



NEC3 Engineering & Construction Contract

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

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

for **CDD water site irrigation system project**

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CONTRACT No. [Insert at award stage]

Part C1: Agreements & Contract Data

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C1.1 Form of Offer & Acceptance

Offer

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

CDD water site irrigation system project

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
	Sub total	R
	Value Added Tax @ 15% is	R
	The offered total of the amount due inclusive of VAT is ¹	R
	(in words)	

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

Signature(s)

Name(s) _____

Capacity _____

**For the
tenderer:**

(Insert name and address of organisation)

Name &
signature of
witness

Date

Tenderer's CIDB registration number (if applicable)

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

Acceptance

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

The terms of the contract, are contained in:

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

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

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

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

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

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

Signature(s)

Name(s) Mr Zweli Witbool

Capacity Acting General Manager Medupi
Power Station

**for the
Employer**

Name &
signature of
witness Eskom Holdings SOC Limited
Medupi Power Station
Private Bag X9003
Lephalale
0555

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)

Name & signature of witness _____

Date _____

Mr Zweli Witbooi

Acting General Manager – Medupi Power Station

Eskom Holdings SOC Limited
Medupi Power Station
Private Bag X9003
Lephalale
0555

C1.2 ECC3 Contract Data

Part one - Data provided by the *Employer*

Clause	Statement	Data
1	General	
	The <i>conditions of contract</i> are the core clauses and the clauses for main Option	
		A: Priced contract with activity schedule
	dispute resolution Option	W1: Dispute resolution procedure
	and secondary Options	
		X2 Changes in the law
		X7: Delay damages
		X15: Limitation of <i>Contractor's</i> liability for design to reasonable skill and care
		X16: Retention
		X17: Low performance damages
		X18: Limitation of liability
		Z: <i>Additional conditions of contract</i>
	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)	TBA
	Address	Medupi Power Station, Steenbokpan Road, Lephale, 0555
10.1	The <i>Supervisor</i> is: (Name)	TBA
	Address	Medupi Power Station, Steenbokpan Road, Lephale, 0555
11.2(13)	The <i>works</i> are	Design, procure, install and commission the CDD Water Site Irrigation system at Medupi Power Station.
11.2(14)	The following matters will be included in the Risk Register	<ul style="list-style-type: none"> Inclement Weather (rain, wind, hailstorm, heatwave)

- Snakes
- Access constraints and interfacing with others

11.2(15)	The <i>boundaries of the site</i> are	As defined in section 5.1.11 of Part C3 – Works 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 <i>law of the contract</i> is the law of	The Republic of South Africa
13.1	The <i>language of this contract</i> is	English
13.3	The <i>period for reply</i> is	Three (3) working days for all communications and five (5) working days for Design Reviews
2	The Contractor's main responsibilities	Data required by this section of the core clauses is provided by the <i>Contractor</i> in Part 2 and terms in italics used in this section are identified elsewhere in this Contract Data.

3 Time

11.2(3)	The <i>completion date</i> for the whole of the <i>works</i> is		TBA	
11.2(9)	The <i>key dates</i> and the <i>conditions</i> to be met are:	Condition to be met		key date
		1	Final SHE File submission and approval	As per accepted programme
		2	Final QCP submission and approval	As per accepted programme
		3	Site Establishment (Completed)	As per accepted programme
		4	Construction completion	As per accepted programme
		5	Commissioning	As per accepted programme
30.1	The <i>access dates</i> are:	Part of the Site		Date
		1	Site Establishment	As per accepted programme
		2	Construction Site	As per accepted programme
31.1	The <i>Contractor</i> is to submit a first programme for acceptance within		One (1) weeks of the Contract Date.	

31.2	The <i>starting date</i> is	TBA
32.2	The <i>Contractor</i> submits revised programmes at intervals no longer than	Three (3) working days
35.1	The <i>Employer</i> is not willing to take over the <i>works</i> before the Completion Date.	[No data needed if this statement is included]

4 Testing and Defects

42.2	The <i>defects date</i> is	52 weeks after Completion of the whole of the works.
43.2	The <i>defect correction period</i> is	Two (2) weeks

5 Payment

50.1	The <i>assessment interval</i> is	The 20th day of each successive month.
51.1	The <i>currency of this contract</i> is the	South African Rand (ZAR).
51.2 51.4	The period within which payments are made is	Thirty Calendar Days (30) days after the receipt of an invoice
	The <i>interest rate</i> is	<p>the publicly quoted prime rate of interest (calculated on a 365-day year) charged from time to time by the Standard Bank of South Africa Limited (as certified, in the event of any dispute, by any manager of such bank, whose appointment it shall not be necessary to prove) for amounts due in Rands and</p> <p>(ii) the LIBOR rate applicable at the time for amounts due in other currencies. LIBOR is the 6 month London Interbank Offered Rate quoted under the caption "Money Rates" in The Wall Street Journal for the applicable currency or if no rate is quoted for the currency in question then the rate for United States Dollars, and if no such rate appears in The Wall Street Journal then the rate as quoted by the Reuters Monitor Money Rates Service (or such service as may replace the Reuters Monitor Money Rates Service) on the due date for the payment in question, adjusted <i>mutatis mutandis</i> every 6 months thereafter and as certified, in the event of any dispute, by any manager employed in the foreign exchange department of The Standard Bank of South Africa Limited, whose appointment it shall not be necessary to prove.</p>

6 Compensation events

60.1(13)	The place where weather is to be recorded is:	at the Medupi Site
	The <i>weather measurements</i> 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 <i>weather measurements</i> are supplied by	South African Weather Services
	The <i>weather data</i> are the records of past <i>weather measurements</i> for each calendar month which were recorded at:	Lephalale
	and which are available from:	The South African Weather Services
7	Title	There is no reference to Contract Data in this section of the core clauses and terms in italics used in this section are identified elsewhere in this Contract Data.
8	Risks and insurance	
80.1	These are additional <i>Employer's</i> risks	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 <i>Adjudicator</i> is	the person selected from the ICE-SA Division (or its successor body) of the South African Institution of Civil Engineering Panel of Adjudicators by the Party intending to refer a dispute to him. (See www.ice-sa.org.za). If the Parties do not agree on an Adjudicator the Adjudicator will be appointed by the Arbitration Foundation of Southern Africa (AFSA).
W1.2(3)	The <i>Adjudicator nominating body</i> is:	the Chairman of ICE-SA a joint Division of the South African Institution of Civil Engineering and the London Institution of Civil Engineers. (See www.ice-sa.org.za) or its successor body.
W1.4(2)	The <i>tribunal</i> is:	arbitration.
W1.4(5)	The <i>arbitration procedure</i> is	the latest edition of Rules for the Conduct of Arbitrations published by The Association of Arbitrators (Southern Africa) or its successor body.

