



## NEC3 Engineering & Construction Contract

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

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

**for Lethabo Power Station Demineralised  
Water Treatment Plant Refurbishment  
Project for design, manufacturing, procurement,  
installation, commissions and decommissions all  
Mechanical, Civil, Electrical, C&I Plant required, or  
the works as defined in the works information**

<b>Contents:</b>	<b>No of pages</b>
<b>Part C1 Agreements &amp; Contract Data</b>	<b>[•]</b>
<b>Part C2 Pricing Data</b>	<b>[•]</b>
<b>Part C3 Scope of Work</b>	<b>[•]</b>
<b>Part C4 Site Information</b>	<b>[•]</b>

**CONTRACT No. [Insert at award stage]**

## Part C1: Agreements & Contract Data

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

## C1.1 Form of Offer & Acceptance

### 1.1 Offer

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

**Lethabo Power Station Demineralised Water Treatment Plant Refurbishment  
Project for design, manufacturing, procurement, installation, commissions and  
decommissions all Mechanical, Civil, Electrical, C&I Plant required, or the works as defined  
in the works information**

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 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 A	The offered total of the Prices exclusive of VAT is	R
	Value Added Tax @ 15% is	R
	The offered total of the amount due inclusive of VAT is <sup>1</sup>	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)

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

## 1.2 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.

### 1.3 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

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

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

Clause	Statement	Data
1	<b>General</b>	
	The <i>conditions of contract</i> are the core clauses and the clauses for main Option	
		<b>A: Priced contract with activity schedule</b>
	dispute resolution Option	<b>W1: Dispute resolution procedure</b>
	and secondary Options	
		<b>X1: Price adjustment for inflation</b>
		<b>X2: Changes in the law</b>
		<b>X5: Sectional Completion</b>
		<b>X15: Limitation of <i>Contractor's</i> liability for design to reasonable skill and care</b>
		<b>X16: Retention</b>
		<b>X18: Limitation of liability</b>
		<b>Z: <i>Additional conditions of contract</i></b>
	of the NEC3 Engineering and Construction Contract, April 2013 (ECC3)	
10.1	The <i>Employer</i> is (Name):	<b>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</b>
	Address	<b>Registered office at Megawatt Park, Maxwell Drive, Sandton, Johannesburg</b>
10.1	The <i>Project Manager</i> is: (Name)	<b>[•]</b>
	Address	<b>Lethabo Power Station Deneysville Rd Viljoensdrift 1930</b>
	Tel	<b>[•]</b>
	Fax	<b>[•]</b>
	e-mail	<b>[•]</b>

10.1	The <i>Supervisor</i> is: (Name)																			
	Address	Lethabo Power Station Deneysville Rd Viljoensdrift 1930																		
	Tel No.																			
	Fax No.																			
	e-mail																			
11.2(13)	The <i>works</i> are	Demineralised Water Treatment Plant Refurbishment at Lethabo Power Station																		
11.2(14)	The following matters will be included in the Risk Register	See risk management in part 3																		
11.2(15)	The <i>boundaries of the site</i> are	Areas associated with the scope of work to be performed																		
11.2(16)	The Site Information is in	Part 4: Site Information																		
11.2(19)	The Works Information is in	Part 3: Scope of Work and all documents and drawings to which it refers.																		
12.2	The <i>law of the contract</i> is the law of	the Republic of South Africa																		
13.1	The <i>language of this contract</i> is	English																		
13.3	The <i>period for reply</i> is	one weeks																		
2	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	TBC on award																		
11.2(9)	The <i>key dates</i> and the <i>conditions</i> to be met are:	<table><tr><td colspan="2">Condition to be met</td><td>key date</td></tr><tr><td>1</td><td>Detailed Design Approval</td><td rowspan="7">As per accepted Programme</td></tr><tr><td>2</td><td>Chemical offloading areas,</td></tr><tr><td>3</td><td>Bulk chemical storage and handling areas,</td></tr><tr><td>4</td><td>Chemical preparation and injection plants</td></tr><tr><td>5</td><td>Demineralised water production plant</td></tr><tr><td>6</td><td>Gland seal water system,</td></tr><tr><td>7</td><td>Effluent handling system</td></tr></table>	Condition to be met		key date	1	Detailed Design Approval	As per accepted Programme	2	Chemical offloading areas,	3	Bulk chemical storage and handling areas,	4	Chemical preparation and injection plants	5	Demineralised water production plant	6	Gland seal water system,	7	Effluent handling system
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7	Effluent handling system																			

30.1	The <i>access dates</i> are:	<table><tr><th colspan="2">Part of the Site</th><th>Date</th></tr><tr><td>1</td><td>Chemical offloading areas,</td><td rowspan="6">As per accepted Programme</td></tr><tr><td>2</td><td>Bulk chemical storage and handling areas,</td></tr><tr><td>3</td><td>Chemical preparation and injection plants</td></tr><tr><td>4</td><td>Demineralised water production plant</td></tr><tr><td>5</td><td>Gland seal water system,</td></tr><tr><td>6</td><td>Effluent handling system</td></tr></table>	Part of the Site		Date	1	Chemical offloading areas,	As per accepted Programme	2	Bulk chemical storage and handling areas,	3	Chemical preparation and injection plants	4	Demineralised water production plant	5	Gland seal water system,	6	Effluent handling system
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3	Chemical preparation and injection plants																	
4	Demineralised water production plant																	
5	Gland seal water system,																	
6	Effluent handling system																	
31.1	The <i>Contractor</i> is to submit a first programme for acceptance within	2 weeks of the Contract Date.																
31.2	The <i>starting date</i> is	TBC on award																
32.2	The <i>Contractor</i> submits revised programmes at intervals no longer than	Every week																
35.1	The <i>Employer</i> is not willing to take over the <i>works</i> before the Completion Date.	No partial work completion will be accepted																
4	Testing and Defects																	
42.2	The <i>defects date</i> is	52 weeks after Completion of the whole of the <i>works</i> .																
43.2	The <i>defect correction period</i> is	Two weeks																
5	Payment																	
50.1	The <i>assessment interval</i> is	between the [●] 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	4 weeks.																
51.4	The <i>interest rate</i> is	<p>the publicly quoted prime rate of interest (calculated on a 365-day year) charged from time to time by the Standard Bank of South Africa Limited (as certified, in the event of any dispute, by any manager of such bank, whose appointment it shall not be necessary to prove) for amounts due in Rands and</p> <p>(ii) the LIBOR rate applicable at the time for amounts due in other currencies. LIBOR is the 6 month London Interbank Offered Rate quoted under the caption “Money Rates” in The Wall Street Journal for the applicable currency or if no rate is quoted for the currency in question then the rate for United States Dollars, and if no such rate appears in The Wall Street</p>																



Journal then the rate as quoted by the Reuters Monitor Money Rates Service (or such service as may replace the Reuters Monitor Money Rates Service) on the due date for the payment in question, adjusted *mutatis mutandis* every 6 months thereafter and as certified, in the event of any dispute, by any manager employed in the foreign exchange department of The Standard Bank of South Africa Limited, whose appointment it shall not be necessary to prove.

## 6 Compensation events

60.1(13)	<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><b>Lethabo Power Station</b></p> <p><b>the cumulative rainfall (mm)</b></p> <p><b>the number of days with rainfall more than 10 mm</b></p> <p><b>the number of days with minimum air temperature less than 0 degrees Celsius</b></p> <p><b>the number of days with snow lying at 09:00 hours South African Time</b></p> <p><b>and these measurements:</b></p> <p><b>Rain Data and Wind Speeds provided under Annexure A</b></p> <p><b>South African Weather Bureau</b></p> <p><b>The nearest available weather station to Lethabo Power Station</b></p> <p><b>the South African Weather Bureau and included in Annexure A to this Contract Data provided by the <i>Employer</i></b></p>
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<b>7</b>	<b>Title</b>	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.
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## 8 Risks and insurance

80.1	These are additional <i>Employer's</i> risks	<ol style="list-style-type: none"> <li>Given the current plant configuration there is not a lot of space for the movement and storage of equipment during the decommissioning and installation phases, Contractor will need to come to site and do a constructability analysis</li> <li>Constraints for removal and installation of equipment.</li> <li>Construction should not impact</li> </ol>
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		running of the water treatment plant. At the moment it is not possible to take out any trains for maintenance activities the Contractor to come up with means to still produce the required Demin water required to run the station. Contractor will need to come to site and do a constructability analysis		
<b>9</b>	<b>Termination</b>	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.		
<b>10</b>	<b>Data for main Option clause</b>			
<b>A</b>	<b>Priced contract with activity schedule</b>	There is no reference to Contract Data in this Option and terms in italics are identified elsewhere in this Contract Data.		
<b>11</b>	<b>Data for Option W1</b>			
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 <a href="http://www.ice-sa.org.za">www.ice-sa.org.za</a> ). If the Parties do not agree on an Adjudicator the Adjudicator will be appointed by the Arbitration Foundation of Southern Africa (AFSA).		
W1.2(3)	The <i>Adjudicator nominating body</i> is:	the Chairman of ICE-SA a joint Division of the South African Institution of Civil Engineering and the London Institution of Civil Engineers. (See <a href="http://www.ice-sa.org.za">www.ice-sa.org.za</a> ) or its successor body.		
W1.4(2)	The <i>tribunal</i> is:	arbitration.		
W1.4(5)	The <i>arbitration procedure</i> is	the latest edition of Rules for the Conduct of Arbitrations published by The Association of Arbitrators (Southern Africa) or its successor body.		
	The place where arbitration is to be held is	[•] South Africa		
	The person or organisation who will choose an arbitrator			
	- if the Parties cannot agree a choice or			
	- if the arbitration procedure does not state who selects an arbitrator, is	the Chairman for the time being or his nominee of the Association of Arbitrators (Southern Africa) or its successor body.		
<b>12</b>	<b>Data for secondary Option clauses</b>			
<b>X1</b>	<b>Price adjustment for inflation</b>			
X1.1(a)	The <i>base date</i> for indices is	TBA		
X1.1(c)	The proportions used to calculate the Price Adjustment Factor are:	proportion	linked to index for	Index prepared by

		0. [●]	Material	
		0. [●]	Labour	
		0. [●]	Transport	
		0.15	non-adjustable	
	Total	1.00		
<b>X2</b>	<b>Changes in the law</b>	There is no reference to Contract Data in this Option and terms in italics are identified elsewhere in this Contract Data.		
<b>X5</b>	<b>Sectional Completion</b>			
X5.1	The <i>completion date</i> for each <i>section</i> of the <i>works</i> is:	<b>Section</b>	<b>Description</b>	<b>Completion date</b>
		1	Design Acceptance	As per accepted program
		2	Chemical offloading areas,	As per accepted program
		3	Bulk chemical storage and handling areas,	As per accepted program
		4	Chemical preparation and injection plants	As per accepted program
		5	Demineralised water production plant	As per accepted program
		6	Gland seal water system,	As per accepted program
		7	Effluent handling system	As per accepted program
<b>X5 &amp; X7</b>	<b>Sectional Completion and delay damages used together</b>			
X7.1 X5.1	Delay damages for late Completion of the <i>sections</i> of the <i>works</i> are:	<b>section</b>	<b>Description</b>	<b>Amount per day</b>
		1	Design Acceptance	As per accepted program
		2	Chemical offloading areas,	As per accepted program

	3	Bulk chemical storage and handling areas,	As per accepted program
	4	Chemical preparation and injection plants	As per accepted program
	5	Demineralised water production plant	As per accepted program
	6	Gland seal water system,	As per accepted program
	7	Effluent handling system	As per accepted program
	Remainder of the <i>works</i>		
	The total delay damages payable by the <i>Contractor</i> does not exceed:		
		2% of the total order value of the delay per day up to the maximum of 15%	
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	R0.00	
	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"><li>the total of the Prices at the Contract Date and</li><li>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.</li></ul>	
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:	the total of the Prices other than for the additional excluded matters.  The <i>Contractor's</i> total liability for the additional excluded matters is not limited.	

		<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"> <li>• Defects due to his design which arise before the Defects Certificate is issued,</li> <li>• Defects due to manufacture and fabrication outside the Site,</li> <li>• loss of or damage to property (other than the <i>works</i>, Plant and Materials),</li> <li>• death of or injury to a person and</li> <li>• infringement of an intellectual property right.</li> </ul>
X18.5	The <i>end of liability date</i> is	<p>(i) Seven (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>
<b>Z</b>	<b>The <i>Additional conditions of contract</i> are</b>	<b>Z1 to Z15 always apply.</b>
<b>Z1</b>	<b>Cession delegation and assignment</b>	
	Z1.1	The <i>Contractor</i> does not cede, delegate, or assign any of its rights or obligations to any person without the written consent of the <i>Employer</i> .
	Z1.2	Notwithstanding the above, the <i>Employer</i> may on written notice to the <i>Contractor</i> 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.
<b>Z2</b>	<b>Joint ventures</b>	
	Z2.1	If the <i>Contractor</i> 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 <i>Employer</i> for the performance of this contract.
	Z2.2	Unless already notified to the <i>Employer</i> , the persons or organisations notify the <i>Project Manager</i> within two weeks of the Contract Date of the key person who has the authority to bind the <i>Contractor</i> 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/supplier shall at all times comply with Eskom's Occupational Health and Safety (OHS), legal and other requirements as amended for the duration of the contract. In addition, the contractor shall comply with the requirements contained in the OHS Specification/requirements. Eskom reserves the right to terminate the contract if the contractor/supplier has built up a history of poor performance or non-conformance in relation to matters of occupational health and safety and legal compliance. **No work may begin until the Health and Safety file has been approved by Lethabo's OHS professional. For the length of the contract, the contractor shall adhere to Lethabo's OHS, legal, and other requirements, as amended.**
- 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 these parties' relatives or friends,
- Coercive Action** means to harm or threaten to harm, directly or indirectly, an Affected Party or the property of an Affected Party, or to otherwise influence or attempt to influence an Affected Party to act unlawfully or illegally,
- Collusive Action** means where two or more parties co-operate to achieve an unlawful or illegal purpose, including to influence an Affected Party to act unlawfully or illegally,
- Committing Party** means, as the context requires, the *Contractor*, or any member thereof in the case of a joint venture, or its employees, agents, or Subcontractor or the Subcontractor's employees,
- Corrupt Action** means the offering, giving, taking, or soliciting, directly or indirectly, of a good or service to unlawfully or illegally influence the actions of an Affected Party,
- Fraudulent Action** means any unlawfully or illegally intentional act or omission that misleads, or attempts to mislead, an Affected Party, in order to obtain a financial or other benefit or to avoid an obligation or incurring an obligation,
- Obstructive Action** means a Committing Party unlawfully or illegally destroying, falsifying, altering or concealing information or making false statements to materially impede an investigation into allegations of Prohibited Action, and
- Prohibited Action** means any one or more of a Coercive Action, Collusive Action Corrupt Action, Fraudulent Action or Obstructive Action.

- Z12.1 A Committing Party may not take any Prohibited Action during the course of the procurement of this contract or in execution thereof.
- Z12.2 The *Employer* may terminate the *Contractor's* obligation to Provide the Services if a Committing Party has taken such Prohibited Action and the *Contractor* did not take timely and appropriate action to prevent or remedy the situation, without limiting any other rights or remedies the *Employer* has. It is not required that the Committing Party had to have been found guilty, in court or in any other similar process, of such Prohibited Action before the *Employer* can terminate the *Contractor's* obligation to Provide the Services for this reason.
- Z12.3 If the *Employer* terminates the *Contractor's* obligation to Provide the Services for this reason, the amounts due on termination are those intended in core clauses 92.1 and 92.2.
- Z12.4 A Committing Party co-operates fully with any investigation pursuant to alleged Prohibited Action. Where the *Employer* does not have a contractual bond with the Committing Party, the *Contractor* ensures that the Committing Party co-operates fully with an investigation.



