglar bars should be fitted on the outside of the toilet, over the 900 x 600mm aluminium window and windblok. Prior manufacturing, the final design should be provided to Eskom for approval.

5. CONSTRUCTION RISKS

Risk	Mitigation
<p>Access: Substation is restricted area and public and visitors should not be allowed to enter without approval.</p>	Induction training of both staff and visitors required.
<p>Insects: Existing cabinets are often inhabited by bees, wasps and hornets.</p>	Induction training of both staff and visitors required.
<p>Gates: The substation is a restricted area and gates must be closed at all times.</p>	Observe status of gates at all times.
<p>Oil Spill: Some equipment is oil filled and extreme care must be taken when handling the same since the risk of an oil spill is high</p>	Induction training of staff to include oil spill risk and action if a spill should occur
<p>Snake: Since the construction will take place during the summer the risk of encountering snakes is high.</p>	Staff should be educated regarding the types of local snakes that may be encountered
<p>Porcelain: The equipment has in most instances porcelain insulators and extreme care must be taken when handling the equipment not to chip and/or break the insulators. Chipped insulators could render equipment unfit for use.</p>	Staff must be made aware of the risk and the correct lifting equipment must be used when lifting the equipment.
<p>Close proximity: Should works be undertaken in an operational yard care must be taken when handling / erecting conductive components such as steelwork.</p>	Induction training of staff to include risk associated with working in close proximity.
<p>Asbestos: When handling asbestos, care must be taken to ensure that it must not be broken, scratch or defaced in any way.</p>	Induction training for staff on how to handle asbestos.

6. GENERAL

The contractor to whom the tender is awarded must make his own copies of the drawings to use during construction. For ease of reading, references has been made throughout this document to relevant project drawings, BOQ & project specifications, it however remains the contractors responsibility to ensure the he/she complies to all specifications and standards relating to the **Project**.

ANNEXURE A

Photograph 1: Water tank and base



Photograph 2: Toilet sink



KING WILLIAMSTOWN SUBSTATION

**SCOPE FOR PROTECTION UPGRADE
PROJECT
REV. 2**

(C.DS00068)

Scope of Works

1. LOCATION OF SITE

King Williamstown Substation is an existing substation situated in the King Williamstown area with coordinates: 27° 23' 8.9"E; 32° 53' 4.4"S.

2. SCOPE OF WORK:

The modifications to the building have been complete, control plant panels and schemes will be installed in the control building and control plant cables will be installed according to the cable block diagram. Note; The cable block diagram will be issued once the contract is awarded.

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		Effective Date	15 June 2018		
		Review Date	February 2021		

Annotation: *The information contained in this document is the minimum requirement; it can be updated, amended, or removed to cover the SHE requirements related to the scope or the risks of the project.*

Project Name King Williamstown Substation Protection Upgrade C.DS00068

Good Hope Textile Substation refurbishment - C.DS00074

Project Address: King Williamstown Substation is an existing substation situated in the King Williamstown area with coordinates: 27° 23' 8.9"E; 32° 53' 4.4"S.

Good hope Textiles substation situated at GPS co-ordinates 32°54'21.8" S and 27°25'46.8" E close to King Williamstown

Scope of the project: Substation Protection Upgrade- KWT Substation

Substation Reurbishment-Goodhope Textiles

Eskom's Safety Officer

Pamela Maluleke

Signature:

Name Eskom's Designer

Marc Gallant

Eskom's Project Manager

Siphamandla Ndabana

Signature  _____

Signature  _____

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1. Introduction

Eskom's responsibility and commitment is to ensure a safe working environment is in line with its Safety, Health, Environmental and Quality Policy, along with legislative obligations.

This SHE specification is Eskom the minimum requirements which are required to be met for the specific contract and for the duration of the contract period by contractors and where required, the delivery organisation.

The contractor is expected to develop a SHE plan which meets these requirements as well as all the relevant applicable legislation they conform to.

Eskom in no way assumes the contractor's legal responsibilities. The contractor is and remains accountable for the quality and the execution of his/her health and safety programme for his/her employees and appointed contractor employees.

This SHE specification reflects minimum requirements and should not be construed as all encompassing.

Note 1: All the requirements listed hereunder are in relation to the contract and do not supersede or replace any organizational SHE requirements.

Where requirements listed are already in place, then the organisational requirements must be taken cognisance of and listed in the respective SHE plans. If there are any additional Eskom and or legislative requirements listed in the SHE specification, then these must be addressed.

2. Supporting Clauses

2.1 Scope

This SHE specification lists the legislative and Eskom requirements and where applicable, any requirements pertaining to Local Authorities / Municipal by-laws / Environmental legislation that must be met by the contractor.

2.1.1 Purpose

This document will provide a standardised approach to the compilation of SHE specifications throughout Eskom for contracts, standards and NEC 3 contracts.

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2.1.2 Applicability

This SHE specification is applicable to any contracting organisation who intends tendering for the contract or to perform any construction work in the Eastern Cape Operating Unit (ECOU).

2.2 Normative/Informative References

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

2.2.1 Normative

- [1] Basic Conditions of Employment Act No 75 of 1997.
- [2] Occupational Health and Safety Act and Regulations No 85 of 1993.
- [3] National Environmental Management Act 107 of 1998.
- [4] National Road Traffic Act 93 of 1996.
- [5] 32-37 Eskom Substance Abuse Procedure.
- [6] 32-136 Contractor Health and Safety Requirements
- [7] 240-62196227 Life- saving Rules
- [8] 32-95 Environmental, Occupational Health and Safety Incident Management Procedure
- [9] 32-727 SHEQ Policy
- [10] 32- 418 Working at Heights Procedure
- [11] 240-62946386 Vehicle and Driver Safety Management Procedure
- [12] 32-520 Risk Assessment procedure
- [13] Plant Safety Regulations
- [14] Operating Regulations for High Voltage Systems (ORHVS).

2.2.2 Informative

- [1] Tobacco Products Control Act 83 of 1993 (Updated 2011.05.19)
- [2] SANS 1186 Symbolic Safety Signs
- [3] Constitution of the Republic of South Africa No 108 of 1996
- [4] DMN 34-110 Operating A Vehicle Mounted Crane

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[5] DMN 34-1981 Excavations.

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2.3 Definitions

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		Document Identifier	DXSHEQSF0036	Rev	2
		Effective Date	15 June 2018		
		Review Date	February 2021		

Definition	Explanation
Appointed contractor	Means a contractor appointed by the principal contractor
Baseline risk assessment	(32-520) baseline operational risks refer to the health and safety risks associated with all standard processes and routine activities in the business
Business unit (BU)	(32-296) means any defined unit within the Eskom environment, operating as a business under a particular cost-centre number. In the context of this document and in terms of health and safety, any reference to a BU includes a defined unit within any Eskom division and its subsidiaries
Client	(OHS Act) Eskom representative (Internal – Asset Owner), also referred to as the contract administrator/custodian or agent or project manager (as defined in the contract). He/she is the person responsible for ensuring that the works or services are executed in terms of the contract, as well as adherence to legislation pertaining to the contract.
Competent person	(OHS Act) means any person having the knowledge, training, experience, and qualifications, specific to the work or task being performed, provided that, where appropriate, qualifications and training are registered in terms of the South African Qualifications Authority Act, 1995 (Act No. 58 of 1995)
Contractor	(OHS Act) means an employer as defined in section 1 of the Act who performs contracted work and includes principal contractors
Construction work	Any work in connection with <ol style="list-style-type: none"> the construction, erection, alteration, renovation, repair, demolition or dismantling of or addition to a building or any similar structure. the construction, erection, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer or water reticulation system or the moving of earth, clearing of land, the making of excavation, piling or any similar civil engineering structure or type of work.
Consultant	means a person providing professional advice
Controlled disclosure	controlled disclosure to external parties (either enforced by law or discretionary)
Duty of care to the environment	(32-136) anybody who causes or has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing, or recurring. If such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, such person must minimise and rectify such pollution or degradation of the environment
Employee	(OHS Act) means, subject to the provisions of subsection (2), any person who is employed by or works for an employer and who receives or is entitled to receive any remuneration or who works under the direction or supervision of an employer or any other person

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Employer	(OHS Act) means, subject to the provisions of subsection (2), any person who employs or provides work for any person and remunerates that person or expressly or tacitly undertakes to remunerate him/her, but excludes a TES (ex labour broker) as defined in section 1(1) of the Labour Relations Act 1956 (Act No. 28 of 1956)
Environment	(32-94) means: a. the land, water, and atmosphere of the earth. b. micro-organisms and plant and animal life; and c. any part or combination of (a) and (b) and the interrelationships among and between them, and the physical, chemical, aesthetic, and cultural properties and conditions of the foregoing that influence human health and well-being
Environmental Management plan	A detailed plan of action prepared to ensure that recommendations for enhancing or ensuring positive impacts and limiting or preventing negative environmental impacts are implemented during the life cycle of a project. This Environmental Management Plan should preferably form part of Eskom's Environmental Management System
Eskom requirements	Eskom requirements flowing from directives, policies, standards, procedures, specifications, work instructions, guidelines, or manuals
Fall protection plan	(OHS Act) means a documented plan of all risks relating to working from an elevated position, considering the nature of work undertaken, and setting out the procedures and methods to be applied in order to eliminate the risk
Hazard	(OHS Act) means a source of, or exposure to, danger
Hazard identification	(OHS Act) means the identification and documenting of existing or expected hazards to the health and safety of persons, which are normally associated with the type of construction work being executed or to be executed
Health and safety file	(OHS Act) means a file or other record in permanent form, containing the information required in relation to the contract.
Health and safety plan	(OHS Act) means a document plan that addresses hazards identified and includes safe work procedures to mitigate, reduce, or control hazards identified
Health and safety specification	(OHS Act) means a document specification of all health and safety requirements pertaining to associated to a contract, so as to ensure the health and safety of persons.
Health and safety requirements	means comprehensive health and safety requirements for a contract, project, site, and scope of work. This specification is intended to ensure the health and safety of persons, both workers and the public, and the duty of care to the environment. The health and safety requirements must be specific to each contract, project, site, and scope of work

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Definition	Explanation
Lifesaving Rules	(240-62196227) a rule that, if not adhered to, has the potential to cause serious harm to people
Medical Certificate of fitness	(OHS Act) means a certificate valid for one year, issued by an occupational health practitioner, issued in terms of the regulations, whom shall be registered with the Health Professions Council of South Africa
Medical surveillance	(OHS Act) means a planned programme or periodic examination (which may include clinical examinations, biological monitoring, or medical tests) of employees by an occupational health practitioner or, in prescribed cases, by an occupational medicine practitioner
Method statement	(OHS Act) means a written document detailing the key activities to be performed in order to reduce, as reasonably as practicable, the hazards identified in any risk assessment
Organisation	may be defined as a group of individuals (large of small) that is cooperating under the direction of executive leadership in accomplishment of certain common objects
Pre-job meetings	(34-227) means a meeting that is held prior to the commencement of the day's work and that is attended by all the relevant employees associated with the work task
Principal contractor	(In the text of this document) Means an employer, as defined in section 1 of the OHS Act, who intends to tender for or has signed a contract with Eskom for services rendered.
Provincial director	(OHS Act) means the provincial director as defined in Regulation 1 of the General Administrative Regulations under the Act
Responsible Manager	Is a Manager of a department, section or operating/business unit who has been appointed as part of the Eskom delegation of authority process with the aim to assist the applicable 16(2) assigned person in executing his/her duties in terms of the Occupational Health and Safety Act
Risk assessment	(OHS Act) means a programme to determine any risk associated with any hazard at a construction site in order to identify the steps needed to be taken to remove, reduce, or control such hazard.
Site	(34-228) means an Eskom department, unit, complex, building, specific project, work site, or the site where agents, clients, principal contractors, contractors, suppliers, vendors, and service providers provide a service to Eskom, directly or indirectly
Service provider	any private person or legal entity that provides any service(s) to Eskom for compensation
Subsidiary	(32-94) an enterprise controlled by another (called the parent) through the ownership of greater than 50% of its voting stock

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Definition	Explanation
Supplier	(32-1034) means a natural or legal person who renders a service and may include the following current or potential supplier vendor, contractor, consultant
Task	(34-227) a segment of work that requires a set of specific and distinct actions for its completion
Toolbox talks	(34-227) where the team leader, after conducting pre-task planning, shares all the tasks at hand and discusses task allocation, the identified risks, and the control measures with all his/her team members on site before commencing a specific task and documenting the agreed strategy. (This shall be done to ensure common understanding of the tasks, risks, and control measures required.)
The Act	(OHS Act) means the Occupational Health and Safety Act No. 85 of 1993, as amended, and the Regulations thereto
Visitor	any person visiting a workplace with the knowledge of, or under the supervision of, an employer.

2.4 Abbreviations

Abbreviation	Description
AIA	Approved Inspection Authority
BU	Business Unit
CE	Chief Executive
CNC	(Eskom) Customer Network Centre
CR	Construction Regulations of the OHS Act
COID Act	Compensation for Occupational Injuries and Diseases Act
DMR	Driven Machinery Regulations
DoEL	Department of Employment & Labour (Inspection and Enforcement services – Provincial office)
EAP	Employee Assistance Program
ECOU	Eastern Cape Operating Unit
EP	Emergency Preparedness
ERfW	Environmental Regulations for Workplaces
GAR	General Administrative Regulations
GSR	General Safety Regulations

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Abbreviation	Description
AIA	Approved Inspection Authority
BU	Business Unit
CE	Chief Executive
HCS	Hazardous Chemical Substances
LDV	Light Delivery Vehicle
LoG	(COID) Letter of Good Standing
MSDS	Material Safety Data Sheets
NEMA	National Environmental Management Act
OHS Act	Occupational Health and Safety Act and Regulations, 85 of 1993
ORHVS	Operating Regulations for High Voltage Systems
SACPCMP	South African Council for the Project & Construction Management Professions
SABS	South African Bureau Standard
SANS	South African National Standard

2.6 Roles and Responsibilities

2.6.1 Commitment

Visible commitment is essential to providing a safe work environment. Managers, supervisors, and employees at all levels must demonstrate their commitment by being proactively involved in the day-to-day operations, in particular the Occupational Health and Safety aspects of any project / contract. Legislation requires that each employee must take reasonable care of themselves and their fellow workers, from management level down to the lowest employee level.

2.6.2 Principal contractors and appointed contractors

Note 1: Most of the roles and responsibilities listed apply to both principal contractors and any appointed contractors. Where some of the listed do not apply to both, then the specific responsibilities will be listed and titled. The contractors shall:

1. Carry out all duties as listed in section 8, 9 and 10, the various other regulations that form part of the OHS Act and Regulation 7 of the Construction Regulations.

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2. The principal contractor must notify the provincial director of the Department of Labour in writing of all construction work if it falls within the scope of Regulation 4 of the Construction Regulations (if this has not been arranged and or done by the client/agent).
3. Carry accountability and responsibility for the safety and health of their employees and their appointed contractors within their working area, as contemplated by section 37(2) of the OHS Act;
4. Shall keep a record of all employees including the appointed contractor employees, including date of induction, relevant skills and licenses and be able to produce this list at the request of the Eskom Project Manager.
5. Ensure that all their appointees are made aware of their accountabilities and responsibilities in terms of their appointment and that they advise and assist these appointees in the execution of their duties.
6. Ensure that the minimum legislative, regulatory and Eskom SHE requirements are complied with on all work sites.
7. Give the Eskom project managers and line managers / responsible managers their full participation and cooperation.
8. Compile a SHE (health and safety) file where all relevant health and safety records must be kept for each work site.
9. The principal contractor must hand over a consolidated (to include any appointed contractor's files) health and safety file to the Eskom project manager on completion of the project. This is to include all drawings, designs, lists of materials used and other applicable information about the completed project, as well as the list of appointed contractors, the agreement, and the type of work completed.
10. Contractors must hand over a consolidated (to include any appointed contractor's files) health and safety file to the principal contractor on completion of the project. This is to include all drawings, designs, lists of materials used and other applicable information about the completed project, as well as the list of appointed contractors, the agreement, and the type of work completed.
11. The principal contractor must provide the project manager with a certified copy of his/her Compensation Commissioner's valid letter of good standing before the

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commencement of work and any future renewal letters obtained during the project for record-keeping purposes. The letter of good standing shall reflect the name of the contractor's company. Similarly, the principal contractor must provide the Eskom project manager with all the valid letters of good standing from their appointed contractors.

12. Contractors must provide the principal contractor with a certified copy of his/her Compensation Commissioner's valid letter of good standing before the commencement of work and any future renewal letters obtained during the project for record-keeping purposes. The letter of good standing shall reflect the name of the contractor's company.
13. Appoint competent staff to perform the project work and ensure that all employees are trained in the health and safety aspects relating to such work and that the employees understand the hazards associated with all other work being carried out on the project.
14. Ensure that all employees are conversant with all relevant work procedures and that they adhere to such procedures. Similarly (without removing the appointed contractors' responsibilities), ensure that their appointed contractors and their employees are conversant with all relevant work procedures and that they adhere to such procedures.
15. Co-ordinate the activities of all the appointed contractors in the interests of safety and health.
16. Ensure that potential contractors (whom they intend appointing) submitting tenders have made detailed provision for the cost of safety and health measures throughout the project.
17. Stop his /her employees and any appointed contractors if project work is not in accordance with the health and safety plan or if such work poses a threat to the health and safety of persons or a risk of degradation to the environment.
18. Take reasonable steps to ensure cooperation between all their appointed contractors.
19. Only appoint contractors to do work, if satisfied that the contractor has the necessary competencies and resources to perform the work safely.
20. Appoint full-time competent employees in writing to supervise the performance of all specified work throughout the contract period.

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Note 2: No work may commence and or continue without the presence of the appointed project manager or project supervisor during performance of the contracted work.

21. Ensure that the supervisor or manager do not supervise work on any site other than the site for which such supervisor has been appointed for.

Note 3: In determining the number of appointed competent supervisors, the nature and scope of work being performed, shall be taken into consideration.

Note 4: If a sufficient number of competent employee(s) have been appointed to assist the construction supervisor, the construction supervisor may supervise more than one site.

22. Appoint a full or part time safety officer or construction safety officer (registered with SACPCMP) in writing.
23. Not victimise or dismiss employees, by virtue of the employees divulging health and safety information or suspecting such information has been divulged, in the interests of health and safety requirements.
24. Follow a process of disciplinary action if any of their employees or their appointed contractor employees have transgressed any of the requirements of the health and safety specification, safety and health plans, site rules or any other requirements.
25. Ensure that all appropriate precautions are taken to protect persons (visitors, members of the public, and other contractors) present at work or in the vicinity of a construction site against all risks that may arise from such site.
26. Before the commencement of any work, conduct risk assessments which shall include public safety. This should be done by a competent person appointed in writing with a view to identify hazardous and potentially hazardous work operations.
27. Ensure that pre-task risk assessments are conducted and documented daily and prior to the starting of any new task, irrespective of whether it is a repetitive task or not.
28. Take prime responsibility for all aspects of environmental management associated with the project activity for which they are responsible.
29. Provide any appointed contractor who is making a bid or is appointed to perform work on Eskom's behalf, with the relevant sections of the documented Eskom's SHE Specification.

