



NEC3 Engineering & Construction Contract

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

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

for **Engineer, Procure, Construct and Commission a 50
to 100 kW thermal Waste-to-Energy Test Facility at
Eskom Research, Testing and Innovation Centre**

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CONTRACT No. [Insert at award stage]

C1.1 Form of Offer & Acceptance

- Offer

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

Engineer, Procure, Construct and Commission a 50 to 100 kW thermal Waste-to-Energy Test Facility at Eskom Research, Testing and Innovation Centre

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

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

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

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

Signature(s)

Name(s)

Capacity

**For the
tenderer:**

(Insert name and address of organisation)

Name &
signature of
witness

Date

Tenderer's CIDB registration number (if applicable)

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

- **Acceptance**

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

The terms of the contract, are contained in:

Part C1 Agreements and Contract Data, (which includes this Form of Offer and Acceptance)

Part C2 Pricing Data

Part C3 Scope of Work: Works Information

Part C4 Site Information

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

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

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

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

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

Signature(s)

Name(s)

Capacity

**for the
Employer**

(Insert name and address of organisation)

Name &
signature of
witness

Date

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

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

Note:

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

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

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

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

- For the tenderer:

- For the Employer

Signature

Name

Capacity

On behalf
of

(Insert name and address of organisation)

(Insert name and address of organisation)

Name &
signature
of witness

Date

C1.2 ECC3 Contract Data

Part one - Data provided by the *Employer*

Clause	Statement	Data
1	General	
	The conditions of contract are the core clauses and the clauses for main Option	
	dispute resolution Option	A: Priced contract with activity schedule
	and secondary Options	W1: Dispute resolution procedure
		X1: Price adjustment for inflation
		X2 Changes in the law
		X5: Sectional Completion
		X7: Delay damages
		X16: Retention
		X18: Limitation of liability
		Z: Additional conditions of contract
	of the NEC3 Engineering and Construction Contract, April 2013 (ECC3)	
10.1	The <i>Employer</i> is (Name):	Eskom Holdings SOC Ltd (reg no: 2002/015527/30), a state owned company incorporated in terms of the company laws of the Republic of South Africa
	Address	Registered office at Megawatt Park, Maxwell Drive, Sandton, Johannesburg
10.1	The <i>Project Manager</i> is: (Name)	[•]
	Address	[•]
	Tel	[•]
	Fax	[•]
	e-mail	[•]
10.1	The <i>Supervisor</i> is: (Name)	[•]
	Address	[•]

	Tel No.	[•]				
	Fax No.	[•]				
	e-mail	[•]				
11.2(13)	The works are	Engineer, Procure, Construct and Commission a 50 to 100 kW thermal Waste-to-Energy Test Facility at Eskom Research, Testing and Innovation Centre				
11.2(14)	The following matters will be included in the Risk Register	1. Interface between Waste-to-Energy and other projects 2. Interface with other contractors on site				
11.2(15)	The boundaries of the site are	Part 4: Site Information				
11.2(16)	The Site Information is in	Part 4: Site Information				
11.2(19)	The Works Information is in	Part 3: Scope of Work and all documents and drawings to which it makes reference.				
12.2	The law of the contract is the law of	the Republic of South Africa				
13.1	The language of this contract is	English				
13.3	The <i>period for reply</i> is	Two weeks				
2	The Contractor's main responsibilities	Data required by this section of the core clauses is provided by the Contractor in Part 2 and terms in italics used in this section are identified elsewhere in this Contract Data.				
3	Time					
11.2(3)	The <i>completion date</i> for the whole of the works is	30 January 2028				
	Technical Support as and when required after completion of construction and commissioning	As and when required (rate based for Engineer and Technician)				
30.1	The <i>access dates</i> are:	<table><tr><th>Part of the Site</th><th>Date</th></tr><tr><td>1 Whole working Area</td><td>20 November 2026</td></tr></table>	Part of the Site	Date	1 Whole working Area	20 November 2026
Part of the Site	Date					
1 Whole working Area	20 November 2026					
31.1	The Contractor is to submit a first programme for acceptance within	Within two weeks of contract start date the Contractor submitting a programme to Project manager for acceptance				
31.2	The <i>starting date</i> is	Contract Award Date				
32.2	The Contractor submits revised programmes at intervals no longer than	One week.				

35.1	The <i>Employer</i> is not willing to take over the <i>works</i> before the Completion Date.	
4	Testing and Defects	
42.2	The defects date is	52 weeks after Completion of the whole of the works.
43.2	The defect correction period is	One week
	except that the defect correction period for	Defect of such a nature that it cannot reasonably be repaired in 1 week, the <i>Contractor</i> promptly notifies the <i>Project Manager</i> and submits a plan for correcting the Defect. The <i>Contractor</i> and <i>Project Manager</i> agree on a time allowed for defect correction, in addition to the <i>defect correction period</i> If no agreement is reached in respect of further time allowed, the <i>defect correction period</i> remains 1week.
5	Payment	
50.1	The assessment interval is	between the 25th day of each successive month.
51.1	The currency of this contract is the	South African Rand.
51.2	The period within which payments are made is	Four weeks.
51.4	The interest rate is	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 (ii) the LIBOR rate applicable at the time for amounts due in other currencies. LIBOR is the 6 month London Interbank Offered Rate quoted under the caption "Money Rates" in The Wall Street Journal for the applicable currency or if no rate is quoted for the currency in question then the rate for United States Dollars, and if no such rate appears in The Wall Street Journal then the rate as quoted by the Reuters Monitor Money Rates Service (or such service as may replace the Reuters Monitor Money Rates Service) on the due date for the payment in question, adjusted 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) The place where weather is to be recorded is:

Germiston in Johannesburg

The weather measurements to be recorded for each calendar month are,

the cumulative rainfall (mm)

the number of days with rainfall more than 10 mm

the number of days with minimum air temperature less than 0 degrees Celsius

the number of days with snow lying at 09:00 hours South African Time

and these measurements:

The *weather measurements* are supplied by

the South African Weather Bureau

The weather data are the records of past weather measurements for each calendar month which were recorded at:

The weather station closest to the Eskom RT&D Building supplied by the South African Weather Bureau

and which are available from:

the South African Weather Bureau

7	Title	There is no reference to Contract Data in this section of the core clauses and terms in italics used in this section are identified elsewhere in this Contract Data.
8	Risks and insurance	
80.1	These are additional Employer's risks	None
9	Termination	There is no reference to Contract Data in this section of the core clauses and terms in italics used in this section are identified elsewhere in this Contract Data.
10	Data for main Option clause	
A	Priced contract with activity schedule	There is no reference to Contract Data in this Option and terms in italics are identified elsewhere in this Contract Data.
11	Data for Option W1	
W1.1	The Adjudicator is	the person selected from the ICE-SA Division (or its successor body) of the South African Institution of Civil Engineering Panel of Adjudicators by the Party intending to refer a dispute to him. (see www.ice-sa.org.za). If the Parties do not agree on an Adjudicator the Adjudicator will be appointed by the Arbitration Foundation of Southern Africa (AFSA). www.ice-sa.org.za
	Address	[•]

Tel No. [•]
Fax No. [•]
e-mail [•]

W1.2(3)	The <i>Adjudicator nominating body</i> is:	the Chairman of ICE-SA a joint Division of the South African Institution of Civil Engineering and the London Institution of Civil Engineers. (See www.ice-sa.org.za) or its successor body.
W1.4(2)	The tribunal is:	arbitration.
W1.4(5)	The arbitration procedure 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	Johannesburg
	The person or organisation who will choose an arbitrator	
	- if the Parties cannot agree a choice or	the Chairman for the time being or his nominee
	- if the arbitration procedure does not state who selects an arbitrator, is	of the Association of Arbitrators (Southern Africa) or its successor body.

12 Data for secondary Option clauses

X1	Price adjustment for inflation			
X1.1(a)	The base date for indices is	One (1) month prior to tender closing of the tender.		
X1.1(c)	The proportions used to calculate the Price Adjustment Factor are:	proportion	linked to SEIFSA index for	Index prepared by
		0.85	adjustable	
		0.15	non-adjustable	
	Total	1.00		
X2	Changes in the law			
	There is no reference to Contract Data in this Option and terms in italics are identified elsewhere in this Contract Data.			
X5	Sectional Completion			
X5.1	The <i>completion date</i> for each <i>section</i> of the <i>works</i> is:	Section	Description	Completion date
		1	Completion of Detail Designs	31 March 2027
		2	Procurement of all plant items	30 September 2027

		3	Complete Construction of the Plant	30 October 2027
		4	Complete Commissioning & Testing	30 January 2028
X7.1 X5.1	Delay damages for late Completion of the sections of the works are:	section	Description	Amount per day at 0.03% per day of Prices attributable to this activity per calendar day
			Delays in Completion of Construction and commissioning	Not exceeding 5% of the total of the Prices
	The total delay damages payable by the Contractor does not exceed:		5% of the contract price	
X15	Limitation of the Contractor's 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 retention free amount is	Nil		
	The retention percentage is	2.5% of the contract price		
X18	Limitation of liability			
X18.1	The Contractor's liability to the Employer for indirect or consequential loss is limited to:	R0.0 (zero Rand)		
X18.2	For any one event, the Contractor's liability to the Employer for loss of or damage to the Employer's property is limited to:	the amount of the deductibles relevant to the event		
X18.3	The Contractor's liability for Defects due to his design which are not listed on the Defects Certificate is limited to	The greater of - the total of the Prices at the Contract Date and - the amounts excluded and unrecoverable from the Employer's assets policy for correcting the Defect (other than the resulting physical damage which is not excluded) plus the applicable deductible as at contract date.		