**Z13 Insurance**

**Z 13.1 Replace core clause 84 with the following:**

**Insurance cover 84**

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

**2.1.1 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 this contract	<b><u>Loss of or damage to property</u></b> <b><u>Employer's property</u></b> 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  <b><u>Other property</u></b> The replacement cost  <b><u>Bodily injury to or death of a person</u></b> 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**

<b>Insurance against or name of policy</b>	<b>Minimum amount of cover or minimum of indemnity</b>
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 *Employer's 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, normalized 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 affected 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.

### 3 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.

Month	Weather measurement					Total weather allowance 40% overlap
	Cumulative rainfall (mm)	Number of days with rain more than 10mm	Number of days with min air temp < 0 deg.C	Number of days with snow lying at 08:00 CAT	Number of days with wind > 5.5 m/s	
January	<b>113.4</b>	3.6	0.0	<b>0</b>	2.2	3.5
February	<b>80.5</b>	2.8	0.0	<b>0</b>	0.6	2.1
March	<b>37.0</b>	0.8	0.0	<b>0</b>	1.1	1.1
April	<b>56.2</b>	1.9	0.2	<b>0</b>	0.9	1.8
May	<b>9.8</b>	0.2	3.2	<b>0</b>	1.1	2.7
June	<b>7.3</b>	0.3	14.7	<b>0</b>	1.6	9.9
July	<b>0.8</b>	0	14.6	<b>0</b>	2.0	9.9
August	<b>4.8</b>	0	4.8	<b>0</b>	3.6	5.0
September	<b>23.3</b>	0.8	0.4	<b>0</b>	4.7	3.6
October	<b>63.4</b>	2.4	0.0	<b>0</b>	5.3	4.6
November	<b>82.0</b>	2.7	0.0	<b>0</b>	5.6	5.0
December	<b>139.3</b>	4.7	0.0	<b>0</b>	2.8	4.5

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

## C1.3 Forms of Securities

### Pro formas for Bonds & Guarantees

For use with the NEC3 Engineering & Construction Contract

Option X16: Retention (not used with Option F)

The *Contractor* may provide a Retention Money Guarantee in the form stated here. When the *Employer* receives and accepts a Retention Money Guarantee exactly in the form stated he will instruct the *Project Manager* not to assess any amount be retained in terms of secondary Option X16.

### Pro forma Retention Money Guarantee (may be used when Option X16 applies)

*(to be reproduced exactly as shown below on the letterhead of the Bank providing the Guarantee)*

**Eskom Holdings SOC Limited**  
**Megawatt Park**  
**Maxwell Drive**  
**Sandton**  
**Johannesburg**

Date:

Dear Sirs

Reference No. [●] *[Drafting Note: Bank reference number to be inserted]*

**Retention Money Guarantee:** *[Drafting Note: Name of Contractor to be inserted]*

Project [ ]: Contract Reference: *[Drafting Note: Contractor contract reference number to be inserted]*

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1. In this Guarantee the following words and expressions shall have the following meanings: -

1.1 "Bank" - means [●], [●] Branch, (Registration No. [●]); *[Drafting Note: Name of Bank to be inserted]*

1.2 "Bank's Address" - means [●]; *[Drafting Note: Bank's physical address to be inserted]*

1.3 "Contract" – means the written agreement relating to the Project, entered into between Eskom and the Contractor, on or about the [●] day of [●] 200[●] (Contract Reference No. .... as amended, varied, restated, novated, or substituted from time to time; *[Drafting Note: Signature Date and Contract reference number to be inserted]*

1.4 "Contractor" – means [●] a company registered in accordance with the laws of [●] under Registration Number [●]. *[Drafting Note: Name and details of Contractor to be inserted]*

1.5 "Eskom" - means Eskom Holdings SOC Limited, a company registered in accordance with the laws of the Republic of South Africa under Registration Number 2002/015527/30

1.6 "Expiry Date" - means the date on which the Defects Certificate is issued in terms of the Contract.

- 1.7 "Guaranteed Sum" - means the sum of R [●] ([●] Rand); [Drafting Note: Insert amount of Retention Money Guarantee.].
- 1.8 "Project" - means the.....
2. At the instance of the Contractor, we the undersigned \_\_\_\_\_ and \_\_\_\_\_, in our respective capacities as \_\_\_\_\_ and \_\_\_\_\_ of the Bank, and duly authorized thereto, confirm that we hold the Guaranteed Sum at the disposal of Eskom, as security for the proper performance by the Contractor of all of its obligations in terms of and arising from the Contract and hereby undertake to pay to Eskom, on written demand from Eskom received prior to the Expiry Date, any sum or sums not exceeding in total the Guaranteed Sum.
3. A demand for payment under this guarantee shall be made in writing at the Bank's address and shall:
- 3.1 be signed on behalf of Eskom by a director of Eskom or his authorised delegate.
- 3.2 state the amount claimed ("the Demand Amount").
- 3.3 state that the Contractor has failed to carry out his obligation(s) to rectify certain defect(s) for which he is responsible under the Contract (and the nature of such defect(s)) alternatively that the Demand Amount is payable to Eskom in the circumstances contemplated in the Contract.
4. Notwithstanding the reference herein to the Contract the liability of the Bank in terms hereof is as principal and not as surety and the Bank's obligation/s to make payment:
- 4.1 is and shall be absolute provided demand is made in terms of this bond in all circumstances; and
- 4.2 is not, and shall not be construed to be, accessory or collateral on any basis whatsoever.
5. The Bank's obligations in terms of this Guarantee:
- 5.1 shall be restricted to the payment of money only and shall be limited to the maximum of the Guaranteed Sum; and
- 5.2 shall not be discharged and compliance with any demand for payment received by the Bank in terms hereof shall not be delayed by the fact that a dispute may exist between Eskom and the Contractor.
6. Eskom shall be entitled to arrange its affairs with the Contractor in any manner which it sees fit, without advising us and without affecting our liability under this Guarantee. This includes, without limitation, any extensions, indulgences, release, or compromise granted to the Contractor or any variation under or to the Contract.
7. Should Eskom cede its rights against the Contractor to a third party where such cession is permitted under the Contract, then Eskom shall be entitled to cede to such third party the rights of Eskom under this Guarantee on written notification to the Bank of such cession.
8. This Guarantee:
- 8.1 shall expire on the Expiry Date until which time it is irrevocable.
- 8.2 is, save as provided for in **Error! Reference source not found.** above, personal to Eskom and is neither negotiable nor transferable.
- 8.3 shall be returned to the Bank upon the earlier of payment of the full Guaranteed Sum or expiry hereof.

8.4 shall be regarded as a liquid document for the purpose of obtaining a court order; and

8.5 shall be governed by and construed in accordance with the law of the Republic of South Africa and shall be subject to the jurisdiction of the Courts of the Republic of South Africa.

8.6 Any claim which arises or demand for payment received after expiry date will be invalid and unenforceable.

9. The Bank chooses domicile citandi et executandi for all purposes in connection with this Guarantee at the Bank's Address.

Signed at \_\_\_\_\_

Date \_\_\_\_\_ Bank's seal or stamp

For and behalf of the Bank

Bank Signatory: \_\_\_\_\_

Bank Signatory: \_\_\_\_\_

Witness: \_\_\_\_\_

Witness: \_\_\_\_\_



## C1.2 Contract Data

### 4 Part two - Data provided by the *Contractor*

#### Notes to a tendering contractor:

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

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

4.1 Clause	4.2 Statement	4.3 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:	

<sup>2</sup> Available from Engineering Contract Strategies Tel 011 803 3008, Fax 011 803 3009 or see [www.ecs.co.za](http://www.ecs.co.za)

		CV's (and further key persons data including CVs) are appended to Tender Schedule entitled _____.		
11.2(3)	The <i>completion date</i> for the whole of the works 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>A</b>	<b>Priced contract with activity schedule</b>			
11.2(20)	The <i>activity schedule</i> is in	(in figures)  (in words), excluding VAT		
11.2(30)	The tendered total of the Prices is			
<b>A</b>	<b>Priced contract with activity schedule</b>	<b>Data for the Shorter Schedule of Cost Components</b>		
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:	Equipment	Size or capacity	Rate
61 in SSCC	The hourly rates for Defined Cost of design outside the Working Areas are  <b>Note: Hourly rates are estimated 'cost to company of the employee' and not selling rates.</b>  <b>Please insert another schedule if foreign resources may also be used</b>	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:	
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**PART 2: PRICING DATA**  
**ECC3 Option A**

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

## C2.1 Pricing assumptions: Option A

### 5 How work is priced and assessed for payment

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

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

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

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

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

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

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

### 6 Function of the Activity Schedule

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

### 7 Link to the programme

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

### 8 Preparing the *activity schedule*

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

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

It is assumed that in preparing his *activity schedule* the *Contractor*:

- Has taken account of the guidance given in the ECC3 Guidance Notes pages 19 and 20.
- Understands the function of the Activity Schedule and how work is priced and paid for.
- Is aware of the need to link the Activity Schedule to activities shown on his programme.
- Has listed and priced activities in the *activity schedule* which are inclusive of everything necessary and incidental to Providing the Works in accordance with the Works Information, as it was at the time of tender, as well as correct any Defects not caused by an *Employer's* risk;
- Has priced work he decides not to show as a separate activity within the Prices of other listed activities in order to fulfil the obligation to complete the *works* for the tendered total of the Prices.
- Understands there is no adjustment to the lump sum Activity Schedule price if the amount, or

quantity, of work within that activity later turns out to be different to that which the *Contractor* estimated at time of tender. The only basis for a change to the Prices is as a result of a compensation event.

## C2.2 the *activity schedule*

Item No.	Description	UNIT	Qty	Rate	Total Amount
<b>1</b>	<b>Preliminary and General</b>				
<b>1.1</b>	<b>Site Establishment</b>				
1.1.1	Contractual requirements	Sum			
1.1.2	Transporting of facilities to site	Sum			
1.1.3	Establishment of offices and boardroom facilities	Sum			
1.1.4	Establishment of dining facilities	Sum			
1.1.5	Establishment of change rooms facilities	Sum			
1.1.6	Establishment of storage for tools and equipment's	Sum			
1.1.7	Establishment Ablution and latrine facilities	Sum			
1.1.8	Provision of office furniture	Sum			
1.1.9	Provision of office equipment	Sum			
1.1.10	Provision of standard steel lockers	Sum			
1.1.11	Provision of toolboxes trolleys	Sum			
1.1.12	Provision of two way radios	Sum			
1.1.13	Connection of water supplies, electric power, communications, dealing with water, and access	Sum			
<b>1.2</b>	<b>Quality Requirements</b>				
1.2.1	Quality compliance	Sum			
1.2.2	QCPs, ITPs and Method Statement prior to commencement of project	Sum			
1.2.3	Quality assurance and Control	Sum			
1.2.4	Data packs (for full execution of works) at completion of project (QCP Sum	Sum			

1.2.5	Welding requirements - Welding codes, standards and specification	Sum			
1.2.6	Plant Coding and Labelling	Sum			
<b>1,3</b>	<b>Health and Safety Requirements</b>				
1.3.1	Health and Safety Compliance	Sum			
1.3.2	Medicals test	Sum			
1.3.3	Safety inductions	Sum			
1.3.4	Safety file	Sum			
1.3.5	Personal Protective Equipment	Sum			
1.3.6	Safety barricading	Sum			
1.3.7	Provision for rerouting of access	Sum			
<b>1,4</b>	<b>Environmental Requirements</b>				
1.4.1	Environmental Compliance and Pollution Prevention	Sum			
<b>1,5</b>	<b>Time Related items</b>				
1.5.1	Contractual requirements.	Sum			
1.5.2	Performance Testing and Commissioning	Sum			
1.5.3	Decommissioning and removal of all plant equipment not required as per design	Sum			
1.5.4	Training of all personnel	Sum			
1.5.5	Hand over and acceptance	Sum			
1.5.6	Provision for Temporary Systems (air, power etc)	Sum			
<b>1.6</b>	<b>Operation and maintenance of facilities on Site</b>				
1.6.1	Living accommodation	Sum			
1.6.2	Bus for Transporting of project employees	Sum			
1.6.3	LDV's Double Cab	Sum			
<b>1.7</b>	<b>Project Management</b>				
1.7.1	Project / Contract Management	Sum			
1.7.2	Site Supervision	Sum			



1.7.3	Security for the works for the duration of the project	Sum			
1.7.4	Safety Officer	Sum			
1.7.5	Environmental Management Function	Sum			
1.7.6	Specialist Consultants	Sum			
<b>1.8</b>	<b>Designs</b>				
1.8.1	Submit Basic Design (Full package signed off by PR Eng) - Payment of 10% of the Design total value	Sum			
1.8.2	Employer Acceptance of Basic Design - Payment of 30% of the Design total value	Sum			
1.8.3	Submit Detail Design (Full package signed off by PR Eng) - Payment of 10% of the Design total value	Sum			
1.8.4	Employer Acceptance of Detail Design - Payment of 50% of the Design total value	Sum			
<b>1.9</b>	<b>Waste Management</b>				
1.9.1	Hazardous Waste Disposal and Handling (incl. transport)	Sum			
<b>1.1</b>	<b>Plant, Equipment and Tools</b>				
1.10.1	Rigging	Sum			
1.10.2	Lifting Equipment	Sum			
1.10.3	Crane	Sum			
1.10.4	Scaffolding	Sum			
1.10.5	New Structural Steelwork & Repainting of Existing Pipe Racks	sum			
<b>1.11</b>	<b>Communication</b>				
1.11.1	Eskom Phone / Cell-phones allowance	Sum			
<b>1.12</b>	<b>Preliminaries and Generals: De - establishment</b>				
1.12.1	De - establishing of all on site	Sum			
<b>Preliminaries and Generals total amount</b>					
<b>2</b>	<b>Demineralization Plant</b>				

<b>2.1</b>	<b>Train 1</b>				
2.1.1	Inlet piping to Cation 1	Sum			
2.1.2	Cation 1	Sum			
2.1.3	Cation 1 Outlet piping *Strainer	Sum			
2.1.4	Inlet piping to Degasser 1	Sum			
2.1.5	Degasser 1	Sum			
2.1.6	Degasser Sump 1	Sum			
2.1.7	Degasser 1 Outlet piping and pumping system	Sum			
2.1.8	Weak base anion feed pump	Sum			
2.1.9	Inlet piping to Anion Weak Base (WB) 1	Sum			
2.1.10	Anion Weak Base 1	Sum			
2.1.11	Anion Weak Base (WB) 1 Outlet piping *Strainer	Sum			
2.1.12	Inlet piping to Anion Strong Base (SB) 1	Sum			
2.1.13	Anion Strong Base 1	Sum			
2.1.14	Anion Strong Base 1 Outlet piping *Strainer	Sum			
2.1.15	Inlet piping to Mixed Bed 1	Sum			
2.1.16	Mixed Bed 1	Sum			
2.1.17	Mixed Bed 1 Outlet Piping *Strainer	Sum			
2.1.18	Piping to Demin storage tank 1	Sum			
2.1.19	Civil Concrete and Structural Repairs for Train 1	Sum			
2.1.20	Instrumentation for Train 1	Sum			
2.1.21	Electrical components and equipment for Train 1	Sum			
<b>2.2</b>	<b>Train 2</b>				
2.2.1	Inlet piping to Cation 2	Sum			
2.2.2	Cation 2	Sum			
2.2.3	Cation 2 Outlet piping *Strainer	Sum			
2.2.4	Inlet piping to Degasser 2	Sum			
2.2.5	Degasser 2	Sum			
2.2.6	Degasser Sump 2	Sum			