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30. Principal contractors are required to approve appointed contractor's health and safety plans if they meet all the requirements.
31. Must ensure that an organisation medical surveillance programme for the duration of the contract is in place and maintained.
32. Prior to having pre-employment and periodic medicals fitness examinations conducted, person/man job specifications must be compiled and handed to the occupational health practitioner.
33. Ensure that pre-employment, periodic and exit medicals are carried out on their employees. Medical assessments must be conducted by a registered Occupational Health Practitioner. During the pre-employment medical, where employees will be required to work at heights, they will also be required to undergo the required employee physical fitness examinations
34. Ensure, prior to the commencement of construction work, that all persons involved in the project work, as well as the appointed contractors, have received a health and safety induction training session. Similarly, ensure that all visitors to site undergo the site's induction training.
35. Ensure, prior to the commencement of construction work or contracted work, that all their employees involved in the project work, as well as the appointed contractors, have received task-specific training.
36. Issue risk-based personal protective equipment (PPE) as a measure of last resort to their employees, inspect such equipment regularly and ensure recipients of PPE are trained in the proper use, care and where necessary, the maintenance of PPE.

Note 5: should the principal contractor or his/her appointed contractors entertain visitors on site, they will be held responsible for the provision and wearing PPE.

37. Establish their own site camp, temporary buildings, storage areas, toilets, fencing, and any other structure as may be required. Any such structures shall be positioned and erected in compliance with any instructions from the Eskom project manager and the relevant site safety and fire prevention requirements.
38. On completion of the work remove all structures erected by them, and where required by law and Eskom Environmental Management plan rehabilitate the environment.

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39. Where performing work with the environment, ensure that minimal damage is done and that where an Environment Management Plan is in place, then adhere to the plan.

40. Respect the rights of landowners/lessors and the preservation of their registered activities.

41. Must have a substance abuse program which must be in line with the requirements of the OHS Act.

42. Ensure that no alcohol or other intoxicating substances are brought on to or remains on the work sites.

Note 6: Eskom will not tolerate the presence of anyone who is or who appears to be under the influence of alcohol or any other intoxicating substance whilst performing work for them or on any work site. Screening and testing shall take precedence over all other/planned activities.

43. Ensure that all equipment and tools used comply with OHS Act requirements with respect to condition, use, care, storage, maintenance, and the management of these.

44. Ensure that all incidents are reported to Eskom within 24 hours and investigated timeously by competent incident investigators.

45. Eskom reserves the right to be involved in all their appointed contractor's investigations.

46. Establish health and safety committees (where applicable) hold such committee meetings on all sites and ensure that appointed contractors participate in their health and safety meetings.

47. Chair their own health and safety meetings and record such meetings.

48. Appoint sufficient number of health and safety representatives in terms of legislative requirements and ensure that the appointed contractors appoint health and safety representatives for their work sites.

49. When appointing contractors, advise the project manager in writing timeously and obtain his/her approval prior to them commencing work.

2.6.3 Construction Managers/ Contract Managers

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Note 1: No work may commence and or continue without the appointed supervisor or manager during the performance of the contracted work.

1. Not supervise construction work on any construction site other than the site they have been appointed to supervise.
2. Assist the contractor and/or the appointed safety officer in conducting site induction training for new staff and site visitors.
3. Instruct and train all employees under their control on any hazardous and related work procedures, before any work commences and thereafter, at such times as may be determined by a risk assessment.
4. Ensure that the minimum legislative and Eskom SHE requirements are complied with on all work sites.
5. Stop any construction work that is not in accordance with the safety and health plan or if such work poses a threat to the safety and health of persons or a risk of degradation to the environment.
6. Ensure that risk-based personal protective equipment (PPE) has been issued and employees wear/use the PPE as instructed.
7. Inspect such PPE on a regular basis and record the inspections.
8. Ensure that all incidents are reported to the client and are investigated.
9. Be involved in all investigations that occur within their area of responsibility.
10. Carry out audits and or inspections on their contractors at least monthly and any appointed contractors on instructions of their contractor.
11. Ensure that employees under their control are conversant with all relevant work procedures and that they adhere to such procedures.
12. Before the commencement of any work, where possible, assist in the conducting of risk assessments and ensure that appropriate mitigating measures have been considered and implemented.
13. Ensure that daily or pre-task risk assessments are conducted and documented daily and prior to the starting of any new task, irrespective of whether it is a repetitive task. Ensure that the team are involved in the abovementioned risk assessments.
14. Hold toolbox talks at the start of each day/ task to discuss health and safety issues as well as confirming the requirements of the daily risk assessments.
15. Ensure that all appropriate precautions are taken to protect persons (visitors, members of the public, and other contractors) present at work or in the vicinity of a construction site against all risks that may arise from such site.
16. Ensure that no alcohol or other intoxicating substances are brought on to, or remains on, the premises / work sites and that no employee remains on site if he/she is under the influence. Furthermore, report such instances to contract management.
17. Ensure that all equipment and tools used on site comply with OHS Act requirements with respect to condition, use, care, storage, maintenance, and the management of these.
18. Ensure that they and their contractor managers give clear and unambiguous instructions for the project work, to the employees for whom they are responsible for.

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19. Not victimise their employees by virtue of their employees divulging health and safety information or suspecting such information has been divulged, in the interests of health and safety requirements (reference – section 26 of the OHS Act).
20. Where any work is performed which involves the environment, ensure that minimal damage is done to the environment and that where an Environment Management Plan is in place, then the plan adhere to the plan.
21. Stop any employee or contractor from performing construction work which is not in accordance with the principal contractor's and or appointed contractors' health and safety plan which poses a threat to the health and safety of persons.
22. Ensure that no alcohol or other intoxicating substances are brought on to, or remains on, the premises / work sites and that no employee remains on site if he/she is under the influence. Furthermore, report such instances to contract management.

2.6.4 Contractor site supervisor or Contract Supervisor

Must:

1. Be competent to perform the required supervisory tasks.
2. Ensure their employees and all appointed contractors comply with the required statutory and Eskom project requirements.
3. Inspect all work done by the Contractors to ensure adherence to Eskom's standards and specifications
4. Conduct follow-up inspections to ensure findings are closed out and preventative action is in place.
5. Monitor contractors for adhere to statutory requirements and safety standards.
6. Monitor contractors overall SHE performance on site in order to achieve excellent results
7. Ensuring a Safe working environment is established and maintained by the contractor for the elimination of unsafe acts by all people whilst on the project site.
8. Discuss all SHE related problems with the relevant contractor management timeously in the first instance and thereafter the Eskom project manager in the second instance relating to procedure requirements, non-conformances identified, corrective actions, audits and inspection schedules.
9. Ensuring that quality records are maintained in accordance with legislative and Eskom requirements.
10. Continual liaison between the principal contractor, appointed contractors and employees.

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11. Ensures that employees and appointed contractors are aware of latest standards, procedures, work instructions and safety regulations issued by Eskom:
12. Conduct site Inspections for compliance to SHE requirements and compiles the relevant inspection reports.
13. Submit the observation reports to the relevant management.
14. Have meaningful participation in the project statutory health and safety committee meetings.
15. Participate in all appointed contractor incident investigations.
16. Participate in the principal contractor's emergency preparedness planning.
17. Ensure that their own employees and those of any appointed contractor are competent to perform the tasks assigned.
18. Issue site instructions on behalf of the principal contractor where and when the appointed contractors deviate from safety requirements.
19. Assist the principal contractor with the handing over process, in particular the SHE file and relevant documentation.
20. Ensure that no alcohol or other intoxicating substances are brought on to, or remains on, the premises / work sites and that no employee remains on site if he/she is under the influence. Furthermore, report such instances to contract management.

2.6.5 Employees

Must:

1. Be responsible for their own safety and health and that of their co-workers.
2. Co-operate with their employer to meet all of the employer's as well as legislative and Eskom requirements.
3. Familiarise themselves with their responsibilities during induction and awareness training sessions, some of which are:
 - a. familiarising themselves with their workplaces and safety and health procedures.
 - b. working in a manner that does not endanger them or cause harm to others.
 - c. ensuring that the work area is kept tidy.
 - d. reporting all incidents and near misses.
 - e. protecting fellow workers against injury by performing job observations.
 - f. reporting unsafe acts and unsafe conditions.
 - g. reporting any situation that may become dangerous; and
 - h. carrying out lawful orders and obeying safety and health rules.
4. Who become aware of any person disregarding a safety notice, instruction, or regulation, immediately report this to the person concerned. If the person persists, stop that person from working, and report the matter to contractor management and/or Eskom's project manager or supervisor immediately.

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5. Not damage, alter, remove, render ineffective, or interfere with anything that has been provided for the protection of the site or for the health and safety of persons this includes any guarding of machinery or equipment.
6. Obey any safety signs and always adhere to any site demarcation.
7. When entering or leaving the site, do so via the official designated access/departure routes. Where reflective jackets/bibs are required to be worn, wear them.
8. Be subjected to any disciplinary action, if having transgressed any of the requirements of the health and safety site rules, Eskom requirements, company requirements, or legislative requirements.
9. Avoid any act that may endanger their own health and safety or that of fellow employees, members of the public, or visitors who may be affected by their acts and/or omissions at work.
10. Have the right to obtain proper information from their employer regarding health and safety risks and measures related to the work processes.
11. Use facilities placed at their disposal and not misuse anything provided for their own protection or that of others.
12. Have the right to remove themselves from danger when they have good reason to believe that there is an imminent and serious danger to their health and safety and have the duty to inform their supervisor immediately of such danger.
13. Report to their supervisor (in the first instance), the principal contractor (in the second instance), and/or the Eskom project manager, any substandard acts and/or conditions that have come to their attention and that have not been rectified or acted on by their contractor management timeously.
14. Have the right and the duty at any workplace to participate in ensuring healthy and safe working conditions, to the extent of their control, over the equipment and methods of work adopted.
15. Maintain the surrounding area of the work site in a neat and tidy condition.
16. Have meaningful participation in regular health and safety meetings.
17. Have the right to refuse to perform or continue to perform any task/job on the grounds of health, safety, and environmental concerns.
18. When given instructions, understand the instructions and be permitted to clarify those instructions.

2.6.6 Contractor Health and Safety officer

1. Promote a SHE culture within the organisations involved in the project / contract.
2. The contractor's safety and health officer shall assist in the control of all health and safety-related matters on the sites.
3. Be involved in the developing the project SHE plan and SHE policy.
4. Be in constant liaison and cooperate with Eskom's SHE professionals responsible for providing them with a health and safety service.

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5. Ensure that this SHE specification is adhered to by his/her principal contractor and is submitted to any appointed contractors.
6. Conduct audits and inspections of all work sites for the duration of the project.
7. Be involved in the organisations incident investigations when required.
8. Participate in the organisation's statutory and non-statutory health and safety committee's meetings.
9. Conduct organisational, site and visitor induction training.
10. Stop any employee or contractor from performing construction work which is not in accordance with the principal contractor's and or appointed contractors' health and safety plan which poses a threat to the health and safety of persons.
11. Ensure that no alcohol or other intoxicating substances are brought on to, or remains on, the premises / work sites and that no employee remains on site if he/she is under the influence. Furthermore, report such instances to contract management.
12. Make themselves available and ensure co-operation of employees under their control to undergo breathalyser and drug testing while entering and/or being on any Eskom work site by Eskom.
13. Carry out audits and or inspections on their contractors at least monthly and any appointed contractors on instructions of their contractor.
14. Carry out frequent Planned Task Observations of employees under their control at least monthly and any appointed contractors on instructions of their contractor.

2.5 Related/Supporting Documents. (Tender phase)

Eskom OHS Act section 37 (2) agreement to be signed at procurement during the signing of the NEC contract, it is the responsibility of the project manager to ensure that the 37(2) agreement is signed, and a copy be kept in the contractor file at procurement. Signed by contractor only at this stage.

3. Specification

3.1 Project and Scope of work Details:

Location: King Williamstown Substation is an existing substation situated in the King Williamstown area with coordinates: 27° 23' 8.9"E; 32° 53' 4.4"S.

Project description/detailed scope of work:

KWT Substation

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The modifications to the building have been complete, control plant panels and schemes will be installed in the control building and control plant cables will be installed according to the cable block diagram. Note: The cable block diagram will be issued once the contract is awarded.

Goodhope Textiles Substation

Scope of works:

HIGH LEVEL SCOPE OF WORK:

Complete the Refurbishment project of the 66kV yard.

- Completing the 66kV King Williams Town 1 feeder bay upgrade
- Install 66kV busbar isolators for King Williamstown 66kV feeder bay and 66kV Trfr 1 & 2 Bays
- Upgrade protection for 66/11kV TRFR 1- TRFR 2 bays and replace 66kV CT's.
- Install equipment labels
- Install jumpers and clamps

PHASING OF THE PROJECT

The following is the proposed implementation program. The phasing discussed below relates to a construction plan for outage related work.

1.1 PRE-OUTAGE 1:

- Complete the refurbishment of the 66kV King Williams Town 1 Feeder Bay.
- Complete the scope for the 66kV Bus coupler.
- Complete the scope for the Trfr 1 66/11kV bay.
- Erect all remaining 66kV busbar isolators.

N.B. Note: An outage will be required to connect the above-mentioned bays to the 66kV busbars as the 66kV Busbar is live and all work to be done and planned in accordance with the ORHVS.

1.2 OUTAGE 1

- Commission 66kV King Williams Town 1 Feeder Bay.
- Commission the 66kV Bus coupler.
- Commission the Trfr 1 66/11kV bay.
- Decommission Trfr 2 Bay from the 66kV Busbar.

1.3 PRE-OUTAGE 2:

- Complete the scope for the Trfr 2 66/11kV bay.

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N.B. Note: An outage will be required to connect the above-mentioned bay to the 66kV busbars as the 66kV Busbar is live and all work to be done and planned in accordance with the ORHVS.

1.4 OUTAGE 2

- Commission the Trfr 2 Bay

SCOPE FOR 66KV YARD WORKS AND DECOMMISSIONING

FORT MURRAY 1 66KV FEEDER BAY

Install phasing discs for the feeder bay as indicated on D-EC-1541-11-06.

KING WILLIAMS TOWN 1 66KV FEEDER BAY

Complete the refurbishment of this bay by;

- Remove the existing 66kV Bkr support and secure the new support (which is erected already) in position. Install new 132kV single pole breaker inclusive of a breaker kiosk foundation indicated on D-EC-1541-11-05.
- Install busbar isolators complete with support, note that the isolator foundations are existing.
- Install isolator JB.
- The jumpers can be installed and connected as shown on D-EC-1541-11-08.

TRANSFORMER 2 AND 3 66/11KV BAY

Complete the refurbishment of this bay by;

- Replace 66kV CT's for the Trfr 2 bay, note Trfr 1 CT's have already been replaced.
- Install busbar isolators complete with support, note that the isolator foundations are existing.
- Install M1 Cap on the small equipment supports for the CT's. Note additional holes will need to be drilled for to fit the cap to the support and these holes are to be drilled by the steelwork supplier prior to galvanising.
- Install cable support brackets. Note the cable support bracket for the CT's are to be modified to fit the small equipment support.
- Install isolator JB.
- The jumpers can be installed and connected as shown on D-EC-1541-11-08.

66KV VOLTAGE TRANSFORMER

Complete the refurbishment of this bay by;

- Install cable support brackets.

Install jumpers for the 66kV VT's.

Install jumpers, the jumpers can be installed and connected as shown on D-EC-1541-11-08.

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66kV BUS COUPLER

Complete the installation of this bay by;

- Install busbar isolators complete with support, note that the isolator foundations are existing.
- Install item EW6-9 and EW6-10 detailed on 0.54/327 for EW9.
- The jumpers can be installed and connected as shown on D-EC-1541-11-08.

66kV BUSBAR & STRINGERS

Install busbar jumpers below beam to extend Busbar 1 & 2.

EARTHING

All steelwork is to be earthed to the foundation HD bolts inclusive of the columns. The Voltage Transformer and Current Transformers are to be earthed in accordance with the Project Specification and earthing Standard.

Install portable earthing balls on the equipment steelwork supports as illustrated on D-EC-5141-11-04 and final positions are to be confirmed by the Technical Services Officer for King Williams Town Technical Services Centre. The isolator mechanical boxes and handles are to be earthed in accordance with the manufacture's isolator specification.

The protection panels must be earthed using 2 x (25 x 3mm) flat copper earth tails per panel, bolted to the panel, and brazed to the flat copper in the trench.

Install shield wire from EW3 to EW9 to EW10.

STONING

Stockpile the existing stone yard before work commences and re-spread on completion.

Spread yard stone in the substation yard, where required, after the work has been completed as indicated on D-EC-1541-11-05 (Project Specifications).

TRENCHING

Replace the existing covers when work has been completed. Note an activity has been included in the BOQ to replace missing/damaged trench covers. There are covers on site which are smaller than 750mm, when replacing these smaller trench covers the existing covers are to be measured and the new covers are to match the existing covers. The smaller trench covers are to be manufactured in accordance with D-DT-5254-1 Rev.0.

DECOMMISSIONING

Decommission all HV equipment, steelwork and foundation as specified on the BOQ.

Decommissioned material e.g., supports and equipment is to be placed in a demarcated area on site. Eskom PPM will evaluate equipment and Eskom will arrange for the removal of equipment from site, the contractor is to allocate time for this the construction program. When decommissioning temporary fence and temporary woodpole cable supports, suitable material is to be used and costed for to backfill the holes to the required compaction (See project

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specification for compaction). The material is to be included in the decommissioned activity in the BOQ.

WEED KILLER

Spray weed killer in the substation on stoned areas where work has been carried out (Project Specification).

LABELS

Install equipment labels, busbar labels and phasing discs as indicated on D-EC-1541-11-01 and label schedule. The existing busbar label brackets are to be re-used in their existing positions.

EXISTING SUPPORTS

All newly erected supports on the previous contract are to be checked and torqued.

LV CONTROL CABLES

Install the control plant cables where required. Note: The cable block diagram will be issued once the contract is awarded.

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CONTROL BUILDING

- **DC mechanical timer and DC light fittings:**

Supply and install a JSGUS or equally approved 60-minute mechanical timer mounted on a 100x100mm box 1,2m above floor level. The timer is positioned inside the relay room, near the main door.

Install one tube, per light fitting, that will be connected to the DC side of the distribution panel via the mechanical timer. Install these DC tubes and electrical accessories on the two light fittings in the centre of the relay room.

- **Air condenser unit:**

Remove the existing wall mounted air condenser unit brackets and the associated electrical equipment. The existing air condenser unit brackets are positioned outside of the control building (near the store-room door).

Install a new air condenser unit for the Control building on the position indicated on 5.17/3855 Rev 1. The air condenser unit must be positioned 2500mm above the ground level. The air condenser is to be compatible with the existing air conditioning unit.

- **Floor finish**

Remove existing floor paint on the relay room, storeroom & toilet and make good.

Prepare the area and apply epoxy-based paint on the relay room, storeroom, and toilet floor. Prepared and apply paint to the manufacturer's specification. Paint colour to be light ship grey.