	The place where arbitration is to be held is	Johannesburg, South Africa	
	The person or organisation who will choose an arbitrator		
	- if the Parties cannot agree a choice or	the Chairman for the time being or his nominee of the Association of Arbitrators (Southern Africa) or its successor body.	
	- if the arbitration procedure does not state who selects an arbitrator, is		
12	Data for secondary Option clauses		
X2	Changes in the law	There is no reference to Contract Data in this Option and terms in italics are identified elsewhere in this Contract Data.	
X7	Delay damages (but not if Option X5 is also used)		
X7.1	Delay damages for Completion of the whole of the <i>works</i> are	0,5% per day up to a limit of 5%	
X15	Limitation of the <i>Contractor's</i> liability for his design to reasonable skill & care	There is no reference to Contract Data in this Option and terms in italics are identified elsewhere in this Contract Data.	
X16	Retention (not used with Option F)		
X16.1	The <i>retention free amount</i> is	The value of P&G's	
	The <i>retention percentage</i> is	7%	
X17	Low performance damages		
X17.1	The amounts for low performance damages are:	Percentage	Performance level
		5%	Submission of mentioned data packs
X18	Limitation of liability		
X18.1	The <i>Contractor's</i> liability to the <i>Employer</i> for indirect or consequential loss is limited to:	R0.0 (zero Rand)	
X18.2	For any one event, the <i>Contractor's</i> liability to the <i>Employer</i> for loss of or damage to the <i>Employer's</i> property is limited to:	the amount of the deductibles relevant to the event, unless it is covered by the employer's insurance	
X18.3	The <i>Contractor's</i> liability for Defects due to his design which are not listed on the Defects Certificate is limited to	The greater of <ul style="list-style-type: none">the total of the Prices at the Contract Date andthe amounts excluded and unrecoverable from the <i>Employer's</i> assets policy for correcting the Defect (other than the resulting physical damage which is not excluded) plus the applicable deductible as at contract date.	
X18.4	The <i>Contractor's</i> total liability to the <i>Employer</i> for all matters arising under or in	the total of the Prices other than for the additional excluded matters.	

connection with this contract, other than excluded matters, is limited to:

The *Contractor's* total liability for the additional excluded matters is not limited.

The additional excluded matters are amounts for which the *Contractor* 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 *works*, 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) 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 *Employer* or the *Supervisor* do undertake any inspection over and above the reasonable inspection, this does not place a greater responsibility on the *Employer* or the *Supervisor* to have discovered the Defect.

Z The Additional conditions of contract are

Z1 to Z15 always apply.

Z1 Cession delegation and assignment

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

Z2 Joint ventures

- Z2.1 If the *Contractor* constitutes a joint venture, consortium or other unincorporated grouping of two or more persons or organisations then these persons or organisations are deemed to be jointly and severally liable to the *Employer* for the performance of this contract.

- Z2.2 Unless already notified to the *Employer*, the persons or organisations notify the *Project Manager* within two weeks of the Contract Date of the key person who has the authority to bind the *Contractor* on their behalf.
- Z2.3 The *Contractor* does not alter the composition of the joint venture, consortium, or other unincorporated grouping of two or more persons without the consent of the *Employer* having been given to the *Contractor* in writing.

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

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

Z4 Confidentiality

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

Z5 Waiver and estoppel: Add to core clause 12.3:

- Z5.1 Any extension, concession, waiver or relaxation of any action stated in this contract by the

Parties, the *Project Manager*, the *Supervisor*, or the *Adjudicator* does not constitute a waiver of rights and does not give rise to an estoppel unless the Parties agree otherwise and confirm such agreement in writing.

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

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

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

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

Z8 Notifying compensation events

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

Z9 Employer's limitation of liability

- Z9.1 The *Employer's* liability to the *Contractor* for the *Contractor's* indirect or consequential loss is limited to R0.00 (zero Rand)
- Z9.2 The *Contractor's* entitlement under the indemnity in 83.1 is provided for in 60.1(14) and the *Employer's* liability under the indemnity is limited.

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

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

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

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

Z12 Ethics

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

Affected Party	means, as the context requires, any party, irrespective of whether it is the <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 employment in connection with this contract	The amount required by the applicable law

Z 13.2

Replace core clause 87 with the following:

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

INSURANCE TABLE B

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

Z14 Nuclear Liability

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

Z15 Asbestos

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

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

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

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

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

Z15.4 In the event that any asbestos is identified while Providing the Services, a risk assessment is conducted and if so required, with reference to possible exposure to an airborne concentration of above the AL for asbestos, immediate control measures are implemented and relevant air monitoring conducted in order to declare the area safe.

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

C1.2 Contract Data

Part two - Data provided by the *Contractor*

Notes to a tendering contractor:

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

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

Clause	Statement	Data
10.1	The <i>Contractor</i> is (Name): Address Tel No. Fax No.	
11.2(8)	The <i>direct fee percentage</i> is The <i>subcontracted fee percentage</i> is	% %
11.2(18)	The <i>working areas</i> are the Site and	
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 .