2.2.7	Degasser 2 Outlet piping and pumping system	Sum			
2.2.8	Weak base anion feed pump	Sum			
2.2.9	Inlet piping to Anion Weak Base (WB) 2	Sum			
2.2.10	Anion WB 2	Sum			
2.2.11	Anion Weak Base (WB) 2 Outlet piping *Strainer	Sum			
2.2.12	Inlet piping to Anion Strong Base (SB) 2	Sum			
2.2.13	Anion SB 2	Sum			
2.2.14	Anion SB 2 Outlet piping *Strainer	Sum			
2.2.15	Inlet piping to Mixed Bed 2	Sum			
2.2.16	Mixed Bed 2	Sum			
2.2.17	Mixed Bed 2 Outlet Piping *Strainer	Sum			
2.2.18	Piping to Demin storage tank 2	Sum			
2.2.19	Civil Concrete and Structural Repairs for Train 2	Sum			
2.2.20	Instrumentation for Train 2	Sum			
2.2.21	Electrical components and equipment for Train 2	Sum			
<b>2.3</b>	<b>Train 3</b>				
2.3.1	Inlet piping to Cation 3	Sum			
2.3.2	Cation 3	Sum			
2.3.3	Cation 3 Outlet piping *Strainer	Sum			
2.3.4	Inlet piping to Degasser 3	Sum			
2.3.5	Degasser 3	Sum			
2.3.6	Degasser Sump 3	Sum			
2.3.7	Degasser 3 Outlet piping and feed pump	Sum			
2.3.8	Weak base anion feed pump	Sum			
2.3.9	Inlet piping to Anion Weak Base (WB) 3	Sum			
2.3.10	Anion WB 3	Sum			
2.3.11	Anion Weak Base (WB) 3 Outlet piping *Strainer	Sum			
2.3.12	Inlet piping to Anion Strong Base (SB) 3	Sum			
2.3.13	Anion SB 3	Sum			

2.3.14	Anion SB 3 Outlet piping *Strainer	Sum			
2.3.15	Inlet piping to Mixed Bed 3	Sum			
2.3.16	Mixed Bed 3	Sum			
2.3.17	Mixed Bed 3 Outlet Piping *Strainer	Sum			
2.3.18	Piping to Demin storage tank 3	Sum			
2.3.19	Civil Concrete and Structural Repairs for Train 3	Sum			
2.3.20	Instrumentation for Train 3	Sum			
2.3.21	Electrical components and equipment for Train 3	Sum			
<b>3</b>	<b>Demineralization Plant total amount</b>				
<b>3.1</b>	<b>Piping includes pipe fabrication, fit ups, welding</b>				
3.1.1	Interconnecting Piping System between Train 1,2 and 3	Sum			
3.1.2	Interconnecting Piping System between Train 1,2 and 3	Sum			
<b>Interconnecting Pipe Systems total</b>					
<b>3.2</b>	<b>Piping includes pipe fabrication, fit ups, welding</b>				
3.2.1	Blower Units	Sum			
3.2.2	Piping - Between Blower and Degasser	Sum			
3.2.3	Piping includes pipe fabrication, fit ups, welding, internal and external corrosion protection, in line valves, strainers, actuators, sampling etc (including NDT, equipment, consumables, labour etc).(Blower System and Piping System and equipment)	Sum			
<b>3.3</b>	<b>Blower Systems</b>				

	<b>Piping includes pipe fabrication, fit ups, welding, internal and external corrosion protection, in line valves, strainers, actuators, sampling etc (including NDT, equipment, consumables, labour etc). Vessels include all internals, externals, internal and external corrosion protection, repairs, welding, replacements, structures, (including NDT, equipment, consumables, labour etc).</b>				
3.3.1	Caustic Soda Offloading System and Piping	Sum			
3.3.2	Sulphuric Acid Offloading System and Piping	Sum			
3.3.3	Civil Concrete, lining and structural repairs	Sum			
3.3.4	Electrical components and equipment	Sum			
<b>Bulk Chemical Offloading total amount</b>					
<b>3.4</b>	<b>Bulk Chemical Storage</b>				
<b>3.4.1</b>	Piping includes pipe fabrication, fit ups, welding, internal				
<b>3.5</b>	<b>Sulphuric Acid</b>				
3.5.1	Inlet to Bulk Sulphuric Acid Storage Tanks	Sum			
3.5.2	Bulk Sulphuric Acid Storage Tanks	Sum			
3.5.3	Outlet of Bulk Sulphuric Acid Storage Tanks	Sum			
3.5.4	Civil concrete and structural , Lining System	Sum			
3.5.5	Instrumentation	Sum			
3.5.6	Electrical components and equipment	Sum			
<b>3.6</b>	<b>Caustic Soda</b>				
3.6.1	Inlet to Caustic Soda Storage Tanks	Sum			
3.6.2	Caustic Soda Storage Tanks	Sum			
3.6.3	Outlet of Caustic Soda Storage Tanks	Sum			
3.6.4	Hot water tank system	Sum			

3.6.5	Civil concrete and structural , Lining System	Sum			
3.6.6	Instrumentation	Sum			
3.6.7	Electrical components and equipment	Sum			
<b>3.7</b>	<b>Brine system</b>				
3.7.1	Inlet Piping to Brine Storage	Sum			
3.7.2	Brine Storage Tank	Sum			
3.7.3	Outlet of Brine Storage Tank	Sum			
3.7.4	Inlet to Brine Measuring Tank	Sum			
3.7.5	Brine Measuring Tank	Sum			
3.7.6	Outlet to Brine Measuring Tank	Sum			
3.7.7	Civil concrete and structural , Lining System	Sum			
3.7.8	Instrumentation	Sum			
3.7.9	Electrical components and equipment	Sum			
<b>Bulk Chemical Storage Total amount</b>					
<b>3,7</b>	<b>Chemical Preparation and Injection</b>				
	<b>Sulphuric Acid</b>				
3.7.1	Inlet to Sulphuric Acid Preparation and Dilution System	Sum			
3.7.2	Outlet of Sulphuric Acid Preparation Dilution System	Sum			
3.7.3	Sulphuric Acid Injection piping system to all Vessels	Sum			
3.7.4	Civil concrete and structural , Lining System	Sum			
3.7.5	Instrumentation	Sum			
3.7.6	Electrical components and equipment	Sum			
<b>3.8</b>	<b>Caustic Soda</b>				
3.8.1	Inlet to Caustic Soda Preparation and Dilution System	Sum			
3.8.2	Outlet of Caustic Preparation Dilution System	Sum			
3.8.3	Caustic Injection piping system to all Vessels	Sum			
3.8.4	Civil concrete and structural , Lining System	Sum			
3.8.5	Instrumentation	Sum			

3.8.6	Electrical components and equipment	Sum			
<b>Chemical Preparation and Injection Total Amount</b>					
<b>4</b>	<b>The water treatment mobile plant:</b>				
	Fixed Installation Cost	sum			
	Pumping of 144000m3 of water per month	month	12		
<b>Total</b>					

<b>Document reference</b>	<b>Title</b>	<b>No of pages</b>
	This cover page	1
C3.1	<i>Employer's Works Information</i>	
C3.2	<i>Contractor's Works Information</i>	
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## C3.1: EMPLOYER'S WORKS INFORMATION

### 1. Description of the works

#### Executive overview

This document details the Works information for the Demineralized Water Treatment Plant Refurbishment contract at Lethabo Power Station. It is to be read together with the following documents:

- **375-LET-BDDDD00185-21 Rev 2 Lethabo Power Station Demineralised Water Treatment Plant Refurbishment Project Technical Specification**
- **Appendix C1: Electrical Typical Schematics**
- **Appendix C2: Electrical Technical schedules AB**
- **Appendix C3: Electrical MV and LV Protection Philosophy**
- **Appendix C4: Electrical Reticulation for Batteries and Chargers**
- **Appendix C5: Electrical Existing Earthing System**
- **Appendix C6: Electrical Load Schedules**
- **Appendix C7: Electrical Standard Templates**
- **Appendix C8: Electrical VDSS**
- **(18) Appendix D1 LOSS Diagrams**
- **(19) Appendix D2-Drive and Actuator Schedule**
- **(20) Appendix D3-Input Output Block Diagram**
- **(21) Appendix D4-Instrument Schedule**

#### Appendix E: Corrosion Protection Specifications & additional information

- **Appendix E1: GAM/MAT/21/61: Lethabo Power Station Corrosion Protection of New Fabricated IX and WTP Vessels and Associated Carbon Steel Piping by Rubber Lining**
- **Appendix E2: GAM/MAT/21/62: Lethabo Power Station Corrosion Protection of Existing IX and WTP Vessels (Rubber Lining Repair or Complete Relining)**
- **Appendix E3: GAM/MAT/22/174: Lethabo Power Station Acid Dilution Piping Corrosion Protection Specification**
- **Appendix E4: GAM/MAT/21/63: Lethabo Power Station Corrosion Protection of Atmospheric External Exposed Surfaces Protection of New IX, WTP Vessels and Associated Piping by Organic Coatings**
- **Appendix E5: RTD/MAT/19/123: Protective Coating Specification**
- **Appendix E6: GAM/MAT/21/069: Lethabo Corrosion Protection Considerations for Chemical Resistant Valves and Pumps**
- **Appendix E7: GAM/MAT/22/245: Lethabo Corrosion Protection Specification for Effluent and De-Gasser Sump (Walls and Floor)**
- **Appendix E8: GAM/MAT/21/064: Lethabo Corrosion Protection of Off-Loading Bay/Apron, Bulk Storage Bunds and Chemical Dosing areas**
- **Appendix E9: GAM/MAT/21/066: Lethabo Power Station Corrosion Protection of Dosing/Mixing Bunds and Floors, Hardstands, Plinths, Steel Base Plates, Structural Members and Encased Columns**
- **Appendix E10: GAM/MAT/21/067: Lethabo Power Station Corrosion Protection of Water Treatment Plant General Walkways**
- **Appendix E13: GAM/MAT/22/126: Lethabo P/S Corrosion Protection of Water Treatment Plant (WTP) Carbon Steel Piping Systems (Internal: Rubber Lining & External: Organic Coating/Pipe Wrapping) Appendix F1 - WTP Equipment List**
- **Appendix F2: Marked-up P&ID's**
- **Appendix G: Civil and Structural Condition Assessment of the WTP3**

The above-mentioned documents will be issued as a separate document during the tendering process. The *Contractor* is responsible for compliance with all the detailed requirements presented in this *Works Information* or referenced documents. Approval of any drawings, specifications, and procedures by the Employer or its representatives shall in no way relieve the *Contractor* of these responsibilities.

### 1.1 Employer's objectives and purpose of the works

The scope is inclusive of the engineering design, manufacture, supply, installation, testing and commissions and decommissions all Mechanical, Civil, Electrical, C&I Plant required, or the works of the mobile Demin plant. Further, the scope includes the provision of operations and maintenance services for a period of 12 months, commencing from successful commissioning of the mobile plant.

The integration of the mobile Demin train with the existing plant must be done in such a manner that there is minimal disruption to the operation of the Lethabo WTP processes

The aim of the project is to:

- 1) Have a mobile plant that can replace the train that is under refurbishment.
  - o Design throughput of one train 220 m<sup>3</sup>/hr. The mobile plant needs to be able to match this throughput. Any deviation to this throughput to be listed as a deviation.
- 2) The Eskom Standard 240-53113712 - Chemistry Standard for the Pre-treatment and Production Processes of Demineralised Water governs demineralised water production. The mobile plant is required to comply with:
  - o The final water quality as well as the minimum monitoring requirements as stipulated in the Standard.
- 3) Have a mobile plant with its own chemical cleaning system.
- 4) Have a stand-alone PLC and HMI for control and operation of the plant. A interface for the stand-alone PLC to the WTP DCS shall be provided for via a DP-DP coupler.
- 5) The mobile plant shall be electrically energised through the Employers electrical reticulation bulk supply, limited to 3P+N, 1MVA, 380V AC.

### 1.2 Interpretation and terminology

Definition	Description
adhesive	The liquid bonding system used to promote adhesion between the rubber and the substrate.
approved	Refers to written approval by the Eskom Engineer.
applicator	Refers to personnel applying the lining system.
bonding system	System used to bond the rubber lining to the substrate.
cover coat	Is the second coat of a bonding system. It provides the link between the rubber and the primer.
Coating/lining/film	A continuous film of paint resulting from a single application.
coating/paint/lining system	"Coating/paint system" is an all-embracing term including method and degree of surface preparation, generic type, thickness, and number of coats and the method of application of the coats.
Contractor	The paint applicator/rubber liner or <i>Contractor</i> having the main Contractual responsibility to Eskom.
dry film thickness/nominal	The thickness of a lining remaining on the surface when it has hardened, the dry film thickness specified for each coat or for the entire paint system to achieve the required durability.
durability	The expected life of a lining system.
generic rubber type	Refers to the type of rubber being used.
generic organic lining	Refers to a type of product e.g., epoxy, polyurethane, etc.

inspector	Anyone responsible for ensuring conformity with this standard.
lining	A protective coating on the inner surface of a tank or pipe.
manufacturer	The manufacturer of the paint or rubber lining compounds and associated products such as primers, adhesives, solvents, cleaners etc.
maintenance	The sum of all measures which ensure that the function of the protection against corrosion is maintained.
primer	The base coat of a bonding system, which is applied directly to the metal substrate. This coat provides the link between the substrate and the cover – coat.
rubber lining	A process in which rubber is applied as an anticorrosion protection to protect the outside or inside of vessels, tanks, pipes, and equipment for industries.
substrate	A surface which has been prepared by grit blasting, followed by the application of the lining system.
surface preparation	The preparation of a substrate prior to applying the lining, i.e., welding, grinding, blasting, cleaning, application of bonding agents and tie coats.

The following abbreviations are used in this Works Information:

Abbreviation	Description
ASTM	American Society for Testing and Materials
CFU	Colony forming units
DFT/NDFT	Dry Film Thickness/ Nominal Dry Film Thickness
EID	Electrical Insulation Defect.
ISO	The International Organization for Standardization
FTU	Formazan turbidity units often designated JTU or NTU
OHS	Occupational Health and Safety
RT&D	Research Testing and Development
SANS	South African National Standards
SAQCC	South African Qualification and Certification Committee for Corrosion Protection
QC	Quality Control
QCP	Quality Control Plan
WTP	Water Treatment Plant

## 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	IR Boardroom OR MS Teams	<i>Employer, Contractor, Supervisor</i>
Toolbox sessions	Every-day before commence of work	Site	All the <i>Contractor's</i> employees.
Compensation events	As and when required	To be confirmed	<i>Employers and Contractor's</i>

			Representatives
Overall contract progress and feedback	To be agreed upon contract award	IR Boardroom OR MS Teams	<i>Employer's and Contractor's Representatives</i>
Kick off meeting	After contract award	IR Boardroom	<i>Employer's and Contractor's Representatives</i>

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

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

## 2.2 Documentation control

The Contractor is required to strictly comply to all the documents requirements stipulated on the **375-LET-BDDDD00185-21 Rev 2 Lethabo Power Station Demineralised Water Treatment Plant Refurbishment Project Technical Specifications**

## 2.3 Health and safety risk management

### 2.3.1 SITE ESTABLISHMENT

Continuous improvement

Contractors are required to conduct the following as part of the continuous improvement initiatives:

- Visible Felt Leadership by top management
- Identify critical tasks and monitor those tasks through Planned Job Observations
- Behavioural based safety, if the contractor does not have its own procedure, Eskom procedure can be used as a guide
- Contractor 16.1 shall present the lost time injury (LTI) incidents at Business Unit / Power station General Managers meeting within 7 days of the incident

### 2.3.2 CONTRACTOR/SUPPLIER MANAGEMENT KEY PERFORMANCE INDICATORS (KPI'S)

- Maintain Health and Safety file and compliance to the health and safety plan
- Always maintain good housekeeping
- Implement and monitor near miss programme
- Comply to BSO, Visible Felt Leadership and Planned Job Observation programmes
- Zero Fatalities
- At any given point, the OHS performance must be within the lost time injury (LTI) tolerance level as amended
- All incident investigations shall be completed within 30 days of the occurrence of an incident.
- Close audit findings as per the recommended time frames
- Close Non-conformance as per the recommended time frames (NCR,)

### 2.3.3 Contract completion and sign off

On completion of the project, Eskom team (led by the Contract custodian/ Project Manager) involved in the project together with the contractor shall conduct the final audit/inspections to identify the gaps prior to the contractor leaving site or completing the project. Before the final invoice is paid/processed, the Contract custodian/Project Manager shall ensure that the below requirements are met:

- a. Close all incidents and audit findings.
- b. Clean the respective yard and ensure good housekeeping where the contractor was working.
- c. Contractor shall submit safety statistics and a safety file to Eskom BU Safety department for closeout and filing.
- d. Completion of a closeout report (Annexure D form as per 32-726) to close the contractual work

Once the above issues have been addressed, the Contract custodian/Project Manager shall verify and sign off prior to releasing the final payment.