- **Checker plates and checker plates supports**

Supply new checker plates for the relay room extension. Checker plates should have red oxide primer, 1x universal undercoat and 2x finishing coats of approved Gloss enamel panel. Final coat colour to be light grey. Checker plates to have 2x 25mm diameter lifting holes on opposite ends.

Bolt the checker plate's supports (angle iron's) behind the control panel to provide support for the checker plates. Contractor to supply 2x M10 galvanised bolts, 2x nut and 2x flat washers per bracket.

- **Water tank tap**

Supply new water tank tap and secure to the existing water tank.

- **Water tank stainless steel straps**

Supply and install 19mm stainless steel strap to secure water tank to the existing water tank base. Existing hook bolts are in place to connect the stainless steels to the concrete base. See Picture 1 on Annexure A for water tank and water tank base.

- **Water pump**

Supply and install a water pump and bolt to the water tank base floor. The water pump must be a Jet Smart Composite 0.85kW pump. The water pump to have dry run protection with integrated

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automatic reset, spring loaded non-return valve and 32mm discharge port. The water pump should be complete with a PC15 pressure control unit. Use uPVC pipes to connect the water tank to the water pump.

- **Water supply pipe**
Supply and install a suitably sized uPVC water supply pipe and fittings from the water tank to the WC suite and toilet sink.
- **Toilet sink**
Supply and install water tap and plumbing accessories for the toilet sink as indicated on 5.17/3855 Sheet 1 Rev 1. See Picture 2 on Annexure A for existing toilet sink.
Supply COC on completion of building electrical works.
- **Security gate**
Supply and install security gates for the storeroom and toilet door. Single door security gates are to be manufactured and install as indicated on D-DT-5281 Sheet 4D. The padlock box is to be modified to be able to fit the Eskom padlock. Prior to manufacturing, the proposed modification should be provided to Eskom for approval.
- **Burglar bars**
Design a suitably sized burglar bar made from 16mm round bars. The burglar bars should be fitted on the outside of the toilet, over the 900 x 600mm aluminium window and windblok. Prior manufacturing, the final design should be provided to Eskom for approval.

A copy of the scope of works must be retained by the contractor.

3.2 The following high-risk activities have been identified:

The risks identified below are not exhaustive and the contractor must ensure that all risks are identified.

- Working within an existing substation and in proximity with live apparatus
- Manual Loading and offloading of poles/steel members for structures on site
- Excavations
- Working at Heights
- Stringing and tensioning
- Driving
- Stacking of Material
- Environmental management
- Drilling
- Compacting
- Tensioning

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- Crane operating
- Use of Hydraulic Machine
- Testing and Commissioning
- Weather conditions
- Use of ladders
- High Voltage Operating
- Working in Live Chambers
- Working with drills (petrol driven)
- Lifting using crane truck

3.3 Program details:

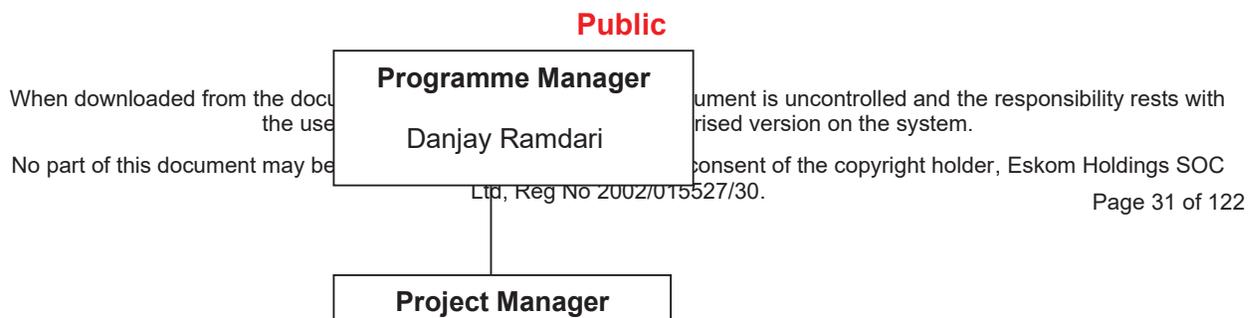
For Evaluation and Assessment of the Cycle: SHE plan at least 1 month prior to commencement of work.

3.3.1 Turn around for evaluation: **1 week**

3.3.2 Anticipated date for the commencement of work on site: **T.B.A**

3.3.3 Project completion date or project duration: **TBA**

3.4 The Project Organogram:



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Project Support Staff

Clerk of Works: Siviwe Mpongwana

SHE Officer: Pamela Maluleke

Environmental: Zandi Siyongwana

Primary Plant Eng: Marc Gallant &
Buchule Hlomendlini

Control Plant Eng: Theri Twenani &
Mboneleli Hloma

3.5 ACCOUNTABILITIES AND RESPONSIBILITIES:

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Client Representative: ESKOM PROJECT MANAGER: NAME: Siphamandla Ndabana

3.5.1 ESKOM CONTRACT PROJECT MANAGER NAME : TBA

DESIGNER: NAME: Marc Gallant and Buchule Hlomendlini

PROJECT ENGINEER: NAME: Marc Gallant and Buchule Hlomendlini

3.5.2 ESKOM PROJECT HEALTH AND SAFETY PRACTITIONER: NAME; Pamela Maluleke

3.5.3 ESKOM ENVIRONMENTAL OFFICER: NAME: Zandi Siyongwana

Note: The contractor who will be awarded this contract will be known as the “principal contractor” and any contractor appointed by the principal contractor will be known as the “appointed contractor.”

3.2 Legal Compliance

3.2.1(a) Section 37(2) (Legal) Agreement

A section 37(2) agreement must be signed between Eskom and the principal contractor (using the Eskom template-Annexure A) at the time of awarding the contract.

The principal contractor must ensure that a section 37(2) agreement is compiled between the principal contractor and all their appointed contractors for the contract.

The original copy of the section 37(2) Agreement must be retained by the contractor and a copy retained by the responsible project manager.

A copy of all the agreements must form part of the respective contractor’s SHE file.

3.2.1(b) Principal contractor Construction Regulation 5(1)(k) appointment

A CR 5(1)(k) appointment letter must be signed between Eskom and the principal contractor (using the Eskom template-Annexure B) at the time of awarding the contract.

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The principal contractor must ensure that a CR 5(1)(k) appointment letter is compiled between the principal contractor and all their appointed contractors for the contract.

The original copy of the appointment letter must be retained by the contractor and a copy retained by the responsible project manager.

A copy of all the appointment letters must form part of the respective contractor's SHE file.

3.2.2 Hazardous work by children (Child Labour)

The constitution of the Republic of South Africa, in the "Bill of Rights" is clear on the rights of children, especially when it comes to:

1. being protected from exploitative labour practices.
2. not to be required or permitted to perform work or provide services that
 - i. are inappropriate for a person of that child's age; or
 - ii. place at risk the child's well-being, education, physical or mental health or spiritual, moral, or social development.

and the Basic Conditions of Employment Act, Chapter six Section 43 "Prohibition of employment of children".

Before resorting to the use of child labour, due consideration must be given to the rights of the child in terms of the constitution. Where work is being performed which is not prohibited in terms of the constitution, then such work must be conducted in terms of the OHS Act "Regulations on Hazardous Work by Children in South Africa" with emphasis on paragraph 2 Purpose and Interpretation. Eskom does not condone the use of child labour and therefore all effort must be exercised, and child labour should not be used.

3.1.3 OHS Act

The principal contractor and appointed contractors shall have an up-to-date copy of the OHS Act and regulations which will be available to all employees.

3.2.4 Legislative compliance

All contractors will comply with all the legislation pertaining to this contract being:

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The principal contractor and all appointed contractors will comply with all the legislation pertaining to this project being:

- The Constitution of the Republic of South Africa (particularly Section 24 of the Bill of Rights).
- Occupational Health and Safety Act 1993 (Act 85 of 1993) and its Regulations.
- National Environmental Management Act 1998 (Act 107 of 1998).
- Environment Conservation Act 1989 (Act 73 of 1989).
- National Water Act 1998 (Act 36 of 1998).
- Civil and Building Work Act.
- National Road Traffic Act 93 of 1996.
- Compensation for Occupational Injuries and Diseases Act.
- SANS Standards –Contractor shall use the relative standards applicable to the project.

3.2 Eskom Requirements

All contractors shall, before commencement of the project ensure that all their employees are familiar with the relevant Eskom SHE documentation that is applicable to contract services.

3.3 Construction Professional Registration

The principal contractor and all his/her appointed contractors shall be registered in their respective levels as professionals in terms of the requirements of the SACPCMP.

The SACPCMP web address is <http://www.sacpcmp.org.za>

- SHE professionals (which include Construction Safety Officers) are required to register as professionals with the SACPCMP.
- Construction Managers are required to register as professionals with the SACPCMP.
- Construction agents are required to register as a professional with the SACPCMP.

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3.4 Notification of Construction Work

Unless otherwise contractually agreed upon, the principal contractor must notify the relevant provincial director of the Department of Labour of the intention of carrying out any construction work as defined in Construction Regulation 4 of the Act. The notification form of construction work is listed as an annexure to the construction regulations of the OHS Act. A copy of the notification letter sent to the DoL shall be forwarded to the Project Manager on the same day as sent to the DoL. A copy of the letter and their approval must be kept in the SHE file. When the DoL provide a letter of approval, a copy of the approval must be sent to the Eskom Project Manager and a copy filed in the SHE file.

3.5 SHE Policy

SHE policy is a statement of intent and a commitment by the organisation's CE and senior management in relation to the relevant SHE roles and responsibilities, the achievement of their strategic objectives, values of integrity, customer satisfaction, excellence, and innovation.

The principal contractor and all appointed contractors, if already not in place, will be required to compile an organisational SHE policy in line with their SHE responsibilities. The policy must be signed by the organisation's CE or the appointed assistant to the CE OHS Act Section 16(2). The policy must be displayed in a prominent place within the workplace. A copy of the policy must be filed in the contractor SHE files and attached as an annexure in the SHE Plan.

3.6 COID

The principal contractor and all his/her appointed contractors shall be registered with an appropriate employment compensation commissioner and have available a valid letter of good standing (LoG) from such commissioner. The obligation lies with the contractors to ensure that the LoG remain valid throughout the contract period. A copy of the LoG must be filed in the contractor SHE files.

3.7 Costing for SHE within the Project

The costing for SHE must be itemised based on the overall scope of the project (i.e.) Training, provision of PPE, safety equipment purchases etc.

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3.8 Statutory Appointments

For the duration of the contract, the principal contractor and all appointed contractors shall appoint competent employees who will meet the requirements of the OHS Act. Where appointments are made, contractors shall ensure that the appointees have been suitably trained and or informed of their responsibilities before getting them to accept such appointment. The relevant statutory appointments shall be made in accordance with the requirements of the OHS Act which includes the requirement of a competent person being appointed in the relevant roles. The statutory appointments should include but not limited to the following:

- OHS Act Construction Regulation 8(1) - Construction Manager (Full time) |
- OHS Act Construction Regulation 8(7) – Assistant Construction Supervisor
- OHS Act Construction Regulation 8(5) – Construction Health and Safety Officer
- OHS Act General Administrative Regulation 9(2) – Incident Investigator
- OHS Act Section 19 (3) - Health and Safety Committee Member
- OHS Act Section 19(6)(a) – Co-opted Health and Safety Committee member
- OHS Act Hazardous Chemical Substances Regulation 3(3) Hazardous Chemical Substances Co-coordinator
- OHS Act, Section 17 – Health and Safety Representative.
- OHS Act General Machinery Regulation 2(1) – Supervision of Machinery
- OHS Act Construction Regulation 7(1)(V) Appointment of a Contractor (if appointing subcontractors)
- OHS Act Construction Regulation 9(1) - Person to Compile Risk Assessments
- OHS Act Construction Regulation 10(1) - Competent Person to Compile Fall Protection Plan
- OHS Act: Pressure Equipment Regulations 11 & 12 Portable Gas Container Inspector
- OHS Act: Construction Regulations 11(1) Person to Supervise Excavation Work
- OHS Act: Construction Regulations 16(1) Scaffolding Supervisor

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- OHS Act: Construction Regulations 23(1)(d)(i) Construction Vehicle and Mobile Plant Operator
- OHS Act: Construction Regulations 24(c) Electrical Installations and Machinery on construction sites
- OHS Act: Construction Regulations 28(a) Stacking and Storage Supervisor on Construction sites
- OHS Act: Construction Regulations 29(h) Firefighting Equipment Inspector
- OHS Act General Safety Regulations 3(4) – First Aider/s

3.9.1 non-statutory appointments

- Eskom requirement – Emergency Planning Co-coordinator
- Eskom requirement - Chairperson of Health and Safety Committee

3.9 Eskom Life-saving Rules

1. Eskom views health and safety in high esteem and encourages that any organisation who performs work for Eskom in Eskom adopt the same view.
2. Five Life-saving rules have been developed that will apply to all Eskom Employees, agents, consultants, and **contractors**. Failure to adhere to these rules by any Eskom employee or employee of a Principal Contractor or appointed contractor will be considered a serious transgression. These rules are being implemented to prevent serious injury or death of any employee, labour broker or contractor working in any area within Eskom.
3. If any contractual work will be performed on any Eskom premises (including delivery of any product), then the rules **shall be obeyed** by any contractor and their employees.

The rules are:

RULE	DESCRIPTION OF RULE
Rule 1	OPEN, ISOLATE, TEST, EARTH, BOND, AND/OR INSULATE BEFORE TOUCH (That is plant, any plant operating above 1000 V)

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	HOOK UP AT HEIGHTS
Rule 2	Working at height is defined as any work performed above a stable work surface or where a person puts himself/herself in a position where he/she exposes himself/herself to a fall from or into.
	BUCKLE UP
Rule 3	No person may drive any vehicle on Eskom business and/or on Eskom premises: Unless the driver and all passengers are wearing seat belts.
	BE SOBER
Rule 4	No person is allowed to be under the influence of intoxicating liquor or drugs while on duty
	PERMIT TO WORK
Rule 5	Where an authorisation limitation exists, no person shall work without the required permit to work.

Eskom will take a stance of zero tolerance on these rules.

Non-compliance to a Life Saving rule will be considered serious misconduct and will lead to serious disciplinary action, which may include dismissal.

This is to ensure that **every person** who works on or visits an Eskom **returns home safely to his or her family.**

3.10 Substance Abuse

1. Alcohol and substance abuse poses a significant threat to any business, more so in industrial incidents and the driving of vehicles. Eskom is therefore, entitled to take reasonable steps to ensure that intoxicated persons are identified and prevented from entering Eskom.
2. General Safety Regulation 2A is clear on the legal stance regarding intoxication.
3. The alcohol and drug permissible level is 0%.
4. All contractors shall comply with Eskom's procedure 32-37 ("Substance Abuse Procedure"), taking into account that this is an Eskom Life-saving Rule number 4: BE

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SOBER”), this means anyone entering the Eskom will be subjected to ad hoc alcohol testing.

- Contractors are encouraged to compile their own manual and to carry out regular alcohol testing of their own employees. The legislative alcohol level is deemed to be zero.
- Test records must be treated as “Confidential” and filed in the employees’ personal file.

3.11 Contractor organisational Structure

3.12.1 Principal Contractor Organogram

The principal contractor must provide an organisational organogram related to this contract, depicting all the levels of responsibility from the CE down to the supervisors responsible for the contract. List the relevant positions held, names of appointees and legal appointments.

The principal contractor must ensure that all appointed contractors comply with this requirement. The principal contractor is responsible for keeping copies of all the organograms’ as well as submitting them with the SHE plan. All organograms shall be updated timeously when appointments are changed.

This diagram must be kept up to date and filed in the project SHE files.

3.12.2 Appointed Contractor/s Organogram

- Appointed contractors are required to compile their company organogram for the project, listing the reporting structure from their CE down to their project supervisors. The diagram must list the names, positions held and any appointments made.
- This diagram must be kept up to date, a copy of which must be given to the principal contractor and a copy filed in the relevant project SHE files.
- This diagram must be kept up to date and filed in the project SHE files.

3.12 Risk assessment (refer to 32-520)

It is a legal requirement in terms of Section 8 (2)(d) of the OHS Act for an employer to carry out risk assessments, to establish which risks and hazards are attached to the health and safety of persons due to any work which is performed, any article or substance which is, handled, stored, transported. A risk assessment is defined as an identification of the hazards present in an organisation and an estimate of the extent of the risks involved, taking into account whatever precautions are already being taken.

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It is essentially a three-stage process:

- identification of all hazards.
- evaluation of the risks.
- Measures to control the risks.

Risk assessments are required to be maintained. This means that significant changes to a process or activity, or any new process or activity should be subjected to a risk assessment and that if new hazards come to light during the work process, then these should also be subjected to risk assessments. Risk assessments for long term processes should be periodically reviewed and updated. Method statements or written safe work procedures are an effective method as information and record of the way jobs / tasks must be performed. Daily or issue based or task specific or on the job risk assessments must be conducted at the place where work is to be performed/ conducted to allow managers and employees to assess any inherent risks that could have been overlooked during the initial risk assessment or any changes that might have occurred in a period of absence. For example, if a job / task is extended over a day or halted due to inclement weather.

Guidelines for actual steps involved in a job/task specific risk assessment are:

- Each activity is listed.
- Specific hazards are identified and listed against each activity.
- The magnitude of each risk is rated as Low. Medium or High.
- All known documentary and supervisory controls are listed. For instance: What safe work procedures exist for ladders.
- The relevance, effectiveness and sufficiency of these controls are assessed.
- In the event of insufficient or deficient controls for the activity, steps to be taken to rectify this shall be recorded, and safe working procedures drawn up.
- Persons responsible for implementing and supervising the task shall be identified, nominated, and duly assigned.
- Persons responsible for monitoring the task and carrying out the planned job observation must be nominated.
- Completed risk assessment shall be handed to the Eskom project manager representative for comment and approval.

The relevant section of the risk assessment shall be issued with a Transmittal Note to the Supervisor nominated as the responsible person; and the names of workmen who have received instruction on the work content and the sequence of the activities listed in the risk assessment shall be recorded, and their competence established. This instruction shall be

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done through an interpreter if required and recorded on the Pre-Job Brief (Daily Safe Task Instructions), with reference to applicable Risk Assessments.

3.13 Safe work procedures / method statements

Method statements / written safe work procedure are control measures used to prevent an incident from occurring during the execution of the project. A written safe work procedure/ method statements provide guidance how to execute the task safely. A safe working procedure should be written when: -

- a. Designing a new job or task.
- b. Changing jobs or task.
- c. Introducing new equipment or substances; and

The safe working procedure should identify:

- d. The supervisor for the task or job and the employees who will undertake the task.
- e. The tasks that are to be undertaken that pose risks.
- f. The equipment and substances that are used in these tasks.
- g. The control measures that have been built into these tasks.
- h. Any training or qualification needed to undertake the task.
- i. The personal protective equipment to be worn.
- j. Actions to be undertaken to address safety issues that may arise while undertaking the task.