² Available from Engineering Contract Strategies Tel 011 803 3008, Fax 011 803 3009 or see www.ecs.co.za

11.2(3)	The <i>completion date</i> for the whole of the <i>works</i> is	
11.2(14)	The following matters will be included in the Risk Register	
11.2(19)	The Works Information for the <i>Contractor's</i> design is in:	
31.1	The programme identified in the Contract Data is	
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	<p>(in figures)</p> <p>(in words), excluding VAT</p>

PART 2: PRICING DATA
ECC3 Option A

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

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:

C2.2 the *activity schedule*

The tenderer should factor all costs within the pricelist that are related to the scope of this transaction e.g all material and labour

Table 1: Activity schedule

Item No.	Activity description	Qty	Rate	Price
1	Preliminaries and General	1		
2.	Design	1		
3.	Procurement	1		
4.	Installation	1		
5.	Commissioning, Tests and Reports	1		
6.	Training	3 sessions		

Document reference	Title	No of pages
	This cover page	1
C3.1	<i>Employer's Works Information</i>	26
C3.2	<i>Contractor's Works Information</i>	1
	Total number of pages	

C3.1: EMPLOYER'S WORKS INFORMATION

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1 Description of the works

1.1 Executive overview

Medupi Power Station is currently at risk with raw water supply. Mokolo dam is at 40%, the station's water use licence is at risk of being cut. The station has been tasked to implement water saving measures to ensure supply. Switching irrigation of lawns from portable to clean dam is a way to save water, hence the execution of the project.

Furthermore, multiple dam overflows from the clean and dirty dams (CDDs) have resulted in environmental contraventions. These legal contraventions are non-compliant with Medupi's Water Use License. The project will assist in the management of Medupi's water resources and add to the prevention of further dam overflows by using clean used effluent water from around site instead of potable water for site irrigation.

The works information contained in this document calls for a simple, cost-effective, quick-to-implement solution that will enable the station to re-use clean water for site irrigation purposes. The selected *Contractor* shall design, procure, install and commission such a pumping system that will tie into the already existing irrigation system. The envisaged scope is anticipated to include a pump including electrical work from a source to the pump and pipework laid above ground over a distance of 1700 meters. There will also be a need to excavate (and cover up) across both gravel and tarred roads at a number of points.

1.2 Employer's objectives and purpose of the works

Eskom's Medupi Power Station has both a "clean" dam as well as a "dirty" dam. The clean and dirty dams are filled with water from various sources through gravity feed. The clean water dam is usually filled from the station clean water drains and treated sewage effluent water. The dirty dam is filled from the station dirty water drains. The water from these dams is meant to serve as the water supply source to various systems such as the ash dump facility dust suppression system.

With the Mokolo dam in the regions of 40%, the station's water use licence was at risk of being cut. The station is at risk of water supply curtailments from Mokolo Dam, these would be caused by lower dam levels. Therefore, the power station has been requested to manage water usage or potentially reduce load.

This project was proposed as a viable intervention by the simply switching the way the irrigation of lawns is currently being done. In this case, the station intends to switch from portable water to re-using water from the clean dam as a way to save water and also assist in the reduction of the high clean dam level which is often above 80% and has been subject to overflowing. Multiple dam overflows have been and are environmental contraventions, subsequent contraventions are to be prevent.

The supplier is expected to design the simplest and most cost-effective solution to extract the water and use it for the purposes of irrigating the garden using the existing sprinkler network

1.3 Interpretation and terminology

List of Definitions

Table 2: List of definitions

Definition	Description
Clean & Dirty Drains recovery system	Refers to the Clean and Dirty drains recovery system on the power station that is designed and constructed to perform the necessary recovery of Dirty water from the CDD dams to the dirty water tanks which in turn provide suction to various dirty water systems.
Contractor	Service provider contracted for supplying specific service to Eskom, Medupi Power Station.
Employer	Eskom, or Eskom Medupi Power Station
Field Devices	Control and instrumentation equipment installed on the plant, for example transmitters, pressure switches, limit and proximity switches.
Medupi	Medupi Power Station
System	Assembly of components in which water is delivered and used
Water Use License	Medupi Power Station has a water use license which is necessary to use a certain amount of water. This amount may not be exceeded, and if exceeded, large penalties will be possibly liable to the Power Station.
Zero Liquid Effluent Discharge Policy	The aim to not allow any water which may have been contaminated by operations at Medupi Power Station to leave the land belonging to the power station

List of Abbreviations

Table 3: List of abbreviations

Abbreviation	Meaning given to the abbreviation
EMS	Environmental Management System
CDD	Clean & Dirty Drains
HDPE	High Density Poly Ethylene
HMI	Human-Machine Interface
OEM	Original Equipment Manufacturer
P&ID	Piping & Instrumentation Diagram
PSR	Plant Safety Regulations
QCP	Quality Control Plan
SOW	Scope of Work

2 Management and start up.

2.1 Management meetings

Regular meetings of a general nature may be convened and chaired by the *Project Manager* as follows:

Title and purpose	Approximate time & interval	Location	Attendance by:
Risk register and compensation events	Monthly on the Thursday of the month at 10h00	Medupi Power Station	All <i>contractor's</i> representatives and <i>Employer's</i> representatives
Overall contract progress and feedback	Weekly on Wednesday at 10h00	Medupi Power Station	All <i>contractor's</i> representatives and <i>Employer's</i> representatives

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

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

2.2 Documentation control

2.2.1 Documentation to be Provided by the *Employer*

The *Contractor* will be provided with one signed copy of the Contract, which includes contract agreement with the documents which would make up the Contract as identified in the form of agreement.

2.2.2 Document Identification

All documents issued shall be numbered, dated and registered on the project document management system, maintained by the *Contractor* and conforming to the *Contractor's* Quality Management Plan. The documents shall be available at the recorded locations as noted in the document management system.