### 2.3.4 ENVIRONMENTAL CONSTRAINTS AND MANAGEMENT

- (1) Contactor to be familiarized with Lethabo Environmental statement of commitment (PS010).
- (2) The SHE File to be approved by the Environmental department. Lethabo has an Environmental Policy, to which the *Contractor* and his employees must adhere.
- (3) It is the responsibility of the *Contractor* to ensure that he obtains copies of the Lethabo Environmental Policy, the legal register applicable to his area of responsibility,
- (4) The *Contractor* shall submit an Aspect and Impact Register and Environmental management plan that complies with the ISO 14001: 2015 standard and the Lethabo procedures (applicable to the *Contractor's* area of responsibility) and to familiarize themselves on such procedures, within 30 days from the date of commencement of work at Lethabo, to assist the *Contractor* and his/her employees to prevent pollution and to comply with legislative requirements.
- (5) Copies of the above-mentioned documents shall be obtained from the *Employer* on the first day prior to commencement of work at Lethabo.
- (6) The *Contractor* shall submit proof to the *Employer* that his employees has done all the necessary training on procedures and Policies supplied to them and that they do understand the contents of the procedures, registers and policies and will always adhere to them. Self-audits during work execution will be conducted weekly whereby environmental risks are identified.
- (7) *Contractor* shall comply with the LBE22005 Environmental spill management procedure and LBE22004 Environmental waste management procedure.
- (8) The *Contractor's* SHE File to be approved by the Environmental Department using LFM 443 checklist.
- (9) *Contractor* shall report all incidents or risks whilst on the job to the *Employer* who will inform the environmental department.
- (10) The *Contractor* adheres to the following rules:
  - Provide sufficient storage containers, labelled depicting general or hazardous waste and store in a designated storage area
  - No hazardous waste may be stored for a period of more than 90 days on the Lethabo premises.
  - Ensure that all hazardous waste is disposed off at a licensed Class H disposal site. A copy of the hazardous waste disposal certificate is submitted to the *Employer*.
  - Ensure that all other general waste is disposed of at the local municipal waste dump.

- Ensure that the *Contractor's* site does comply with the general good housekeeping practices.
- Redundant materials are moved to allocated sites. No scrap shall be stored in the *Contractor's* yard. Scrap is to be cleared from Site daily.

(11) The non-adherence to the Lethabo Environmental policy and rules could result in the termination of this contract.

The *Contractor* to be ISO14001 Certified. The *Contractor* is to ensure compliance to environmental requirements of ISO14001 and the following Lethabo environmental procedures:

- LBE21001
- LBE21002
- LBE22001
- LBE22002
- LBE22004
- LBE2205
- LBE23001
- LBE23003
- LBE23004

### 2.3.6 QUALITY ASSURANCE REQUIREMENTS

- The *Contractor* implements a quality system and maintains the quality system until the completion of the whole of the *Works*. The system, will as a minimum, comply with the provisions of the 9001:2015 series and the Supplier Contract Quality Requirements Specification (QM-58) The system will be to the *Employer's* satisfaction and will be accepted prior to the commencement of any work on site.
- The Service Provider to compile and submit QCP's as per scope of work and which conforms to scope of work specification. The QCPs will be reviewed and approved by the relevant Employer's quality stakeholders (System Engineer, Quality Controller Inspector, Welding Engineer, NDT Engineer and AIA) prior to any execution of work as per the scope of work. The service Provider shall adhere to all intervention points (Hold and Witness points).
- For all Welding and NDT activities, service provider shall conform to Eskom welding Rule 240-106628253 and Standard for NDT requirements on Eskom Plant 240-83540088.
- All material delivered on site to be first inspected by QC inspector, AIA and Engineering before installation
- First line inspection to be done by service provider Quality controller inspector.
- Eskom Quality Controller shall conduct inspection progressively (prior, during and completion of all scope of work).
- The service provider to provide the Quality personnel who will oversee all quality requirements of the scope of work.
- All relevant national and international standards applicable to the scope of work apply and shall be complied with.
- QCPs, ITPs and Method Statement prior to commencement of project. The contractor to use the client templates or the documentation to meet the client's minimum requirements
- The *Contractor* is responsible for defining the level of Quality Control Plan (QCP) or inspections to be imposed. The level should be based on criticality of plant and material and must be submitted to the *Employer* for acceptance prior to the commencement of any work activities. The employer's QCP template to be used.
- The *Contractor* compiles a data package of relevant drawings, test certificates, design checks and other technical information for each section of work or Task Order which is to be reviewed and signed off by the *Employer*.
- The *Contractor* will be subject to periodic audits by the *Employer* in order to ensure compliance with the system. Any deviations will be corrected to the *Employer's* satisfaction. The contractor to do all the quality control activities
- The *Employer* has the right to stop the *Contractor's* work activities which, in the opinion of *Employer*, does not meet the requirements of the system and will have a detrimental effect on plant performance.

- The *Contractor* may only continue with work activities when all deficiencies have been corrected to the *Employer's* satisfaction. The *Contractor* shall have no claim against the *Employer* in respect of delay due to the above.
- The *Contractor* ensures that all plant and materials for the *Works* are to the standard and quality accepted by the *Employer* and ensures that they are suitable for the purpose intended by the manufacturer.
- The *Contractor* will work according to the *Employer's* standards, specifications, guidelines, and procedures. Where no standards, specifications, guidelines, and procedures are available, the *Contractor* will work according to the Generation Quality manual and professional guidelines. Where possible, standards will be reflected in the Task Order.
- The *Employer* is in the process of being accredited to 9001:2015
- The *Contractor* will ensure that they facilitate effective and efficient management of incident from the moment it occurs, until it can be audited and mitigated.
- The *Contractor* shall be required to compile the reports which is in line with SHE Incident Management Procedure (32-95) and submit it to *Employer* when there is an incident involving their employees and also applicable to this contract.
- In case the *Contractor* damages the plant whilst executing the scope, the *Contractor* shall rectify the plant and the contract can be terminated thereafter.
- The *Contractor* submits a fully detailed Quality Control Plan (QCP) for acceptance within three (3) weeks of the Contract Date, which details all the aspects of the quality management system to be applied. It includes the methods that will be utilized to ensure quality assurance, control and improvement of the identified activities as stated in the Scope of Works. *The QCP completed items to have positive evidence of completion status.*
- **Non-Conformance and Defects** - NCR's and defects notifications are issued, the Service provider will acknowledge the receipt within 48 hours and proposes corrective and preventive actions to the client as per the contract response period. The corrective and preventive actions will include the implementation and completion dates.
- The *Contractor* is responsible for defining the level of QA/QC (Intervention Points) or inspection to be imposed on his *sub-Contractors* and suppliers of material in the Quality Control Plans (QCPs). This level is based on the criticality of equipment and must be submitted to the *Employer* for acceptance.
- Product data sheets, product samples, and any other documents are submitted for review and acceptance by the *Employer* after contract award and prior to the commencement of work.
- All quality control documentation is submitted to the *Employer* within two weeks days of Contract date.
- The Service Provider shall provide Data Book at end of the project as per the Works Information Requirements. The data book shall consists of the following as a minimum :
  - Design Drawings, Manuals and Specifications
  - Signed QCP's
  - Method statement as per Scope of Work
  - Approved drawings
  - Approved welding procedures, welders certificate
  - NDT and Visual inspection Reports
  - Coating Reports
  - Dimensions Reports
  - C&I, Electrical and Civil Test inspection reports.
  - Final release report for all executed activities.
  - Refer to works information for all documents required

To ensure conformance to Quality Management Systems Standards the following standards must be followed

ISO 9001:2015 Quality Management System requirements.

- ISO10005 – Quality Management System Guidelines for Quality Plans
- ISO10006 – Quality Management Systems Guidelines for Quality Management in Projects
- ISO10007 – Quality Management Systems Guidelines for Configuration Management
- ISO31000 – Risk Management Principles & Guideline

### 2.3.7 PROGRAMMING CONSTRAINTS

- (1) The *Contractor* shall submit the first programme to the *Project Manager* for acceptance within the period stated in the Contract Data and it must be updated as per the intervals prescribed in the Contract Data.
- (2) The Accepted Programme at the Contract Date serves as a baseline for the execution of the works until the latter of the defects date or the end of the defects correction period. This baseline shown on all subsequent graphical presentations of revised programmes.
- (3) The *Contractor* adhere to the following programming constraints:
  - **The *Contractor* shall submit a program, compiled in Microsoft Project/Primavera or similar program, which will provide details of the list of activities and the duration of each activity. The program should be no longer than 3 years, The Acceptance of Design shall be limited to 3 months and the Duration for execution shall be a Maximum of 33 months from the day access is granted on the plant**
  - A list of activities and duration of each shall be made available after an instruction to commence work is supplied to the *Contractor* by the *Employer's* Representative.
  - The program shall be updated weekly and will be used to manage all installation activities.
- (4) The *Contractor* submits a bar chart program two weeks after award of the contract showing the following:
  - The early start and early completion date of each activity.
  - The late start and late completion of each activity Planned completion.
  - The order and planning of operations which the *Contractor* plans to do in order to provide the works.
  - The *Contractor* prepares and submits an update, seven days after the start date, showing actual progress and the effect upon the remainder of the activities to be completed.
- (5) The *Contractor* submits, together with the progress reports, a written report which contains the following:
  - Statement and report on those sections of the works where delay against programme has occurred (if any), together with the reasons why delay has occurred and a plan denoting the action to be taken and the period of time necessary to recover such delay.
  - Statement and report on those sections of the works that are currently ahead of programme (If any).
  - The impact of any programming changes arising is reflected in revised forecast rate of invoicing schedules and resource schedules.

#### Monthly Progress Report (for Payment)

The contents of the report may vary from month to month depending upon the phase of the project and/or the items of management focus. However, the basic framework of the report consists of the following:

- Executive summary (narrative identifying major movement within the reporting period).
- Pictures of works done for the month before and after
- Detailed description of the work done to date
- Attach Surveys done if applicable for the reporting month



- Revised Programme indicating, actual progress of work against last Accepted Programme.
  - A one-month look ahead work window.
  - Activities in progress during as well as completed during current reporting period per discipline, including the activities of the Employer and Others.
  - Activities to undertaken during next reporting period per discipline, including the activities of the Employer and Others.
  - Status overview by unit, by plant area, by phase.
  - Key issues / Items of concern and corrective actions. (Challenges encountered and recommended solution or request for resolution)
- 
- Early warning log.
  - Compensation event log.
  - Critical activities report.
  - Attach Forecast rate of payment schedule updated with actual progress.
  - Statement and report on work ahead and behind progress.
  - Attach Signed QCP's for the completed activities being claimed
  - Attach Time sheets for time related items and travel log for transport claims
  - Attach Delivery Notes for material being purchase and delivered (Eskom Project Manager, Engineer and/or QC to inspect Material being delivered)
  - Attach Daily Dairies for the month

### 2.3.8 CONTRACTOR'S MANAGEMENT, SUPERVISION AND KEY PEOPLE

- (1) The *Contractor* is to provide a detailed organogram at tender. The organogram must clearly indicate the employee's details. In the event of any person within the *Contractor's* organogram changing, the *Contractor* is to obtain approval for the replacement from the *Project Manager*.
- (2) The *Contractor* shall provide his own Responsible person as required by the Permit to Work system on site during the duration of the works.

### 2.3.9 INVOICING AND PAYMENT

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

The *Contractor* shall address the tax invoice to Eskom Holdings SOC Ltd and include on each invoice the following information:

- Name and address of the *Contractor* and the *Project Manager*.
- The contract number and title.
- *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.
- Less amounts to be paid by or retained from the *Contractor*.

- (1) The *Contractor* shall address the tax invoice to:

Lethabo accounts payable section (APS).  
Private Bag x 415  
Vereeniging

1930

E-mail their pdf format to [Invoiceseskomlocal@eskom.co.za](mailto:Invoiceseskomlocal@eskom.co.za)

and include on each invoice the following information:

- (2.1) Name and address of the *Contractor*.
- (2.2) The contract number and title.
- (2.3) *Contractor's* VAT registration number.
- (2.4) The *Employer's* VAT registration number 4740101508.
- (2.5) The total Price for Work Done to Date which the *Contractor* has completed.
- (2.6) Other amounts to be paid to the *Contractor*.
- (2.7) Less amounts to be paid by or retained from the *Contractor*.
- (2.8) The change in the amount due since the previous payment being the invoiced amount - excluding VAT, the VAT and including VAT.

### **2.3.10 INSURANCE PROVIDED BY THE EMPLOYER**

- (1) Refer to Part C1.

### **2.3.11 CONTRACT CHANGE MANAGEMENT**

- (1) The change management process for addressing changes on the contract will be as follows.
  - (1.1) All requests for contract changes shall be submitted in writing by the *Contractor* to the *Project Manager* as per the terms and condition of the contract.
  - (1.2) The *Project Manager* will follow the prescribed requirements for managing contract changes as per his/her delegation of authority.
  - (1.3) The *Contractor* shall ensure that all changes accepted by the *Project Manager* are documented and kept as record.

### **2.3.12 CONTRACTOR REQUIREMENTS**

- (1) All scaffolding, lagging, and cladding as well as rigging requirements where applicable shall be the responsibility of the *Contractor*.
- (2) The *Contractor* shall be responsible for supply of all the equipment and tools to conduct the *works*.
- (3) The construction price on the price list should cater for Equipment, tools and scaffolding and rigging cost.
- (4) The *Contractor* ensures that suitable supervisory personnel are sent to Site for training as Responsible Person's (RP). A minimum of 2 people are required to be trained as RP's so that at least one of these personnel are supervising at all times during the execution of the works. This is a compulsory requirement.
- (5) The Contractor takes notes that High Voltage 1 course is 1 weeklong. Plant Safety Regulations (PSR) course is 2 weeks and ARC, and Risk course are 1 and half days each. In total, the whole course for RP training is 4 weeks. This is then followed by at least 2 weeks for practical training before the identified personnel is required go to the examining committee for their final assessment for authorisation as a RP. These timelines should be incorporated into the programme with allowance in case the course is not passed.