3.14 Roof work (refer to 32- 418)

Where roof work is to be performed, a risk assessment must be carried out prior to climbing on to the roof to determine the hazards (stability, suitability strength etc.), consequences of climbing and control measures that are required.

3.15 Construction Sites

Note1:No area is to be stripped of vegetation to create firebreaks, to prevent or make fires. No open fires are allowed on site. The contractor must ensure that operations are in compliance with statutory requirements at all times.

1. The contractor must develop a fire safety procedure for the construction site prior to commencing work. The procedure must take into consideration the size of the site/s,

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the type of work performed and amount of combustible materials. Cognisance of OHS Act CR 29 must be made.

2. It must be developed in accordance with the hot work permit of the Eskom Plant Safety Regulations, Eskom Fire Risk Management requirements and all other applicable Regulations. All workers entering and working in the construction site need to be trained in fire safety and any duties they are required to perform.
3. A suitable fire warning system for alerting site personnel of fire shall be provided, and capable of being heard in all areas of the site.
4. Appropriate portable extinguishers must be available on the construction site and in cases of hot work, be readily available at the location.
5. Storage of combustible and flammable liquid in the construction site is not permitted unless stored in approved flammable cabinets or outdoors away from the buildings.
6. Site Smoking Restrictions must be enforced. No open flames are permissible and where hot work is performed, the work areas must be cleared of any combustibles prior to commencement of work.

3.16 Fire Equipment and maintenance

1. All firefighting equipment's that have been provided shall:
 - a. Be clearly labelled
 - b. Conspicuously numbered
 - c. Entered in a register
 - d. Inspected monthly by a competent person
2. Tested and serviced at recommended intervals by an accredited supplier
3. Results entered in the register and signed by competent person.

3.17 Flammable and Combustible Liquids

1. Proposals to store fuel on site must have written approval from the Eskom Project Manager. The volumes of fuel allowed to be stored will depend on site conditions and Statutory Regulations.
2. A maximum storage of 40 litres of fuel is allowed to be stored. Anything greater than 40 litres to be stored in a flammable/combustible liquid store.
3. Adequate numbers of dry chemical fire extinguishers, each with a minimum capacity of 4.5 kg, shall be provided, installed, and maintained.
4. All fuel storage areas must comply with the following requirements: -

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- a. Storage should be well clear of buildings.
- b. Storage areas must be kept free from all combustible materials.
- c. All Safety signs must be prominently displayed i.e.
 - Flammable Liquid.
 - No Smoking.
 - No open flames.
- d. Adequate firefighting equipment must be available.
5. Diesel tanks are to be installed in a bunded area; bunded area must be able to contain 110% of tank capacity.
6. Bunded area shall be of a concrete or steel construction and lined with a leak proof sealing material.
7. Bunded area shall have a drain valve.
8. No other material/equipment shall be stored in the bunded area.

3.18.1 Refuelling at the construction site

With the exception of construction vehicles and mobile equipment, before a machine is refuelled, the motor must be stopped. Refuelling shall take place at designated safe areas and appropriate warning signs installed. Suitable drip trays must be used to prevent spillage at the filling nozzle.

3.18 First Aid and Equipment

1. The requirements of the OHS Act GSR 3 must be observed.
2. First aid appointments must be made to meet the requirements, this includes construction sites. Appointees must be trained to level 2. It is good practice for all employees to be trained to at least level 1.
3. When appointing employees for work sites, cognisance must be taken into account the type of work performed, the distance teams are working apart and the terrain to be covered if an emergency should arise.
4. A list of emergency numbers must be displayed on the notice boards and made accessible for all employees.
5. Principal Contractor must ensure that his /her employees and appointed contractor employees are familiar with the emergency numbers.
6. Contractors shall have one first aid box for the first 5 persons and thereafter one for every 50 or team of workers on site or part thereof, considering the type of work performed and the distance between teams.

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7. More first aid boxes shall be provided in accordance with the risk assessment. Boxes must be available and accessible for the immediate treatment of injured persons at the workplace.
8. For offices, signs indicating where the first aid box or boxes are kept as well as the name and contact details of the First Aider of such first aid box or boxes shall be erected.
9. The Principal Contractor and appointed contractor shall ensure that alternative arrangements be made for incidents occurring after working hours.

3.19.1 Boxes and equipment

The following is a list of minimum contents of a first aid box:

- Item 1: Wound cleaner/antiseptic (100ml).
- Item 2: Swabs for cleaning wounds.
- Item 3: Cotton wool for padding (100 g).
- Item 4: Sterile gauze (minimum quantity 10).
- Item 5: 1 Pair of forceps (for splinters).
- Item 6: 1 Pair of scissors (minimum size 100 mm).
- Item 7: 1 Set of safety pins.
- Item 8: 4 Triangular bandages.
- Item 9: 4 Roller bandages (75 mm X 5 m).
- Item 10: 4 Roller bandages (100 mm X 5 m).
- Item 11: 1 Roll of elastic adhesive (25 mm X 3 m).
- Item 12: 1 Non-allergenic adhesive strip (25 mm X 3 m).
- Item 13: 1 Packet of adhesive dressing strips (minimum quantity, 10 assorted sizes).
- Item 14: 4 First aid dressings (75 mm X 100 mm).
- Item 15: 4 First aid dressings (150 mm x 200 mm).
- Item 16: 2 Straight splints.
- Item 17: 2 Pairs large and 2 pairs medium disposable latex gloves.
- Item 18: 2 CPR mouth pieces or similar devices.

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A content check list must be available with all boxes and boxes shall be checked on a regular basis, kept clean and dust free.

3.19 SHE Communication Systems

Principal Contractor/s and their appointed contractors must develop a communication strategy outlining how they intend to communicate SHE issues to their staff, the mediums they will employ and how they will measure the effectiveness of their SHE communication. Below is a brief on how communication should take place. Where project meetings are conducted on site, SHE shall be included as a standing agenda point and minutes of these meetings shall be available on site at all times. Minutes of meeting must be compiled and filed in the relevant SHE files. All employees shall have access to these minutes. Attendance register shall be kept for all the health and safety meetings.

3.20.1 Statutory Health and Safety Committees

1. The principal contractor shall establish statutory health and safety committee in terms of Section 19 of the OHS Act, Act. Similarly, appointed contractors shall establish their own statutory health and safety committee.
2. All appointed contractors shall be members of the principal contractor's safety committee.
3. The Committee shall meet to discuss SHE issues concerning the current work being performed, training, upcoming work and SHE requirements, incidents and lessons learned specific SHE problems, safety performance, action plans and other relevant SHE issues. Listed below is a preferred agenda.
4. SHE representatives for a workplace shall be members of the relevant workplace safety committees (Refer to Section 19 (2) (a) of the OHS Act).
5. The number of persons nominated by employer must not be more than the Health and Safety Representatives on that specific statutory health and safety committee. (Refer to Section 19(2)(c) of the OHS Act)
6. A statutory health and safety committee meeting shall be held at least 3 monthly (where medium to high-risk work is involved, more frequent if required), and all appointed members of the committee shall attend the meeting.
7. Statutory health and safety committees may make recommendations to the principal contractor and the project manager and the Inspector at DoL.
8. All health and safety committees shall discuss all projects related OHS Act Section 24 and 25 incidents and other notified serious incidents.

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9. Health and safety committees shall follow up on incident investigation recommendations and shall keep record of all recommendations made by the committee.
10. Statutory health and safety committees may make recommendations for the revision of current standards, procedures, and practices.
11. The principal contractor and appointed contractors shall ensure that statutory and non-statutory health and safety committees carry out their duties.
12. The chairperson of the health and safety committees shall be selected and appointed by the contractor. The appointed chairperson must be competent to chair meetings and be able to make informed decisions.

3.20.2 non-statutory health and safety committees

1. Where there are large worksites, then non-statutory sub-committee must be established within that worksite to assist with the communication of health and safety related matters between the statutory health and safety committee and the workplace.
2. The duties and responsibilities of the non- statutory health and safety committees will be the same as the statutory safety committee

3.20.3 Agenda

1. The following serves as the guideline for the SHE Committee meeting agenda.
 - List of agenda items:
 - Matters arising from previous minutes
 - Matters arising from Contractor's SHE meetings.
 - Audit results and feedback
 - Review Health and Safety Representative Inspection Reports
 - Review
 - Incident investigation reports
 - Non-Conformances
 - Announcements (near miss/injury/damage)
 - Follow up on recommendations made by the employer in incident investigation reports
 - Accident Prevention – Safety Promotion

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- Planned Job Observations
 - SHE Training
 - Protective clothing and equipment
 - Incident Announcements / Recall
- Forthcoming High hazard activities.
 - Non-conformances.
 - Housekeeping.
 - Work permits.
 - Work procedures.
 - Hazardous materials / substances.
 - Fire Prevention
 - Occupational Hygiene Assessments, Health Risks and Actions
 - Security
 - Construction vehicles and mobile equipment
 - Rules, Instructions
 - Public Safety
 - Environmental Management
 - Emergency Preparedness
 - Statistics report
 - Closure

3.20.4 Minutes and action items for all health and safety committee meetings

1. Minutes and record of action items shall be kept of all health and safety committee meetings.
2. Action column with target dates and responsible person shall be clearly visible on the minutes and shall be completed during the meeting.
3. Statutory health and safety committee meeting minutes and record of action items shall be kept for the duration of the project or a minimum period of three years.

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4. Non-statutory health and safety committee meeting minutes shall be kept for the duration of the project or a minimum period of 12 months.
5. All other meeting minutes where SHE is on the agenda, shall be kept for a minimum period of 12 months.
6. The original copy of the minutes and record of the action items must be signed by the chairperson.
7. The relevant project manager and principal contractor shall endorse the relevant minutes with his/her recommendations and return the minutes to the relevant contractor's chairperson within 14 calendar days of the meeting.

3.20.5 Toolbox talks / Daily team talks / pre job meetings

1. A meeting must be held prior to the commencement of the day's work with all relevant personnel associated with the work task in attendance. The job, relevant procedures, associated hazards, safety measures, i.e., the task risk assessments shall be discussed. Each employee who attends the briefing shall sign an attendance list of that pre-job brief form undertaking that they understand the tasks, risks and control measures required.
2. Where possible, toolbox talks can be included in the pre-job brief meetings. If this does not occur, then weekly toolbox talks must be conducted. The toolbox talk topics will be based on SHE issues pertaining to the construction site and or the project. The topic contents shall be in writing. Attendance registers with the topic listed shall be kept.

3.20 SHE Training

1. The principal contractor, when making a bid for this project shall provide a breakdown list of the SHE training requirements and the costing of such requirements. Similarly, appointed contractor must provide the same requirements when bidding with the principal contractor.
2. The scope of training includes but is not limited to the type of work being performed and the relevant procedures. Additional to the requirements, will be that the principal contractor and appointed contractors must have the appropriate qualifications, certificates and employees should always be under competent supervision.
3. Where legislative and Eskom recommended appointments are made, the relevant training shall be given to those appointees prior to the acceptance of those appointments.
4. When there is an amendment to the Acts and/or to the regulations, SHE specification and SHE plan, all affected staff shall undergo the applicable refresher training.

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5. Appropriate time must be set aside for training (induction and other) of all employees.
6. Records of all training and qualifications of all contractor employees must be kept on the SHE file.

3.21.1 Induction training

1. The principal contractor shall ensure that all his / her employees, appointed contractors and their employees have undergone the Eskom Safety Contractor Management induction training prior to commencing work on site.
2. Attendance registers must be completed of any induction training given, which must indicate that they have received and understood the induction training.
3. Prior to attending the induction training, all employees must undergo a pre-employment medical examination and found fit for duty. A copy of the certificate of fitness must be kept in the SHE file on site for the duration of the project.
4. All employees and visitors on site shall carry the proof of induction training.

3.21.2 Site specific induction training

The principal contractor shall ensure that all his / her employees and appointed contractor employees undergo site specific work induction regarding the approved project SHE plan, general hazards prevalent on the construction site, construction risk assessment, rules and regulations, and other related aspects. The induction training should also include identification of sensitive features such as wetlands/vlei areas, red data species, graves, etc.

3.21.3 Visitors to site induction

1. Visitors to the site shall be required to undergo and comply with the principal contractor's site-specific safety induction prior to being allowed access to site.
2. All visitors must remain in the care and custody of a person (host) who has been properly inducted. No visitors are permitted to undertake any work onsite, of any nature.
3. Visitors who have completed site induction must be provided with a record of proof of Induction training.

3.21.4 General training

The principal contractor will be required to ensure that before an employee commences work on the project, the respective supervisor informs the employee of his scope of authority, the

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hazards associated with work as well as the control measures to be taken. This will include man-job specifications, the discussion of any task procedures or hazardous operational procedures to be performed by the employee. The Principal Contractor is to ensure that the supervisor has satisfied himself that the employee understands the hazards associated with any work to be performed by conducting task/job observations.

The Principal Contractor shall ensure that competent persons are appointed in writing in accordance with the following applicable appointments:

(Note: If there are any appointments that are not applicable, then a brief explanation as to why they are not applicable should be made, but should an appointment become applicable during the duration of the contract work, then these appointments are to be made available)

a. OHS Act, Section 16(2) – Assistant to Chief Executive Officer.

Training

- COID Act Training
- OHS Act Training

b. Construction Supervisor 8(1)

c. OHS Act, Section 17 – Health and Safety Representative.

Staffing

- At least One trained Health and Safety Representative for every site, one for every 20 or part thereof:
- To be elected and appointed per work area and discipline and comply with OHS Act Section 17 and 18 and GAR Section 6.

Competencies/Training

- General Health and Safety Training

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- Health and Safety Representative Training
- Hazard Identification and Risk Assessment Training
- Incident Investigation and Root Cause Analysis Training

Competencies for Short Term Contractors (working on site for less than 30 days)

Indicate which competent person will perform these duties:

- General Health and Safety monitoring
 - Health and Safety Representative duties
 - Hazard Identification and Risk Assessment duties
 - Incident Investigation and root cause analysis duties
- d. OHS Act, Section 19 – Health and Safety Committee Member (if there are 2 or more Health and Safety Representatives then there will be a Health and Safety committee)
- e. Chairperson of Health and Safety Committee
- f. OHS Act, GSR 3 – First Aiders

Staffing

One first aider trained to Level 2 per team (as per OHS Act or project risk profile of workers.)

Competencies/Training

In possession of a valid level 2 first aid certificates issued by any one of the following: The SA Red Cross Society; the St John's Ambulance; the SA First Aid League; or a person or organisation approved by the Chief Inspector for this purpose.

- g. OHS Act, GSR 5(1) – Person that pronounces and certifies a confined space safe for the duration of work being conducted (applicable for confined spaces).

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h. OHS Act, DMR 17(2) Goods Hoist Inspector

i. OHS Act, GAR 9 (2) Incident/Accident Investigator

Training

HIRA

j. OHS Act, DMR18 (11) Lifting Machinery Operator (Appointment or Permit)

k. OHS Act, DMR18 (5) Lifting Machinery Inspector

l. OHS Act, DMR 18 (10) (e) Lifting Tackle Inspector

m. OHS Act, EMR 9 Portable Electrical Equipment Inspector

n. OHS Act, HCS Regulations 3 (3) Hazardous Chemical Substances Co-coordinator

o. OHS Act, CR 5(1)(k) Appointment of the Principal Contractor by the Eskom Client/Agent (to be done when contract is awarded)

p. OHS Act, CR 7(1) (c) Sub-Contractor Appointment by the Principal Contractor (If appointing Sub-Contractors)

q. OHS Act, CR 8 (7) Construction Supervisor (appointed by the Contractor OHS Act Section 16(2) appointee)

Competencies/Training

- General and Health and Safety course
- Legal Liability course

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- OHS Act and Construction Regulations course (latest version of the Act and regulations)
- Incident Investigation and Root Cause Analysis Training
- Hazard Identification and Risk Assessment Training
- Job Observations Training
- Attended an accredited supervisor's safety course
- ORHVS
- Environmental Law

For existing contracted contractors: For appointees that do not meet the minimum competencies: full compliance to the above competencies would be expected within 6 months after the contract is placed. A weekly status report on meeting 100% compliance shall be submitted to the SHE Manager/Practitioner for tracking.

For new contracts: To meet all requirements prior to commencement of work.

- r. OHS Act, CR 8(8) – Assistant Construction Supervisor (appointed by the Contractor OHS Act Section 16(2) appointee).

Competencies/Training

- General and Health and Safety course
- OHS Act and Regulations course (latest version of the Act and regulations)
- Incident Investigation and Root Cause Analysis
- Hazard Identification and Risk Assessment Training
- Job Observations training
- Attended an accredited supervisor's safety course ORHVS
- ORHVS
- Environmental Law

For those contractors that do not meet the minimum competencies: full compliance to the above competencies would be expected within 6 months after the contract is placed. A weekly status report on meeting 100% compliance shall be submitted to the SHE Manager/Practitioner for tracking.

- s. OHS Act, CR 8(6) - Construction Health and Safety Practitioner

Staffing

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In determining the number of appointed competent Health and Safety practitioners to the number of employees, the nature and scope of work being performed shall be taken into consideration.

Competencies/Training

- National Diploma in Safety Management or Environmental Health
- A recognised safety certification (minimum: of 2 weeks training) (e.g., SAMTRAC / Modern SHEQ Management course)
- Registration and accreditation from a recognised Health and safety professional body (SACPMP is a must)
- OHS Act and Regulations (latest version of the Act and regulations)
- COID Act (latest version of the Act)
- Incident Investigation and Root Cause Analysis
- Hazard Identification and Risk Assessment Training
- Health, Safety and Environmental Auditing
- Environmental recognised course
- Emergency Preparedness co-ordination training

The Contractor is to appoint a suitably qualified experienced person to co-ordinate the organisations safety effort on the site.

For those contractors that do not meet the minimum competencies: full compliance to the above competencies would be expected within 6 months after the contract is placed. A weekly status report on meeting 100% compliance shall be submitted to the SHE Manager/Practitioner for tracking.

- t. OHS Act, CR 9 (1) Person to Compile Risk Assessments
 - HIRA
- u. OHS Act, CR 10 (1) (a) Competent person to Compile Fall Protection Plan

Training

- Fall Arrest System training
- HIRA
- Fall Rescue training
- Fall Protection Developer Course

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- v. OHS Act, CR 12(2) Temporally Works
- w. OHS Act, CR 13(1)(a) Person to supervise Excavation Work
- x. OHS Act, CR 14 (1) Demolition Work Supervisor
- y. OHS Act, ER 12(1) Responsible Person in the Use of Explosives and development of the method statements
- z. OHS Act, CR 16 (1) Scaffolding Supervisor
- aa. OHS Act, CR 19(8)(a) Material Hoist Inspector
- bb. OHS Act, CR 20(1) Bulk Mixing Plant Supervisor
- cc. OHS Act, CR 21 (2) (b) Explosive Powered Tool Inspector
- dd. OHS Act, CR 21 (2)(g) (i) Person responsible for issuing and collection of Explosive Powered Tools cartridges and nails or studs
- ee. OHS Act, CR 23(1) (d)(i) Construction Vehicle and Mobile Plant Inspector
- ff. OHS Act, CR 24 (e) Temporary Electrical Installation Controller
- gg. OHS Act, CR 28 (a) Stacking and Storage Supervisor
- hh. OHS Act, CR 29 (h) Fire Fighting Equipment Inspector
- ii. Eskom requirement Emergency Planning Co-ordinator
- jj. Eskom requirement Fire Official

Training

Basic firefighting training

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3.22 Contractor Site Establishment

1. Principal contractor's site facilities should be managed at all times.
2. Prior to establishing a project site, a site plan is required to be drawn listing position of all buildings, amenities, storage and stacking areas. The appropriate colour coding and demarcation of storage and stacking areas must be carried out.
3. Where, working in the field and material is stored at the work sites, then proper stacking and storage shall be carried out.
4. When compiling the site plan, cognisance must be taken to the establishment of the site camp, ablution facilities and dining area in relation to one another and away from stacking and storage areas.