All documents supplied by the *Contractor* are subject to the *Employer's* acceptance. The *Contractor* includes the *Employer's* drawing number in the drawing title block. This requirement only applies to design drawings developed by the *Contractor* and his *SubContractors*. Drawing numbers are assigned by the *Employer* as drawings are developed. The *Contractor* shall establish a document tracking system to record the dates for the supply and receipt of all design drawings, calculations and requests for information. The *Contractor* will be issued with a series of project drawing numbers which shall apply to all drawings including those from *Subcontractors*. These numbers will then be used for reference throughout the project.

2.2.3 Document Submission

Within three (3) weeks of the starting date, the *Contractor* complies with the Vendor Document Submittal Schedule regarding documentation submission.

All project documents must (electronic and hard copies) be submitted to the *Project Manager* using a Transmittal Note and shall comply with the Project / Plant Specific Technical Documents and Records Management Work Instruction (240-76992014).

2.2.4 Email Subject

When using the e-mail to submit, the *Contractor* shall include on the email subject as a minimum, the (Station_Project Name_Discipline_Subject). Large electronic files shall be delivered as an ORIGINAL plus a USB Memory Stick or Flash Drive to the *Project Manager* or where possible a Large File Transfer Facility can be used for documents submission.

2.2.5 Electronic Data Control

The *Contractor* shall carry out a daily backup of all electronic information contained on his computer system. Electronic backup information shall be kept in an appropriate format, suitably labelled, segregated and stored in an environment that will not adversely affect its condition.

2.2.6 Incoming and Outgoing Correspondence

The *Contractor* shall number and date all incoming and outgoing correspondence as per agreed communication matrix.

2.2.7 Daily Records

The *Contractor* must keep daily records of daily diaries for work performed and submit them to the *Supervisor* on a daily basis.

2.2.8 Drawings Format and Layout

The creation, issuing and control of all Engineering Drawings shall comply with the Engineering drawing Standard, 240-86973501. As a minimum, the *Contractor* shall submit to the *Project Manager* one hardcopy and an electronic copy and drawings may not be "Right Protected" or encrypted.

2.2.9 Data Pack

The *contractor* shall submit data pack contains of:

- KKS Certificates,
- Mechanical safety clearance certificate,
- C&I safety clearance certificate,
- Electrical & Earthing safety clearance,
- Take Over Certificate,
- Material certificates
- Technical performance data such as pump curves,
- On-site Performance testing data,
- Fully signed QCPs, NDT reports (if any),
- As built drawing – mechanical, C&I, electrical, civil, etc (softcopy to be both PDF and CAD editable),
- Calculations and design info (Design report),
- Maintenance manuals, Operating manuals and Training manuals,
- Technical Specifications of equipment and spares with sufficient details to enable the procurement of spares,
- Equipment list,
- Instrument schedule,
- Drive and Actuator schedule

2.3 Health and safety risk management

The *Contractor* shall comply with the Eskom's Minimum Requirements for Health and Safety. SHE Specification 240-146140396 and applicable procedures, policies, guidelines and standards provided in this Works Information. The *Contractor* shall comply with the Occupational Health and Safety Act (OHS Act No 85 of 1995) and Regulations and the *Contractor* shall comply with any additional current statutory requirements of any relevant Government Departments regarding health.

Only the latest version/ revision of the applicable legislation, acts and regulations shall be deemed to be accepted at Medupi Power Station. Not limited to the following below legislation, acts and regulations are complied with:

- Compensation for Occupational Injuries and Diseases Act 130 of 1993
- National Water Act 36 of 1998
- Occupational Health and Safety Act and Regulations (85 of 1993)
- National Environmental Management Act 107 of 1998
- Applicable South African National Standards (SANS)
- National Road Traffic Act 93 of 1996

- Basic Conditions of Employment Act 75 of 1997
- National Veld and Forest Fire Act and Regulations 101 of 1998
- Environmental Conservation Act and Regulations 73 of 1989
- SACPCMP Act no. 48 of 2000
- Radiation Protection Act
- COVID-19 Occupational Health And Safety Measures In Workplaces COVID-19 (C19 OHS), 2020

The *Contractor* shall establish and enforce rules to ensure the health and safety of his own employees and those of its Sub *Contractors* so that high standards of personnel health and safety are achieved and maintained. The *Contractor* shall exercise and enforce all necessary care and measures to preclude exposure of personnel, labour and nearby residents (if any) to potential health hazards and environmental pollutants.

The *Contractor* shall ensure that all persons which are employed and or deployed to work on site undergo police clearance, and are certified to have no criminal records. This shall be done prior to them being allowed or given access to start work on site.

The *Contractor* is required to compile a SHE file as per the scope of work to comply with the *Employer's* specification, which includes but not limited to the following;

- Safety, Health and Environmental Plan (SHE Plan)
- SHE organization within the Company-Responsibility & Accountability
- OHS Incident management Procedure (32-95)
- Planning of conduct of work activities including planning for changes and emergency work (Operational Plan)
- Management of PPE- Personal Protective Equipment (Procedure with the matrix)
- Emergency planning and fire risk management
- Vehicle and driver behaviour safety (Competency, Traffic Management, etc.)
- Sub-*Contractor* or supplier selection and management
- Design and specifications (Drawings)
- Key personnel competency, training, appointments
- Communication and awareness Plan
- Management commitment and visible felt leadership (32-407)
- *Employer's* Baseline SHE Risk Assessment (BRA)
- *Contractor's* Baseline Risk Assessment in line with the *Employer's* BRA (Identification, assessment and management of Safety, Health and Environmental risks related to the scope of work. The methodology used for the risk assessment must be provided together with the BRA.)
- Valid Letter of Good Standing (COIDA or equivalent)
- SHE policy signed by CEO/ MD- Comply to OHS Act Section 7 or OHSAS 18001
- Occupational hygiene and health risk assessment
- Medical surveillance

2.4 Environmental constraints and management

The mitigation requirements are recorded in the Environmental Management Plan (EMP). The *Contractor* shall acquaint himself fully with the contents of the EMP to ensure that the *Contractor* is fully aware of the requirements of the EMP and its implications on the works. The *Contractor's* rates tendered shall cover all costs that will be incurred to comply with all requirements of the EMP. Special attention is drawn inter alia to the following aspects:

- Site demarcation: The *Contractor* shall demarcate his camp site, be restricted to that specific area and take full responsibility to restore the area to its original condition before the contract commenced
- Waste management: The *Contractor* shall dispose of all waste off-site at a licensed waste disposal facility and submit proof to Eskom
- Sanitation: The *Contractor* shall provide an appropriate enclosed temporary sanitation facility not a bucket system
- Dust control: The *Contractor* shall be responsible to apply effective dust control measures

- Re-vegetation: The *Contractor* shall be responsible to re-vegetate the locations of trial pits, boreholes, roads and tracts through the veld, the camp site and any area of activity related to the works, as may be required
- Fire prevention: It shall be the responsibility of the *Contractor* to prevent veld fires at all times during the contract

The *Contractor* shall take full responsibility for protecting the natural environment and eliminating or minimising the negative impacts of construction on the environment during construction. Nothing specified herein shall relieve the *Contractor* of any obligations or responsibilities in this regard.

The *Contractor* shall implement an Environmental Policy, in line with various statutory regulations. The *Contractor's* Environmental Management Plan shall be submitted to the *Project Manager* within 14 days for review and acceptance after the awarding of the contract. Upon the *Project Manager's* acceptance, the *Contractor* shall immediately implement the policy and any amendments and keep it in operation for the duration of the contract.

The *Contractor* shall keep the Environmental Management Plan updated in accordance with his Quality Management Procedures and make amendments as required by the *Project Manager* and the circumstances prevailing at the time. The *Contractor* shall immediately supply the *Project Manager* with a copy of an updated Environmental Management Plan which shall clearly indicate the revisions undertaken. The following documents shall be submitted and accepted by the environmental department before commencement of work:

- Environmental Policy
- Objectives and Targets
- Aspects and Impacts Register (related to scope of work)
- Operational Work Instructions (related to scope of work)
- Competency, training and awareness (including Training matrix)
- Waste Management Plan

2.4.1 General

The *Contractor* shall conduct his activities so as to cause the least possible disturbance to the existing amenities, whether natural or man-made, in accordance with all the currently applicable statutory requirements. Special care shall be taken by the *Contractor* to prevent irreversible damage to the environment. Disturbance or disruption of the daily lives of local communities shall be avoided.

The *Contractor* shall take adequate steps to educate his employees including SubContractors the relevant environmental laws and regulations. The *Contractor* shall supplement these steps by prominently displayed notices and signs in strategic locations to remind personnel of environmental concerns.

2.4.2 Method Statements

The *Contractor* shall submit within 14 days after Contract Start date a Method Statement containing details for environmental protection measures proposed to the *Project Manager* for review and acceptance.

These shall include but not limited to:

- Site establishment layout
- Site drainage management
- Workshops' storage areas layout
- Pollution prevention measures
- Oil separator design (where applicable)
- Fuel storage and dispensing area and bund design (where applicable)
- Refuse dump design (where applicable)
- Temporary access roads (where applicable)
- Waste Management plan (where applicable)
- Chemical and Hydrocarbon Management (where applicable)
- Refuelling procedure or plan (where applicable)
- Environmental Incident Management plan (where applicable)

In addition, the *Contractor* shall provide detailed Method Statements on how he intends to carry out the *works*; this shall apply to all and any part of the *works* as provided in the *conditions of contract*

2.4.3 Temporary Services and Facilities

Temporary pipelines, power lines, telephone lines and other temporary services and facilities shall be located in a manner which will cause the least disturbance and disfigurement to the environment. Power lines shall be suspended below insulators and be of such design as to prevent the electrocution of birds to the greatest extent possible.

All fuel storage tanks shall be bunded to 110 % of the total storage capacity. Fuel dispensing areas and workshop areas shall be provided with concrete hard standing draining to oil separators. This will also apply to other areas with pollution potential.

Vehicle cleaning shall be undertaken in designated wash bays, which have an impermeable floor and are bunded to contain runoff and direct in onto a sump. Hydrocarbon/s be skimmed off the sump water and recycled or disposed of in the correct manner. Vehicle / plants with Emergency breakdown fixed outside the workshop or designated area; oil spillage control measures shall be in place such as drip tray and spill kit, to catch oil and diesel which may leak from the vehicles.

2.4.4 Refuse and Waste Control

The management of solid waste on Site shall be strictly controlled and monitored. Only licenced waste disposal landfill sites shall be used. The quantities of waste generated on Site shall be minimised.

Labelled recycling bins shall be used, and waste separated where possible. In addition, a recycled-material collection schedule shall be established and the bins shall be collected regularly.

Eating areas for the construction staff shall be designated and supplied with waste bins. No on-site burying or dumping or unauthorised burning of any waste materials, vegetation, litter or refuse shall occur. Bins provided will be sufficient to store the solid waste produced on a daily basis. The bins should be emptied at least once a day. Waste from bins may be temporarily stored on Site in a central waste area that is weatherproof and scavenger-proof and which the *Project Manager* has accepted.

All solid waste shall be disposed of off site, at a licenced landfill site. The *Contractor* shall supply the *Project Manager* with a certificate of disposal. Waste shall be separated into domestic waste, building/construction rubble, scrap metal, oil and grease and hazardous waste and dealt with in the following manner.

2.4.5 Domestic Waste

Metal refuse bins to BS 792 or equivalent plastic refuse bins, all with lids, shall be provided by the *Contractor* for all construction sites. Refuse shall be collected and removed from all facilities on the Site at least twice per week. Domestic Waste shall be transported to the accepted refuse disposal site off site in covered containers or covered trucks.

2.4.6 Organic Waste

Refuse from food preparation and eating areas shall be collected and removed daily. Organic Waste shall be disposed of as per Domestic Waste and waste manifest supplied to the *Project Manager*.

2.4.7 Building/Construction Waste

Inert building/construction rubble shall be disposed at a nearest licenced landfill sites and waste manifest supplied to the *Project Manager*.