- (6) The *Contractor* verifies that the respective system being worked on is drained, isolated and is safe to work on by means of the issue and acceptance of a Permit to Work (PTW) by the Responsible Person (RP) and that all workers are signed on to the RP's Worker's Register.
- (7) The *Contractor* is responsible for the temporary removal of any plant equipment, walkways, ladders, supports etc. for purposes of access or inspection for the duration of the works.
- (8) All plant equipment removed for the purpose of access or inspection will also be included in the respective activity's QCP/ITP to ensure that all equipment is properly re-installed. The re-installation of the plant equipment will be the responsibility of the *Contractor*. The *Contractor* securely and safely protects the vessels, pipework and other equipment remaining in service to ensure that they are not damaged during the works. Any damages to the plant will result in serious safety and production related incidents and must be avoided.
- (9) The *Contractor* shall allow in his program, 4 weeks for the Responsible Person's (RP). training and panel interview prior commencing with the *works* on site.
- (10) The *Contractor* shall adhere to the agreed schedule and apply project management principles to avoid delays.
- (11) No work shall commence without the supervision and or availability of the key personnel on site as required by the legislation.
- (12) Tool box talk and risk assessment to be done every day prior work commencement.
- (13) Risk register to be signed by all personnel prior the work commencement.
- (14) The *Contractor* shall provide a site diary on site to keep record of all daily site activities/events and instructions by the *Project Manager*.
- (15) The *Contractor* shall not act or execute any instruction made by any person without the *Project Manager's* knowledge or input especially if that will have an impact on the triple constraints (scope, cost, time).

### **2.3.13 PROVISION OF BONDS AND GUARANTEES**

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

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

### **2.3.14 RECORDS OF DEFINED COST, PAYMENTS & ASSESSMENTS OF COMPENSATION EVENTS TO BE KEPT BY THE CONTRACTOR**

- (1) To substantiate the Defined Cost of Compensation Events, the *Employer* may require the *Contractor* to keep records of amounts paid by him for people employed by the *Contractor*, Plant and Materials, work subcontracted by the *Contractor* and Equipment.

### **2.3.15 TRAINING WORKSHOPS AND TECHNOLOGY TRANSFER**

Training workshops and technology transfer is required so that Employer and Contractor can both resolve plant problems when they do arise .All training requirements to be fulfilled as specified in the Technical Specification

### 3 ENGINEERING AND THE CONTRACTOR'S DESIGN

The Contractor is required to strictly comply to all the engineering and the contractor's design requirements stipulated on the **375-LET-BDDDD00185-21 Rev 2 Lethabo Power Station Demineralised Water Treatment Plant Refurbishment Project Technical Specifications**

### 4 PROCUREMENT

#### Local Production & Content (Designated Materials Thresholds)

Commodity	Components	Local Content Threshold
Pumps	Centrifugal Process pumps ( vertical spindle pumps) , End suction centrifugal ( single stage end suction centrifugal pumps) and Positive displacement pumps (diaphragm pumps)	70%
Valves	Control, Butterfly, Gate, Check, Ball, Diaphragm, Safety/Relief, Plug, Air, Globe, Pressure reducing Valves	70%
Actuators	Pneumatic Actuator -Spring Return, Manual actuators	70%
Cables	Electrical cable (Low voltage, Low-cost reticulation, Medium and high voltage and ACR)	90%
	Telecom cable (Optical Fibre cables and Copper telecom cables).	90%
Fabricated structural steel	Latticed steelwork, reinforcement steel, columns, beams, plates girders, rafters, bracing, cladding supports, stair stringers & treads, ladders, steel flooring, floor grating, handrailing and balustrading, scaffolding, ducting, gutters, launders, downpipes and trusses.	100%
Fasteners	Bolts, nuts, rivets and nails	100%
Joining/connecting components	Gussets, cleats, stiffeners, splices, cranks, kinks, doglegs, spacers, tabs and brackets	100%
Plates	>4.5mm thick and supplied in flat pieces	100%
Sheets	<4.5mm thick and supplied in coils	100%
Roof and Cladding	Bare steel cladding, galvanised steel cladding, colour coated cladding	100%
Steel pipe fittings and specials	Bare  Galvanized  Flanges (Forged fittings)	100%
Steel pipe fittings and specials	Lined and Coated  Galvanised, Lined and Coated	80%

Steel Construction Material (primary steel products)	Plates (>4.5mm thick and supplied in flat pieces) Sheets (<4.5mm thick and supplied in coils) Galvanised and Colour Coated Coils Sections (Channels, angles, I beams and H beams) Reinforcing bars	100%
Cement	Cement	100%

Tenderers must submit Annexures C, D & E for local production and threshold as evidence of compliance with this requirement. These annexures are mandatory at tender closing date.

### SDL&I Requirements

The undertakings shall be sourced from previously disadvantaged Communities around Sedibeng and Fezile Dabi District Municipalities.

#### I. Skills Development

Tenderers are required to submit proposals in a table below for developing the skills of unemployed candidates in the country. Skills development is intended to address Eskom's core, scarce and critical skills and the scarce and critical skills. These skills are also included in a 2020 list of occupations in high demand as stipulated in the Government Gazette 43937. Candidates shall be from all provinces in the country, and their composition shall be representative of the population demographics of South Africa.

Skill type / Occupation	Eskom target	Proposed Number of Candidates
Electrical Artisan	3	
Welder (intake N3. Matric – outcome???????)	3	
Mechanical Artisan (Boilermaker, Fitter and/or Turner) –	3	
Safety Officer	3	

The process of developing these skills shall involve the participation by tenderers directly and through their supply network. In certain cases, the SETA's accredited training providers can be approached to participate in developing critical and scarce skills.

**Note:** That these targets for skills development candidates categorically exclude Eskom employees and registered learners. The tenderers are required to take full responsibility for the total cost of developing the requisite skills, and Eskom shall not make any financial contribution towards the fulfilment of this obligation. Tenderers also are advised to approach their relevant SETAs to access grants, subsidies, and incentives as well as South African Revenue Services for tax rebates that are earmarked for skills development initiatives.

## II. Job Opportunities

Tenderer to indicate number of Jobs to be created and/or retained from this contract:

Number of Jobs to be created	Number of Jobs to be retained

## III. Procurement spend on entities with a minimum 51% black ownership

The winning tenderer is encouraged to procure/spend on designated groups on the following paid invoices for both:

- The indirect expenses (e.g. overheads) on goods and services supplied to the contractor/supplier by designated groups; and the
- Direct spend on goods and services supplied by the subcontractors for the execution of the scope of work.
- Activities, as a proportion of the local procurement content, which may be subcontracted to designated black owned enterprises must be submitted in a table below.

Procurement from Designated Group	Eskom Target	Tenderer Proposal
Black Owned	25%	
Black Women Owned	5%	
Black Youth Owned	3%	
Black Persons with Disability	1%	

## 5 People

### 5.1 Minimum requirements of people employed on the Site

- (1) The *Contractor* is to provide a detailed organogram at tender. The organogram must clearly indicate the employee's details. In the event of any person within the *Contractor's* organogram changing, the *Contractor* is to obtain approval for the replacement from the *Project Manager*.
- (2) The *Contractor* shall provide his own Responsible person as required by the Permit to Work system on site during the duration of the works.
- (3) Qualified people with adequate skills in construction knowledge and experience are involved from the beginning of the project, to maximize the benefits of the constructability analysis. This process includes examining design options, where applicable, that minimize construction costs while maintaining standards of safety, security, quality, cost, and schedule, and is initiated in the front-end planning process. The Contractor considers various phases of the project and demolition activities, where applicable, that includes manpower plans, organization, construction equipment usage, material storage and handling and preparation of construction facilities

## 6 BBBEE and preferencing scheme

Specify constraints which *Contractor* must comply with after contract award in regard to any Broad Based Black Economic Empowerment (B-BBEE) or preferencing scheme measures.

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

If the ASGI-SA requirements are to be included in this contract specify constraints which Contractor must comply with after contract award in regard to any ASGI-SA requirements. The ASGI-SA Compliance Schedule completed in the returnable tender schedules is reproduced here. If ASGI-SA does not apply, delete this paragraph.

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

[Insert the agreed ASGI-SA Compliance Schedule here]

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

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

## 8 Subcontracting

Subcontracting is mandatory on contracts above R30 million and is a condition for contract award.

Tenderers shall subcontract a minimum of 25% of the contract value to the following designated groups:

- an EME or QSE which is 51% owned by black people living in rural or underdeveloped area or townships.

**NOTE 1:** Tenderers shall submit the following mandatory returnable for Subcontracting:

- Subcontracting agreement signed by both with subcontractors' company registration documents (CK and B-BBEE certificate or sworn affidavit), **OR**
- Copies of sub-contracting contracts (agreements) or copies of letters from the tenderer to the sub-contractors, stating the intent to sub-contract. The Tenderer should sign both documents and the Sub-contractor(s) earmarked.

### Potential scope to be subcontracted and/or outsourced:

- Scaffolding;
- Rigging Equipment;
- Replacement of Pipe work;
- Replacement of air pipes;
- Transportation (Employees and all material, equipment etc...);
- Site Establishment (Office equipment, ablutions, chemical storage etc....);
- Site De establishment;
- Supply of PPE;
- Civil Concrete and Structural Repairs for Train;
- Control and Instrumentation;
- Electrical;
- Supply of Mega bags; and
- Management of Resin.

Subcontracting, in this instance, will be treated as a condition for contract award. A supplier awarded a contract may not subcontract more than 25% of the value of the contract to any other entity that does not have an equal or higher B-BBEE status level of a contributor than the supplier concerned unless the contract is subcontracted to an EME that has the capability and ability to execute the subcontract

## **NB: The supplier to propose how they will meet the 25% of the contract value**

### **Plant and Materials**

#### **8.1 Plant and Material supply**

- 1) The *Contractor* provides all tools and equipment for the handling of material and the proper execution of the works.
- 2) The *Contractor* takes reasonable care to ensure that equipment used does not cause damage to any existing infrastructure. In the event that such damages do occur to the surrounding infrastructures, the *Contractor* is responsible for repairing such damages and is liable for all costs associated with the repairs.
- 3) The *Contractor* is to supply, deliver, offload, and temporarily store (as may be required) all materials needed to carry out the works.

#### **8.2 Storage Facility**

- 1) The *Contractor* is to make his own arrangements with regard to storage facilities and laydown areas that are required to complete the works. All laydown areas on Site are as per agreement with the *Project Manager*.
- 2) All storage facilities (Plant, Material and Equipment) will be within the boundaries of the Site in order not to affect the operations of Others.

#### **8.3 Method Statement**

- 1) This Method Statement clearly illustrates how the *Contractor* accounts for the risks of this project and is tailored to address the specified project objectives and requirements.
- 2) The Method Statement includes, as a minimum and where applicable, the following:
  - Constraints identified and considered by the *Contractor*.
  - Interfacing with *Others*; the *Contractor* illustrates an understanding of the work that is to be completed by *Others* and accommodates for the completion of such work in his methodology.
  - Description and illustrations of a construction traffic plan, use of laydown areas and plot plan.
  - Shifts and hand overs for the various sections of the works, this information is to enable the *Employer* to integrate the programmes of the various *Contractors*.
  - Design tools and systems that the *Contractor* plans to use. Measuring devices to be calibrated.
  - Construction methodology and sequence of construction taking into consideration access restrictions and safety requirements.
  - Detailed risk assessment which lists risks specific to the works and is accompanied with associated proposed mitigations.
  - List and description of plant and machinery required to carry out the civil and structural components of the works.
  - Inspection and quality control plan.
  - A clear description of the responsibilities of the *Contractor's* personnel involved with the works, including (where applicable) his *Project Manager*, Site Quality Manager, Site Engineer, Health and Safety Manager, Technical Office Manager, Production Manager, Supervisor, Environmental Officer, Fabricator, Erection Engineer, Shop detailer, Transporter and other personnel required for the civil and structural works.
  - Construction sequencing considerations, which takes into account any constraints.
  - Health, safety, and quality control for the activity.
  - All plant, equipment and machinery required to complete activity.
  - Manufacturer's literature/ Technical Data Sheets for all materials used including product description, composition, material and performance properties, installation, and application procedures, use limitations and recommendations.



- Plan for confining, collecting, and disposing of waste materials as a result of removal operations, where applicable.
- Works required to safeguard existing infrastructure and services.

#### 8.4 Constructability Analysis

- 1) The *Contractor* uses the *Employer's* standard: 240-107981296, Constructability Assessment Guideline to perform the constructability analysis.
- 2) The *Contractor* has a structured process in place for constructability analysis, for the optimum use of construction knowledge and experience in planning, design, procurement, and field operations to achieve the *Employer's* objectives.
- 3) Qualified people with adequate skills in construction knowledge and experience are involved from the beginning of the project, to maximize the benefits of the constructability analysis. This process includes examining design options, where applicable, that minimize construction costs while maintaining standards of safety, security, quality, cost, and schedule, and is initiated in the front-end planning process. The *Contractor* considers various phases of the project and demolition activities, where applicable, that includes manpower plans, organization, construction equipment usage, material storage and handling and preparation of construction facilities.
- 4) The *Contractor* submits a Constructability Analysis Report, based on the Method Statement, to the *Project Manager* for review and acceptance. The report is to clearly indicate how the *Contractor* takes into account interfaces with other *Contractors* where applicable, together with the Site and time constraints. This report clearly illustrates how the construction would be completed within the allowable timeframes and highlights the risks of meeting this requirement. The *Contractor* is required to plan his activities to avoid the following interface risks and any other risks relevant to the works:
  - Interface issues arising from working in close proximity to Others.
  - Access to Site.
  - Material storage.
  - Delivery.
  - Other Works related risks.

This report clearly illustrates the construction sequencing and durations for the completion of the works within the contract period. The *Contractor* submits a risk assessment as part of the Work Method Statement, which is informed by the Constructability Analysis Report that advises on a proposed approach and methodology to mitigate risks described above and any other risks, which may impede successful execution of the works.

### 9. Construction

#### 9.1 Temporary works, Site services & construction constraints

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

Refer to C4 Site information

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

Normal working hours must be maintained as far as possible. The normal working hours on site will be from 07:30am to 16:30pm Monday to Thursday and 07:30am to 12:00pm on Fridays. Should the *Contractor* wish to work outside these normal working hours, he should notify the *Project Manager* in writing.

The *Contractor* will only be allowed to work outside the specified hours once the *Project Manager* has approved the request in writing.

### 10. Site services and facilities

## 10.1 Site yard

It is required, for the proper co-ordination and execution of the *Works* that the *Contractor* (if required) has an office on site for the duration of the installation and optimisation. A site will be made available to the Contractor for his yard within the power station security area. The yard is a raw site and will be used by the Contractor for the establishment of his offices, workshop, and stores.

The Contractor's yard is subject to periodic inspection by the Project Manager. The location of the nearest sewer manhole, power distribution point, portable water connection storm water channel and road access point is indicated by the Employer. The Contractor is responsible for connection to the closest point of supply.

Upon Contract award the Contractor is to determine site requirements, submit a site layout plan and include site management plans to be approved by the Project Manager. The Contractor can only establish site once a signed/approved trenching assessment and Lethabo LFM051 Application Contractors site establishment forms have been received by the Contractor.

The site yard shall consist of the following as a minimum

- Proper barricading of the site yard by use of fencing and/or approved method by the Project Manager
- The site is to have a paved floor or alternative method approved by the Project Manager
- Sufficient lighting should the Contractor be working at night
- Sufficient ablution facilities for the number of people employed on site
- Sufficient eating facilities for Employees working on site
- The Contractor is provide its own piping and cable to connect to a power source, sewage points, water points and Air supply points. The Employer is only responsible to provide a water point, power source, sewage point of connection and air points to the contractor no piping or cable shall be provided by the Employer.
- The site must have a board to indicate whom the site belongs too
- The Contractor is to maintain the reverse parking already adopted at Lethabo Power Station at the allocated site
- The Contractor is to have access Control for the allocated site, the Employer already has an access control to its facilities, but the Contractor is to maintain access control at the allocated site

## 11. Supply of electricity

Electricity will be made available for construction purposes free of charge from power points which will be indicated by the *Project Manager*. The *Contractor* will be responsible for the provision of the reticulation system from the point of supply. Both 220 (AC) Volt and 380 (AC) Volt are available on request. All points of supply requested by the *Contractor* are provided in terms of quantity and location at the discretion of the *Project Manager*. No guarantees of power supply quality are given, and power supply breaks of some duration may occur without warning.