3.22.1 Site roads

1. When planning, sufficient areas must be allocated for parking of construction vehicles and mobile equipment's as well as roadways for ease of manoeuvrability of these vehicles.
2. Sufficient width roads to be provided and adequate space is to be allowed for large vehicles traversing the sites.

3.22.2 Construction vehicle safety

1. It is the responsibility of the driver to ensure:
 - a. Their passengers wear seat belts whilst the vehicle is in motion.
 - b. Comply with all traffic road rules, safety, direction, and speed signs.
 - c. Ensure that vehicle loads are properly secured prior to moving off.
 - d. Ensure that vehicles are not overloaded.
2. No drivers or operators may text, talk on cell phones or two-way radios whilst driving, unless a hands-free kit is used.
3. All drivers of construction vehicles are to have valid medical fitness certificates.
4. Each Project site that is enclosed by demarcation will have system/ process to manage vehicle access to site.
5. Contractor must maintain their vehicles in a roadworthy condition and a vehicle license must be valid at all times.

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6. Drivers of light vehicles must avoid stopping or parking in the vicinity of machines. At least 30 (thirty) meters must be left clear between such a vehicle and such a machine
7. Contractor vehicles can be subject to inspections by the Client/Agent's representative. Vehicles which are not roadworthy will not be permitted to be used on the project.
8. Drivers/operators shall be responsible for the travel-worthiness of all loads conveyed by them. Precautions shall be taken to secure all loads properly. Loads projecting from vehicles shall be securely loaded and in daytime a red flag and during darkness a red light or red reflective material shall be attached to the extreme end of such projecting material.

3.23 Housekeeping and Order

1. All contractors shall maintain a high standard of housekeeping within their sites and vehicles for the duration of the project.
2. Prompt disposal of waste materials, scrap and rubbish is essential.
3. Materials/objects shall not be left unsecured in elevated areas –falling objects may cause serious injuries/fatalities.
4. Nails protruding through timber shall be bent over or removed so as not to cause injury.
5. All packaging material including boxes, pallets, crates, etc. to be removed from the work area immediately.
6. On completion of his / her work, the contractor is responsible for clearing his / her work area of all materials, scrap, temporary buildings and building bases to the satisfaction of the client/agent.
7. In cases where an inadequate standard of housekeeping has developed, compromising safety and cleanliness, anyone has the responsibility to bring it to the attention of the principal contractor in the first instance and the Eskom project/site manager in the second instance.
8. The Eskom Project/Site Manager has the right to instruct the principal contractor and appointed contractors to cease work until the area has been tidied up and made safe. Neither additional costs nor extension of time to the contract shall be allowed as a result of such a stoppage. Failure to comply with this requirement will result into site cleaning by another cleaning contractor company at the cost of the principal contractor.
9. The principal contractor shall carry out regular safety/housekeeping inspections (at least weekly) to ensure maintenance of satisfactory standards. The principal contractor shall document the results of each inspection and shall maintain records for viewing.

3.23.1 Stacking

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1. Before stacking any material, the contractors or their employees must consult the contract manager for authorisation to use such an area for stacking purposes. This is to prevent haphazard arrangements.
2. Adequate care must be taken by the contractor to ensure that storage and stacking is carried out correctly and safely.
3. Correct shelving stacking must be carried out, heavy and bulky on the bottom, light and small on top.

3.21 Workplace Signage and Colour Coding

1. Symbolic safety signage shall be displayed where it is required by legislation.
2. All symbolic safety signage shall conform to the requirements of SANS standard 1186.
3. Signs shall be positioned to be seen from most positions within the work sites / areas.
4. All signage must be clear at all times and be replaced timeously when worn out.
5. Contractors establishing sites must erect a company sign at their site offices to reflect the name and contact details of the: Construction Supervisor; Health and Safety Manager/Practitioner; First Aider; Health and Safety Representative and Evacuation warden.
6. The location of every first aid box; fire extinguisher and emergency exit are to be clearly indicated by means of a sign.
7. Contractors shall provide signage where work is conducted and where unauthorised entry is prohibited and/or where alerting and cautioning passers-by to be aware of potential dangers.
8. The meanings of the appropriate symbolic signage must be discussed during induction training and toolbox talks.
9. Where possible, within workshops, work areas and established premises, the appropriate sign indicating the meaning of symbolic safety signs must be displayed.

3.22 Tools and Equipment

1. Contractors shall ensure that all tools and equipment are identified, safe to be used and is maintained in a good condition.
2. Contractors shall ensure that all tools and equipment are listed on an inventory list, be regularly inspected at least monthly or as required by legislation and risk assessments.

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The equipment should be numbered or tagged so that it can be properly monitored and inspected.

3. Where applicable, tools and equipment must have the necessary approved test or calibration documentation prior to being brought onto the project and the records shall form part of the SHE plan. Maintenance calibration shall be undertaken in terms of the manufacturer's requirements.
4. All fuel driven equipment must be properly maintained in accordance with the manufacturer's recommendations and legal requirements.
5. Eskom reserves the right to inspect tools or items of equipment brought to site by contractors for use on this project.
6. Should Eskom personnel find any item that is inadequate, faulty, unsafe or in any other way unsuitable for the safe and satisfactory execution of the work for which it is intended, the Eskom personnel shall advise the contractor in writing and the contractor shall forthwith remove the item from site and replace it with a safe and adequate substitute.

Note: In such cases, the contractor shall not be entitled to extra payments or extensions of time in respect of delay caused by Eskom's instructions.

7. Where defective tools and equipment's are identified, such tools and equipment shall be removed out of site immediately, locked away to prevent further use until such time as the tool or piece of equipment has been repaired.
8. Contractors shall ensure that the appropriate records are kept for all tools and equipment used on the project. Such tools and equipment's shall be subjected to regular inspections.

3.25.1 Hand tools

1. All hand tools (hammers, chisels, spanners, etc.) must be recorded on a register and inspected by the construction supervisor on a monthly basis as well as by users prior to use.
2. Tools with sharp points in toolboxes must be protected with a cover.
3. All files and similar tools must be fitted with handles.
4. No makeshift tools are permissible on the project.

3.23 Ladders

1. Ladders used shall conform to the requirements of GSR 13A and used in terms of GSR 6.

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2. The appropriate head protection, with chin strap shall be worn by employees working from a ladder or with climbing irons.
3. The ladder wheels, brakes and platform must be in good condition.
4. All metal parts to be in good condition, no cracks.
5. Non-slip devices must be in good condition and no paint to be on wooden ladders
6. Climbing irons are permitted to be used in place of ladders on condition that the requirements of GSR 6 are not compromised and from an electrical point of view not damage any cabling. The working at heights risk assessment must indicate the use of climbing irons.
7. Employees using climbing irons shall be suitably trained in the use, care, and maintenance of such climbing irons.
8. When using climbing irons, the appropriate rope grab fall prevention system shall be used.
9. The correct fall protection equipment shall be worn and used whilst climbing up, working from, and climbing down ladders.
10. The appropriate head protection, with chin strap shall be worn by employees working from a ladder or with climbing irons.
11. A detailed inspection of all ladders shall be conducted monthly by a competent person and every time prior to climbing by employees using such ladders. The inspection check lists must be filed in the site SHE files.

3.24 Scaffolding

1. Scaffolding use shall conform to the requirements of CR 14, Eskom procedure 32-418 and used in terms of GSR 6.
2. The requirements for using a scaffold platform shall be determined by the work at heights risk assessment.
3. All scaffolding that will be used shall conform to the SANS standard 10085 and the requirements of CR 16 shall be carried out.
4. Scaffolding shall be erected and inspected by the competent personnel.
5. The appropriate training for scaffold users shall be conducted prior to climbing on to the scaffold.
6. The correct fall protection equipment shall be worn and used whilst climbing up, working from, and climbing down the scaffolds.

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7. A detailed inspection of all scaffolding shall be conducted monthly by a competent person and every time prior to climbing by employees using such scaffolding. The inspection check lists must be filed in the site SHE files.

3.25 Auditing

3.28.1 Approval and compliance of principal contractor SHE plan

The Contractor's SHE Plan will be audited against compliance checklist to verify compliance to the requirements of the Eskom SHE specifications. Once there is compliance only then will the principal contractors, SHE plan be approved by the project manager or an appointed Eskom contract custodian. The implementation of the SHE Plan shall be assessed / audited by Eskom personnel on a regular basis. This will include physical conditions evaluation.

3.28.2 Eskom SHE audits

Eskom shall evaluate all contractors' SHE performance on an ongoing basis against the legal, Eskom requirements, SHE specification and the contractors SHE plans.

Note: Eskom reserves the right to conduct unannounced audits on contractors

There will be monthly audits conducted by Eskom on the principal contractor/s and/or appointed contractors. These audits shall be attended by the contractor's site manager or his representative.

If there are any findings / non-compliance identified as serious in these audits, an activity will be stopped for that specific Principal Contractor and appointed contractor. Refer to section on "Work Stoppage" in this SHE Specification.

3.28.1 Contractor audits

Principal Contractors are required to conduct internal audits on both their employees and their appointed contractors on the implementation of their SHE Plan on a monthly basis or when the scope of work changes. A summary of the findings and the proposed corrective actions shall be submitted to Eskom project manager within one week after completion of the audit. Where appointed contractors are audited by the principal contractor a copy of the audit report shall be submitted to the appointed contractor within 7 days of the audit.

3.26 Smoking

The national smoking policy must be observed, and smoking is permitted in designated areas only (Eskom Smoking Procedure 32-36).

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3.27 Cellular Phones

The national requirements regarding the use of cellular phones must be observed, when driving and or operating mobile equipment and or machinery.

3.28 Occupational Health, Hygiene and Rehabilitation

All contractors are required to develop an Occupational Health, Hygiene and Rehabilitation program. The program is intended to ensure that the risks to health are identified and controlled.

3.31.1 Medicals

Note: Eskom will only accept medical surveillances conducted by an Occupational Health Practitioner who holds a qualification in occupational health.

1. Principal contractors must ensure that their employees and their appointed contractor employees have a medical surveillance program whereby their employees undergo entry, periodic and exit medical fitness examinations.
2. In order for the appropriate medical examinations to be conducted, each employee must have a man job specification, which must indicate the description of work, list of hazards and potential occupational exposure limits, physical hazards and required physical attributes.
3. Medical fitness certificates shall be renewed annually for employees who are working on site. This shall be maintained until completion of the contract.
4. The Principal Contractor must ensure that his / her employees and appointed contractor employees have undergone pre-entry medical examination before starting work on the contract.
5. The principal contractor shall provide a documented process for managing those employees who are issued with a conditional certificate of fitness.

3.29 Working at Heights

3.32.1 General Requirements

Wherever reasonably practicable, preference is given to the performance of work at ground level as opposed to the elevated position. Where work in an elevated position is necessary, preference is given to fall prevention measures such as, but not limited to, effective barricading

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and the use of work platforms. Persons may only work from a fall risk position if a site-specific fall protection plan is in place and correctly implemented and consists of the following:

1. All appointments for the fall protection plan developer and implementer are in place.
2. Baseline risk assessment, which is specific and incorporates the working at height risk assessment, as well as the site-specific risk assessment, has been completed for the work to be conducted.
3. Safe working procedure/task analysis and work instructions, approved by a competent person, are in place.
4. A fall rescue plan, along with necessary equipment and trained rescuers, is in place.
5. Appropriate training, as determined by the risk assessment, has been provided.
6. Appropriate height safety equipment and personal protective equipment have been issued to the individual.
7. There are equipment inspection procedures and up-to-date inspection records.
8. Individuals are medically fit to work at height, and records of this are kept.
9. A site-specific risk assessment is performed.

While work is in progress, adequate warning signs and/or barricades shall be used in all areas where there is a risk of persons being injured by materials or equipment falling from the work area. Barricades should be continuous and easily visible.

A drop zone shall be established with appropriate warning signs and barricading, warning personnel below of workers above and potential falling objects.

Every employer shall ensure that work at height is:

1. properly planned.
2. appropriately supervised; and
3. carried out in a manner that is, as far as is reasonably practicable, safe and that its planning includes the selection of work equipment.

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3.30 Risk Assessments

It is a legal requirement in terms of Section 8 (2)(d) of the OHS Act for an employer to carry out risk assessments, to establish which risks and hazards are attached to the health and safety of persons due to any work which is performed, any article or substance which is, handled, stored, transported. A risk assessment is defined as an identification of the hazards present in an organisation and an estimate of the extent of the risks involved, taking into account whatever precautions are already being taken. It is essentially a three-stage process:

- identification of all hazards.
- evaluation of the risks.
- Measures to control the risks.

Risk assessments are required to be maintained. This means that significant changes to a process or activity, or any new process or activity should be subjected to a risk assessment and that if new hazards come to light during the work process, then these should also be subjected to risk assessments. Risk assessments for long term processes should be periodically reviewed and updated. Method statements or written safe work procedures are an effective method as information and record of the way jobs / tasks must be performed. Daily or issue based or task specific or on the job risk assessments must be conducted at the place where work is to be performed/ conducted to allow managers and employees to assess any inherent risks that could have been overlooked during the initial risk assessment or any changes that might have occurred in a period of absence. For example, if a job / task is extended over a day or halted due to inclement weather.

3.31 Safe Work Procedures and Practices / Safe Operating

There must be written safe work procedures for all activities, the safe work procedures must be aligned with the risk assessments.

3.32 Personal Protective Equipment Requirements

1. The principal contractor must provide a detailed programme that includes the issuing, maintenance, and replacement of PPE for all his employees and appointed contractors on site.
2. All contractors shall comply with the requirements of GSR 2 of the OHS Act.
3. The risk-based PPE matrix must be compiled detailing the types of PPE that is required to be issued to employees performing the respective tasks.

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4. Where there are unusual instances where particular activities require additional type of PPE, then a risk assessment must be conducted where such PPE requirements will be identified, and the issuing be carried out.
5. All contractors shall ensure that their visitors wear and use the correct PPE whilst on worksites.
6. Where PPE is required and visitors are not in possession of, then it is the individual contractor's responsibility to provide the PPE.
7. All PPE purchased and used by all contractor employees including visitors must comply with the relevant SANS standards.
8. Where deemed as a requirement, then high visibility vests shall be worn.

3.33 Incident Investigation

All incidents shall be investigated in terms of OHS Act General Administrative Regulations 8 and 9, using Eskom Procedure 32-95 as a reference, and where injuries as contemplated in sections 24 and 25 have been sustained, be reported to the Department of Labour.

Contractors shall use the standard General Administrative Regulation Annexure 1 "Recording of an Incident" form for all incident investigation reports. The objective of incident investigation should not only be a legal requirement but should establish why and how the incident occurred and find out the real root cause of the incident and to decide on precautionary measures that are required to address the root cause to prevent any further recurrences of the same or similar incidents.

3.34 Emergency Management

The art of emergency preparedness and response is to minimise the effects of any emergency and to restore normal activities as soon as practical. The contractor must familiarise themselves with the Eskom emergency response plan and procedure. Periodic emergency drills must be undertaken to test the effectiveness of the plan. This must be recorded and provided on request.

3.35 Non-Conformance and Compliance

1. Any non-compliance to any health and safety requirement in this SHE specification is subject to discipline in terms of the Eskom Procurement and Supply Management Procedure.

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2. Principal contractors are required to implement a non-conformance procedure (if not already in place) for issuing to contractors for transgressions. The procedure can include “quality” related non-conformance issues. Similarly, appointed contractors must implement a non-conformance procedure.
3. The procedure for the issuing and closing off of non-conformance reports shall be strictly adhered to.
4. Contractor project management must monitor the close out non-conformances issued, in not doing so; any recommendations made may not be implemented.
5. Where non-conformances are issued by Eskom then one of the close-out steps of the procedure will be for the offender to be called by the responsible project manager to explain the non-conformance issued and what plan is in place to prevent a recurrence of the non-conformance.
6. Should the contractor fail to provide adequate PPE to their employees for the tasks being performed and/or to visitors; failure to enforce the wearing of such PPE will be viewed as a transgression of the legislative and Eskom requirements.

3.36 SHE File

1. A SHE file means a file or other record in permanent form, containing the information about the safety and health management system during construction and all information relating to the post-construction phase after handover to the client, so that the client can maintain the works in a healthy and safe way.
2. All contractors are required to keep a SHE file on every project site. If there is more than one site per project, a file per site shall be kept at that site. Contractors may keep additional files at their head office as additional records. The SHE file shall be maintained by all the contractors on their construction sites and shall be available on request for audit and inspection purposes.
3. The SHE file shall consist of the requirements in terms of the project’s safety specification, the contractor’s safety, and health plans.
4. The sequence of filing the documentation must be kept in the same sequence as listed in this SHE specification and the SHE plan.
5. Each record shall be separated by partitions to afford easy identification and access. Each partition must be labelled.
6. On completion of the construction work/project, the principal contractor must hand over a consolidated health and safety file to the project manager. The principal contractor must also hand over all drawings, designs, lists of materials used, and other applicable information about the completed structure, as well as the list of subcontractors, the agreement, and the type of work completed.

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7. In case where the project is extended, should the documentation in the SHE files become cumbersome, the older documentation must be archived in boxes which shall be correctly labelled and be available for auditing purposes. The archived documentation must be handed over at the completion of the project.

3.37 Work Stoppage

1. Any person may stop any activity where an unsafe act or unsafe condition that poses or may pose an imminent threat to the safety and health of an individual or create a risk of degradation of the environment. This includes any unauthorised work or service performed by, or legally or contractually non-compliant acts or omissions by, any contractor contracted to work at that site.
2. Work stoppages that are initiated due to SHE concerns, non-compliance, or poor performance related to the contractor's works or services shall not warrant any financial compensation claim lodged against Eskom where the contractor has not met the requirements defined legally or contractually.
3. Where stoppages are carried out, the required non-conformance report shall be raised.
4. All work stoppages ideally should be investigated and documented by contract custodians.

3.38 Hours of Work

The requirements of the Basic Conditions of Employment Act, Chapter Two "Regulation of Working Time" must be adhered to. All contractors are required to maintain an accurate record of time worked by each employee.