X18.4	The <i>Contractor's</i> total liability to the <i>Employer</i> for all matters arising under or in connection with this contract, other than excluded matters, is limited to:	the total of the Prices other than for the additional excluded matters. The Contractor's total liability for the additional excluded matters is not limited. The additional excluded matters are amounts for which the <i>Contractor</i> is liable under this contract for • Defects due to his design which arise before the Defects Certificate is issued, • Defects due to manufacture and fabrication outside the Site, • loss of or damage to property (other than the <i>works</i>, Plant and Materials), • death of or injury to a person and • infringement of an intellectual property right.
X18.5	The end of liability date is	(i) Three (3) years after the defects date for latent Defects and (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. A latent Defect is a Defect which would not have been discovered on reasonable inspection by the Employer or the Supervisor before the defects date, without requiring any inspection not ordinarily carried out by the Employer or the Supervisor 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.
Z	The <i>Additional conditions of contract</i> are	Z1 to Z15 always apply.
Z1	Cession delegation and assignment	
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 Employer may on written notice to the Contractor cede and delegate its rights and obligations under this contract to any of its subsidiaries or any of its present divisions or operations which may be converted into separate legal entities as a result of the restructuring of the Electricity Supply Industry.	
Z2	Joint ventures	

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

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

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

Z4 Confidentiality

- Z4.1 The *Contractor* does not disclose or make any information arising from or in connection with this contract available to Others. This undertaking does not, however, apply to information which at the time of disclosure or thereafter, without default on the part of the *Contractor*, enters the public domain or to information which was already in the possession of the *Contractor* at the time of disclosure (evidenced by written records in existence at that time). Should the *Contractor* disclose information to Others in terms of clause 25.1, the *Contractor* ensures that the provisions of this clause are complied with by the recipient.
- Z4.2 If the *Contractor* is uncertain about whether any such information is confidential, it is to be regarded as such until notified otherwise by the *Project Manager*.
- Z4.3 In the event that the *Contractor* is, at any time, required by law to disclose any such information which is required to be kept confidential, the *Contractor*, to the extent permitted by law prior to disclosure, notifies the *Employer* so that an appropriate protection order and/or any other action can be taken if possible, prior to any disclosure. In the event that such protective order is not, or cannot, be obtained, then the *Contractor* may disclose that portion of the information which it is required to be disclosed by law and uses reasonable efforts to obtain assurances that confidential treatment will be afforded to the information so disclosed.
- Z4.4 The taking of images (whether photographs, video footage or otherwise) of the works or any portion thereof, in the course of Providing the Works and after Completion, requires the prior written consent of the *Project Manager*. All rights in and to all such images vests exclusively in the *Employer*.
- Z4.5 The *Contractor* ensures that all his subcontractors abide by the undertakings in this clause.

Z5 Waiver and estoppel: Add to core clause 12.3:

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

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

- Z6.1 The *Contractor* undertakes to take all reasonable precautions to maintain the health and safety of persons in and about the execution of the *works*. Without limitation the *Contractor*:
- accepts that the *Employer* may appoint him as the "Principal Contractor" (as defined and provided for under the Construction Regulations 2014 (promulgated under the Occupational Health & Safety Act 85 of 1993) ("the Construction Regulations") for the Site;
 - warrants that the total of the Prices as at the Contract Date includes a sufficient amount for proper compliance with the Construction Regulations, all applicable health & safety laws and regulations and the health and safety rules, guidelines and procedures provided for in this contract and generally for the proper maintenance of health & safety in and about the execution of *works*; and
 - undertakes, in and about the execution of the *works*, to comply with the Construction Regulations and with all applicable health & safety laws and regulations and rules, guidelines and procedures otherwise provided for under this contract and ensures that his Subcontractors, employees and others under the *Contractor's* direction and control, likewise observe and comply with the foregoing.
- Z6.2 The *Contractor*, in and about the execution of the *works*, complies with all applicable environmental laws and regulations and rules, guidelines and procedures otherwise provided for under this contract and ensures that his Subcontractors, employees and others under the *Contractor's* direction and control, likewise observe and comply with the foregoing.

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

- Z7.1 Within one week of receiving a payment certificate from the *Project Manager* in terms of core clause 51.1, the *Contractor* provides the *Employer* with a tax invoice in accordance with the *Employer's* procedures stated in the Works Information, showing the amount due for payment equal to that stated in the payment certificate.
- Z7.2 If the Contractor does not provide a tax invoice in the form and by the time required by this contract, the time by when the Employer is to make a payment is extended by a period equal in time to the delayed submission of the correct tax invoice. Interest due by the Employer in terms of core clause 51.2 is then calculated from the delayed date by when payment is to be made.
- Z7.3 The *Contractor* (if registered in South Africa in terms of the companies Act) is required to comply with the requirements of the Value Added Tax Act, no 89 of 1991 (as amended) and to include the *Employer's* VAT number 4740101508 on each invoice he submits for payment.

Z8 Notifying compensation events

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

Z9 Employer's limitation of liability

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

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

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

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

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

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

Z12 Ethics

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

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

Z12.1 A Committing Party may not take any Prohibited Action during the course of the procurement of this contract or in execution thereof.

Z12.2 The *Employer* may terminate the *Contractor's* obligation to Provide the Services if a Committing Party has taken such Prohibited Action and the *Contractor* did not take timely and appropriate action to prevent or remedy the situation, without limiting any other rights or remedies the *Employer* has. It is not required that the Committing Party had to have been found guilty, in court or in any other similar process, of such Prohibited Action before the *Employer* can terminate the *Contractor's* obligation to Provide the Services for this reason.

Z12.3 If the *Employer* terminates the *Contractor's* obligation to Provide the Services for this reason, the amounts due on termination are those intended in core clauses 92.1 and 92.2.

Z12.4 A Committing Party co-operates fully with any investigation pursuant to alleged Prohibited Action. Where the *Employer* does not have a contractual bond with the Committing Party, the *Contractor* ensures that the Committing Party co-operates fully with an investigation.

Z13 Insurance

Z 13.1 Replace core clause 84 with the following:

Insurance cover 84

84.1 When requested by a Party, the other Party provides certificates from his insurer or broker stating that the insurances required by this contract are in force.

84.2 The *Contractor* provides the insurances stated in the Insurance Table A.

84.3 The insurances provide cover for events which are at the *Contractor's* risk from the *starting date* until the earlier of Completion and the date of the termination certificate.

INSURANCE TABLE A

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

employment in connection with this contract	
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Z 13.2

Replace core clause 87 with the following:

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

INSURANCE TABLE B

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

Z14 Nuclear Liability

- Z14.1 The *Employer* is the operator of the Koeberg Nuclear Power Station (KNPS), a nuclear installation, as designated by the National Nuclear Regulator of the Republic of South Africa, and is the holder of a nuclear licence in respect of the KNPS.
- Z14.2 The *Employer* is solely responsible for and indemnifies the *Contractor* or any other person against any and all liabilities which the *Contractor* or any person may incur arising out of or resulting from nuclear damage, as defined in Act 47 of 1999, save to the extent that any liabilities are incurred due to the unlawful intent of the *Contractor* or any other person or the presence of the *Contractor* or that person or any property of the *Contractor* or such person at or in the KNPS or on the KNPS site, without the permission of the *Employer* or of a person acting on behalf of the *Employer*.
- Z14.3 Subject to clause Z14.4 below, the *Employer* waives all rights of recourse, arising from the aforesaid, save to the extent that any claims arise or liability is incurred due or attributable to the unlawful intent of the *Contractor* or any other person, or the presence of the *Contractor* or that person or any property of the *Contractor* or such person at or in the KNPS or on the KNPS site, without the permission of the *Employer* or of a person acting on behalf of the *Employer*.
- Z14.4 The *Employer* does not waive its rights provided for in section 30 (7) of Act 47 of 1999, or any replacement section dealing with the same subject matter.
- Z14.5 The protection afforded by the provisions hereof shall be in effect until the KNPS is decommissioned.

Z15 Asbestos

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

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

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

Z15.2 Upon written request by the *Contractor*, the *Employer* certifies that these conditions prevail. All measurements and reporting are effected by an independent, competent, and certified occupational hygiene inspection body, i.e. a SANAS accredited and Department of Employment and Labour approved AAIA. The *Contractor* may perform Parallel Measurements and related control measures at the *Contractor's* expense. For the purposes of compliance the results generated from Parallel Measurements are evaluated only against South African statutory limits as detailed in clause Z15.1. Control measures conform to the requirements stipulated in the AAIA-approved asbestos work plan.

Z15.3 The *Employer* manages asbestos and ACM according to the Standard.

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

C1.2 Contract Data

- Part two - Data provided by the *Contractor*

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

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

Notes to a tendering contractor:

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

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

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

	Experience:	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			
A	Priced contract with activity schedule			
11.2(20)	The <i>activity schedule</i> is in			
11.2(30)	The tendered total of the Prices is	(in figures) (in words), excluding VAT		
	- Data for Schedules of Cost Components	<i>Note "SCC" means Schedule of Cost Components starting on page 60, and "SSCC" means Shorter Schedule of Cost Components starting on page 63 of ECC3 (April 2013).</i>		
A	Priced contract with activity schedule	Data for the Shorter Schedule of Cost Components		
41 in SSCC	The percentage for people overheads is:	%		
21 in SSCC	The published list of Equipment is the last edition of the list published by The percentage for adjustment for Equipment in the published list is	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 Note: Hourly rates are estimated 'cost to company of the employee' and not selling rates. Please insert another schedule if foreign resources may also be used	Category of employee	Hourly rate	

62 in SSCC	The percentage for design overheads is	%
63 in SSCC	The categories of design employees whose travelling expenses to and from the Working Areas are included in Defined Cost are:	

PART 2: PRICING DATA
ECC3 Option A

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

C2.1 Pricing assumptions: Option A

How work is priced and assessed for payment

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

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

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

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

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

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

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

Function of the Activity Schedule

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

Link to the programme

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

Preparing the *activity schedule*

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

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

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

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

An activity schedule could have the following format:

Item No.	Programme Reference	Activity description	Price

A Microsoft spreadsheet is provided with the enquiry and the spreadsheet is encouraged to populate the summary. A printout of the spreadsheet can be added to this section.

C2.2 the *activity schedule*

Use this page as a cover page to the Contractor’s activity schedule.

PART 3: SCOPE OF WORK

Document reference	Title	No of pages
	This cover page	1
C3.1	<i>Employer's Works Information</i>	
C3.2	<i>Contractor's Works Information</i>	
	Total number of pages	

C3.1: EMPLOYER'S WORKS INFORMATION

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1. Description of the works

1.1. Executive overview

Eskom Holdings SOC Ltd (the Employer) desires to engage the services of an Engineering, Procurement, Construction and Commissioning Contractor to undertake the complete detailed design, procurement, manufacturing, sourcing and supply of mechanical, process, electrical, control and instrumentation, civil and structural works, shipment, transportation, unloading, erection, quality assurance, on- and off-site testing, installation, commissioning, onsite operational training, certification and handover of a 50 to 100 kW thermal Waste-to-Energy Test Facility at Eskom Research, Testing and Innovation Centre.

The Project is to be situated at Eskom Research, Testing and Innovation Centre.

1.2. Employer's objectives and purpose of the works

Waste-to-Energy has been identified as a strategic opportunity to support the Just Energy Transition by developing alternative energy sources and creating new economic opportunities. This specification defines the requirements for the design, supply, construction, commissioning and handover of a 50 to 100 kW thermal Waste-to-Energy Test Facility at Eskom Research, Testing and Innovation Centre.

The facility is required to provide an independent South African test platform where Waste-to-Energy technologies can be evaluated, adapted, validated and demonstrated under controlled operating conditions. The facility will generate performance, combustion and emissions data to support future technology selection and investment decisions.

1.2.1. Purpose

- 1.2.1.1. To provide independent capability to evaluate, validate, optimise and demonstrate Waste-to-Energy and emission reduction technologies under controlled operating conditions.
- 1.2.1.2. To provide test data to assist with Just Energy Transition investment decisions.
- 1.2.1.3. To build in-house Eskom technical expertise in alternative clean sources for electricity generation.