The *Contractor* makes arrangements at his own expense to improve continuity and quality of power where necessary for any reason and no claim of any nature relating to power failures is considered. No connection is made to the permanent installation at the Power Station without the prior acceptance of the *Project Manager*. The power supply is managed in accordance with the latest revision of the *Employer* 's safety regulations, Operating Regulations for High-Voltage Systems and Plant Safety Regulations. The *Contractor* shall ensure that all electrical equipment are tested and accompanied by COC or proof of tests certificates before connections to Eskom supply is permitted.

## 12. Lighting

The *Contractor* at his own expense provides temporary local lighting in accordance with the requirements of the Occupational Health and Safety Act where necessary. The *Project Manager* provides no local lighting. All construction lighting is the responsibility of the *Contractor*.

### **13. Water**

Water is made available on request free of charge from water points on site. The *Contractor* supplies at his own cost all connections, fittings, piping work, temporary plumbing, and pumps necessary to lead water from the *Employer's* points of supply to the various points where it is required. The *Contractor* is responsible for maintaining his equipment and to removal at Completion of the whole of the *works*.

The *Project Manager* does not guarantee continuity of supply and the *Contractor* makes his own provision for standby supplies to maintain continuity of work. Claims of any nature relating to discontinuity of water supply are not considered.

Water wastage due to un-maintained pipe work or fittings provided by the *Contractor* will be calculated and will be for the cost of the *Contractor*.

### **14. Roads and vehicles**

Main access roads are surfaced and complete and may be used by the *Contractor* with the necessary care. The *Employer* maintains the Site roads, described above, to a fair condition. Any costs incurred by the *Project Manager* from damage caused to underground services, structures, etc. as a result of the *Contractor* not using the prescribed routes is recovered from the *Contractor*. The *Contractor* provides temporary access points from the prescribed routes and roads to the points where the *Contractor* is required to perform work, having first obtained permission in writing from the *Project Manager*.

All vehicles used on site, by the *Contractor* will be road worthy and fitted with fire extinguishers as required.

All road signs, traffic laws and regulations on site shall be adhered to by the *Contractor*. *Contractor's* employees failing to comply with the above will be denied access onto site.

### **15. Compressed Air**

The *Contractor* provides at his own cost, all connection fittings and pipework necessary to lead the compressed air from the point of supply to the various points where it is required. Such fittings must be compatible with the *Employer's* fittings so that galvanic corrosion of pipework is prevented. The *Contractor* is required to maintain all his connections and remove them on completion of the *works*. Compressed air wastage due to un-maintained pipe work or fittings provided by the *Contractor* will be calculated and the cost will be recovered from *Contractor*.

### **16. Ventilation**

The *Contractor* is responsible for adequate ventilation of the works.

The *Contractor* shall provide everything else necessary for providing the Works

### **17. Facilities provided by the Contractor**

#### **17.1 Contractor 's yard, offices, workshops and stores**

If it is required for the *Contractor* to have a site office for proper co-ordination and execution of the *Works*, the *Contractor* shall include in his establishment, rates for all further treatment of the yard areas that he considers necessary for his entire operation throughout his period of occupation. The *Contractor* also includes for all security fencing, security, and access arrangements. Maintenance of the yard is the *Contractor's* responsibility and to the *Project Managers* acceptance.

Outfall drainage of all surface run-off drains is constructed by the *Contractor* to the acceptance of the *Project Manager* to minimise erosion and to effect control of contaminated water. The *Contractor's* plan for the layout of his yard area are accepted by the *Project Manager* prior to occupying the yard and the *Contractor* does not occupy any site area other than that allocated to him. The *Contractor's* plan states fully what measures are taken regarding removal and storage of topsoil, stabilisation of eroded areas and further loss of topsoil.

The *Contractor* complies with the environmental policy given in the Site regulations. The *Contractor* provides,

erects and maintains for his own use adequate size office accommodation and stores together with such drainage, lighting, heating, and hot and cold-water services as may be required. Provision is also made for adequate parking and a turning area adjacent to all the aforesaid structures. The *Supervisor* prior to commencement of any work on Site accepts all designs and layouts for these provisions.

The *Contractor* dismantles and clears the yard of all such temporary structures and associated foundations and infrastructure at the direction of the *Supervisor* on Completion of the whole of the *works*. No such dismantling and clearance work is carried out without prior acceptance from the *Supervisor*.

## **17.2 Telecommunications**

Neither a network point nor a telephone is available on site. Should the *Contractor* require one, he is to make his own arrangements with relevant authorities. Should the *Contractor* wish to use radio communication equipment on site, he will make his own arrangements with the relevant authorities. In this case, he is requested to liaise with the head of security at the station to ensure that there is no interference with existing channels or equipment.

## **17.3 Sanitary facilities and refuse**

The *Contractor* is to supply and maintain his own sanitary facilities at his *Contractor's* yard. A refuse control system will be established by the *Contractor*. All waste and refuse is collected and disposed of as directed by the *Project Manager*.

## **17.4 Equipment and appliances**

Any electrical Equipment, or appliances, used by the *Contractor* conforms to the applicable Occupational Health and Safety Act and safety standards. The *Contractor* shall maintain his equipment and appliances in a safe and proper working condition. The *Project Manager* has the right to stop the *Contractor's* use of any electrical Equipment, or appliance, which, in the opinion of *Project Manager*, does not conform to the foregoing.

Any special tools and equipment to be used on site for the execution of the *works* is the responsibility of the *Contractor*. No extension of time and/or claim for standing time will be granted should the *Contractor* not conform to this specification.

## **17.5 Access to site**

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

## **17.6 regulations**

The *Contractor* complies with the Site Regulations, a copy of which is available at the *Project Manager's* offices. Any subject within the authority of the *Project Manager* may be addressed by a Site Regulation. Before work starts on Site, a kick-off meeting is held with the *Contractor* and the *Project Manager*, to explain in detail all requirements of the Site Regulations.

The *Contractor* is issued with a file of current Site Regulations at the project kick-off meeting. The file remains the property of the *Project Manager* and the *Contractor* is responsible for its maintenance and updating to include new or revised regulations as issued by the *Project Manager* during the course of the *works*.

## **18. Permit to Work (PTW) system**

No work shall be carried out without a "Permit to Work". The employer's life saving rules shall be complied with. Refer to the **375-LET-BDDDD00185-21 Rev 2 Lethabo Power Station Demineralised Water Treatment Plant Refurbishment Project Technical Specification** for Further details

## **19. Accommodation and transportation**

The *Contractor* provides his own accommodation, meals, and transport for all his employees engaged in the execution of the works. This includes the needs of his *Subcontractors*. The cost for accommodation, meals as well as for transportation to and from Site is included in the Prices. The *Contractor's* employees are not allowed to sleep on site.

## **20. Contractor 's organisation**

The *Contractor* submits a project organogram to the *Project Manager*.

## **21. Security**

The *Contractor* provides security necessary for the protection of the *Works* at all times until the Completion of the whole of the *Works*. Access to the site is controlled and it is governed by the terms and conditions laid down by the Station Security Officials from time to time. The proposed site will be shown to the *Contractor* during site meeting or clarification meeting. The *Contractor* liaises via the *Project Manager* with the Power station Security staff in order to obtain temporary permits for his staff and vehicles which will be working within the station.

The *Contractor* submits his application for vehicle permit to the *Project Manager*. Personnel and vehicles entering and leaving the site are subject to routine searches. The *Contractor* must obtain a "Gate Permit" from the *Project Manager*, before materials and equipment can be removed from the site. The "Gate Permit" gives an itemised list of materials and equipment to be removed from site. If any *Contractor's* staff are transferred from Lethabo or leave Site, the person's permit is handed over to the *Supervisor*. The *Contractor* ensures that personnel leaving site are transported out of the security area and that the permit is returned.

No firearms, weapons, alcohol, illegal substances and cameras (including cell phones with cameras) are permitted on Site. No 'Private Work' is carried out for or on behalf of any *Employer's* employee. Any person suspected of being under the influence of alcohol is tested and if proved positive, is refused entry to the security area.

## **22. Completion, testing, commissioning, and correction of Defects**

The *Contractor* to prepare and submit a handover certificate to the *Project Manager* for each section of work completed and the *Employer* shall issue a completion Certificate for each Section completed. The *Contractor* to comply with the testing, commissioning and defects requirements mentioned elsewhere in this document.

## **23. Use of the works before Completion has been certified**

N/A

## **24 Commissioning**

Commissioning is defined as bringing into service all items and meeting the functional requirements and performance criteria for the Works. The *Contractor* is responsible for co-ordinating and executing commissioning (including that of *Subcontractors*) activities in conjunction with the various departments of the Employer namely Operations, Engineering, Commissioning and QA/QC. Commissioning includes testing and verification of the stated performance criteria with:

Minimum Testing and Assessment criteria (as set-out in previous sections of this Works Information document as well as supplementary requirements which will be discussed with the detailed QA/QC plan).

Commissioning of the Works will commence after the plant safety clearance (which includes all turnover packages from construction to commissioning and including submissions such as the *Contractor's* Mechanical Completion Certificate to the Employer).

The *Contractor* submits a recommended Commissioning and Testing Program to the Employer for Consideration and acceptance. The accepted schedule forms the basis of the commissioning and testing program that is implemented during the overall unit commissioning and testing program.

Any commissioning and testing activity is confirmed on the project schedule with the Employer and if necessary, rescheduled (and where requested, in writing) by the *Contractor* in the appropriate forum provided 48 hours in advance to allow for the release of the plant for operation.

The *Contractor* interfaces directly with the station's commissioning staff and other involved *Contractors* and is available on a 24-hour basis on site if required for specific activities until this phase is completed.

The *Contractor* prepares and submits the Commissioning and Testing Procedures two months before the installation phase commences, for approval to the Employer, the Commissioning and Testing Procedures for all the commissioning and testing activities to be performed, detailing the methods, functionality checks, and acceptance criteria that are applicable.

Visually inspect the Works and components to verify the placing of plant labels, for their correctness and completion as per the requirements as set out in the technical evaluation, it should also be on the ITP/QCP and data book documentation.

The *Contractor* will provide sufficient skilled personnel for the satisfactory and timely commissioning of equipment; including the re-commissioning of existing equipment that will form part of the Works. The *Contractor* also provides all the test equipment for commissioning of the Works.

The *Contractor* must certify, in writing and in an official format (Certificate of Manufacture), to the Employer that equipment is in a suitable and safe condition for use before it is placed in service. The *Contractor* submits to the *Employer* on the ITP/QCP and documented in the data book for approval and endorsement of the following documents:

- All commissioning check sheets and tests
- Operational Acceptance Test reports
- Permits and Safety

## **25. Defects / Proving Period**

After completion of the *Contractor's* preliminary trials and commissioning of the plant to the *Employer's* satisfaction, the plants will be taken over by the *Employer* and continue in normal service for a minimum period of 12 months.

During this proving period the *Contractor* optimises all aspects of the operation of the plant and is responsible for any defect resulting from faulty design, material, and workmanship. The *Contractor* remedies such defects at his own expense and as soon as possible when called upon to do so by the *Employer*.

Any outage of sections of the plant required by the *Contractor* during this period shall, as far as practicable, be arranged to suit the convenience of the *Employer*. The duration of the outage shall be supplied to the *Employer* in advance (at least 1 week) so that necessary arrangements can be made.

Acceptance tests to determine the efficiency, performance and other guarantees specified will be carried out at any time during the six months proving period by mutual agreement between the *Employer* and the *Contractor*.

## **26. Start-up procedures required to put the works into operation**

The *Contractor* will work with the Appointed Operator and engineering representative of the plant to put the Works into operation after it has been safety cleared.

## **27. Take over procedures**

The *Employer* will take over the plant after he is satisfied with the optimisation. The *Contractor* will need to be on standby for the first 5 days after hand over and must provide further telecommunication assistance for the whole testing duration. The *Contractor* must be available on site within 24 hours to provide technical assistance if required during the testing period of 3 months.

### **28.1 Access given by the Employer for correction of Defects**

After the works have been put into operation, the Contractor will be required to follow the Plant Safety Regulation to work on the Works. He shall not work without a Work Permit to gain access to the plant

## List of drawings

### 8.3 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
DRAWING NO.		TITLE	
0.63	1849		CATION UNIT NO. 1, 2 and 3
0.63	04683 Sheet 1		WTP (WATER TREATMENT PLANT) TOP INLET CATION ARRANGEMENT
0.63	04683 Sheet 2		WTP (WATER TREATMENT PLANT) TOP INLET CATION LATERAL DETAILS
0.63	04683 Sheet 3		WTP (WATER TREATMENT PLANT) TOP INLET CATION CLIPS ON VESSEL DETAILS
0.63	04683 Sheet 4		WTP (WATER TREATMENT PLANT) TOP INLET CATION SUPPORT ANGLE DETAILS
0.63	04684 Sheet 1		WTP (WATER TREATMENT PLANT) TOP INLET CATION PARTS LIST
0.63	04684 Sheet 2		WTP (WATER TREATMENT PLANT) TOP INLET CATION PARTS LIST
0.63	04685 Sheet 1		WTP (WATER TREATMENT PLANT) TOP REGENERANT DISTRIBUTOR (CATION) LATERAL DETAILS
0.63	04685 Sheet 2		WTP (WATER TREATMENT PLANT) TOP REGENERANT DISTRIBUTOR (CATION) LATERAL DETAILS
0.63	04685 Sheet 3		WTP (WATER TREATMENT PLANT) TOP REGENERANT DISTRIBUTOR (CATION) CLIPS ON VESSEL DETAILS
0.63	04685 Sheet 4		WTP (WATER TREATMENT PLANT) TOP REGENERANT DISTRIBUTOR (CATION) SUPPORT ANGLE DETAILS
0.63	04686 Sheet 1		WTP (WATER TREATMENT PLANT) TOP REGENERANT DISTRIBUTOR (CATION) PARTS LIST
0.63	04686 Sheet 2		WTP (WATER TREATMENT PLANT) TOP REGENERANT DISTRIBUTOR (CATION) PARTS LIST
0.63	04687 Sheet 1		WTP (WATER TREATMENT PLANT) REGENERANT COLLECTOR (CATION) ARRANGEMENT
0.63	04687 Sheet 2		WTP (WATER TREATMENT PLANT) REGENERANT COLLECTOR (CATION) LATERAL DETAILS
0.63	04688 Sheet 1		WTP (WATER TREATMENT PLANT) REGENERANT COLLECTOR (CATION) PARTS LIST
0.63	04688 Sheet 2		WTP (WATER TREATMENT PLANT) REGENERANT COLLECTOR (CATION) PARTS LIST
0.63	04689 Sheet 1		WTP (WATER TREATMENT PLANT) BOTTOM REGENERANT DISTRIBUTOR (CATION) ARRANGEMENT
0.63	04692 Sheet 1		WTP (WATER TREATMENT PLANT) TOP INLET DEGASSER ARRANGEMENT
0.63	04692 Sheet 2		WTP (WATER TREATMENT PLANT) TOP INLET DEGASSER CLIPS ON VESSEL DETAILS
0.63	04693 Sheet 1		WTP (WATER TREATMENT PLANT) TOP INLET DEGASSER PARTS LIST
0.63	04693 Sheet 1		WTP (WATER TREATMENT PLANT) TOP INLET DEGASSER PARTS LIST