3.41.1 Normal work

All work conducted on site shall fall within the legal requirements in accordance with the Basic Conditions of Employment Act. Contractors will notify their Eskom Supervisor or project manager of any work that needs to be performed after hours according to the agreed arrangements. (The application needs to be submitted timeously). Where applicable, the notification should include proof of application, for overtime, to the Department of Labour and /or the letter of approval from the Department of Labour.

3.41.2 Night work

When night work is to be performed; contractors shall provide sufficient lighting to enable the entire work site to be illuminated to a degree that employees will not work in dark (un-illuminated) or dimly lit areas. Care must be exercised as not to use few lights with high light intensives as this will cause night blindness.

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If work is continuing from day light into night, at dusk, a toolbox talk must be held where all employees will be advised of the hazards of night work and the extra precautions which require to be taken, i.e. poor housekeeping, stepping on uneven ground, stepping into holes etc.

3.41.3 Overtime

When overtime is required to be performed, the appointed contractors shall inform the principal contractor of such action. The principal contractor shall inform the Eskom project manager of such function. Contractors shall be aware of the effects of human fatigue and regulate overtime accordingly. The baseline risk assessment must be reviewed to include the management of overtime work.

3.39 Omissions from Safety and Health Requirements Specification

By drawing up this SHE specification Eskom has endeavoured to address the most critical aspects relating to SHE issues in order to assist the contractor to adequately provide for the health and safety of employees on site.

Should Eskom not have addressed all SHEQ aspects pertaining to the work that is tendered for, the contractor needs to include it in the SHE plan and inform Eskom of such issues when signing the contract.

3.40 Contract Sign-Off

On completion of the project, all appointed contractors shall close out their project documentation; SHE files and forward such to the principal contractor. The principal contractor shall likewise close out his/her project documentation and SHE files and forward such to the Eskom project manager.

4 Acceptance

Nil.

5 Revisions

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Date	Rev.	Compiler	Remarks
August 2015	0	F Poee	This provides the initial SHE specification requirements that must be met by the relevant contractors who have been awarded a contract for the work to be performed for Eskom.
	1		

1. SUPPORTING DOCUMENTS

Annexure 1: SHE Plan Evaluation Checklist

Annexure 2: SHE File Approval Checklist

Annexure 3: Training Matrix

Contractor				
Contact person				
Contact Details				
Brief Description of work/ Activity				
No.	Things to be included in the SHE Plan	Yes	No	Comments
1.	Scope			
2.	Letter of Good Standing (COID)			
3.	Notification of Work			
4.	Company Organogram			
5.	Is the acknowledgement form for Eskom's rules and requirements signed and submitted by the tenderer?			

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6.	Signed 37(2) document			
7.	Fall Protection Plan			
8.	Emergency Plan (include first aid)			
9.	Fire Safety			
10.	Implementation and monitoring Life Saving Rules			
11.	Waste Management Plan			
12.	Management of Hazardous Chemical Substances			
13.	Asbestos Management			
14.	Management of Explosive work			
15.	Public Safety Management			
16.	Medical Surveillance			
17.	Appointments			
18.	SHE Training (Details of the SHE Training Matrix)			
19.	SACPMP Registration			
20.	Detailed Costing for SHE			
21.	SHE Reps and Committees			
22.	Health and Safety Communication (Signage, Symbols)			
23.	Process in place to address Health and Safety Violations			
24.	SHE Statistics			
25.	HIRA (To include Health Risk Assessment)			
26.	Safe Work Procedures			
27.	Excavation (dig, plant, and backfill)			
28.	Confined Space			

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29.	Barricading for Substation Work			
30.	Tools and Equipment			
31.	PPE			
32.	Permit to Work			
33.	Hours of Works to avoid fatigue			
34.	Monitoring and Evaluation			
35.	Reporting, Recording and Investigation of Accidents and Incidents			
36.	How is corrective and preventative action management, from incidents, lessons learnt, etc addressed			
37.	Housekeeping			
38.	Facilities			
39.	Vessels under pressure			
40.	Occupational Hygiene			
41.	Explosive Power Tools			
42.	Demolition Work			
43.	Documentation			
44.	Right to Refuse			
45.	Sub-Contracting			
46.	Transportation of Workers			

NB: This checklist is for Pre-Tender SHE plan evaluation only

SHE Officer: _____ **Signature:** _____ **Date:** _____

Comments: _____

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Contractor	
Contact Person	
Contact Details	
Project Duration	
Brief Description of work / activity	
Project Co-ordinator	

No:	Criteria	Yes	No	N/A	Comments
1	Letter of good standing				
2	Notification of construction work forms (Notification to Department of Labour) Proof of acceptance by DOL				
3	Site based company organogram				
4	SHE Plan				
5	Valid Medical Certificates - Including Person Job Specs (Employee Risk Profiles) - Inclusive of Accreditation details of Occupational Health Practitioner				
6	Section 37.2 Agreement (Signed)				
7	Signed Legal Appointments and Training Records				
7.1	16.2 appointee (Assistant to Chief Executive Officer)				
7.2	8 (7) Construction site supervisor - Environmental Law - Copies of valid ORHVS certificates - Planned Task Observation - Hazard Identification and Risk Assessment Training - OHS Act and Regulations course (latest version of the Act and regulations)				
7.3	8 (8) Assistant contraction site supervisor - Environmental Law - Copies of valid ORHVS certificates - Planned Task Observation - Hazard Identification and Risk Assessment Training - OHS Act and Regulations course (latest version of the Act and regulations)				
7.4	Section 17 Health and Safety Rep - Health and Safety Representative Training.				

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	- Hazard Identification and Risk Assessment Training				
7.5	GSR 3 first Aider - Eskom Requires at least Level 2 competency				
7.6	GAR 9 Incident/Accident Investigator - Incident Investigation Root Cause Analysis Training				
7.7	Fall Protection Plan Developer CR10(1)(a) - Fall Protection Planner Certificate (SETA Accredited, Assessor No. & Unit Standard No				
7.8	Risk Assessor CR 9(1) - HIRA				
7.9	Excavation work Supervisor CR13(1)				
7.10	CR 28 Staking and Storage supervisor				
7.11	OHS Act, HCS Regulations 3 (3) Hazardous Chemical Substances Co-coordinator - HCS Training certificate				
7.12	Eskom requirement Fire Official - Basic Firefighting Certificate				
No:	Criteria	Yes	No	N/A	Comments
7.13	Construction & Mobile Plant operator 23(1) - Training Certificates for Crane operators - HIRA - Valid Medical Certificates including Person Job Specs (Employee Risk Profiles)				
7.14	Section 19 Chairman and Members of the Health and Safety Committee (if there are 2 or more Health and Safety Representatives then there will be a Health and Safety committee)				
8	Incident reporting and Investigation				
9	Monthly Health and Safety agenda				
10	Site Induction Manual				
11	Vehicles and Traffic Rules/ policy				
12	Smoking Policy				
13	Self -Audit Programme (Not Eskom RAS template)				
14	Baseline risk assessment				
15	SWP relevant to the Risk Assessment				
16	Inspection Registers/checklist: Monthly Health and safety rep, Safety Harness/Lifting equipment/Ladders/				

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	Climbing irons, Portable Electric Equipment/Hand Tools/Fire Fighting Equipment/First Aid Box, PPE.				
17	Proof of Environmental Training (Environmental Authorisation and Environmental Management Plan) 90 Minutes Workshop				

NB!! All non –Eskom Safety certificates should have at least the following information on for it to be accepted:

SETA number, Unit Standard number, Assessors number & Date of issue.

All appointment letters to be signed by appointers and appointees

Comments :

Accepted	Not Accepted	SHE Officer Name and Signature	Date
Collected By (Name and Signature)		Contact Details	Date
Approved By Eskom Project Manager (Name and Signature)		Contact Details	Date

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	Environmental Law	Construction Regs.	OHS ACT	First Aid	COID ACT	ORHVS	Safety Induction	Fire Fighting	High Angle Rescue Course	HIRA	Vehicle Mobile Equipment Operator	Basic H&S Training	H & s Rep Training	FAS	Incident Investigation/	Excavation H&S
Managing Director		*	*		*		*								*	
16 (2) Appointee		*	*		*		*								*	
Construction Supervisor	*	*	*			*	*			*						
Assistant Construction supervisor	*	*	*			*	*			*		*				
Risk Assessor										*						
Fire Fighter							*	*					*			

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H&S Rep							*					*	*			
Excavation Supervisor							*									*
First Aider				*			*						*			
Fall Protection Planner							*		*					*		
Stacking Supervisor							*					*				
Site Personnel							*					*				
Incident Investigator															*	

Contractor name:..... **Project:**.....

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1. Site and Surroundings Specific Risk Assessment

<u>Risk</u>	<u>Mitigation</u>
Access: Substation is restricted area and public and visitors should not be allowed to enter without approval.	Induction training of both staff and visitors required.
Insects: Existing cabinets are often inhabited by bees, wasps, and hornets.	Induction training of both staff and visitors required.
Gates:	Observe status of gates at all times.

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<p>The substation is a restricted area and gates must be closed at all times.</p>	
<p>Oil Spill:</p> <p>Some equipment is oil filled and extreme care must be taken when handling the same since the risk of an oil spill is high</p>	<p>Induction training of staff to include oil spill risk and action if a spill should occur.</p>
<p>Snake:</p> <p>Since the construction will take place during the summer the risk of encountering snakes is high.</p>	<p>Staff should be educated regarding the types of local snakes that may be encountered.</p>
<p>Porcelain:</p> <p>The equipment has in most instances porcelain insulators and extreme care must be taken when handling the equipment not to chip and/or break the insulators. Chipped</p>	<p>Staff must be made aware of the risk and the correct lifting equipment must be used when lifting the equipment.</p>

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insulators could render equipment unfit for use or injury.	
Close proximity: Should works be undertaken in an operational yard care must be taken when handling/erecting conductive components such as steelwork.	Induction training of staff to include risk associated with working in close proximity.

2. Tasks, Hazards, Preventative Measures to be implemented and Safe Operating Procedures:

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TASK TO BE PERFORMED	HAZARD / DANGER IDENTIFIED	PREVENTATIVE MEASURES TO BE IMPLEMENTED (INCLUDING PPE TO BE USED)	SAFE OPERATING PROCEDURE (WSOP) OR OTHER ANNEXURES (Guideline only)
ESTABLISHMENT OF CONSTRUCTION SITE			
Establishment of the construction site and pre-task activities	Injuries to staff due to the movement of material or machinery.	The following requirements to be complied with: <ol style="list-style-type: none"> 1. All staff to be provided with adequate PPE as per their own risk assessment report. A copy of the risk assessment report to be kept on site. 2. The principal contractor shall ensure that contractor employees are trained in the correct use, care, maintenance and limitations of PPE. (34-333 Par 14(c)) 3. The safety of the public to be ensured as per the requirements stated in this document; 4. All staff to receive induction training prior to being allowed on site; 	34-333

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TASK TO BE PERFORMED	HAZARD / DANGER IDENTIFIED	PREVENTATIVE MEASURES TO BE IMPLEMENTED (INCLUDING PPE TO BE USED)	SAFE OPERATING PROCEDURE (WSOP) OR OTHER ANNEXURES (Guideline only)
		5. All work to be done under the general supervision of competent persons; and 6. All equipment to be inspected and declared safe prior to staff members being allowed to use the equipment or machinery. 7. An onsite toolbox talk including a risk assessment shall be conducted prior to the commencement of work. The team leader, after conducting pre-task planning and after facilitating the on-site risk assessment shall share all the tasks at hand, the identified risks and control measures with all his team members before commencing a specific task. This shall be done to ensure common understanding of the tasks, risks and control measures required. (34-333 par 26)	

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Issue, use and maintenance of PPE	Injuries to staff due to improper, lack of use of PPE	1. The following requirements to be complied with: <ol style="list-style-type: none"> Risk assessment to be conducted Copy of risk assessment to be kept on site Staff to be issued with and trained on appropriate use of PPE PPE to be maintained in good working conditions Disciplinary action to be maintained against transgressions. 	TA-16-05 Use a fall arrest system PPE Matrix
Safety of the public.	Possible civil action against the Client, Principal or Sub-Contractors due to injuries sustained by members of the public / visitors on the construction site.	The following requirements to be complied with as to ensure the safety of the public: <ol style="list-style-type: none"> All visitors to the Construction site to be trained on the dangers and hazards to be anticipated while on the construction site (SHE Induction); 	No Written Safe Operating Procedure required.

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TASK TO BE PERFORMED	HAZARD / DANGER IDENTIFIED	PREVENTATIVE MEASURES TO BE IMPLEMENTED (INCLUDING PPE TO BE USED)	SAFE OPERATING PROCEDURE (WSOP) OR OTHER ANNEXURES (Guideline only)
		<ol style="list-style-type: none"> 2. Visitors only to be allowed on site should they be in possession of the required personal protective equipment; 3. All excavations which are accessible to the public to be: <ol style="list-style-type: none"> a. Barricaded by means of a suitable barrier or fence of at least one meter in height to prevent people and / or livestock from falling into; and b. Fitted with warning lights should these excavations be accessible at night; 4. All construction sites in build-up areas or adjacent to public ways to be fenced of as to prevent unauthorized entry; and 5. Only one controlled access point to be provided through which persons can enter the construction site. 6. Road traffic – specific regulations required 	

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		Document Identifier	DXSHEQSF0036	Rev	2
		Effective Date	15 June 2018		
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CONSTRUCTION WORK RELATED TO THE INSTALLATION OF ELECTRICAL SYSTEMS			
Excavation work.	Possible injury or fatality to staff due to the collapse of the excavation. Staff may also sustain injuries when making contact with electrical or water lines.	The following requirements to be complied with as to prevent injuries: <ol style="list-style-type: none"> 1. All excavation work to be conducted under the supervision of a Competent Person who has been appointed in writing for this purpose; 2. No excavation to be conducted unless the required permits, wayleaves or drawings have been obtained from the client; 3. The presence of all cables, water pipes or other services to be determined prior to any excavation being conducted; 4. All excavation to be inspected: <ol style="list-style-type: none"> a. Daily before the shift; b. After blasting; 	TA-66-08 Excavations TA-66-08 Excavating above Cables CR11

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		<ul style="list-style-type: none"> c. After fall of ground; d. After damage to the supports; and / or e. After rain. Details of the inspections conducted to be entered into a register, which will be kept on site and be signed by the competent person appointed for excavation work. 5. To ensure the safety of staff excavations to be: <ul style="list-style-type: none"> a. Braced or shored; b. Excavated to the normal angle of repose; or c. Inspected and be declared safe by the Competent Person appointed for excavation work. The decision to declare the excavation safe without bracing or shoring will be entered into a register kept on site; 6. All possible precautionary measures to be taken as to: 	

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		<ul style="list-style-type: none"> a. Ensure a safe distance is maintained between staff should excavations be dug manually by means of picks and shovels; b. Limit the amount of material, ground or plant placed or moved on or near the edge of any excavations; c. Ensure the safety and stability of adjacent structures and buildings; and d. Ensure that safe means of access or egress is provided. Provided that the safe means of access / egress will not be further than 6 meters from any point where excavation work is being undertaken. 	

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Foundation Casting	Staff may inhale high volumes of cement and dust. Possible injuries due to the use of equipment and tools.	The following requirements to be complied with: <ol style="list-style-type: none"> 1. Medical Screening Fitness to be done on staff working on foundation castings 2. Dust masks to be provided to staff working on the foundations; 3. Ensure all equipment inspected safe for use prior to use as to ensure that equipment is safe; 4. Ensure all staff are aware of construction vehicle movements while work commences; 5. Work areas to be properly controlled 	
Erection of Steel support structures	Support structure may topple and fall on staff.	The following requirements to be complied with: <ol style="list-style-type: none"> 1. Lifting machines and slings will be used to lift and hold support structures in position; 	34-145, 34-146 – Authorization procedure

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	Improper assembling of structures. Possible injuries due to the use of equipment and tools.	<ol style="list-style-type: none"> 2. Staff to be trained in the safe lifting and handling of structures; 3. All requirements as per the excavation requirements to be complied with; 4. Structures to be torqued to the correct values when assembling structures; 5. Ensure all equipment (pulleys, rollers and others) inspected safe for use prior to use as to ensure that equipment is safe; 6. Should work be conducted in close proximity to live electrical equipment the circuit will be isolated and earthed as per ORHVS Regulation by the Eskom Authorised person; 7. All safety clearances as per NRS060 to be complied with; (Also refer DISREAAH3) 	for operating on High Voltage Systems. Work Instruction 34-92 and 34-96 TA-5-05 Replace pole veh mounted crane TA-6-05 Replace pole manually TA-19-05 Replace strain pole manually

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		8. All work to be done after equipotential earthing have been applied by an Authorised Person in terms of ORHVS (34-145, 34-146) 9. Work areas to be properly controlled and fenced off; and 10. Poles to be properly stacked as to prevent movement or to prevent stacks from collapsing.	CR9 DMR18
Erection of Equipment	Equipment may topple and fall and cause damage to equipment and injury to staff or staff may fall from height. Tools may fall from a height	The following requirements to be complied with: 1. Work to be supervised by the Construction Supervisor 2. All bolts and to be torqued to manufacture's specifications	TA-16-05 Use a fall arrest system ¹

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	and cause injury to staff working on ground level.	3. FAS shall be used by all staff members who are erecting the equipment and working on top of support structure. 4. All staff on ground level to have their hard hats on 5. Staff on ground level to move off when equipment is bolted to position	
Stringing of conductors (Jumpers and closing spans).	Conductor may break or fall from height and cause injury to staff. Staff working from height may fall or topple over. Tools may fall from a height and cause injury to staff working on ground level.	The following requirements to be complied with: 1. Only competent persons to be allowed to perform this task and the task to be performed under supervision of site supervisor; 2. All requirement pertaining to working at heights as per this Health and Safety Plan to be complied with;	WR-IN-7-04 Dynamometer Use TA-13-05 Repair broken conductor

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	Possible injury due to static electricity.	3. All requirements as per the ORHVS standard to be conformed to, specifically with regard to earthing; 4. Proper equipment such as dynamometer and thermometer to be used at all times; 5. Preventative safe work procedure to be compiled by Principal Contractor	SWP
Working at a height (elevated positions)	Possible injuries due to staff falling from heights.	The following requirements to be complied with as to prevent injuries: 1. Cardinal Rule: Any person who performs work higher than two meters above ground level must wear a fall arrest system, and be attached to an anchor point at all times	Eskom Distribution Cardinal Rules GSR 6 CR8

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		<ol style="list-style-type: none"> 2. All work conducted at a height to be performed under the direct supervision of a Competent Person who has been appointed and made responsible for employees safety; 3. The requirements as per this Health and Safety & Fall Protection Plan to be complied with at all times; 4. All staff who perform work at a height (2 meter and above) must be in possession of a medical certificate of fitness which was issued by an Occupational Health Practitioner after evaluating employees physical and psychological fitness; 5. Work done in an elevated position to be done from safe scaffolding or ladders where reasonable practicable; 6. Where the structures cannot be safeguarded by means of handrails fall arrest equipment (Safety harnesses) to be provided and used by staff; and 	