2.4.8 Scrap Metal

Scrap metal shall be disposed off-site at a nearest licenced scrap metal recycling facilities. Paper trail to be supplied to the *Project Manager*.

2.4.9 Used Oil and Grease

Used oil and/or grease shall be removed from site to a nearest licenced oil recycling company.

2.4.10 Hazardous Waste

All hazardous waste shall be disposed of in a licenced hazardous waste landfill site and waste manifest supplied to the *Project Manager*.

2.4.11 Protection of Flora

The removal, damage and disturbance of indigenous flora are prohibited. At the commencement of the contract, the *Project Manager* will identify to the *Contractor* indigenous flora or any rare or endangered flora that shall be preserved. The *Contractor* shall thereafter demarcate such and undertake all necessary measures to ensure the protection of such flora, including replanting and any special care required in accordance with the EMP. The use of herbicides is prohibited unless approved by the *Project Manager*.

2.4.12 Protection of the Fauna

The *Contractor* shall protect fauna living within the Site and shall ensure that hunting, snaring poisoning, shooting, nest raiding, or egg-collecting and disturbance does not occur. The *Contractor* is to ensure that his employees are instructed not to feed wild animals. The use of pesticides is prohibited unless accepted by the *Project Manager*. No domestic pets or livestock are permitted on Site.

2.4.13 Preservation of Topsoil

The *Contractor* shall remove and stockpile topsoil in accordance with the CEMP Section 3 - Clearing of site, or as directed by the *Supervisor*, in quantities sufficient for reinstatement, in accordance with the CEMP. Topsoil shall be removed from, inter alia, working areas (including quarry pits) and relevant areas of the Permanent Works, construction, haul and other access roads and such like, all as directed by the *Supervisor*.

2.4.14 Erosion Control and Storm-water Management

The *Contractor* shall include in the design of the works measures to prevent erosion resulting from his actions on the Site. The *Contractor* shall take appropriate and active measures to prevent erosion resulting from his works, operations and activities which shall be agreed with the *Supervisor* even when such potential erosion may take place or occur beyond the limits of the Site because of the actions of the *Contractor*. Such measures shall include properly constructed watercourses, energy dissipaters, establishment of temporary vegetation as specified in the CEMP, to counter erosion and avoid discharges into water courses, wetlands, agricultural lands, etc.

2.4.15 Dust and Vehicle Emission Control

A dust control programme shall be implemented by the *Contractor* to maintain a safe and healthy working environment, minimise nuisance for surrounding residential areas, prevent damage to the natural vegetation of the area and protect topsoil. The *Contractor* shall take appropriate measures to minimise the generation of dust as a result of his works, operations and activities.

The *Contractor* shall prepare and submit a Dust Control Method Statement to the *Supervisor* within 14 days after the Starting Date. As a minimum, the statement should address the following:

- Schedule of spraying water on unpaved roads paying due attention to control of runoff
- Speed limits for vehicles on unpaved roads and minimisation of haul distances
- Measures to ensure that material loads are properly covered during transportation
- Schedule for wheel cleaning and measures to clean up public roads that may be soiled by construction vehicles
- Minimisation of the area disturbed at any one time and protection of exposed soil against wind erosion
- Reporting mechanism and action plan in case of excessive wind and dust conditions
- The control measures shall also include regular and effective treatment of gravel access roads and working areas, use of dust extractors on drilling equipment or wet drilling, use of personnel protective equipment, etc.

Vehicles emitting noticeable diesel fumes will not be permitted to continue working on Site. Vehicle emissions shall be monitored on a regular and on-going basis in order to ensure that vehicles working on Site comply with legislated requirements.

2.4.16 Noise Pollution

Having due regard for local communities and dwellings, the *Contractor* shall restrict any of his operations which result in undue noise disturbance to those communities and dwellings to the hours of 06:00 to 18:00 on weekdays or otherwise as agreed with the *Project Manager*. The *Contractor* shall not use sound amplification equipment on Site unless in emergency situations. The *Contractor* shall ensure that environmental awareness and training for all employees includes the need to minimise noise. The

Contractor shall provide suitable ear protectors to all of his staff and others entering areas with high noise levels. Zones of risk shall be clearly identified with warning signs.

The *Contractor* shall provide and maintain equipment to measure noise levels in accordance with SANS 10083. The *Project Manager* may from time-to-time instruct the *Contractor* to carry out more frequent testing of noise levels. Furthermore, he may require the *Contractor* to carry out testing in other areas of the Site. The *Contractor* shall keep records of all noise level measurements for the duration of the contract. These records shall be submitted each month to the *Project Manager*, or on the request of the *Project Manager*.

2.4.17 Natural Features and Heritage Resources

The *Contractor* shall not deface, paint, damage or mark any national features (e.g. rock formations) situated in or around the Site for survey or other purposes unless accepted by the *Project Manager*. Any contravention of this Sub-Clause will require the item to be restored/ rehabilitated at the *Contractor's* cost. The *Contractor* shall ensure that should any archaeological finds be made during the construction excavations; the *Contractor* shall inform the *Project Manager* immediately in order to reach agreement regarding proper procedures to minimise damage and or effect salvage operations of the findings. All heritage resources to be affected by the Project shall be treated and managed in accordance with the National Heritage Resources Act 25 of 1999 and the National Monuments Act 28 Of 1969.

- Remedial action in the event of non-compliance
- Implementation and management of environmental protection measures
- Reporting of environmental incidents and routine reporting of environmental activities

No measurement or payment will be made against any items for the rehabilitation of the *Contractor's* working and accommodation areas (including the areas designated for the *Supervisor's* use) or for rehabilitation of areas used for temporary roads. No overhaul will be paid for work within the Site.

2.5 Quality assurance requirements

All Quality Management System requirements shall comply with QM-58 Category 2. The *Contractor* shall be responsible for the quality of and testing of materials, workmanship and production processes used in completing the works. Within fourteen (14) calendar days after Contract Date, the *Contractor* shall submit to the *Project Manager* the Quality Management Plan for quality control and quality assurance of the works.