0.63	04717	WTP (WATER TREATMENT PLANT) DEGASSER DETAILS
0.63	1850	DEGASSER UNIT NO. 1, 2 and 3
0.63	1634	Degasser General arrangement
0.63	04696 Sheet 1	WTP (WATER TREATMENT PLANT) REGENERANT DISTRIBUTOR TOP (ANION WEAK) ARRANGEMENT
0.63	04696 Sheet 2	WTP (WATER TREATMENT PLANT) REGENERANT DISTRIBUTOR TOP (ANION WEAK) CLIPS ON VESSEL DETAILS
0.63	04696 Sheet 3	WTP (WATER TREATMENT PLANT) REGENERANT DISTRIBUTOR TOP (ANION WEAK) LATERAL DETAILS
0.63	04696 Sheet 4	WTP (WATER TREATMENT PLANT) REGENERANT DISTRIBUTOR TOP (ANION WEAK) SUPPORT ANGLE DETAILS
0.63	04697 Sheet 1	WTP (WATER TREATMENT PLANT) REGENERANT DISTRIBUTOR TOP (ANION WEAK) PARTS LIST
0.63	04697 Sheet 2	WTP (WATER TREATMENT PLANT) REGENERANT DISTRIBUTOR TOP (ANION WEAK) PARTS LIST
0.63	04699 Sheet 1	WTP (WATER TREATMENT PLANT) BOTTOM COLLECTOR WEAK BASE ANION EXCHANGER MATERIAL LIST
0.63	04699 Sheet 2	WTP (WATER TREATMENT PLANT) BOTTOM COLLECTOR WEAK BASE ANION EXCHANGER PARTS LIST
0.63	04702	WTP (WATER TREATMENT PLANT) REGENERANT DISTRIBUTOR BOTTOM (STRONG BASE ANION) ARRANGEMENT
0.63	04703	WTP (WATER TREATMENT PLANT) REGENERANT DISTRIBUTOR BOTTOM (STRONG BASE ANION) PARTS LISTS
0.63	04704 Sheet 1	WTP (WATER TREATMENT PLANT) BOTTOM COLLECTOR (WITH REGENERANT DISTRIBUTOR) MATERIAL LIST
0.63	04704 Sheet 2	WTP (WATER TREATMENT PLANT) BOTTOM COLLECTOR (WITH REGENERANT DISTRIBUTOR) PARTS LIST
0.63	04724 Sheet 1	WTP (WATER TREATMENT PLANT) TOP INLET (ANION WEAK) ARRANGEMENT
0.63	04724 Sheet 2	WTP (WATER TREATMENT PLANT) TOP INLET (ANION WEAK) LATERAL DETAILS
0.63	04724 Sheet 3	WTP (WATER TREATMENT PLANT) TOP INLET (ANION WEAK) CLIPS ON VESSEL DETAILS
0.63	04724 Sheet 4	WTP (WATER TREATMENT PLANT) TOP INLET (ANION WEAK) SUPPORT ANGLE
0.63	04725 Sheet 1	WTP (WATER TREATMENT PLANT) TOP INLET (ANION WEAK) PARTS LIST
0.63	04725 Sheet 2	WTP (WATER TREATMENT PLANT) TOP INLET (ANION WEAK) PARTS LIST
0.63	1851	WEAK BASE ANION UNITS NO. 1, 2 AND 3
0.63	04694 Sheet 1	WTP (WATER TREATMENT PLANT) TOP INLET ANION (STRONG) ARRANGEMENT
0.63	04694 Sheet 2	WTP (WATER TREATMENT PLANT) TOP INLET ANION (STRONG) LATERAL DETAILS
0.63	04694 Sheet 3	WTP (WATER TREATMENT PLANT) TOP INLET ANION (STRONG) CLIPS ON VESSEL DETAILS
0.63	04694 Sheet 4	WTP (WATER TREATMENT PLANT) TOP INLET ANION (STRONG) SUPPORT ANGLE

0.63	04695 Sheet 1	WTP (WATER TREATMENT PLANT) TOP INLET ANION (STRONG) PARTS LISTS
0.63	04695 Sheet 2	WTP (WATER TREATMENT PLANT) TOP INLET ANION (STRONG) PARTS LIST
0.63	04700 Sheet 1	WTP (WATER TREATMENT PLANT) REGENERANT COLLECTOR STRONG ANION ARRANGEMENT
0.63	04700 Sheet 2	WTP (WATER TREATMENT PLANT) REGENERANT COLLECTOR STRONG ANION LATERAL DETAILS
0.63	04701 Sheet 1	WTP (WATER TREATMENT PLANT) REGENERANT COLLECTOR STRONG ANION PARTS LISTS
0.63	04701 Sheet 2	WTP (WATER TREATMENT PLANT) REGENERANT COLLECTOR STRONG ANION PARTS LISTS
0.63	04702	WTP (WATER TREATMENT PLANT) REGENERANT DISTRIBUTOR BOTTOM (STRONG BASE ANION) ARRANGEMENT
0.63	04703 Sheet 1	WTP (WATER TREATMENT PLANT) REGENERANT DISTRIBUTOR BOTTOM (STRONG BASE ANION) PARTS LISTS
0.63	1852	STRONG BASE ANION VESSEL No. 1, 2 and 3
0.63	04705 Sheet 1	WTP (WATER TREATMENT PLANT) TOP INLET MIXED BED ARRANGEMENT?
0.63	04705 Sheet 2	WTP (WATER TREATMENT PLANT) TOP INLET MIXED BED LATERAL DETAILS
0.63	04705 Sheet 3	WTP (WATER TREATMENT PLANT) TOP INLET MIXED BED CLIPS ON VESSEL DETAILS
0.63	04705 Sheet 4	WTP (WATER TREATMENT PLANT) TOP INLET MIXED BED SUPPORT ANGLE DETAILS
0.63	04706 Sheet 1	WTP (WATER TREATMENT PLANT) TOP INLET MIXED BED PARTS LIST
0.63	04706 Sheet 2	WTP (WATER TREATMENT PLANT) TOP INLET MIXED BED PARTS LIST
0.63	04707 Sheet 1	WTP (WATER TREATMENT PLANT) REGENERANT COLLECTOR MIXED BED ARRANGEMENT
0.63	04707 Sheet 2	WTP (WATER TREATMENT PLANT) REGENERANT COLLECTOR MIXED BED LATERAL DETAILS
0.63	04707 Sheet 3	WTP (WATER TREATMENT PLANT) REGENERANT COLLECTOR MIXED BED HEADER SUPPORT DETAILS
0.63	04708 Sheet 1	WTP (WATER TREATMENT PLANT) REGENERANT COLLECTOR MIXED BED PARTS LIST
0.63	04708 Sheet 2	WTP (WATER TREATMENT PLANT) REGENERANT COLLECTOR MIXED BED PARTS LIST
0.63	04709 Sheet 1	WTP (WATER TREATMENT PLANT) REGENERANT DISTRIBUTOR BOTTOM MIXED BED ARRANGEMENT
0.63	04709 Sheet 2	WTP (WATER TREATMENT PLANT) REGENERANT DISTRIBUTOR BOTTOM MIXED BED LATERAL DETAILS
0.63	04710 Sheet 1	WTP (WATER TREATMENT PLANT) REGENERANT DISTRIBUTOR BOTTOM MIXED BED PARTS LIST
0.63	04710 Sheet 2	WTP (WATER TREATMENT PLANT) REGENERANT DISTRIBUTOR BOTTOM MIXED BED PARTS
0.63	04711 Sheet 1	WTP (WATER TREATMENT PLANT) TOP DISTRIBUTOR REGENERANT MIXED BED ARRANGEMENT
0.63	04711 Sheet 2	WTP (WATER TREATMENT PLANT) TOP DISTRIBUTOR REGENERANT MIXED BED LATERAL DETAILS
0.63	04711 Sheet 3	WTP (WATER TREATMENT PLANT) TOP DISTRIBUTOR REGENERANT MIXED BED CLIPS ON VESSEL DETAILS
0.63	04711 Sheet 4	WTP (WATER TREATMENT PLANT) TOP DISTRIBUTOR REGENERANT MIXED BED SUPPORT ANGLE DETAILS
0.63	04712 Sheet 1	WTP (WATER TREATMENT PLANT) TOP DISTRIBUTOR REGENERANT MIXED BED PARTS LIST
0.63	04712 Sheet 2	WTP (WATER TREATMENT PLANT) TOP DISTRIBUTOR REGENERANT MIXED BED PARTS LIST

0.63	1853	MIXED BED VESSEL NO. 1,2 AND 3
0.63	2499	PLOT PLAN WATER TREATMENT BUILDING
0.63	2500	PLOT PLAN SECTIONS
0.63	2317	WATER TREATMENT PLANT DEMIN. BUILDING ELEVATIONS AND DETAILS
0.63	2318	WATER TREATMENT PLANT DEMIN BUILDING ARCH. DETAILS
0.63	2861	CONCRETE LAYOUT OF RAFT SLAB
0.63	2862	CONCRETE LAYOUT OF SECTIONS THROUGH GROUND SLABS
0.63	54201	WATER TREATMENT PLANT – CHEMICAL OFFLOADING PLATFORM LAYOUT
0.63	51473	WATER TREATMENT PLANT – CHEMICAL OFFLOADING PLATFORM LAYOUT DRAINAGE TRENCH CONCRETE, REINF. DETAILS & SCHEDULE
0.63	54204	WATER TREATMENT PLANT – CHEMICAL OFFLOADING PLATFORM FLOODING STAIRS, HANDRAIL DETAILS
0.63	2917	WATER TREATMENT PLANT – CONCRETE LAYOUT AND DETAILS OF DEGASSER SUMP
0.63	3113	WATER TREATMENT PLANT – REINFORCEMENT DETAILS OF DEGASSER SUMP

## C3.2 *CONTRACTOR'S* WORKS INFORMATION

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

Typical sub headings could be

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

This section could also be compiled as a separate file.

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PART 4: SITE INFORMATION

Document reference	Title	No of pages
C4.1	This cover page	1
	Site Information	8
	Total number of pages	9

## C4 Site Information

Core clause 11.2(16) states

“Site Information is information which

- describes the Site and its surroundings and
- is in the documents which the Contract Data states it is in.”

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

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

#### **1. Site Procedures and Regulations**

##### **1.1 Health and Safety Requirements**

The *Contractor* and his sub-*Contractors* ensure at all times compliance with safety regulations imposed by any Act of Parliament, ordinance or any regulation or by-law of any local or statutory authority.

- The *Contractor* acts in accordance with the health and safety requirements stated in the Works Information.
- In carrying out its obligations to the *Employer* in terms of this contract; in Providing the Works; in using Plant, Materials and Equipment; and while at the Site for any reason, the *Contractor* complies and procures and ensures the compliance by its employees, agents, Sub-*Contractors*, and mandataries with:
- the provisions of the Occupational Health and Safety Act 85 of 1993 (as amended) and all regulations in force from time to time in terms of that Act (“the OHSA”); and the Eskom “Health, Safety and Environmental specifications for *Contractors*” document attached to the Works Information (as amended from time to time) and such other Eskom Safety Regulations as are applicable to the *works* and are provided in writing to the *Contractor* (collectively “the Eskom Regulations”). The Eskom Regulations may be amended from time to time by the *Employer* and all amendments will be provided in writing to the *Contractor*. The *Contractor* complies with the provisions of the latest written version of the Eskom Regulations with which it has been provided; and the health and safety plan prepared by the *Contractor* in accordance with the SHEQ Requirements  
(The OHSA and the Eskom Regulations are collectively referred to as the “SHEQ Requirements”.)
- The *Contractor*, at all times, considers itself to be the “*Employer*” for the purposes of the OHSA and shall not consider itself under the supervision or management of the *Employer* with regard to compliance with the SHEQ Requirements, the *Contractor* shall furthermore not consider itself to be a subordinate or under the supervision of the *Employer* in respect of these matters. The *Contractor* is at all times responsible for the supervision of its employees, agents, Sub-*Contractors*, and mandataries and takes full responsibility and accountability for ensuring they are competent, aware of the SHEQ Requirements and execute the *works* in accordance with the SHEQ Requirements
- The *Contractor* acknowledges that it is fully aware of the requirements of all the above and undertakes to employ only people who have been duly authorized in terms thereof and who have received sufficient training to ensure that they can comply therewith.
- The *Contractor* ensures that all statutory appointments and appointments required by any Eskom Regulations are made and that all appointees fully understand their responsibilities and are trained and competent to execute their duties. The *Contractor* supervises the execution of their duties by all such appointees.
- The *Contractor* shall appoint a person who will liaise with the Eskom Safety Officer responsible for the premises relevant to this contract. The person so appointed shall, on request: supply the Eskom Safety Officer with copies of minutes of all Health and Safety Committee meetings, whenever he is required to do so; supply the Eskom Safety Officer with copies of all appointments in respect of employees employed on this contract, in terms of the Act and Regulations and shall advise the Eskom Safety Officer of any changes thereto.

The *Employer*, or any person appointed by the *Employer*, may, at any stage during the duration of this contract:

- conduct health and safety audits regarding all aspects of compliance with the SHEQ Requirements, at any off-site place of work, or the site establishment of the *Contractor*. refuse any employee, Sub *Contractor*, or agent of the *Contractor* access to the premises if such person has been found to commit an unsafe act or any unsafe working practice or is found not to be qualified or authorised in terms of the SHEQ Requirements.
  - issue the *Contractor* with a stop order should the *Employer* become aware of any unsafe working procedure or condition or any non-compliance with any provision of the SHEQ Requirements.
  - The *Contractor* immediately reports any disabling injury as well as any threat to health or safety of which it becomes aware at the *works* or on the Site to the *Project Manager*.
- The *Contractor* undertakes not to do, or not to allow anything to be done which will contravene any of the provisions of the Act, Regulations or Safety and Operating Procedures.
  - The *Contractor* appoints a person, qualified in accordance with the SHEQ Requirements, as the liaison with the Eskom Safety Officer for all matters related to health and safety, this person shall be reachable 24 hours a day.
  - The *Contractor* confirms that it has been provided with sufficient written information regarding the health and safety arrangements and procedures applicable to the *works* to ensure compliance by it and all employees, agents, Sub-*Contractors*, or mandataries with the SHEQ Requirements while Providing the Works in terms of this contract. As such, the *Contractor* confirms that this contract and the relevant Eskom Regulations referred to in this contract constitute written arrangements and procedures between the *Contractor* and the *Employer* regarding health and safety for the purposes of section 37(2) of the OHSA.
  - The *Contractor* agrees that the *Employer* is relieved of any and all of its responsibilities and liabilities in terms of Section 37(1) of OHSA in respect of any acts or omissions of the *Contractor*, and the *Contractor's* employees, agents, or Sub-*Contractors*, to the extent permitted by the OHSA.
  - The *Contractor* hereby indemnifies the *Employer* and holds the *Employer* harmless in respect of any and all loss, costs, claims, demands, liabilities, damage, penalties or expense that may be made against the *Employer* and/or suffered or incurred by the *Employer* (as the case may be) as a result of, any failure of the *Contractor*, its employees, agents, Sub-*Contractors* and/or mandataries to comply with their obligations in terms of clause 16, and/or the failure of the *Employer* to procure the compliance by the *Contractor*, its employees, agents, Sub *Contractors* and/or mandataries with their responsibilities and/or obligations in terms of or arising from the OHSA.
  - In carrying out his obligation as the mandatory to the *Employer* for this contract in terms of the National Environmental Management Act No.107 of 1998, the *Contractor* ensures that he complies with the Act when Providing the Services or using plant, materials, or equipment.

## 1.2 Permit to Work System

- NO work shall be carried out without a "PERMIT TO WORK"
- The *Contractor's* Responsible Person(s) must satisfy himself that all sources of possible danger are isolated. Details of the Permit to Work system can be found in the Plant Safety Regulations for Lethabo Power Station, Eskom OPR 3305. The *Contractor* must also make provision for his Authorise Supervisor(s) that is trained according to the procedure mentioned above.
- A Master Permit to Work is used on declared major outages, details can be found in local procedure LBA 00085. Permit changes are made during the dead time, if it is required by the *Contractor* that a certain supply be made available, or plant tested than this can be applied for at the Outage Management Meeting at least 1 day in advance.
- Plant with a prohibitive sign attached may only be operated by appointed Eskom personnel. Any *Contractor* employee found tampering with such plant will be permanently removed from Site.