1.2.2. Scope

The scope includes the complete engineering design, procurement, supply, construction, installation, testing, commissioning, training and handover of a Waste-to-Energy incineration test facility. The facility shall include waste reception and storage, feed preparation including drying, controlled incineration, flue gas treatment, stack and emissions monitoring, instrumentation and control, data acquisition and all associated civil, mechanical, electrical, control and instrumentation work.

- 1.2.2.1. Provide detailed design covering civil works, mechanical works, electrical works, control and instrumentation and data acquisition.
- 1.2.2.2. Provide detailed costing including resources, equipment costs, commissioning costs, site establishment and other fit-for-purpose costs.
- 1.2.2.3. Provide detailed project schedule for design, construction, commissioning and handover.
- 1.2.2.4. Provide process Flow Diagrams, Piping and Instrumentation Diagrams, General Arrangement drawings, electrical single line diagrams, equipment datasheets and as-built drawings.
- 1.2.2.5. Provide Operating manuals, maintenance manuals, commissioning procedures, test procedures and final commissioning documentation.

1.2.2.6. Provide all tools, special tools, equipment and consumables required to implement and commission the project.

1.2.3. Functional Requirements

1.2.3.1. Produce a maximum thermal output of approximately 50 to 100 kW, subject to final site evaluation and detailed design.

1.2.3.2. Process different representative waste streams.

1.2.3.3. Evaluate combustion efficiency and thermal performance.

1.2.3.4. Comply with environmental requirements and applicable South African standards.

1.2.3.5. Produce performance data for future scale-up.

1.2.3.6. Support research, development and training activities.

1.2.3.7. Enable future modifications for alternative fuel and co-firing studies.

1.2.4. Feedstock Applicability

- Wood
- Paper
- Cardboard
- Non-recyclable plastic
- Textile waste
- Rubber
- Leather
- Biomass
- Coal

1.2.5. Plant and Process Requirements

The facility shall be designed to include the following

- Waste reception and storage area.
- Feed preparation system including drying.
- Controlled incinerator.
- Combustion air supply and combustion monitoring.
- Flue gas treatment system considering feedstock and local emission standards.
- Direct injection sorbent capability for research purposes.
- Stack and emissions monitoring system.
- Instrumentation and control system.
- Data acquisition system.

1.2.6. Emissions and Environmental Requirements

1.2.6.1. The design includes flue gas cleaning equipment with consideration of the feedstock and National Environmental Management requirements.

1.2.6.2. The facility enables combustion testing and emissions testing.

1.2.6.3. Sampling points are provided for safe and representative emissions measurement.

1.2.6.4. Bottom ash, fly ash, spent sorbents, residues and other wastes shall be handled, stored and disposed of in accordance with applicable legislation.

1.2.6.5. The plant is designed to support compliance with applicable South African environmental and air quality requirements.

1.2.7. Control, Instrumentation and Data Acquisition

1.2.7.1. The control system shall provide safe start-up, normal operation, shutdown and emergency shutdown functionality.

- 1.2.7.2. Instrumentation shall monitor temperatures, pressures, flows, oxygen, combustion parameters, emissions parameters and process status as required for operation and research.
- 1.2.7.3. The data acquisition system shall record process and emissions data for research analysis.
- 1.2.7.4. Critical alarms, trips and interlocks shall be defined in the control philosophy and demonstrated during commissioning.
- 1.2.7.5. Data shall be exportable in spreadsheet-compatible format.

1.2.8. Electrical, Civil and Structural Requirements

- 1.2.8.1. Electrical systems shall comply with applicable SANS, IEC and Eskom requirements.
- 1.2.8.2. The Contractor shall calculate load requirements and provide protection, isolation, cabling, earthing, lighting and small power as required.
- 1.2.8.3. Civil and structural works shall include all foundations, supports, access platforms, storage areas, drainage, roads, shelters and enclosures required for the facility.
- 1.2.8.4. The design shall consider safe access for operation, maintenance, emissions sampling and future modifications.

1.2.9. Fire Protection and Safety

- 1.2.9.1. The Contractor shall complete applicable safety and fire risk assessments.
- 1.2.9.2. The facility shall include emergency stop, safe shutdown, fire detection/protection, signage, guarding and access control as required.
- 1.2.9.3. All works shall comply with the Occupational Health and Safety Act, Construction Regulations and applicable Employer SHEQ requirements.
- 1.2.9.4. HAZOP, HAZID or equivalent risk studies shall be completed before commissioning where required by the Employer.

1.2.10. Testing, Commissioning and Performance Demonstration

- Factory Acceptance Testing shall be carried out where applicable for packaged equipment and control systems.
- Site Acceptance Testing shall verify mechanical, electrical, control, instrumentation, monitoring and safety systems.
- Commissioning shall demonstrate safe start-up, stable operation, shutdown, emergency safe state, flue gas treatment operation, emissions monitoring and data acquisition.
- Performance testing shall verify thermal output range, process stability, combustion performance, emissions monitoring readiness and research data generation capability.
- All commissioning and performance test records shall be included in the final data book.

1.2.11. Training and Handover

The Contractor shall provide practical training for Employer operation, maintenance and engineering personnel.

Training shall include waste handling, start-up, test operation, emissions monitoring, shutdown, emergency response, maintenance and data extraction.

Handover documentation shall include as-built drawings, operating manuals, maintenance manuals, commissioning reports, calibration records, certificates, data books, spares lists and special tools.

1.2.12. Purpose

To provide independent capability to evaluate, validate, optimise and demonstrate Waste-to-Energy and emission reduction technologies under controlled operating conditions.

To provide test data to assist with Just Energy Transition investment decisions.

To build in-house Eskom technical expertise in alternative clean sources for electricity generation.

To support research, development, training and future scale-up of Waste-to-Energy applications.

1.3. Interpretation and terminology

The following abbreviations are used in this Works Information and in Specification for Waste-to-Energy Test

Abbreviation	Explanation
AC	Alternating current
AIAA	American Institute of Aeronautics and Astronautics
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
ABD	Availability Block Diagram
bar	Bar
RT&D services	Battery Energy Storage System
BOM	Bill of materials
C&I	Control and instrumentation
CAD	Computer-aided design
CM	Configuration management
CMS	Control and Monitoring System
CoE	Centre of Excellence
CoC	Electrical Certificate of Compliance
CPU	Central processing units
DC	Direct current
DVD	Digital versatile disk
ECA	Electrical Contractors' Association
EPC	Engineering design, procurement, and construction
RT&D	Eskom Research and Innovation Centre
EWDL	Engineering Work Design Lead
FAT	Factory Acceptance Testing
FMECA	Failure Mode Effects and Criticality Analysis
GA	General Arrangement
GPS	Global Positioning System
GUI	Graphical User Interface
HMI	Human Machine Interface
HVAC	Heating ventilation and air conditioning
IEC	International Electrotechnical Commission
IED	Intelligent electronic device's
ISO	International Organisation for Standards
ITP	Inspection and Test Plans
kA	kiloampere

kPa	kilopascal
kW	kilowatt
kWh	kilowatt hour
l/h	Litres per hour
LDE	Lead Discipline Engineer
LOSS	Limits of Supply and Services
LV	Low voltage
mA	milliampere
MCB	Miniature Circuit Breakers
MCCB	Moulded Case Circuit Breakers
MDT	Mean Down Time
MTTF	Mean Time to Failure
MTTR	Mean Time to Repair
MV	Medium Voltage
MWh	Megawatt hour
O&M	Operational and maintenance
OEM	Original Equipment Manufacturer
OHS Act	Occupational Health and Safety Act
PSR	Plant Safety Regulations
P&ID	Piping and instrumentation diagrams
PV	Photo Voltaic
QCP	Quality Control Plans
R&D	Research and Development
RAID	Redundant array of independent disks
RAM	Reliability, Availability and Maintainability
RE	Renewable energy
WTEF	Waste-to-Energy Test Facility
RT&D	Research, Testing and Development
SANS	South African National Standards
SCADA	Supervisory Control and Data Acquisition
SIL	Safety Integrity Level
UPS	Uninterruptible power supplies
USB	Universal serial bus
VDSS	Vendor Document Submission Schedule
VPN	Virtual private network

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:
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Risk Reduction Meeting	As per NEC 3 procedure	Site or where instructed by the Project Manager	<i>Employer.</i> Project Manager (Supervisor & SHE officer) optional <i>Contractor.</i> • Project Director, Site Manager, Contract Manager, Site Supervisor/s, Scheduler and SHE Manager
Progress meetings	Monthly or as instructed by the <i>Project Manager</i>	Site or as instructed by the Project Manager	<i>Employer.</i> Project Manager (Supervisor & SHE officer) optional <i>Contractor.</i> • Project Director, Site Manager, Contract Manager, Site Supervisor/s, Scheduler and SHE Manager
Integration Meeting	Monthly or as instructed by the <i>Project Manager</i>	Site or as instructed by the Project Manager	<i>Employer.</i> Project Manager Supervisor SHE officer <i>Contractor.</i> Project Manager, Site Manager, Site Supervisor, Scheduler and SHE Manager
Health, Safety and Environmental meetings	As stipulated in (SHE specification)	Site or as instructed by the Project Manager	<i>Employer.</i> Project Manager Supervisor SHE officer <i>Contractor.</i> Project Manager, Site Manager, Site Supervisor, Scheduler and SHE Manager

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.

The *Project Manager* prepares minutes of meetings for all meetings held between *Employer* and *Contractor*.

The minutes of a meeting contain all significant aspects of the meeting recorded together with any actions placed and is presented to the *Contractor* for signature at the next project meeting. After the *Contractor* has signed the minutes of meeting, the minutes are to be officially published.

The *Contractor* shall attend regular site meetings with the *Project Manager* and *Supervisor* where the

progress of construction will be reviewed. Such meetings shall be held monthly and may be attended by representatives of the *Employer*.

The *Contractor* shall also attend weekly meetings with the *Supervisor* and provide, prior to each meeting as required by the *Project Manager*, detailed programmes showing separately the various activities of the *Contractor* anticipated over the forthcoming two-week period as well as the progress achieved over the preceding week relative to the programme applicable to that period

2.2. Documentation control

2.2.1. Documents for providing the Works

The *Contractor* shall compose and submit all Documentation and Technical Information required throughout the project.

All documents supplied by the Contractor shall be subject to Employer's approval. The language of all documentation shall be in English. Metric/SI units shall be used throughout the Contractors' Documentation. The Contractor shall include the drawing number in the drawing title block. This requirement only applies to design drawings developed by the Contractor and his Sub-contractors.