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		7. Employees who perform work at a height will at all times be required to utilize and keep the fall arrest systems properly secured to the structures. 8. Fall Arrest Systems shall be SABS approved 9. Training for use of FAS and rescue procedures to be in place 10. FAS rescue kit to be available on all work sites	
Making and breaking of jumpers	Electrocution as result of potential differences	1. Work only to be executed within equipotential earthing zone	TA-35-05 Breaking and Making of Jumpers Cardinal Rule 1

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USE OF TOOLS AND EQUIPMENT			
Use of electrical equipment such as portable electrical equipment and temporary electrical installations.	Possible injury due to electric shock or the use of unsafe or unguarded machines.	The following requirements to be complied with: <ol style="list-style-type: none"> 1. All temporary electrical installations to be inspected weekly by accredited person; 2. All portable electrical equipment to be inspected daily or before use by accredited person; 3. The outcome of all inspections conducted should be recorded in a register kept for this purpose. The register must be kept on site; 4. All portable electrical equipment used will be: <ol style="list-style-type: none"> a. Linked to a functional earth leakage system; or b. Be double insulated; 	

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		5. Only portable electrical tools which are fitted with an on / off switch on the tool may be used; 6. All electrical cables and plugs must be in a good condition and free from any defects or breakages; and 7. All breakers on temporary electrical equipment to be marked.	
Hand tools	Possible injury due to the use of unsafe hand tools, or due to tools falling from a height.	All hand tools used in elevated positions to be properly secured.	TA-1-05 WORK WITH CHAINSAW TA-2-05 WORK WITH PRUNERS
Jack hammers and paving breakers.	Possible foot injuries to the operator or other persons due to the	The following requirements to be complied with:	Work instruction for use of jackhammers

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	equipment being used incorrectly. The use of the equipment may also result in illnesses due to the vibration generated by the equipment or noise being exposed to.	Refer to work instruction. PPE Medical Screening and fitness.	
Hydraulic tools such as power packs, crimps	Possible hand injuries due to moving machine parts. Employees may also be injured should items unexpectedly be discharged from the machine.	The following requirements to be complied with: <ol style="list-style-type: none"> 1. Only skilled and competent operators to be allowed to operate the equipment; 2. The operator is required to inspect the equipment before use as to ensure that the equipment is safe for use; 3. Safety guards are to be used; and 	SCAAG5 Crimping Standard TA-3-05 WORK WITH MECHANICAL HIGH CUTTERS

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		4. Employees who are required to operate these machines should be provided with and be required to use the following personal protective equipment: <ol style="list-style-type: none"> Overall; Safety boots; Eye protection; and Leather gloves where necessary. 	
Cranes and lifting machines (Vehicle mounted, chain blocks, electrical hoists, buckets and forklifts)	Possible injury to persons or property due to the failure of the lifting machine.	The following requirements to be complied with: <ol style="list-style-type: none"> All lifting machines to be inspected by a competent person at intervals not exceeding every six (6) months; All lifting machines to be performance / load tested at intervals not exceeding every twelve (12) months. All load tests are to be performed by a persons / company approved for this purpose by the Department of Labour; 	Work instruction for operating of vehicle mounted crane. 34-110 and 34-111 DMR17+18

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		<ol style="list-style-type: none"> 3. A record to be kept of all inspections and tests conducted on the lifting machines; 4. Truck mounted cranes only to be operated by persons who are in possession of a valid certificate of training as issued by a TETA and / or Department of Labour approved training authority; 5. No persons to be lifted lowered or moved by means of the equipment except with the use of a cage approved for this purpose by the Department of Labour. 6. Jib-cranes with a lifting capacity of more than 5000 kilogram will only be used should it have been fitted with a: <ol style="list-style-type: none"> a. Load indicator; and b. Load limiting device; 7. To prevent the overloading of the equipment all lifting machines are to be marked with an identity mark which will 	

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		<p>indicate the maximum mass load which the machine has been designed for;</p> <ol style="list-style-type: none"> 8. All hooks to be fitted with catches, which will prevent the accidental disconnection of the loads; 1. Vehicle to be stabilized prior to use; 2. The load to be properly secured before being lifted or moved; 9. Earthing / Foot Plates to be fitted and used when required. 10. The operator of mobile jib-cranes and/or truck mounted cranes are required to: <ol style="list-style-type: none"> a. Inspect the vehicle on a daily basis as to declare it safe for use. The operator is to be appointed in writing for this purpose; b. Record the findings of the inspection in a register kept for this purpose. 	

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Use of slings (Material, chain and cable slings)	Possible injury to persons or property due to the failure of the lifting tackle.	The following requirements to be complied with: <ol style="list-style-type: none"> 1. All lifting tackle / slings (Ropes, cables or material slings) to be inspected at intervals not exceeding three (3) months; 2. A record to be kept of all inspections and tests conducted on the lifting tackle; 3. To prevent the overloading of the equipment all lifting machines are to be marked with an identity mark which will indicate the maximum mass load which the machine has been designed for; and 4. All hooks to be fitted with catches, which will prevent the accidental disconnection of the loads. 	DMR18
Construction vehicles	Possible injury to persons due to the use of construction vehicles.	The following requirements to be complied with:	Eskom Vehicle and Driver Safety Management EPC

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		<ol style="list-style-type: none"> 1. All construction vehicles to be inspected on a daily basis by a competent persons appointed for this purpose in writing; 2. The outcome of all inspections to be recorded in a register kept for this purpose; 3. Only trained, competent and properly licensed persons to be allowed to operate construction vehicles; 4. All construction vehicles are to be <ol style="list-style-type: none"> a. Maintained in a safe working condition; b. Fitted with signaling equipment; c. Fitted with structures that will prevent items from falling onto the operator; d. Fitted with an acoustic signaling device and a reversing alarm; e. Fitted with a seat which is securely affixed into position; 	32-93 (Specifically refer to 2.2.11 and 2.2.12) CR21 CR1 32-93

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		<ol style="list-style-type: none"> 5. All operators of construction vehicles must be in possession of a medical certificate of fitness which was issued by an Occupational Health Practitioner after evaluating employees physical and psychological fitness; 6. All tools and equipment transported on vehicles are to be secured as to prevent items from moving; 7. The operator of the vehicle must take care as to ensure that vehicles are not overloaded; 8. Employees who perform work in close proximity of public roads are to be provided and be required to wear reflective indicators; 9. Ensure that all employees, including contractor employees will not be transported in the back of vehicles closed by means of canopies, unless provided with proper seating and safety belts. 	

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TASK TO BE PERFORMED	HAZARD / DANGER IDENTIFIED	PREVENTATIVE MEASURES TO BE IMPLEMENTED (INCLUDING PPE TO BE USED)	SAFE OPERATING PROCEDURE (WSOP) OR OTHER ANNEXURES (Guideline only)
		10. The safety signs, speed limits and rules of the road or rules as specified for the premises are to be complied with at all times.	
Use of portable gas containers	Possible dangers include: <ol style="list-style-type: none"> 1. Falling gas containers; 2. The uncontrolled release of high concentrations of gas; and or 3. Explosions due to the unsafe storage of these containers. 	The following requirements to be complied with: <ol style="list-style-type: none"> 1. All portable gas containers to be stored in well ventilated area; 2. Gas bottles used will always be stored in: <ol style="list-style-type: none"> a. An upright position; and / or b. In a trolley or in a position where it cannot fall or roll and must be chained; c. Away from open flames or other sources of ignition; and 	VUR12 VUR12

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 Eskom	SHE SPECIFICATION King Williamstown Substation Protection Upgrade C.DS00068 Good Hope Textile Substation refurbishment -	Template Identifier	240-73416879	Rev	2
		Document Identifier	DXSHEQSF0036	Rev	2
		Effective Date	15 June 2018		
		Review Date	February 2021		

TASK TO BE PERFORMED	HAZARD / DANGER IDENTIFIED	PREVENTATIVE MEASURES TO BE IMPLEMENTED (INCLUDING PPE TO BE USED)	SAFE OPERATING PROCEDURE (WSOP) OR OTHER ANNEXURES (Guideline only)
		3. Staff to be trained in the emergency procedure to be followed when portable gas containers leak or are damaged.	
Use of Auger	Prolonged exposure to noise may result in noise induced hearing loss. Some dust is also generated during the use of the machine resulting in possible ill health effects due to the exposure to dust.	<p>The following requirements to be complied with:</p> <ol style="list-style-type: none"> 1. Only competent persons to be allowed to operate equipment; 2. The operator to inspect the equipment before use as to ensure that where possible moving machine parts (Excluding the drill bit) are properly guarded; 3. All requirements pertaining to excavation work as per this Health and Safety and Fall Protection Plan to be complied with; 	

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		<ol style="list-style-type: none"> 4. The vehicle and drilling machine to be inspected, tested and maintained as per the requirements stated in this Health and Safety and Fall Protection Plan; 5. Vehicle to be stabilized and earthed prior to use; 6. Operator to stand on earth / foot plate at all times while operating the equipment from ground level; 7. All staff except for the operator to be instructed to stand clear of the machine while in use; and 8. The operator to be provided with and wear required PPE 	
General safeguarding of machinery.	Possible injury to staff due to the use of unguarded or poorly guarded machines.	<p>The following requirements will be complied with as to ensure that machines used are properly guarded:</p> <ol style="list-style-type: none"> 1. All machine parts which are within normal reach to be guarded and placed outside of normal reach (This will not 	GMR 2-7

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		apply to machine parts that cannot be guarded due to the blade being used for cutting); 2. Employees will not be allowed to remove machine guards; 3. Operators of machinery to inspect machines prior to use as to ensure the machines are safe for use and properly guarded. 4. Only competent persons to be allowed to operate equipment	

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OCCUPATIONAL HEALTH AND HYGIENE			
Use of Betonies for earthing of transformer stations.	Occupational diseases contracted by staff due to the hazardous chemical substances exposed to.	The following requirements to be complied with: <ol style="list-style-type: none"> 1. Material Safety Data Sheets to be obtained for Betonies. Copies of all Material Safety Data Sheets to be kept on site as to ensure that emergency information is available at all times; 2. All staff to be trained on the dangers posed by the chemical substances used; and 3. All staff that uses Bentonite to be provided with and be required to wear respiratory protective equipment. 4. Medical screening of such persons to be done as per OHS requirements 	

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Exposure to noise	Noise induced hearing loss suffered by staff due to insufficient precautionary measures implemented.	<p>The following requirements to be complied with as to prevent employees from contracting noise induced hearing loss when exposed to noise in excess of the prescribed noise rating limit of 85dB(A):</p> <ol style="list-style-type: none"> 1. All staff exposed to noise in excess of the prescribed noise rating limit to be trained on the dangers of noise and the need for hearing conservation; 2. All staff to be provided with and be required to use suitable hearing protectors when performing tasks which may result in them being exposed to excessive noise; and 3. All staff exposed to high noise rating levels to be subjected to audiometric tests as per frequency in NIHLR to determine and prevent possible hearing loss. 	NIHLR 6 NIHLR 8

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Health and safety in housing complex (Camp).	Ill health effects suffered by staff due to poor health and safety standards maintained in housing complex.	The following requirements to be complied with: <ol style="list-style-type: none"> Suitable housing to be provided to staff; Sanitary facilities as per the requirements stated in this Health and Safety Plan to be provided; Ample quantities of drinking water to be available in the housing complex; and Sufficient quantities and types of firefighting equipment to be available in the housing complex. 	FR
Work performed in hot / rainy and windy environments	Possible ill health effects such as heat stroke or skin cancer due to prolonged exposure to direct sunlight. Possible ill health due to	The following requirements to be complied with: <ol style="list-style-type: none"> All staff members to be trained in the dangers of exposure to excessive heat and the illnesses associated with heat exposure; 	

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	colds and fever from working in cold environments	<ol style="list-style-type: none"> 2. First aid equipment and qualified first aiders to be available at all times; 3. Employees to be acclimatized prior to being required to perform work in hot environments; 4. Ample quantities of drinking water to be available on site; and 5. Employees to be provided and be required to wear the required personal protective equipment and sun creams. 6. Flu vaccines to be encouraged in projects that will be working through winter and rainy seasons 	

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HOUSEKEEPING AND FIRE PRECAUTIONARY MEASURES			
Storage of flammable / Hazardous Chemicals	The storage of flammable liquids could increase the risk of fires and result in spillages.	The following requirements to be complied with: <ol style="list-style-type: none"> 1. Not more than 40 liters to be stored as per SANS 10400. Quantities in excess of 40 liters are to be stored in a flammable liquid store or cabinet specially constructed for this purpose; 2. Enough firefighting equipment to be kept available on the premises. 3. All staff to be trained in the use of the firefighting equipment; and 	GSR 4 HCSR 9A MSDS HCSR 15

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		<ol style="list-style-type: none"> 4. All firefighting equipment to be inspected by a Competent Person appointed for this purpose. 5. All flammable liquids to be labeled properly 6. Work instruction on how to deal with the spillage to be available. 	
Fire prevention.	High risk of fires and property damage.	<p>The following requirements to be complied with:</p> <ol style="list-style-type: none"> 1. Sufficient amounts of firefighting equipment to be kept available on the premises. 2. All staff to be trained in the use of the firefighting equipment. 3. All firefighting equipment to be inspected by a Competent Person appointed for this purpose. 4. The presence of all fires to be reported to the client immediately; 	

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		5. Staff to be trained in the correct firefighting procedure; and 6. Fire risk survey to be done and staff only to be allowed to smoke in designated areas.	
Stacking of articles	Possible injury to persons due to items falling, moving or rolling.	The following requirements to be complied with: 1. All stacking to be done under the supervision of a person appointed in writing and assigned the duty of ensuring safe stacking on site; 2. Storage areas are to be kept clean and orderly at all times; 3. Stacked items are to be secured as to prevent items from falling or rolling; and 4. Items not to be stored higher than three times the smallest dimension of the underlying base unless prior approval has been obtained from the Department of Labour.	GSR 8

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Housekeeping	Possible injury to staff due to poor housekeeping. Poor housekeeping practices may also increase the risk of fires.	The following requirements to be complied with as to ensure good housekeeping practices on site: <ol style="list-style-type: none"> 1. Items will not be disposed of from a height unless a rope or safe bucket is used to safely lower items to ground level; or 2. Excess material, scrap, waste or debris will be removed and be disposed of regularly. 	TA-33-05 Physical material handling

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GENERAL			
Working over or in close proximity to water environments	Drowning of employees.	The following requirements to be complied with as to ensure the safety of staff when performing work over water bodies: <ol style="list-style-type: none"> 1. All possible measures will be taken as to prevent staff from falling into the water; 2. Lifejackets to be provided to staff; and 3. Rescue equipment to be available as to prevent employees from drowning. 	DR

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Staff performing work while intoxicated.	Possible injuries to staff due to the operation of equipment while under the influence of alcohol or drugs. Intoxicated employees could also pose a danger to others.	Staff members who are or who appear to be under the influence of alcohol or drugs are not to be allowed on site.	DPC_34-367: Management of substance abuse GSR 2A
Poor ergonomics.	Possible injuries due to staff: 1. Taking an awkward position; and / or 2. Having to move or carry heavy objects.	The following requirements to be complied with as to minimize ergonomical risks: 1. Where possible manual handling will be limited and lifting machines be used; and 2. Staff will be encouraged to use the correct method when lifting and / or carrying items.	

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Toilet, change and dining room facilities	Possible pollution to the environment and / or complaints being lodged with the client due to the action on the part of the contractors staff.	The following facilities are to be provided: <ol style="list-style-type: none"> 1. One (1) toilet for every 30 staff members; 2. One (1) shower for every 15 employees; 3. Sheltered dining room facilities; and 4. Change room facilities. 	FR
Environmental pollution	Environment being polluted due to oil or chemical substances being spilled.	The following requirements to be complied with: <ol style="list-style-type: none"> 1. To be implemented as per EMP 	

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Review of document and general compliance	Possible non-compliance with the provisions of the OHSA due to the Health and Safety Plan not being revised regularly.	<p>All health and safety documents to be evaluated and amended as and when required.</p> <p>Where possible the provisions as per the Clients Work Instructions to be complied with.</p>	
Handover of contract	Possible civil action against the client or principal contractor due to poor workmanship.	<p>The following requirements to be complied with:</p> <ol style="list-style-type: none"> 1. All installations to be inspected by a competent person after completion and before use; 2. A completion certificate to be issued by the designer after construction and before use; and 	<p>DISASAAQ1: Handing over documentation: Distribution Substation.</p> <p>DST_1195: Handing over documentation:</p>

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		3. All construction work to be done as per the designer's specifications. 4. Implementation of Eskom Handover specification	Major/Minor reticulation electrification.
Emergency Preparedness (Add to first aid)		1. Staff to be trained on evacuation routes 2. Staff to be trained on handling of all types of emergencies. 3. Equipment to be provided as to enable staff to effectively deal with emergencies 4. Emergencies numbers to be available on site. 5. Transport to be reasonably made available 6. All of the above to be part of the SHE plan.	

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6 Acceptance

Nil.

7 Revisions

Date	Rev.	Compiler	Remarks
August 2015	0	F Poee	This provides the initial SHE specification requirements that must be met by the relevant contractors who have been awarded a contract for the work to be performed for Eskom.
	1		

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	ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP)	Unique Identifier	LD_ENV02
		Revision	Rev. 0
		Effective Date	September 2013
		Next Revision Date	September 2022
		Land Development & Environment	

ENVIRONMENTAL MANAGEMENT PROGRAMME



GOODHOPE TEXTILE SUBSTATION REFURBISHMENT PROJECT (ESKOM-EC Operating Unit)

August 2021

Compiled by:

Environmental Management Section
Tel: 043 703 5443

	ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP)	Unique Identifier	LD_ENV02
		Revision	Rev. 0
		Effective Date	September 2013
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		Land Development & Environment	

1. Introduction

Environmental Management Programme is a plan to manage/ mitigate environmental impacts associated with the construction activities associated with the refurbishment within the Goodhope / King Williams Town/ Fort Murray substations, as indicated below in the SOW.

2. Scope of work

The scope for this project is indicated below:

HIGH LEVEL SCOPE OF WORK:

- Complete the Refurbishment project of the 66kV yard.
- Completing the 66kV King Williams Town 1 feeder bay upgrade
- Install 66kV busbar isolators for King Williamstown 66kV feeder bay and 66kV Transformer 1 & 2 Bays
- Upgrade protection for 66/11kV TRFR 1- TRFR 2 bays and replace 66kV CT's.
- Install equipment labels
- Install jumpers and clamps and **continues as per the SOW for Goodhope/King Williams Town and Fort Murray substations.**

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3. Objectives

Its aim is to ensure that the following are in place

- Responsibilities for the environmental performance of the Substation are known by the construction, operation and maintenance staff.
- Monitoring schedule is established to identify potential negative environmental impacts associated with construction/ decommissioning such as bush clearing, oil pollution, solid, liquid or gaseous waste, soil erosion, etc.
- Ensure all environmental safeguards are carried out correctly.
- Manage site activities effectively and coordinate with other players in the project.
- Minimise adverse impacts on the environment.
- Ensure that environmental mitigation measures are in place from the start of the project.
- Minimise disruption to fauna and flora and neighbouring landowners/communities.