Where the *Contractor* maintains an accredited Quality Control System, details of the level of the *Contractor's* self-certification procedures shall be adopted in respect of supplied materials shall be agreed with the Quality Representative or *Supervisor* prior to commencement of work. Where no accredited Quality Control System exists, the *Contractor* shall plan all quality management procedures, carry out all quality control testing as required and shall make available records of such testing for the Quality Representative or *Supervisor's* acceptance.

The *Contractor* shall submit full details of the proposed quality management system and procedures for acceptance by the Quality Representative or *Supervisor*, who shall have full access to all records, Site trials and tests. The *Contractor* shall ensure that monitoring and measuring equipment are calibrated and verified to confirm serviceability prior to usage, records of such shall be kept on Site.

The *Contractor* shall submit prior start of site activities, a method statement together and the quality control plan or inspection plan and test plan for review and acceptance by the *Supervisor*.

The *Contractor* shall comply with QM58 requirements for the duration of the Contract. On completion of the project, the *Contractor* shall submit data books (Packs) before the Completion Certificate can be issued. The Data Packs shall be in accordance with the Data Packs Specification provided in this Works Information.

2.6 Programming constraints

2.6.1 General

The *Contractor* submits a single integrated Level 4 programme that incorporates all the work to be performed including that of his Subcontractors. The interfaces between Subcontractors as well as the interfaces between Subcontractors and the *Contractor* are clearly identified. Project key dates are incorporated into the programme. The *Contractor* shall manage the interfaces between his Subcontractors and Others working on the same Site.

2.6.2 Computerised Planning and Reporting

The programme shall be submitted in Primavera P6 Schedule (XER) or MS Project (MPP) format for ease of transfer and presentation. The *Contractor* obtains this software and makes use of it for planning and control of the works.

2.6.3 Project Calendar

The project calendar will be seven (7) days per week, the working hours shall be twenty- four (24) hours per day and includes Public Holidays. If and when the *Contractor* deems any period in a calendar year as a non-working day, e.g., pay weekends, etc. all such shall be declared up front and agreed with the *Project Manager* in the first construction program for acceptance by the *Project Manager*. Failure to declare these days shall render any later declaration as null and void and the *Contractor* shall provide the works as per the accepted first programme.

2.6.4 Additional Programme Requirements

The *Contractor* shall use the Critical Path Method (CPM) technique for programme and planning and shall submit the programme basis document to the *Project Manager*. The programme basis document describes the programme and planning methodology, format, project execution philosophy, resource assumptions, qualifications and any other items that may have a substantive impact on the schedule. The programme layout takes into account the Key Dates provided above and the Work Breakdown Structure (WBS). The following levels of programme are to be used for this project for dynamic integrated project control:

- Management level programme (Level 1)
- Project level programme (Level 2)
- Control level programme (Level 3)
- Discipline specialty programme (Level 4)

The *Contractor* submits a Resource Loaded Level 4 Detailed Programme with the tender documentation. The Level 4 Detailed Programme is to be submitted within one month of contract award for review and acceptance by the *Project Manager*.

2.6.4.1 Management Level Programme (Level 1)

The management level programme is used to establish work goals and overall time frames for the works. It is a statement of project objectives recorded in graphic form. The management level programme defines and establishes goals or major milestones key dates. The duration of major operations and their relationship to one another. Identified Long Lead material items and responsibility assignments for accomplishing project objectives.

2.6.4.2 Project Level Programme (Level 2)

The project level programme is prepared representing the significant work activities and deliverables associated with the works. The end product is a time scaled bar chart schedule developed through use of a logic network. This programme is separated by work areas, by Phase and by WBS. A "rolled up" programme from the control level programme is produced. It is separated by each work activity and by Phase (for example: Engineering, Procurement, Construction and Commissioning).

2.6.4.3 Control Level Programme (Level 3)

The work within each work area is broken down by Engineering Discipline, Procurement of Tagged equipment and Bulks, Construction, and Commissioning & Start-up. The control level programme is resource-loaded. It forms the basis for progress measurement, progress curves and histograms for each discipline within a work area.

2.6.3.4 Discipline Programme (Level 4)

This level typically represents day-to-day tasks, which are work activity based and become summarised in the Level 3 activities. Resource information for manpower, Plant, Material and Equipment and reflected in the resource histograms is to be provided by the *Contractor*. Staffing Histograms are to be submitted based on “equivalent personnel”. Available work hours take into account 4 and 5 week months and statutory holidays that may occur. Staffing histograms is updated with actual data for each reporting period and re-forecasted as required should significant deviations occur.

2.6.5 Submission of Revised Programmes and Progress Reporting

The Contractor submits one electronic copy in Primavera P6 (XER) of each revised programme and progress report to the Project Manager for acceptance. The Contractor submits revised programme on monthly basis or as instructed by the Project Manager. The monthly reports shall comply with the progress reporting requirements as stated below

2.6.6 Weekly Status Reports

A weekly status report is submitted by the Contractor to the Project Manager. This report is less formal than the monthly report and is used as a tool for the day-to-day management of the project. Contents of a weekly report will include the following items:

- The updated Primavera programme
- Programme summary narrative
- Progress and performance summaries
- Sectional Completion and Key Milestone status

2.6.7 Monthly Progress Report

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

- Executive summary (narrative identifying major movement within the reporting period).
- Revised Programme indicating, actual progress of work against last Accepted Programme.
- A one-month look ahead work window.
- Activities completed, activities in progress during current reporting period and Critical Path activities report
- Key issues and risks of concern and mitigation actions.
- Cost and Cash flow and Cost curve ‘S-curve’.
- Early warning and Compensation Event Register
- Report selecting all of the activities of the Employer and Others and Resource Schedule Histogram.
- Forecast Rate of payment schedule updated with actual progress.
- Statement and report on works ahead and behind progress.
- Procurement plan for all Resources (labour, equipment, plant and material) in Excel Format. The plan shows mobilisation per month, equipment, people, plant and materials for the duration of the contract.