In Providing the *Works*, all documentation and data prepared and submitted by the *Contractor* conforms with and adheres to the requirements of:

- On receipt of documentation from the Project Manager, the Contractor verifies receipt of all transmitted documentation, including document status/revision. The Contractor advises the Project Manager in writing of any discrepancies, omissions or poor quality in the documentation.
- The Contractor shall prepare and submit information to complete the Definition of the works and Services at Pre-Construction Stage, Pre-Commissioning stage, post Commissioning stage and Handover phase.
- Where entries are shown in both stages, First Stage information shall be regarded as provisional and shall be updated and finalized in the Last Stage. Where entries are not shown in both stages, information is required only at that stage and the information shall be regarded as finalized at the relevant stage.
- The Project Manager ensures that the document schedule is maintained and kept up to date for the duration of the contract.
- Prior to commencement of any Works, the Contractor confirms with the Project Manager that the Contractor is in receipt of and is working to the latest revision of all necessary documentation. All rectification undertaken by the Contractor resulting from a failure to do so will be to the Contractor's account.
- In cases where modifications or additions are required on Site, a Field Engineering Query will be submitted by the Contractor. The Project Manager will issue the required instruction and documentation. The Contractor will neatly mark up, on the latest edition and revision of such documentation as may be impacted, all field changes undertaken in the course of the construction and these mark-ups will be submitted as part of "As Built" documentation at the final hand over.
- Each supplier of documentation and data to the project is responsible for ensuring that all documentation and data submitted conforms to the Project Standards and data quality requirements in terms of numbering, uniqueness, quality, accuracy, format, completeness and currency of information. Data not meeting the Project Standards and data quality requirements will be cause for rejection and returned to the Contractor for corrective action and resubmission.
- Should any change be made to documentation or data, which has already been submitted to the Contractor, then new or revised documentation or data shall be issued by the Project Manager to replace the outdated information.
- All drawings must comply with the Employer's CAD Standard.
- The Contractor ensures that the Microsoft Office 2019, and Microsoft Project 2010 or earlier software and suitable 'IT' Infrastructure are in place to support the electronic transmission of documentation.
- Electronic files submitted to or from the Project Manager, Contractor, and Employer are free of any known viruses and extraneous "macros".

2.2.2. Transmittal

An incoming transmittal note accompanies all documentation submitted, by the *Contractor*. Upon receipt of the transmittal, the *Employer* signs to indicate acknowledgement of receipt and returns this to the *Contractor*.

The *Contractor* ensures that the incoming transmittal contains the following minimum metadata:

- Transmittal title
- Transmittal number and revision
- Contract title
- Contract number
- Purpose
- Originator's/ Sender contact information
- Issue status
- Authorisation date
- Number of sets of attached documents

All Project documents (soft copies and hard copies) submitted, are listed on the transmittal with the following metadata fields:

- Title of the document
- Document Unique Identification number
- Revision number
- Name of Discipline
- Reason for issuing/submission
- Sender's detail
- Sent date
- Recipient's Details
- Date received
- Quantity of documentation referenced on the transmittal
- Number of copies
- Format/medium submitted
- Sender signature
- Recipient signature, once submitted, to acknowledge receipt

The *Contractor* compiles and submits all the documentation, for the various phases of the Project, in accordance with the agreed Programme. Documentation and drawings are programmed for delivery to meet the milestone dates and in accordance with the agreed MDL, that is to be developed by the *Contractor*.

The *Contractor* includes the *Employer's* drawing number in the drawing title block. This requirement only applies to design drawings developed by the *Contractor* and his Sub-*Contractors*. It does not apply to drawings developed by manufacturers for equipment and material such as valves, instruments, etc. Drawing numbers will be assigned by the *Employer* as drawings are developed.

2.2.3. Email Subject

The email subject shall as a minimum, contain the following: **(Project Name_Discipline_Subject)**

Documentation is submitted to the *Project Manager*, as well as to the centralised and on-site Documentation Centres, by way of the following media:

- Electronic copies are submitted to both on site Documentation Centres, and to the Project Manager as well through generic email address (HYPERLINK "<mailto:edrmsharingservices@eskom.co.za>")
- Electronic copies too large for email (above 6 Megabytes), are delivered by large file transfer protocol.
- Hard copies are submitted to the Project Manager, accompanied by the Transmittal Note. These transmittals are also scanned and a copy sent to the project e-mail address as per the first bullet.

2.2.4. Identification of the Documentation

The document will have the following as a minimum attributes on the cover page:

- Title of the document
- Document Unique Identification number (Employer's number)
- Contractor Document number, if applicable
- Document status
- Revision number
- Document Type
- Document security level
- Document revision table/history
- Page number on the footer
- Document Author/Authoriser/
- Document Originator Contractor

The following additional attributes are important for technical documents: Package/System name, sub-system if applicable

- Contractor name
- Contractor number
- Plant Identification Codes

2.2.5. Format and Layout of Documents

For consistency, it is important that all documents used within a specific domain follow the same layout, style and formatting standard.

All Documents shall be equipped with an index where applicable. Such index shall be hyperlinked in electronic formats of the Documents. The *Contractor* shall submit the final Documentation in electronic format and on paper copies as shown in the table below.

ITEM	Paper Copies		Flash Disk
	Number	Size	Number
Documents	2	A4/A3	3
Reports, Calculations and Technical Documents	2	A4	3
Programmes and Work Plans	2	A3/A4	3
Method Statements	2	A4	3
Technical Data	2	A4	3
Drawings	2	A2/A3	3
Manufacturer's Information	2	A4	3
Controls & Wiring Diagrams	2	A3/A4	3
Scada Software	-	-	3
Antivirus Software	-	-	3
Test Certificates	2	A4	3
Commissioning Records	2	A4	3
O&M Manuals	2	A4	3
Guarantees & Warranties	2	A4	3
Reference Codes, Standards and Guides	2	-	3

The *Contractor* shall employ all appropriate project electronic document handling systems for the transmission of the Documentation. Any or all of the *Contractor's* Documents may be reviewed by the *Employer* to verify compliance with the Works Information Document and accordance with the Design Intent. All *Contractor's* Documents selected for review will be given a status mark as shown in the table below.

STATUS MARK	REVIEW COMMENT	MEANING
'A'	No comment	The <i>Contractor</i> may proceed.
'B'	Comments as noted	The <i>Contractor</i> may proceed at their own risk, incorporating the comments in a timely manner, and resubmit.
'C'	Re-submit before	The <i>Contractor</i> must resubmit before proceeding.

Any incomplete or substandard submissions will automatically be given 'C' status. The *Contractor* shall allow a period for the *Employer* to review and comment on the *Contractor's* submitted Documents, as shown in the table below.

TYPE OF SUBMISSION	WORKING DAYS	FROM
Contractors' Documents	5	Before date required by the Contractor
Draft O&M Manuals, draft record drawings and performance data	5	Before start of testing and commissioning
Commissioning & Testing Records	5	After tests
Input to the project Health & Safety File	5	Before construction commences
'A' Status O&M Manuals and Record Drawings	5	Before Practical Completion

Comments given by the *Employer* do not relieve the *Contractors* of their responsibilities and obligations regarding the execution of the works and compliance with the Contract Documentation and the Works Information Document. Comments given by the *Employer* do not constitute a Change under the Contract.

2.2.6. Drawings

The creation, issuing and control of all Engineering Drawings will be in accordance to the latest revision of the *Employer's* standard: 240-86973501 (Engineering Drawing Standards – Common Requirements).

All *Contractors* are required to submit electronic drawings in Micro Station (DGN) format, and scanned drawings in pdf format. No drawings in TIFF, AUTOCAD or any other electronic format will be accepted. Drawings issued to the *Employer* may not be "Right Protected" or encrypted.

2.2.7. Engineering Change Management

All Design change management shall be performed in accordance to the latest revision of the Eskom Project Engineering Change Management Procedure (240-53114026). and the *Employer* shall ensure that *Contractor* is provided with latest revisions of this procedure. Any uncertainty regarding this procedure should be clarified with the *Employer*. All design reviews will be conducted according to the Design Review Procedure (240-53113685).

2.2.8. Handover requirements

The *Contractor* is required to handover documentation in such a way that it is compatible with Eskom Quality systems.

2.3. Health and safety risk management

The *Contractor* shall comply with the **Construction work regulations of OHS Act**.

2.4. Environmental constraints and management

The Contractor provides the project with the project **Environmental Management Plan (EMP)** that is approved by the employer.

2.5. Quality assurance requirements

The Contractor and all sub-Contractors shall comply with the requirements listed in the Employer's Quality requirement standard, 'Supplier Contract Quality Requirements Specification', document identifier **240-105658000** Supplier Quality Management Specification

2.6. Programming constraints

The programme is to be submitted for acceptance in accordance with Core Clause 31 in the Engineering and Construction Contract, in terms of which resources to complete each activity must be clearly identified. The *Contractor* will allow two weeks of the starting date for compiling a schedule to be reviewed by Eskom every two weeks to ensure accuracy. The *Contractor* will be expected to use the allowed time from start date to prepare a proper schedule by interfacing with all relevant stakeholders. It is suggested that Gantt or bar chart formats be used for project planning, while progress graphs/schedules be submitted at monthly project meetings to monitor progress.

The programme is to include all the requirements of clause 31.2 of the Engineering and Construction Contract.

- Progress

Eskom will monitor the process of compiling a schedule of the contract on a weekly basis by means of a report from the *Contractor*. A weekly progress report is to be submitted to the *Project Manager*.

The *Contractor* monitors progress weekly in conjunction with the *Supervisor*. A weekly progress report is to be submitted to the *Project Manager*.

The *Contractor* submits his record of Work Done to Date (verified by the *Supervisor*) to the *Project Manager* on the 20th of each month. (The application is to have the same format as the relevant Activity Schedule, and show present, previous and total quantities to date).

2.7. Contractor's management, supervision and key people

The *Contractor* shall submit an organizational structure showing his human resources and their lines of authority/communication.

The *Contractor* shall ensure that they comply with the registration of identified personnel as per the requirements of the South African Council for the Project and Construction Management Professions

(SACPCMP) as gazetted in Project and Construction Management Professions Act No. 48 of 2000, Section 18(1) (a) or (b) and (c).

The following are the categories that must be registered

- Construction Manager (CM), reference to Construction Regulation GNR. 84 of 7 February 2014 section 8(1), in terms of appointment and registration in terms section 18(1) (c) of the Act 48 of 2000.
- Construction Health and Safety Manager (CHSM), registration in terms section 18(1) (c) of the Act 48 of 2000.
- Construction Health and Safety Officer (CHSO), reference to Construction Regulations GNR.84 of 7 February 2014 section 8(6), and in terms section 18(1)(c) of the Act 48 of 2000

2.8. 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;
(add other as required)

Add procedures for invoice submission and payment (e. g. electronic payment instructions)

2.9. Insurance provided by the *Employer*

Refer to clause 8 Contract Data (Part one – Data provided by the Employer).