4. Specific conditions

1. **Substation is a restricted area, public should not be allowed to enter without approval and/or without induction.**
2. **Moderate speeds should be maintained on access roads to minimize or avoid dust pollution, especially close to homesteads, clinics, schools or trading stores.**
3. **Site vehicles should be permitted only on existing roads. Vehicles are not permitted on re-vegetated areas and site traffic should be limited to prevent unnecessary damage to the natural environment.**
4. **The existing cabinets at the substation are often inhabited by bees, wasps and hornets, caution must be taken when construction work commences.**
5. **Since the construction work will be carried out in Summer/Spring the risk of encountering snakes is high, caution must be taken.**

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		Land Development & Environment	

6. Vehicles transporting any equipment that may be hazardous must be supplied with oil spillage mop-up kits.
7. The drivers of these vehicles should know the emergency contact details, should there be an accidental oil spillage.
8. Safety check on the transported material must be conducted prior to the delivery and after re-loading.
9. Stormwater runoff must be managed efficiently so as to avoid stormwater damage and erosion to adjacent properties.
10. All decommissioned equipment (e.g. construction rubble, barricading netting, battery parts etc.) should not be left on site.
11. Non-reusable or non-recyclable materials should be disposed off at a permitted Municipal dumpsite registered to carry such waste.
12. No fences, gates or locks may be damaged to obtain access onto the substation. Arrangements must be made in advance to obtain permission for access. All removed or damaged fences must be replaced immediately after the construction.
13. No fires may be lit on Eskom property or in the construction camp.
14. In areas where the ground has been compacted or deep ruts have formed, the ground shall be rehabilitated immediately by ripping and vegetating using suitable indigenous vegetation after construction.
15. Any clearing of indigenous vegetation shall be done after proper authorization (license) has been obtained from the Environmental Advisor.
16. Dust emitted during construction phase must be controlled.
17. Temporary ablution facilities must be provided on site. No ablutions may take place in or near water courses.

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During the replacement of certain equipment, the following must be considered.

- All **decommissioned equipment from the existing substation during the refurbishment activities** (e.g. faulty transformers, faulty cables, old reclosers and sectionalizers) shall not be left on site. Reusable and recyclable materials shall be sent to Eskom stores. Non-reusable or non-recyclable materials shall be disposed off at a municipal landfill site.
- All **oil spill incidents** shall be reported to the Environmental Management section. Contact details below. An oil spill report form must be completed.

Absorbent cushions should be utilized once the bund walls are done so as to ensure that oil does not come out of the outlet. This cushion is primarily used to trap oil. A cushion must be placed inside the bund wall itself, but at the mouth of the outlet.

It is the responsibility of the Technical Service Officer to ensure that these bund walls are maintained properly i.e. periodically changed when necessary.

- Where applicable **all eroded areas on access road must be rehabilitated** during the strengthening project by:
 - a) Leveling and straightening all spoiled areas within and around the substation.
 - b) Storm water diversion berms must be constructed on the access road where applicable.
 - c) The stoning must be done according to Eskom's specification.
- If activities that can cause a fire are carried out, **fire extinguishers must be available** on site.
- **Eskom employees** must at all times be courteous towards landowners, tenants and the local community.
- If any vehicle should get stuck, the **damage must be repaired** immediately so that no deep ruts remain.
- A proper storm water drain must be built to channel water effectively so as to avoid possible soil erosion.

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- All **bund walls must be built** as per the Standard for Passive Fire Protection in Distribution Substation Yards (SCSASAAA0)
- The **site must be rehabilitated** to its original state after the substation construction activities have been completed.
- The general conditions are set out in Eskom's Generic Environmental Management Plan (EMP) must be adhered to.
The following aspects must also be addressed as part of the EMP:
 - Education of construction staff regarding environmental ethics and issues.
 - Monitoring of all operations under the guidance of an environmental officer, duly assigned to the project.

4. Legislation

The EMP is compiled in order to comply with the following legislative documents:

- National Environment Management Act, 1998 (Act 107 of 1998) (as amended)
- Environment Conservation Act, 1989 (Act 73 of 1989) (as amended)
- National Water Act, 1998 (Act 36 of 1998)
- Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983)
- National Environment Management: Biodiversity Act, 2003 (Act 10 of 2003)
- National Heritage Resources Act (Act 25 of 1999)
- Development Facilitation Act (Act 67 of 1995)
- National Forest Act 1998 (Act 30 of 1998)

Eskom Normative referenced to:

- SHEQ Policy 32-727
- Passive Fire Protection in Distribution Substation Yards (SCSASAAA0)

6. EMP for Goodhope Textile Substation Refurb Project

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5. Duties/ responsibilities

Project Manager:

The Project Manager (PM) is responsible for ensuring that on-site activities are undertaken in accordance with the requirements of the EMP. Ultimate responsibility for the works typically lies with the PM. The PM must:

- 1) Ensure that environmental requirements are adequately covered in contract documents.
- 2) Identify corrective action if non-compliance occurs or unforeseen environmental issues arise that require environmental management action and ensure that this is implemented.
- 3) Ensure that appropriate records and information regarding compliance with environmental requirements are maintained.
- 4) The PM must ensure that all site instructions are clearly communicated to the staff on site.
- 5) Undertake ongoing monitoring of the construction site through regular site visits and record key finding. This includes photographic monitoring of the construction site.
- 6) Advise the external contractor or MEW on environmental matters during the construction phase of this development.
- 7) Audit the implementation of the EMP by the construction team/ MEW.
- 8) Keep a site diary or other appropriate records in which events and concerns of significance are to be recorded.
- 9) Advise the contractor / MEW on actions or issues impacting on the environment and provide appropriate recommendations to address these matters.

7. EMP for Goodhope Textile Substation Refurb Project

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Contractor and/or MEW

Appointed contractor and/or MEW is responsible for implementing the requirements of the EMP during the construction period. This means that the appointed contractor or MEW must:

- 1) Assign the environmental responsibilities to appropriate staff members on the site (e.g. the site foreman or supervisors responsible for particular aspects of the contract task order).
- 2) Plan and schedule activities in a manner that minimises the potential for disruption to neighbouring communities and impact on the environment. In this regard, appointed contractor must discuss and agree such plans with the PM.
- 3) Ensure adherence to the requirements of the EMP by all employees, subcontractors, suppliers, agents, etc. This may mean that the appointed contractor will need to include environmental requirements in the contracts with subcontractors.
- 4) Ensure that environmental concerns or problems that he/she identifies are timeously raised with the PM and that the PM's recommended course of action is implemented.
- 5) Ensure that any corrective action stipulated by the PM is implemented.

6. Generic environmental specifications

SOIL

- Determine the average depth of the topsoil prior to excavations
- Care must be taken not to mix topsoil and subsoil during stripping.
- Topsoil to be adequately protected from contamination from construction activities and material.
- Polluted topsoil must be disposed of at a licensed landfill site.
- No soil stripping must take place on areas within the site that the MEW does not require for construction works, or on areas of retained vegetation.

8. EMP for Goodhope Textile Substation Refurb Project

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- Wind and water erosion-control measures to be implemented to prevent loss of Topsoil.
- Subsoil and overburden should, in all construction and lay down areas, be stockpiled separately to be returned for backfilling in the correct soil horizon order.
- Construction vehicles must only be allowed to utilise existing tracks or pre-planned access routes.
- Stockpiles should not be situated such that they obstruct natural water pathways and drainage channels.
- Stockpiles should not exceed 2m in height.
- Following the construction phase, the topsoil should be placed as the final soil layer prior to seeding.

WASTE MANAGEMENT

- Containers with suitable covers shall be provided and conveniently placed. A waste refuse bag must be available on the construction vehicles at all times for general litter. All the containers will be removed from the site for disposal at a commercial facility licensed for this purpose.
- No waste is to be left on site whether it is biodegradable or not. Unutilised construction materials are to be removed once construction has ended, e.g. crushed stone may not be left or randomly strewn around the site.
- No waste shall be left in the veld or at the substation.

ABLUTION FACILITIES

- Make use of the ablation facilities at the substation
- Toilets may not be situated within 100 meters of any water body or within the 1:100 year flood line.

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- A sufficient number of toilets shall be provided to accommodate the number of personnel working in any given area. Toilets may not be further than 100m from any working area.
- All temporary / portable / mobile toilets shall be secured to the ground to prevent them from toppling over due to wind or any other cause.

HAZARDOUS SUBSTANCES

- All waste hazardous materials must be carefully stored, and then disposed of offsite at a licensed landfill site.
- Contaminants to be stored safely to avoid spillage.
- Drip trays must be available to contain accidental spills.
- Machinery must be properly maintained to keep oil leaks in check.
- Use and /or storage of materials, fuels and chemicals which could potentially leak into the ground must be controlled in a manner that prevents such occurrences.
- All storage tanks containing hazardous materials must be placed in bunded containment areas with sealed surfaces.
- Contaminated soil by oil should be treated by a Drizit biogel and other treatment products such as Drizit cushions / loose fibre to absorb oil must be purchased from Cape Chemicals and they should be readily available on site prior to construction in case of emergencies.

Contact details:

- Cape Chemical Industries Cc
 - **Tel:** 041- 451 3341 **Fax:** 041 – 453 6686 **Cell no:** 083 4688366
 - **E-mail:** cci@yebo.co.za
- Bluestream Environmental Technology (Pty)Ltd
 - **Tel:** 011- 708 0555 **Fax:** 011- 708 0560 **Cell no:** 082 505 5136
 - E-mail: cyril@bluestream.co.za
- Sunorb Chemicals

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- **Tel:** 042- 294 1131 **Fax:** 042-294 1981 **Cell no:** 083 626 0197
- E-mail: dcalder@tiscali.co.za

- Waste-Tech (EnviroServ)

- **Tel:** 043- 745 1621 **Fax:** 043- 745 1656 **Cell no:** 082 779 6356
- E-mail: scottf@enviro-serv.co.za

FLORA AND FAUNA

- No trees shall be cut or removed without prior permission from the landowner.
- Permits should be obtained for protected trees (protected trees should be dealt with in special conditions)
- No animals shall be killed on site.
- Access route must follow existing tracks wherever possible even if these tracks appear longer than a more direct route. Multiple parallel tracks are to be avoided at all times especially in the veld. The movements of vehicles must be confined to the immediate vicinity of the tower location.

DUST

- Damping down of un-surfaced and un-vegetated areas during dusty periods is required.
- Retention of vegetation where possible will reduce dust travel.
- Excavations and other clearing activities must only be done during agreed working times and permitting weather conditions to avoid drifting of sand and dust into neighbouring areas.
- The Contractor shall be responsible for dust control on site to ensure no nuisance is caused to the Landowner or neighbouring Communities.
- A speed limit must not be exceeded on dirt roads.
- Any complaints or claims emanating from the lack of dust control shall be attended to immediately by the Contractor.

NOISE

11. EMP for Goodhope Textile Substation Refurb Project

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- Construction site yards, workshops, and other noisy fixed facilities should be located well away from noise sensitive areas.
- Noise levels must be kept within acceptable limits.

WATER QUALITY

- Adequate sanitary and ablutions facilities must be provided for construction workers
- The facilities must be regularly serviced to reduce the risk of surface or groundwater pollution.
- Any hazardous substances must be stored at least 100m from any of the water bodies on site.
- Contaminated wastewater must be managed by the Contractor to ensure existing water resources on the site are not contaminated. All wastewater from general activities in the camp shall be collected and removed from the site for appropriate disposal at a licensed commercial facility.
- Site staff shall not be permitted to use any other open water body or natural water source adjacent to or within the designated site for the purposes of bathing, washing of clothing or for any construction related activities.
- Compaction of backfilled material must attain low soil permeability.
- Backfilling of trenches must be done in such a way that water ponding and erosion of the backfilled trench are avoided.

MANAGEMENT OF WATER COURSES

- Minimise construction footprint in wetland.
- No construction of pylons within a wetland is allowed without a General Authorisation or Water Use Licence from Department of water Affairs.
- The construction works areas should be narrower at watercourse, riparian habitat and wetland buffer crossings, where topsoil and excavated material should be stored outside of these areas.

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- Manage flow passing through running track to minimise disturbance to flow regime and to prevent erosion.
- Flow to remain unaltered following construction, except at riverbanks if stabilisation structures are required. Eskom Environmentalist to be advised to acquire a Water Use licence from the Department of Water Affairs.
- Construction camps to be located 50m from edge of riparian habitat / wetland buffer zone.

ARCHAEOLOGICAL SITES

- Any archaeological or historical site uncovered during construction shall be reported to the PM immediately, who shall then immediately stop the works in that area and inform the Environmental Officer.
- Any discovered artefacts shall not be removed under any circumstances. Any destruction of a site can only be allowed once a permit is obtained and the site has been mapped and noted.
- Permits shall be obtained from the Eastern Cape Heritage Resources Authority.
- Graves shall not to be interfered with in any way.

FIRE PREVENTION

- The Contractor shall have operational fire-fighting equipment available on site at all times. The level of firefighting equipment must be assessed and evaluated thorough a typical risk assessment process. It may be required to increase the level of protection,

ALL ENVIRONMENTAL RELATED INCIDENTS DURING CONSTRUCTION MUST BE REPORTED TO THE ENVIRONMENTAL MANAGEMENT SECTION.

TEL: 043 - 703 5443 (Zandi Siyongwana)

043 - 703 2937 (Thandokazi Myingwa)

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NOTE: This document shall form part of the contract. If any deviation from conditions stated below resulted in negative environmental impacts, the contractor will be held liable for full rehabilitation costs of the impacted area.

A completed copy of a closure certificate (see below) must be sent to Environmental Management Section on completion of the project.

NOTE: This document shall form part of the contract. If any deviation from conditions stated below resulted in negative environmental impacts, the contractor will be held liable for full rehabilitation costs of the impacted area.

ANNEXURE A

<i>ENVIRONMENTAL CLOSURE CHECKLIST</i>
TO BE COMPLETED AT PROJECT CLOSURE BY PROJECT MANAGEMENT AND ATTACHED TO CLOSURE CERTIFICATE (A complete copy must also be sent to Environmental Management)

PROJECT:

.....

BRIEF PROJECT DESCRIPTION:

		N/A	YES	NO
1.	Did you obtain a copy of an EIA Report or DESD Report from Land Development (Environmental Management Section)?			
2.	Did you obtain a copy of an Environmental Management Programme (EMP) from Environmental Management Section, Contracts Department?			
3.	Has the EMP been included in the contract specification?			
4.	Have you given copies to the bush clearing contractor (If applicable) and explained the content of the EMP?			
5.	Have you given copies to the Construction contractor (If applicable) and explained the contents of the EMP?			
6.	Have the above signed and understood the EMP?			
7.	Was any part of the EMP not followed? If yes, please specify.			

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8.	Was any part of the EMP not practical to follow? If yes, please specify.			
9.	Were any environmental problems encountered during bush clearing and / or construction phase? What were these problems?.....			
10.	Were these problems addressed? What action was taken to address the environmental problems?			
11.	Did you report these problems to Environmental Management Section?			
12.	Have you ensured that Field Services is aware of and have a copy of the EMP for this project including all specific environmental information on the project.			

General comments:.....

Signed by: (Project manager/co-ordinator): Date:

(Clerk of Works): Date:

Copy of completed checklist to be placed in Closure File of all projects.

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OIL SPILL ASSESSMENT FORM

ASSESSMENT TABLE

Using your judgement and facts available, allocate relevant points (1, 3 or 5) to each of the following and add together. The accumulative score will dictate the appropriate corrective action.

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CONDITION	1	3	5
Source of the spill	Weep	Drip/Leak	Explosion/Incident
Age of spill	Historic	Happened recently - spill still moist	Happened within last 24 hours
Threat to any waterbody	No threat	Threat with rain	Access to waterway
Containment	Leak is minor - can be controlled, contained and plugged with oil spill kit	Leak is moderate - cannot be successfully managed with spill kit.	Leak is serious, containment is impossible
Life threatening Conditions	Not at all	Moderate (Environmental or health risk only)	Serious (Explosion, fire, health and major environmental)
Weather conditions	Good weather and will prolong till spill is cleared	Moderate, but may change suddenly to weather conditions which will hamper containment	Raining
Properties affected	None	On-site (Only Eskom's property is affected)	Off-site (Eskom's neighborin and public roads) ≥25 points
Public relations threat	Small	Medium	Large
Soil types	Clay or compacted ground	Loose or loam soil	Sandy soil and Gravel
Traffic implications	Not on any road	Public road	Road closed
PCB presence*	None	Less than 50 ppm in the oil	Over 50 ppm in the oil will automatically get ≥25 points
TOTAL SCORE <input type="text"/>	SUB TOTAL	SUB TOTAL	SUB TOTAL

SIGNATURE _____ **NAME** _____ **DATE** _____

Minor spill ≤ 12 points	Moderate Spill 13 – 24 points	Major Spill ≥ 25 points
Clean-up must be performed and a report issued to the relevant Environmental co-ordinator	Contain and call in the assistance of the Environmental co-ordinator	Contain, call on contracted emergency response team and call Environmental co-ordinator

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Annexure B

OIL SPILL FEEDBACK FORM

Please attach additional notes if necessary or if the space supplied is not sufficient

1.	Give a short description of the oil spill incident.	
2.	Give a short description on the following: -What was done immediately after the spill was discovered -Could it be contained and how -Was an emergency team involved and was it a contracted team -Was free oil evident, how was this removed and what happened to this oil -Has final remediation begun and what is being done -Was PCB test results available and during which phase was this established	
3.	Which role did you fulfill within the process?	
4.	How many litres of oil were involved?	
5.	How big was the area that was polluted?	
6.	Did any water pollution occur in the following areas? -trap dam -river -dam (water supply) -streams -underground	
7.	How would you describe the incident – major or minor?	
8.	Were there any other hazards or issues that needed attention?	
9.	What was the weather conditions like? -wind -temperature -precipitation e.g. rain or fog	
10.	What were the causes - please explain? -human	

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	<ul style="list-style-type: none"> -technical -physical -organizational 	
11.	What was affected? <ul style="list-style-type: none"> -installation - describe -establishment -off-site local -off site regional 	
12.	How many people were affected? <ul style="list-style-type: none"> -staff -locals Describe the possible risks.	
13.	What were the ecological effects? <ul style="list-style-type: none"> -pollution/contamination/damage -residential area -common wild fauna/flora -water catchment areas -land -marine or other fresh water 	
14.	What were the material losses (in Rands)? <ul style="list-style-type: none"> -material (costs to Eskom) -response -clean-up -restoration 	
15.	Was any community life disrupted?	
16.	Was any utility such as electricity, sewage or water interrupted?	
17.	Was there significant public concern?	
18.	Who was notified within Eskom?	
19.	Who was notified outside of Eskom?	
20.	What lessons were learnt from this? <ul style="list-style-type: none"> -measures to prevent recurrence -measures to mitigate consequences -useful references 	
21.	Did you experience a lack of: <ul style="list-style-type: none"> -guidance -expertise -standards -directives -reference material 	

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22.	-Eskom assistance -Outside assistance	
	Any recommendations	
23.	Any other comments	

NAME _____ SIGNATURE _____

DATE _____ SITE _____

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