## 1.3 Safety Induction Course

- All the employees of the *Contractor* must attend a safety induction course before they will be allowed to work on the Site. It is the responsibility of the *Contractor* to ensure that all employees have attended the safety induction.
- A list of employees requiring safety induction must be submitted at least 2 days in advance of arrival on site with the date and time of arrival so that the safety induction can be arranged.

#### 1.4 IBI Awareness Techniques

- "To prevent incidents and ensure continuous improvement of Lethabo Power Stations business performance in all areas affecting safety, reliability and production, it is expected of all **CONTRACTORS** service personnel, to attend a three(3) hour training session on Integrated Business Improvement Awareness, which has to be done as soon as work has commenced; This is to ensure familiarisation and use of error-prevention tools/techniques inclusive of, Pre and Post-job briefs, Risk Assessments, Self-checks(STAR principle), Job observations, Effective communications e.g.3- way, Questioning attitude, Procedural adherence, Hand overs and other related topics.
- A monthly IBI scorecard to be completed indicating the use of error prevention tools/ techniques; The assigned employee fulfilling the role of IBI representative has to attend the IBI representative's forum fortnightly, on Tuesdays, duration one hour.
- An IBI representative appointed by the *Contractor/Supplier/Consultant* to attend the IBI Representative Forum One (1) hour every Tuesday (forth nightly).
- IBI Awareness training will be provided by Lethabo Power Station personnel, free of charge, course bookings can be arranged by contacting Rabie Heymans on extension 5094".

#### 1.5 Transportation of passengers: open LDV's:

No *Eskom employee* or *Contractor* would be allowed to transport passengers on the back of open light delivery vehicles (LDV's).

It is a legal requirement to provide safe transportation of *Eskom* and *Contractor* employees – therefore the following will be enforced:

- All passengers must be transported in a closed vehicle with proper and adequate seating, fitted with safety belt for the number of passengers to be transported. NO passengers may be transported on the back of a light delivery vehicle (LDV) whether open or closed.
- Tools and equipment must be properly secured.
- Only authorised drivers may transport passengers.
- Proof must be submitted on request in terms of valid roadworthiness of the vehicle/s.
- The above must apply to on site and off-site transportation of passengers.

#### 1.6 Eskom Life Saving Rules:

Five Life-saving Rules have been developed that will apply to all Eskom employees, agents, consultants, and *Contractors*.

- **Rule 1:** Open, Isolate, Test, Earth, Bond, and/or Insulate before touch - that is any plant operating above 1 000 V.
- **Rule 2:** Hook up at heights - no person may work at height where there is a risk of falling.
- **Rule 3:** Buckle up – no person may drive any vehicle on Eskom business and/or on Eskom premises: unless the driver and all passengers are wearing seat belts.
- **Rule 4:** Be sober (no person is allowed to work under the influence of drugs and alcohol.
- **Rule 5:** Use a permit to work – where an authorization limitation exists, no person shall work without the required permit to work.
- **Additional:** Texting and talking on the cell phone while driving or walking is prohibited.

#### 1.7 Local Safety Procedures

- The *Contractor* adheres to all local procedures. A list of local procedures is available on request from the *Employer*.

#### 1.8 Incidents / Accidents



- Incidents and accidents must be reported and investigated as detailed in LBA 00030. All incidents must also be reported to the *Employer* within 24 hours.
- First aid must be made available either by the *Contractor* or use can be made of the Lethabo medical centre at a fee. The availability of the *Contractor's* own first aid does not relieve the *Contractor* of his obligation to report and investigate the incident in accordance with Lethabo Procedure.

### 1.9 Fire Prevention

- Fire prevention and protection requirements to which *Contractors* must comply are detailed in LBA 00030.

### 1.10 Protective Equipment and Clothing

- The *Contractor* supplies his own personal protective equipment necessary to carry out the *works* and the *Contractor* shall ensure that all overalls for his staff have clearly identifying **company LOGO's**
- The *Contractor* is also responsible to inspect and maintain such equipment as required in terms of the OHS Act and local procedures.

### 1.11 Inspection of Equipment

- The *Contractor's* equipment is inspected by an authorised Eskom employee on arrival at the site.
- The following documentation is required to accompany the equipment where applicable: copies of all test certificates and maintenance records.
- Lifting equipment and electrical equipment must be marked with a unique number, code, or colour code for identification. If the equipment is found to be in an unsatisfactory condition or if insufficient maintenance has been carried out on the equipment, then it will not be approved for use on Site. A list of all lifting equipment and electrical equipment must be submitted to the *Employer* at least 2 days prior to the occupation date. This list must indicate the unique number and description of the equipment.

### 1.12 Documentation

The *Contractor* is responsible to have the following documentation available on site in accordance with LBA 00030:

- A copy of the OHS Act.
- Copies of all site accident report forms as required by the OHS Act.
- Copies of minutes of health and safety meetings held on site.
- Copies of inspection reports produced by the accident prevention officer

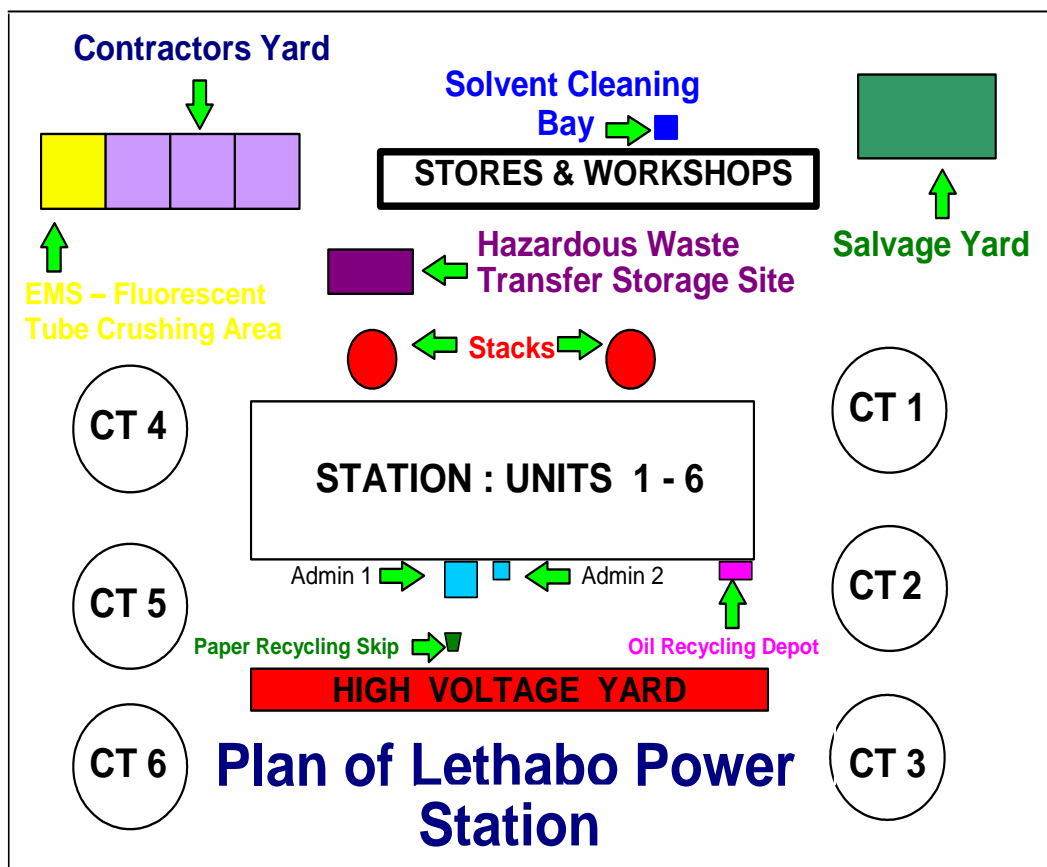
### 1.13 Environmental Policy and Waste Handling

Lethabo Environmental Statement of commitment must be adhered to.  
The contractor shall submit to Eskom an EMP to be reviewed and approved by Eskom environmental officer, one week before the commencement of *works*.

### 1.14 Disposal of Waste

Waste shall be removed promptly to the designated disposal area. No stockpiling will be permitted.

- Domestic waste to the white waste bins
- Production waste in the marked bins i.e., coal and ash only
- Paper and cans to their respective recycling bins
- Contact Civil Engineering for the disposal of building rubble
- Scrap metal, Wood & Rubber, Redundant Valves, Pipes, and Equipment etc. to be placed in the marked bins in the new Salvage Yard. Solvents and cloths used to the Cleaning Bay.



### 1.15 Hazardous Waste Disposal and Handling

- Hazardous / toxic waste includes all waste which contains elements or compounds listed as hazardous substances in terms of the Hazardous Substances Act No. 15 of 1973.
- Any *Contractor* who produces hazardous waste on site will be responsible for the safe removal of such waste to a registered Class I site by a waste removal and disposal body.
- The *Contractor* is required to produce a certificate of safe disposal in accordance with LBA 00054.
- The *Contractor* must ensure that persons handling hazardous waste have undergone suitable training and are acquainted with cleaning methods in case of a spillage.
- The *Contractor* is also responsible for the safe removal of their hazardous waste to Lethabo's Hazardous Waste Store. Other requirements for hazardous waste are detailed in LBA 00030.
- In order to ensure effective hazardous waste management, a copy of the *Contractors'* hazardous waste inventory must be supplied to the *Employer* at least 2 days prior to the occupation date.

### Abbreviated list of Hazardous Materials

Acids and alkalis	Hydrocarbons	Pesticides & insecticides
Antimony and its compounds	Inorganic cyanides	Pharmaceuticals
Arsenic compounds	Inorganic compounds containing halogens	Phosphorus and its compounds
Asbestos	Inorganic compounds containing sulphur	Selenium and its compounds
Barium compounds	Laboratory chemicals	Silver compounds
Beryllium compounds	Lead compounds	Tarry & petroleum products

Biocides & Phyto pharmaceuticals	Medical wastes	Tellurium and its compounds
Boron compounds	Mercury compounds	Thallium and its compounds
Cadmium and its compounds	Nickel and its compounds	Vanadium compounds
Chromium compounds	Organic halogen compounds	Zinc compounds
Copper compounds	Paints and paint sludges	Waste with flash point < 60°C
Heterocyclic organic compounds	Peroxides, chlorates	

#### 1.16 Plant & Materials

- The *Employer* may at his own discretion, supply any Plant and Materials as may be required by the *Contractor* to Provide the Works.
- The *Contractor* is to notify the *Employer* in writing, 48 hrs in advance, of such Plant and Materials required.

#### 1.17 Access to and Departure from the Site:

- The Site is at Lethabo Power Station situated  $\pm$  18 km South of Vereeniging on the Viljoensdrift - Deneysville Road, Free State. Access to the site will be via the main security gate only. The *Employer* informs the *Contractor* of the access procedures, and it should be expected that such procedures may change depending on the prevailing security situation.
- The *Contractor* allows in his price and program for delays at the security gate. The *Employer* reserves the right for its Security personnel to search persons or vehicles entering or leaving the premises. This includes but is not limited to briefcases and toolboxes.

#### 1.18 Temporary Gate Permits

- The *Contractor* provides the *Employer* with the personal details of their staff at least two days prior to the occupation date. All names and details to be submitted to the *Employer* who arranges for all gate permits.

#### 1.19 Equipment or Material Access and Removal

##### Access

- The *Contractor* ensures that all equipment and materials brought through the security gate is signed in at the main security gate on an OV18 form.

##### Removal

- The *Contractor* is not allowed to remove any equipment or materials from site without producing the relevant OV18 forms or the equipment lists.
- If the equipment or material is to be removed the same day, on which they were brought on to site, then the OV18 form will need to be produced at the gate when leaving the site.
- If the equipment or material is removed after this time then a Non-Returnable Gate Release will be provided by the *Project Manager*, on receipt of the original OV18, with which the *Contractor* brought the equipment on site.
- *Contractor* to provide his own scaffolding.

#### 1.20 Site or Area Establishment and Evacuation

##### Application for Site Establishment:

- Sites are allocated according to availability, the period for which the *Contractor* is going to be on site, or if special circumstances warrant the allocation of a site. Documentation to support this application can be submitted.
- The location of the site or area is indicated during the site or area take-over inspection.

**Site Establishment:**

- The *Contractor* does not occupy any site or area other than that allocated to him.
- The *Contractor* does not occupy the site or area prior to the take-over inspection.
- The *Contractor* maintains the site or area provided to him to the satisfaction of the *Employer*.
- The *Employer* subjects the *Contractor's* site or area to periodic inspection.

**Site Evacuation:**

- The *Contractor* advises the *Employer* in writing, five (5) days in advance of evacuation in accordance with LBA 00030. Immediately prior to evacuation the necessary take-over inspection must take place.

**1.21 Electrical Equipment / Appliances, Lighting and Power:**

- Any electrical equipment or appliances used by the *Contractor* must comply with all relevant safety regulations and requirements as detailed in LBA 00030 and be maintained in safe and proper working condition.
- The *Employer* has the right to stop the *Contractor's* use of any electrical equipment or appliance, which in the *Employer's* opinion does not conform to the foregoing.
- The *Contractor* provides at his own expense any temporary local lighting and ensures that it is in accordance with the requirements of the Factories Inspector.
- The *Contractor* provides at his own expense, all temporary wiring and cabling to route power from the point of supply to the various points where it is required, maintain same and remove on completion.

**1.22 Water**

- The *Contractor* provides at his own cost, all connection fittings, pipework, temporary plumbing, and pumps necessary to lead the water from the point of supply to the various points where it is required, maintain same and remove on completion.
- Such fittings must be compatible with the *Employer's* fittings so that galvanic corrosion of pipework is prevented
- Water wastage due to un-maintained pipe work or fittings provided by the *Contractor* will be calculated and will be for the cost of the *Contractor*.

**1.23 Compressed Air**

- The *Contractor* provides at his own cost, all connection fittings and pipe-work necessary to lead the compressed air from the point of supply to the various points where it is required, maintain same and remove on completion. Such fittings must be compatible with the *Employer's* fittings so that galvanic corrosion of pipework is prevented
- Compressed air wastage due to un-maintained pipe work or fittings provided by the *Contractor* will be calculated and will be for the cost of the *Contractor*.

**1.24 Ventilation**

- The *Contractor* is responsible for adequate ventilation of the *works*.

**1.25 Security**

- The *Contractor* is responsible for all security on *site*, fencing off, night watch and access control to secure all plant, materials, and the *works* itself. All these measures must be in accordance with any relevant regulations and standards and subject to the *Employer's* approval.
- It is also the *Contractors* responsibility to ensure the security of all completed portions of the *works* prior to Completion.

**1.26 Offices, Workshops and Stores**

- The *Contractor* shall provide, erect, and maintain for his own use, any additional office accommodation and stores he requires, together with drainage, lighting, heating, and hot and cold-water services as required.

- The *Contractor's* site establishment price includes all treatment of the site that he considers necessary for his entire operation throughout his period of occupation and under all weather conditions.
- The *Contractor* also includes for all security and access arrangements that he considers necessary.

#### **1.27 Sanitary Facilities**

- The *Contractor* shall provide service, maintain, and remove on completion any additional facilities required and allow for it in his *Price*.
- The *Contractor's* employees who work with asbestos are not allowed to use the *Employer's* ablution or messing facilities at the workplace during and after stripping of lagging materials, for fibres that may be attached to workers clothing, or to any other article.