For all Employer Insurance related queries, contact:

- Cluster Manager
- Eskom Insurance Management Services
- Eskom Holdings SOC Ltd
- Megawatt Park
- 011 800 2714

2.10. Contract change management

As per NEC

2.11. Provision of bonds and guarantees

N/A

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

A risk register is to be kept by the *Contractor* in which all events are recorded. Records of events that could give rise to Compensation Events are to be kept up to date for inspection by the *Supervisor* and/or

Project Manager at all times and this is to be kept in a risk register. This is not for inspection purposes but for management as per core clause 16.

2.13. Training workshops and technology transfer

The contractor proposes and provides training.

3. Engineering and the Contractor's Design

The contractor provides all the design requirements and engineering specifications for this contract.

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

The Contractor is responsible for the design of the entire Works.

3.2. Procedure for submission and acceptance of *Contractor's* design

A detailed design phase shall precede the construction phase of the Project during which the design report and drawings are submitted to the *Employer* for acceptance. The design review period by the employer is 30 days.

3.3. Other requirements of the *Contractor's* design

The Contractor is mandated in terms of Construction Regulations 2014: Duties of Designer, 6(1) g to fulfil the duties described therein. Any risk associated with the Contractor's design shall be highlighted to the Employer together with mitigation measures. These risks shall be included in the project risk register

3.4. Use of *Contractor's* design

The Contractor to allow the Employer to use detailed designs, drawings and all relevant documents for operational, maintenance purposes and for future developments whenever required. Copy rights to remain with the Employer

3.5. Design of Equipment

3.6. As-built drawings, operating manuals and maintenance schedules

All As-built drawings, operational manuals and maintenance schedules are provided to the Employer.

4. Procurement

4.1. General

4.1.1. Minimum requirements of people employed on the Site

People employed on site shall have all relevant documents as required by law for employment within the country, i.e. relevant work permits and Identifications.

4.1.2. BBBEE and preferencing scheme

The contractor will be required to maintain or improve the BBBEE level for the duration of the contract.

4.1.3. SUPPLIER DEVELOPMENT LOCALISATION AND INDUSTRIALISATION (SDL&I)

SDL&I mandate is to achieve maximum and sustainable local development impact through leveraging Eskom's procurement spend in a manner that allows flexibility within the business in order to accommodate government local development initiatives and policies.

As a State-Owned Enterprise, ESKOM supports Government's socio-economic development initiatives that it addresses through Supplier Development and Localisation objectives, which include enterprise development, transfer of skills, job creation, incubation, localisation of procurement initiatives and industrialisation.

For the purposes of tendering, the *tenderer* must demonstrate the manner in which the SD&L requirements will be met in due course in an implementation program. If the *tender* is awarded all SD&L undertakings (the *Contractor's* SD&L Obligations) must be made by the *Contractor* at the time of contracting

4.1.3.1. SDL&I Undertaking

The SDL&I undertaking generally identifies the following areas for SDL&I evaluation. These are procurement from EMEs, QSEs, LMEs (Generic); local content of the tender as a whole; Job creation and Skills Development commitments of the tenderer.

Targets and weighting are set for each individual project.

Tenderers who complete and submit the undertaking as required, but who do not meet Eskom's targets, will not be disqualified. SDL&I undertakings do not form part of scoring but commitments will form part of contractual obligations.

Definitions and Interpretation

The definitions below shall be referred to in the interpretation of this document. The targets for EMEs, and QSEs are a percentage of the local content portion of the tender only.

4.1.3.2. Qualifying Small Enterprises (QSE)

The Codes define a QSE as any enterprise with annual total revenue of between R10 million and R50 million.

A QSE with at least 51% black ownership qualifies as a Level 2 contributor.

A QSE with 100% black ownership qualifies as a Level 1 Contributor.

A QSE that is regarded as a specialized enterprise with at least 75% black beneficiaries qualifies as a Level 1 contributor with B-BBEE level of 135% in terms of the Codes of Good Practice.

A QSE that is regarded as a specialized enterprise with at least 51% black beneficiaries qualifies as a Level 2 contributor with B-BBEE level of 125% in terms of the Codes of Good Practice.

A QSE is required to submit a sworn affidavit confirming their annual total revenue of between R10 million and R50 million and level of black ownership or a B-BBEE level verification certificate to claim points as prescribed by regulation 6 and 7 of the Preferential Procurement Regulations 2017.

4.1.4. Large Measured Entity (LME) /Generic

A generic Enterprise's B-BBEE compliance is measured using the Generic Scorecard. The Generic scorecard is based on five elements each of which has an assigned weighting which correlates with the importance of that specific element and a set target.

A generic Enterprise has a annual turnover that is more than R 50 million rands.

4.1.5. SDL&I Progress Report

Means the Contractor's SDL&I progress report

4.1.6. Local Content

- Goods made in South Africa (from local raw materials).
- Only good that are made within the borders of SA can be claimed to be local content.
- Local Content (is mainly based on local manufacturing, there must be value addition to the product.
- LC is measured on the product which must be manufactured in South Africa at a specified minimum threshold (LC).
- LC percentage is determined based on the availability of input materials.
- Assembly of products is considered to have some level of local content.
- Example where 100 local content is required, no imports are allowed all materials including the production process must be local.
- If local content is less than 100 imported raw materials can be used without any Exemption.
- Key to protect local industry against imports, build industrial capacity, create jobs and contribute to the economic growth in South Africa.

4.1.6.1. Local Procurement

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

Tenderers are required to submit its proposals in the table below.

Local Procurement Content	Eskom target	Tenderer Proposal
	80%	

4.1.7. Tenderers procuring from entities with a minimum 51% black ownership

Subcontracting refers to activities which tenderers outsource to other enterprises in its supply chain during the execution of the contract scope of work.

The contractor can also achieve subcontracting requirements by claiming invoices paid to service providers of indirect expenses that it incurs in the operation of its business. Such expenses may include courier services, training, transport costs, facility management, office /property rental, cleaning, gardening, ICT services.

Procurement from black Designated Group	Eskom Target	Tenderer Proposal
Black Owned	4%	
Black Women Owned	3%	
Black Youth Owned	2%	
Black Persons with Disability	1%	

4.1.8. Designated products:

The contractor indicate below Designated Components

Commodity	Components	Local Content Threshold
Furniture Products: Office Furniture	Melamine office desk with drawers	70%
	High back upholstered chair with arms on 5 star base	65%
	Side upholstered chair – sleigh base with arms	70 %
	Steel / Wood stationery cupboard or drawers filling cabinet	100%
Electrical and Telecom Cables	Power Cables: Low Voltage,	90 %
	Power Cables: Low cost reticulation	90 %
	Telecom Cables: Optic Fiber Cables	90 %
	Telecom Cables: Copper Telecom Cables	90 %
Valves products and actuators	Valves	70 %
	Manual or pneumatic actuator	70 %
Steel Products and Component	Fabricated Structural Steel	100 %
	Joining / Connecting Components	100 %
	Roof and Cladding	100 %
	Fasteners	100 %
	Wire Products	100 %
	Ducting and structural Pipework	100 %
	Gutters, downpipes and launders	100 %
Plastic Pipes	Primary sheet products	100 %
	Polyvinyl Chloride (PVC) pipe	100 %
	Hige Density Polyethylene (HDPE) pipe	100 %
	Polypropylene (PP) pipe	100 %
	Glass reinforced Plastic (GRP) pipe	100 %

Cement	Cement	100 %
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4.1.9. Imported Goods and Services

Imported goods and services" means, but is not limited to: Goods and services directly imported into South Africa.

Goods which although stored in South Africa are produced and/or wholly manufactured outside the borders of South Africa and/or have a minimum of 50% (fifty percent) of production costs (including labour) incurred outside of South Africa and payable to foreign residents and/or foreign registered entities;

Goods that have been "substantially transformed" outside of South Africa. Substantially transformed refers to the irreversible incorporation of imported components in the goods, with the labour costs and profit content earned by foreign residents and/or foreign registered entities exceeding 50% (fifty percent) of the Contract Amount and/or the significant assembly and manufacture of the goods occurring outside of South Africa's borders; and/or

Services with at least 50% (fifty percent) of the labour cost incurred outside of South Africa's borders and/or with at least 50% (fifty percent) of the service fee payable to foreign residents and/or foreign registered entities, regardless of whether the service involves domestic capital goods or other domestic costs

4.1.9.1. Final Review

Final Review means the review (to be conducted at the completion date of the whole of works by the Project Manager) of the Contractor's performance in respect of the Contractor SDL&I Obligations

4.1.9.2. Skills Development

This is the requirement that tenderers commit to train certain individuals in specified trades.

The requirement is that the targeted numbers of individuals are trained and complete practical tasks to achieve the outcome of passing a trade test and qualifying as an artisan, or the equivalent for any other required skill.

As part of this contract, the contractor will be required to develop the skills:

Tenderers are required to submit proposals for the skills types / occupations and the number of candidates to be developed. The candidates shall be currently unemployed graduates from school, Universities and technical, vocational, education and training (TVET) campuses. The threshold will be as follows to ensure successful implementation of this initiative:

- ✓ Successful tenderer will be obligated to **skill one** candidate for every **R 5**
- ✓ **Million received cumulatively ; The supplier will be required to implement this requirement a month after the threshold is reached.**
- ✓ This obligation will be for the duration of the contract; however, the supplier needs to demonstrate positive progress on a monthly basis.

Type of skill / Occupations	Number of candidates

The process of developing these skills shall involve the paRT&Dipation by tenderers directly and through their supply network. In certain cases, the SETAs accredited training providers can be approached to paRT&Dipate in developing critical and scarce skills.

Skills development of candidates must represent the demographics of the country, South Africa.

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

4.1.10. Contractor's SDL&I Commitments

Means those commitments regarding local content, skills development, Job creation and procurement from EMEs and QSEs made by the Contractor in his tender submission and used by the Employer for the purposes of calculating the Contractor's SD&L score in the tender evaluation process

4.1.11. Contractor's SDL&I Obligations

Means those obligations of the Contractor regarding local content, skills development and procurement from QSEs and EMEs derived from Contractor's SDL&I Commitments and agreed between the Contractor and the Employer.

4.1.12. Certificate of Fulfilment

Means the certificate issued by the Employer after the Final Review as evidence of the Contractor's successful fulfilment of the Contractor SDL&I Obligations.

4.1.12.1. SDL&I Progress Reports

The Contractor shall submit monthly SDL&I progress reports to the Project Manager. SDL&I progress reports shall be submitted by the 7th (seventh) day of the month following the months to which the report relates. Each report shall include:

4.1.13. An executive summary

Charts and detailed descriptions of the progress in narrative format, including each stage of progress of the Contractor SDL&I Obligations, the meeting (or delay in the meeting) of anticipated dates and targets (as set out in the program) and any documents, statistics or other form of verification of the dates and targets to be provided in respect thereof.

Percentage progress and the actual or expected dates of commencement of any of the major stages making up the Contractor SDL&I Obligations.

Schedule of forecast and actual, together with a 3 (three) month look-ahead of major activities and events; Comparisons of actual and planned progress in terms of the Implementation Program.

4.1.14. Details of actual and planned resources

An Affidavit from the sub-Contractors stating the work that has been subcontracted to meet the Contractor's SDL&I obligations.

A schedule identifying all details of persons in the process of undergoing or who have successfully completed the Skills Transfer for the relevant period (including details of their personal information and certified copies of their test results and certificates received);

A risk register and assessment dealing with all areas of concern which may cause delays to the fulfilment of the SDL&I obligations and details of the corrective or other measures being adopted, or to be adopted to mitigate or overcome such delay; and such other matters and information (including schedules and charts) as the Project Manager may require to be included in the SDL&I progress report from time to time.

An electronic copy and two hard copies of each SDL&I progress report shall be submitted to the Project Manager.

Additional Reports

The Project Manager shall be entitled to request the Contractor to provide additional reports when in his opinion they are warranted to monitor the progress of the fulfilment of the Contractor SD&L obligations.

4.1.14.1. The Final Review

The parties' record that the purpose of the final review is for the Project Manager to determine whether the Contractor has fulfilled the Contractor's SDL&I obligations as at completion date.

The Contractor shall provide the Project Manager with the following documentation to be used by the Project Manager as a basis for the final review:

A consolidated SDL&I progress report recording all steps taken to meet the Contractor's SD&L obligations from the starting date to the completion date including all information and supporting documentation

All of the SDL&I progress reports provided by the Contractor during the course of the contract and any other additional report, documentation or information that the Project Manager deems to be reasonably relevant to the conduct of the final review (to be provided by the Contractor at least 21 (twenty-one) business days prior to the final review). The Project Manager shall notify the Contractor of such request by way of written notice at least 30 (thirty) business days prior to the final review.

The Employer shall, in its reasonable discretion, conduct the final review by comparing those Contractor's SDL&I obligations actually fulfilled by the Contractor as at the time of the final review against with the Contractor's SDL&I obligations as a whole.

The Project Manager shall notify the Contractor of its findings on the final review by way of written notice within 30 (thirty) business days of the final review. The notice shall contain the Project Manager's reasons for its findings.

Should the final review reveal that the Contractor has not fulfilled and/or complied with any of the Contractor's SD&L obligations as at the completion date:

The Contractor shall be in breach of a material obligation under the contract and the Employer shall be entitled to have immediate recourse to and make a claim against the whole of the retention as the penalty for the Contractor's breach of the Contractor SDL&I obligations.

Should the final review reveal that the Contractor has fulfilled and/or complied with all of the Contractor's SDL&I obligations as at the completion date, the Employer shall issue a certificate of fulfilment.

4.1.15. SDL&I Penalty and Performance Security

As security for the fulfilment of all SDL&I obligations, Eskom will apply a penalty of 1.5% of every invoice amount (excluding VAT) for failure to submit SDL&I performance reports every quarter; or failure to meet the SDL&I obligations in a contract.

4.2. Subcontracting

4.2.1. Preferred subcontractors

Mandatory subcontracting on contracts above R30 million is a condition for this contract.

If feasible to subcontract for a contract above R30 million, Eskom:

- a) must apply subcontracting to previously designated groups.
- b) must advertise the tender with a specific condition for contract award that the successful
- c) tenderer must subcontract a minimum of 30% of the value of the contract to:
- d) an EME or QSE.
- e) an EME or QSE, which is at least 51% owned by black people.
- f) an EME or QSE, which is at least 51% owned by black people who are youth.
- g) an EME or QSE, which is at least 51% owned by black people who are women.
- h) an EME or QSE, which is at least 51% owned by black people with disabilities.
- i) an EME or QSE, which is 51% owned by black people living in rural or underdeveloped areas or townships.
- j) a cooperative, which is at least 51% owned by black people.
- k) an EME or QSE, which is at least 51% owned by black people who are military veterans.
- l) more than one of the categories referred to in paragraphs (a) to (h).

Tender Returnable if the above element is a requirement.

- Proof of a sub-contract agreement/s must be submitted.
- CSD report of subcontractors
- Sub-contractor/s B-BBEE certificate / affidavit must be submitted.

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.

4.2.2. Subcontract documentation, and assessment of subcontract tenders

The Contractor shall manage his sub-Contractors in the same way that the Employer manages the Contractor. Special attention must be given to the management of the sub-Contractors' SHEQ compliance.

The Contractor will be required to subcontract a minimum of 30% of the contract and the following designated groups will be targeted and this will be a condition of tender:

- an EME or QSE which is at least 51% owned by black people;
- an EME or QSE which is at least 51% owned by black people who are youth;
- an EME or QSE which is at least 51% owned by black people who are women.
- an EME or QSE which is at least 51% owned by black people with disabilities.
- an EME or QSE which is 51% owned by black people living in rural or underdeveloped areas or townships.
- a cooperative which is at least 51% owned by black people.
- an EME or QSE which is at least 51% owned by black people who are military veterans.
- an EME or QSE

4.2.3. Limitations on subcontracting

Proof of a sub-contract agreement will be required as proof of meeting the 30% minimum requirement

4.3. Plant and Materials

4.3.1. Quality

The Contractor shall comply with the 240-105658000 Supplier Quality Management Specification issued by the Employer

4.3.2. Plant & Materials provided "free issue" by the *Employer*

No Plant and material will be provided "free issue" to the Contractor for this Contract. All Plant and Material is to be provided by the Contractor

4.3.3. *Contractor's* procurement of Plant and Materials

All transportation to site of plant and material required for this project will be by means of road transport. The Contractor must familiarise himself with the road conditions to site.

The Contractor must prepare a fenced off storage yard on or off-site for the off-loading and safekeeping of all plant and material delivered to site. Material must be off loaded and stored separately in areas allocated for this purpose. The Contractor must manage such storage areas as to ensure safety compliance as well as security of the plant and material.

The Contractor shall comply to document "240-105658000 Supplier Quality Management Specification in works information during fabrication, supply and delivery of foundation steelwork, reinforcing, earthing devices and all other foundation related material. All copper will be supplied by the Contractor

4.3.4. *Spares* and consumables

The contractor tenderers submit their own recommended spares list for Eskom's approval.

4.4. Tests and inspections before delivery

All the testing as required by the relevant specifications shall be done by the *Contractor*.

4.5. Marking Plant and Materials outside the Working Areas

The *Contractor* shall mark all Equipment, Plant and Material which is outside of the working area destined for the works.

4.6. Contractor's Equipment (including temporary works).

The *Contractor* shall ensure the provision of suitable construction equipment for the construction of the works.

- a) The Contractor provides all Equipment that is required to complete the works.
- b) The Contractor shall ensure that all his construction labour and equipment remains within the fenced off allocated construction area.
- c) The Contractor shall ensure that any staff, labour, or equipment moving outside his allocated construction site does not obstruct the normal operation of the ADF or the power station. Any additional access routes required must be coordinated with the Project Manager.
- d) The Contractor must keep daily records of his equipment used on Site and the Working Areas (distinguishing between owned and hired Equipment) with access to such daily records available for inspection by the Project Manager at all reasonable times.
- e) All Equipment used by the Contractor in providing the Works shall comply with the General Machinery Regulation 4 of the Occupational Health and Safety Act (Act 85 of 1993).

4.7. Cataloguing requirements by the Contractor

Not Applicable

5. Construction

5.1. Temporary works, Site services & construction constraints

5.1.1. Employer's Site entry and security control, permits, and Site regulations

Access to the site is controlled and it is governed by the terms and conditions lay down by Eskom security officials. The proposed site will be shown to the Contractor during the site meeting or clarification meeting by the Employer.

The Contractor liaises with SHE Practitioner/Officers for Safety Induction prior work to commence. During Safety Induction, site access permits with a copy of the medical and a certified ID copy/passport (not older than three months) should be handed to the SHE Practitioner/Officer for approval.

The Contractor employees will take the signed site access documents to security reception official in order to finalize their site access. The Contractor ensures that all its employees carry their site access forms with them all the time. The Contractor is subjected to alcohol testing on a daily basis. The Contractor submits his application for vehicle permit to the Project Manager. The personnel and vehicles entering and leaving the site are subjected to routine searches.

The Contractor obtains a "Gate Removal Permit" from the Project Manager before materials and equipment can be removed from site. The "Gate Removal permit" gives itemised list of materials and equipment to be removed from site.

The Contractor ensures that a tool list is available on the day of arrival and that all tools are captured on the tool list. The tool list will be handed over to the Reception Security official that will stamp the tool list. The tool list will be kept safe and will be used when tools needs to be remove from site.

5.1.2. Restrictions to access on Site, roads, walkways and barricades

The Contractor complies with the Site Regulations as per Employer's Safety Health Specification.

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 copy of the current Site Regulations at the project kick-off meeting.

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

The *Contractor* must clearly indicate its proposed working hours in the Tender and specifically in the programme provided with the Tender. After award the *Contractor* will adhere to these agreed working hours and keep detailed and accurate records of compliance herewith. The *Contractor* ensures that the *Supervisor* must sign these records daily and the *Project Manager* and *Supervisor* must have access to these records at any time.

The *Contractor* indicates any shift work or extended working hours required in order to meet with the required completion dates of the Package Order. The *Project Manager* and SHEQ manager's permission to work these hours are obtained prior to working such hours..

The *Contractor* keeps records of his people on Site, including those of his Sub-Contractors which the *Project Manager* or *Supervisor* have access to at any time. These records will be needed when assessing compensation events.

5.1.4. Health and safety facilities on Site

Refer to the SHE specification, EMP, South African Government Guidelines and Directions on Management of COVID-19 and other epidemic outbreaks, World Health Organisation Guidelines, the latest Disaster

Management Act and applicable government regulations. The Contractor shall appoint the security for the site camp and plant and material.

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

The environmental controls shall be complaint to the following:

- As per ESKOM RT&D Waste Management Procedure
- National Environmental Management Act (NEMA, Act No. 107 of 1998).
- National Environmental Management Waste Act (NEMWA, Act No. 59 of 2008)

5.1.6. Title to materials from demolition and excavation

As per Clause 73.2 the *Contractor* has no title to materials from excavation and demolition

5.1.7. Cooperating with and obtaining acceptance of Others

Other Contractors are working in the same area as the work of this contract. In this regard, the Contractor co-ordinates his work with the Project Manager to maintain harmonious working conditions on Site.

During the progress of the works the Contractor provides access to Others who also execute work in the same area, on an as and when required basis.

The Contractor makes his own assessment of the problems and difficulties which may be encountered for providing access to and interfacing with Others (this includes access difficulties experienced during construction or commissioning phase).

5.1.8. Publicity and progress photographs

The taking of photographs at RT&d including the Project works is restricted and subject to the approval by the Project Manager.

For the purpose of the Progress Reporting Requirements, the *Project Manager* may prohibit the taking of such photographs and/or require that all such photographs be taken by an official *Employer* photographer. In the latter event, the *Contractor* is required to make arrangements directly with the photographer for the taking of the photographs required by the *Contractor* for the purpose of the Progress Reporting Requirements.

5.1.9. Contractor's Equipment

The Contractor provides all Equipment that is required to complete the works.

- a) The Contractor shall ensure that all his construction labour and equipment remains within the fenced off allocated construction area.
- b) The Contractor shall ensure that any staff, labour, or equipment moving outside his allocated construction site does not obstruct the normal operation at RT&D. Any additional access routes required must be coordinated with the Project Manager.
- c) The Contractor must keep daily records of his equipment used on Site and the Working Areas (distinguishing between owned and hired Equipment) with access to such daily records available for inspection by the Project Manager at all reasonable times.
- d) All Equipment used by the Contractor in providing the Works shall comply with the General Machinery Regulation 4 of the Occupational Health and Safety Act (Act 85 of 1993).

5.1.10. Equipment provided by the Employer

No Equipment will be supplied by the Employer; however the Employer does reserve the right to negotiate with the Contractor that different equipment be used of another origin for whatever purpose that may become apparent at the time.

The Contractor supplies all equipment including cranes, scaffolding and other earthmoving equipment for the construction of the works.

5.1.11. Site services and facilities

5.1.11.1. Site Yard

Site Yard for the Contractor shall conform to the Employer's Safety Health and Environmental Specification It is required, for the proper co-ordination and execution of the works that the Contractor has an office on site for the duration of the Contract.

A site will be made available to the Contractor for his yard within Eskom security area. The proposed site will be shown to the Contractor during site meeting or clarification meeting. The yard is a raw site in size agreed upon by the Contractor and Project Manager 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/delegated person.

The location of the nearest, power distribution point, storm water channel and road access point is indicated by the Employer. The Contractor is responsible for connection to the closest point of supply.

5.1.11.2. Supply of Electricity

Electricity will be made available for construction purposes from power points which will be indicated by the Project Manager. The Contractor is 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. Planned outages are also a possibility. 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 RT&D without the prior acceptance of the Project Manager.

The power supply is managed in accordance with the latest revision of the Eskom safety regulations i.e.:

- a) 32-846, Operating Regulations for High-Voltage Systems.
- b) COC for the site installation is required prior to power being switched on.

5.1.11.3. Lighting

The Contractor at his own expense provides temporary local lighting in accordance with the requirements of the OHS Act as amended. The Project Manager provides no local lighting. All construction lighting is the responsibility of the Contractor.

5.1.11.4. Water

The Contractor shall make provision for supplying both potable and construction water. The Contractor supplies at his own cost all the necessary connections, fittings, piping work, temporary plumbing and pumps necessary to supply to the various points where it is required. The Contractor is responsible for maintaining this equipment and for removing it at Completion of the whole of the works.

5.1.11.5. Roads

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.

5.1.12. Facilities provided by the Contractor

It is required, for the proper co-ordination and execution of the works that the *Contractor* has an office on Site for the duration of the contract.

The Contractor includes in his establishment prices for all further treatment of the yard areas 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 fencing, security and access arrangements. The yard will be kept clean and tidy at all times, this will include all workshops and storage areas under the control of the *Contractor*. Maintenance of the yard is the *Contractors* responsibility and is for 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.

The *Contractor* shall make provision for carrying out of all quality control testing required in terms of the works involved. This shall include, but is not limited to, the following:

- Soil grading analysis from 0.075 mm up to 100 mm as per TMH 1 A.
- Soil grading analysis from 0.002mm up to 0.075mm as per TMH 1A5.
- Soil testing for Atterberg limits as per TMH 1 A2-A4.
- Soil density testing (nuclear and sand replacement as per TMH 1 A10).
- Soil testing for moisture content.
- DCP testing.
- In situ permeability testing on all facilities.

The *Contractor* shall either provide a laboratory on site or may make use of approved external laboratories (SANAS accredited) and/or laboratories of other contractors on site subject to the approval of the *Supervisor*.

Results of permeability testing will only be accepted if carried out by an accredited laboratory

5.1.12.1. Employers Site Office

N/A

5.1.12.2. 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. Arrangements may also be made to use the telephones of the RT&D if they are available.

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.

5.1.12.3. Sanitary Facilities and Refuse

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

5.1.12.4. Equipment/Appliances

Any electrical Equipment, or appliances, used by the Contractor conforms to the applicable OHS Act safety standards and is maintained in a safe and proper working condition. The 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. Inspection of equipment/appliance will be done as required by OSH Act.

The Employer may assist the Contractor with the off-loading of equipment, plant and material but the responsibility for off-loading remains with the Contractor.

Any special tools and equipment to be used on site for the execution of the works is the responsibility of the Contractor.

5.1.13. Survey control and setting out of the works

The Project Manager designates the working area boundary limits and assigns for the Contractor's use access roads, parking areas, storage areas, existing facilities areas and construction areas. The Contractor does not trespass in or on areas not designated for his work.

The Contractor is responsible for keeping Contractor's personnel out of areas not designated for Contractor's use, except, in the case of isolated work located within such areas for which the Contractor is authorised to do so.

The control points will be established by the Contractor. Land surveys will be done by the Contractor before and after clear and grub, before and after topsoil strip and after final excavation before construction commences.

The Contractor will ensure that application for excavation permit is done well in advance before any excavation work can start in an area. The Employer will need the drawings of the work to be conducted in the area to show the Excavation authorised person of RT&D the drawings so that an excavation permit can be issued. A copy of the excavation permit with the drawings will be handed to the Employer for record keeping.

5.1.14. Underground services, other existing services, cable and pipe trenches and covers

The drawing for underground services is USL V1 2024 Research Facility.

5.1.15. Control of noise, dust, water and waste

The Contractor maintains a high standard of cleanliness during the conduct of his activities at RT&D. This includes areas allocated for storage of materials, site offices etc. to the satisfaction of the Project Manager. The Contractor keeps these areas clean and free from accumulation of waste materials and refuse regardless of the source.

The Contractor ensures during sweeping and dusting, that a minimum amount of dust is liberated into the atmosphere. Cleaning by vacuum cleaners is preferred and the use of compressed air for cleaning is prohibited.

The Contractor is responsible for the prompt removal of all waste to a designated disposal area. The disposal area will be on or in the vicinity of the Power Station and be indicated by the Project Manager.

For the purpose hereof, "waste" any matter, whether liquid or solid or any combination thereof, which is a by-product, emission, residue or remainder of any process or activity carried out in connection with the works and which is not reused on the Site in the ordinary course of carrying out the works within seven days of production.

The Contractor provides an adequate number of marked bins and containers at offices, in yards, at workshops and on the Site for the temporary storage of waste. These bins and containers are subject to approval by the Project Manager. The Contractor is required to segregate certain items of waste by type as designated by the Project Manager.

Bins and containers are emptied and waste removed to the designated area at least once a week. All the waste removed to the designated area at least once a week. All the temporary storage areas for bins and containers are kept tidy and must not constitute a nuisance to others. The Contractor takes all required steps to avoid spillage of waste alongside the bins and containers during removal and disposal thereof.

All waste that cannot be contained in either a bin or container is placed on a temporary waste site which the Project Manager identifies. The waste is removed as soon as possible but in any event at least once a week.

Hazardous waste is dealt with in accordance with the safety, health and/or environmental requirements of the works and the Contractor is solely responsible for the proper disposal thereof. Hazardous waste will be disposed of at an authorised landfill site. Waste manifest will be kept for record keeping and hand over at the end of the Project.

Controlling water from excavations is done as required by the Environmental legislation and only after a method statement to this regard has been accepted by the Project Manager.

The Contractor must ensure that adequate pumping capacity is provided for the continual pumping of water from excavations. Water may be contaminated and should not be discharged into the environment unless tested.

5.1.16. Giving notice of work to be covered up

After construction the Contractor is to rehabilitate any damage caused to the environment to the satisfaction of the Supervisor. The remedial works are to be "signed-off" by both parties before acceptance. The contractor to take note of the QITP's requirements relating to earthing, earth crimpets and clamps, which needs to be inspected prior to closing of trenches.

5.1.17. Hook ups to existing works

The Contractor complies with Eskom Life Saving Rules and will report any non-conformance

5.2. Completion, testing, commissioning and correction of Defects

5.2.1. Work to be done by the Completion Date

On or before the Completion Date the Contractor shall have done everything required to Provide the Works except for the work listed below which may be done after the Completion Date but in any case before the dates stated. The Project Manager cannot certify Completion until all the work except that listed below has been done and is also free of Defects which would have, in his opinion, prevented the Employer from using the works and Others from doing their work.

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

5.2.2. Use of the *works* before Completion has been certified

On or before the Completion Date the Contractor shall have done everything required to provide the Works. The Project Manager cannot certify Completion until all the work has been done and is also free of Defects

5.2.3. Materials facilities and samples for tests and inspections

The Contractor shall be responsible for the strength and quality of all materials used and workmanship employed. The Contractor shall be responsible for the stability of the permanent works and the temporary works. The fact that the Employer has not objected during the construction period to any materials and/or workmanship employed by the Contractor and even though such materials and/or workmanship has been inspected by the Supervisor shall not relieve the Contractor of such responsibility.

5.2.4. Commissioning

Commissioning is required before completion for all Mechanical, Control & Instrumentation and Electrical equipment/ installations work as specified within the scope of work and specification for the respective disciplines.

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

The Contractor gives the Project Manager written notice that the works are ready for energisation. Such notice will suit the requirements of the Employer.

No alterations or adjustments will be made to the works after functional checks are done without the Project Manager's written permission.

At this stage the following must have been achieved:

- Installation and pre-commissioning completed.
- Testing report and the associated certificates received.

- c) Signed erection and safety clearance certificates.
- d) Final Draft of the Technical, Operating, Maintenance manuals delivered.
- e) All Quality Control Plan (QCP) documentation received.

5.2.6. Take over procedures

Take-over of The Works will be in accordance NEC procedures. The Contractor advises the Supervisor when the Works is available for final inspection

5.2.7. Access given by the *Employer* for correction of Defects

NEC Clause 43.4 requires that the Project Manager arranges for the Employer to allow the Contractor access to and use of a part of the works which has been taken over if needed to correct a Defect

5.2.8. Performance tests after Completion

The Contractor shall carry out necessary tests after completion to demonstrate that the performance of the Plant is in accordance with the Employer's Works Information requirements.

The Contractor will be required to provide a detailed method statement on how this verification will be achieved and any instrumentation/equipment required shall be part of the system provided by the Contractor.

5.2.9. Training and technology transfer

The *Contractor* provides training on the equipment and systems included as part of the *works* to the various categories of the *Employer's* technical staff (operators, maintenance and engineering personnel) for the duration of the *works*.

Training provided by the *Contractor* is directly applicable to the actual equipment supplied for the *works*. Generalised training based on similar equipment is not acceptable. The local facilities for training provided by the *Employer* is a suitably sized air-conditioned room, as well as trainee and trainer desks, an overhead projector and flipchart or white board. The number of personnel to be trained is as per the table below.

Table of Technical staff to be addressed in Training Proposal

Department	Number of Personnel
Operators	10
Maintenance	10
Engineering	10

The *Contractor* submits to the *Project Manager* for acceptance a detailed training programme as well as a prospectus for each course. Course material is provided for the number of trainees as per the table above.

The training schedule is incorporated in the Accepted Programme.

5.2.10. Operational maintenance after Completion

The contractor provides operational maintenance after completion of works.

6. Plant and Materials standards and workmanship

The *Contractor* shall ensure that all equipment, components materials services and workmanship are supplied designed, manufactured, installed and tested in accordance with the latest applicable IEC, SANS standards, International Codes, and Standards listed.

- a) The Contractor shall ensure appropriate certification and independent testing has been carried out on any materials and products proposed.
- b) The Contractor shall ensure materials and products used are suitable for the service conditions.
- c)
- d) The Contractor shall ensure that all Works, materials, parts, components etc. supplied shall be new.
- e) The Contractor shall ensure materials and products delivered to site bear the manufacturer's name, brand name and any other data required to verify that their performance and specification complies with the requirements of this document and the Employer's Project Specific Requirements.
- f)
- g) The Contractor shall follow manufacturers' instructions on the use of materials and products.
- h)
- i) The Contractor shall ensure the same manufacturer is used for materials or products of a similar type and that identical parts of similar products are interchangeable.
- j) The Contractor shall ensure that materials and components are transported and stored in accordance with manufacturer's guidelines.
- k) The Contractor shall provide suitable packaging for the protection of all materials and equipment during delivery, storage, and where exposed to damage on site.
- l) The Contractor shall examine materials and products supplied when delivered to site and immediately prior to installation. The Contractor shall replace any damaged or faulty materials or products.

7. List of drawings

7.1. Drawings issued by the Employer

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

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

Drawing number	Revision	Title
228-EE-2024-01	0	Single Line Diagram: MV Reticulation Schematic
228-EE-2024-04		North West Sub – Equipment Layout
228-EE-2024-08		Single Line Diagram: North West Sub LV-DB
USL V1 2024		Research Facility

7.2. Standards and Specifications

It is the Contractor’s responsibility to ensure that they are in possession of the latest revision of these documents.

PART 4: SITE INFORMATION

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

PART 4: SITE INFORMATION

General description

For the general description of the Project and the required Site Information please refer to the Specification for Waste-to-Energy Test Facility in Annexure A.



Eskom Research, Testing and Innovation Centre at Rosherville illustrating the WTEF location.

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

The Waste-to-Energy Test Facility must interface with existing RT&D services and infrastructure, including electrical supply, water supply, access roads, drainage, fire protection, security and data/communications infrastructure as applicable. The Contractor confirms all tie-in points during site evaluation and detailed design.

The following drawings and service information, where available, provide further information on the existing infrastructure and hidden services.

Electrical Integration:

- 228-EE-2024-01: Single Line Diagram: MV Reticulation Schematic
- 228-EE-2024-04: North West Sub – Equipment Layout
- 228-EE-2024-08: Single Line Diagram: North West Sub LV-DB

Subsoil information

For geotechnical information relating to the project area, please refer to Solar PV Facilities, Geotechnical Investigation Report, by Worley Parsons Resources & Energy completed in 2013

Hidden services

For the location of hidden services please refer to the drawing: Research Facility USL V1 2024

Other reports and publicly available information

None

ANNEXURE A

- 1. Introduction

Waste-to-Energy has been identified as a strategic opportunity to support the Just Energy Transition by developing alternative energy sources and creating new economic opportunities. This specification defines the requirements for the design, supply, construction, commissioning and handover of a 50 to 100 kW thermal Waste-to-Energy Test Facility at Eskom Research, Testing and Innovation Centre.

The facility is required to provide an independent South African test platform where Waste-to-Energy technologies can be evaluated, adapted, validated and demonstrated under controlled operating conditions. The facility will generate performance, combustion and emissions data to support future technology selection and investment decisions.

- 2. Supporting Clauses

2.1 Scope

The scope includes the complete engineering design, procurement, supply, construction, installation, testing, commissioning, training and handover of a Waste-to-Energy incineration test facility. The facility shall include waste reception and storage, feed preparation including drying, controlled incineration, flue gas treatment, stack and emissions monitoring, instrumentation and control, data acquisition and all associated civil, mechanical, electrical, control and instrumentation works.

2.2 Purpose

- To provide independent capability to evaluate, validate, optimise and demonstrate Waste-to-Energy and emission reduction technologies under controlled operating conditions.
- To provide test data to assist with Just Energy Transition investment decisions.
- To build in-house Eskom technical expertise in alternative clean sources for electricity generation.
- To support research, development, training and future scale-up of Waste-to-Energy applications.

2.3 Feedstock Applicability

- Wood
- Paper
- Cardboard
- Non-recyclable plastic
- Textile waste
- Rubber
- Leather
- Biomass
- Coal
-

- 3. General Requirements

3.1 Project Description

The required Waste-to-Energy Test Facility is a 50 to 100 kW thermal output incineration test facility capable of batch operation. The planned utilisation is approximately five operating days per month for testing purposes. Operating hours include plant start-up to required temperature and approximately five hours of testing.

3.2 Contractor Requirements

- The Contractor shall demonstrate relevant experience in engineering, procurement, construction, commissioning or operation of thermal process, combustion, incineration, flue gas treatment, emissions monitoring or pilot/research test facilities.

ERROR! UNKNOWN DOCUMENT PROPERTY NAME.

- The Contractor shall provide project references, company profiles, OEM details, local support arrangements and key personnel CVs.
- Where the Contractor uses subcontractors, the subcontractor scope, qualifications and experience shall be clearly defined during tendering.
- The Contractor shall provide a compliance schedule against this specification and identify all deviations.

3.3 Scope of Work

- Detailed design covering civil works, mechanical works, electrical works, control and instrumentation and data acquisition.
- Detailed costing including resources, equipment costs, commissioning costs, site establishment and other fit-for-purpose costs.
- Detailed project schedule for design, construction, commissioning and handover.
- Process Flow Diagrams, Piping and Instrumentation Diagrams, General Arrangement drawings, electrical single line diagrams, equipment datasheets and as-built drawings.
- Operating manuals, maintenance manuals, commissioning procedures, test procedures and final commissioning documentation.
- All tools, special tools, equipment and consumables required to implement and commission the project.

4. Technical Requirements

4.1 Functional Requirements

- Produce a maximum thermal output of approximately 50 to 100 kW, subject to final site evaluation and detailed design.
- Process different representative waste streams.
- Evaluate combustion efficiency and thermal performance.
- Comply with environmental requirements and applicable South African standards.
- Produce performance data for future scale-up.
- Support research, development and training activities.
- Enable future modifications for alternative fuel and co-firing studies.

4.2 Plant and Process Requirements

- Waste reception and storage area.
- Feed preparation system including drying.
- Controlled incinerator.
- Combustion air supply and combustion monitoring.
- Flue gas treatment system considering feedstock and local emission standards.
- Direct injection sorbent capability for research purposes.
- Stack and emissions monitoring system.
- Instrumentation and control system.
- Data acquisition system.

4.3 Emissions and Environmental Requirements

- The design shall include flue gas cleaning equipment with consideration of the feedstock and National Environmental Management requirements.
- The facility shall enable combustion testing and emissions testing.
- Sampling points shall be provided for safe and representative emissions measurement.
- Bottom ash, fly ash, spent sorbents, residues and other wastes shall be handled, stored and disposed of in accordance with applicable legislation.
- The plant shall be designed to support compliance with applicable South African environmental and air quality requirements.

4.4 Control, Instrumentation and Data Acquisition

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- The control system shall provide safe start-up, normal operation, shutdown and emergency shutdown functionality.
- Instrumentation shall monitor temperatures, pressures, flows, oxygen, combustion parameters, emissions parameters and process status as required for operation and research.
- The data acquisition system shall record process and emissions data for research analysis.
- Critical alarms, trips and interlocks shall be defined in the control philosophy and demonstrated during commissioning.
- Data shall be exportable in spreadsheet-compatible format.

4.5 Electrical, Civil and Structural Requirements

- Electrical systems shall comply with applicable SANS, IEC and Eskom requirements.
- The Contractor shall calculate load requirements and provide protection, isolation, cabling, earthing, lighting and small power as required.
- Civil and structural works shall include all foundations, supports, access platforms, storage areas, drainage, roads, shelters and enclosures required for the facility.
- The design shall consider safe access for operation, maintenance, emissions sampling and future modifications.

4.6 Fire Protection and Safety

- The Contractor shall complete applicable safety and fire risk assessments.
- The facility shall include emergency stop, safe shutdown, fire detection/protection, signage, guarding and access control as required.
- All works shall comply with the Occupational Health and Safety Act, Construction Regulations and applicable Employer SHEQ requirements.
- HAZOP, HAZID or equivalent risk studies shall be completed before commissioning where required by the Employer.

5. Testing, Commissioning and Performance Demonstration

- Factory Acceptance Testing shall be carried out where applicable for packaged equipment and control systems.
- Site Acceptance Testing shall verify mechanical, electrical, control, instrumentation, monitoring and safety systems.
- Commissioning shall demonstrate safe start-up, stable operation, shutdown, emergency safe state, flue gas treatment operation, emissions monitoring and data acquisition.
- Performance testing shall verify thermal output range, process stability, combustion performance, emissions monitoring readiness and research data generation capability.
- All commissioning and performance test records shall be included in the final data book.

6. Training and Handover

- The Contractor shall provide practical training for Employer operation, maintenance and engineering personnel.
- Training shall include waste handling, start-up, test operation, emissions monitoring, shutdown, emergency response, maintenance and data extraction.
- Handover documentation shall include as-built drawings, operating manuals, maintenance manuals, commissioning reports, calibration records, certificates, data books, spares lists and special tools.

7. Minimum Tender Returnables

Returnable	Requirement
Technical proposal	Design concept, selected technology, plant description and compliance schedule
Drawings	Preliminary PFD, P&ID, GA/layout, electrical SLD and control architecture

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Programme	Design, procurement, construction, commissioning and handover schedule
Costing	Detailed cost breakdown including site establishment and commissioning
Experience	Project references, OEM details, local support and key personnel CVs
Risk and compliance	Risk register, SHEQ plan, environmental assumptions and permitting assumptions
Lifecycle support	Maintenance philosophy, critical spares, consumables and support arrangements

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