2.6.1 Planning Programmes

The *Contractor* develops a contract programme which will include a bar chart conforming to the project master programme dates included and sufficient detail to indicate the *Contractor's* intention for executing the *works*. This programme covers major items relating to design, procurement, manufacture, delivery, erection, start-up and commissioning. The critical path is clearly shown.

Key milestones, access dates, interface dates and commissioning key dates are clearly identified in the contract programme, including access dates and release of terminal points that involve the *Employer* or Others.

The programme makes provision for site related preparation such as site establishment, safety induction and medical clearance of the entire *Contractor's* staff that will be working on site.

2.6.1.1 Design Programme

The design programme contains a full list of documents and drawings, their submission dates and duration for review as specified by the *Contractor*. The programme also illustrates the sequence of work for the project and the submission of drawings, studies and reports.

The design programme meets the requirements of the *Contractor* and Others engaged on the project. The *Contractor* is required to submit the programme for review by the *Project Manager*.

The programme should include all the design reviews to be conducted as per the *Employer's* Design Review Procedure. The *Contractor* is responsible for conducting the following design reviews:

- a) Detail Design Freeze Review
- b) Integrated Design Review
- c) Construction Completion Review
- d) Acceptance Testing Review

2.6.1.2 Procurement and Manufacturing Programme

The *Contractor* is required to submit a procurement and manufacturing programme for review by the *Project Manager*, which identifies as a minimum:

- a) Details of orders and target dates for placing subcontracts
- b) Any detailed design required within the manufacturing period
- c) Long-lead delivery items
- d) Hold-points and witness-points for inspection and tests for acceptance and release.
- e) CSI roll out plan to be incorporated.

This programme is in sufficient detail to enable the work to be adequately tracked and progressed.

2.6.1.3 Construction Programme

The *Contractor* is required to submit a construction programme that is resource loaded for review by the *Project Manager*. This programme includes the following criteria:

- a) Full details of all civil/mechanical/electrical/C&I/Low Pressure Services terminal point release requirements
- b) Identify any erection or commissioning activities that may affect other construction activities
- c) Identify when services are required for commissioning purposes

This programme meets the requirements of the *Contractor* and Others engaged on the project.

The programme shall be based on the following working hours: Where applicable

- a) Twenty-four (24) hours per day
- b) Seven (7) days per week
- c) Holidays included as working days
- d) Pay weekends to be negotiated (if working 7-day work week)

2.6.1.4 Commissioning Programme

During the progress of the *works*, the *Contractor* develops a detailed commissioning programme with sufficient detail to enable the work to be adequately progressed and tracked to meet the commissioning key dates.

Training programme to be incorporated into the commissioning programme.

The commissioning programme is detailed to sub-system level and is fully integrated with the Construction Programme.

2.6.1.5 Reporting and Data Requirements for *Contractors* Document number 240-83561037

This specification is included as an Annexure to the Works Information. This specification lists all the data and reporting that must be submitted by the *Contractor* on a weekly / monthly basis to the *Project Manager*. The purpose of this information is to implement proper project controls on this project.

2.6.1.6 Project Work Breakdown Structure

Activity durations should not be longer than 10 days, activities longer than 10 days should be split into sub tasks.

WORK BREAKDOWN STRUCTURE (WBS)		
1	PLANNING PROGRAMME	
2	CIVIL AND STRUCTURAL (where applicable)	
		Design Activities
		Procurement Activities
		Manufacturing Activities
		Delivery Activities
		Construction Activities
		Commissioning Activities
7	OTHER	
8	HAND-OVER	

2.7 Contractor's management, supervision, and key people

The *Contractor* will provide the *Employer* and the *Project Manager* with an organogram showing the key people and the roles and responsibilities.

The organogram provided must show clear reporting lines between individuals, including individuals from subcontractors or joint ventures.

The *Contractor* provides the following key personnel as a minimum:

- a) Dedicated *Project Manager*
- b) Dedicated Project Planner
- c) Dedicated *Site Manager*-(Full-time on site)
- d) Dedicated *Quality Officer*-(Full-time on site)
- e) Dedicated SHE Officer (Full-time on site)
- f) Dedicated Supervisor (Full-time on site)

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* submits a tax invoice showing the amount due for payment equal to that stated in the *Project Manager's* payment certificate. The invoices must be sent to Finance Shared Service email address invoiceseskomlocal@eskom.co.za

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 Schedule
- Total amount invoiced excluding VAT, the VAT and the invoiced amount including VAT

2.8.1 Schedule of Actual Costs and Accounts

The *Contractor* shall submit a detailed monthly schedule of his actual costs with all the necessary backup information at the monthly measurement meeting, for review by the *Supervisor*. The various schedule items as detailed in the Schedule of Cost Components, shall be submitted in a spreadsheet format, itemized in terms of People, Equipment, Plant and Materials, charges, and manufacture and fabrication. Schedule items shall be grouped into work area activities as outlined in the *activity schedule*, with such work area activity groupings referenced against the *activities schedule* item numbering.

Before each successive monthly measurement meeting (i.e. on a weekly basis), the *Contractor* shall submit to the *Supervisor* all current (or cumulative to that assessment date) backup documentation for acceptance. Backup documentation shall include, but not limited to: all calculation sheets, citing each completed task and item in the Bill of Quantities, drawings, etc.; acceptance of completed work payment purposes, including confirmation of attainment of each criteria set out either in the specification or any other document which this contract prescribes.

Following the monthly measurement meeting, the *Contractor* shall present a detailed final schedule (with revisions agreed to at the monthly measurement meeting incorporated), including the necessary backup documentation, to the *Supervisor* for final checking.

Once accepted by the *Supervisor*, he will submit it to the *Project Manager*. This will then be used by the *Project Manager* to assess the amount due in terms of Clause 50 of the ECC.

The final format and layout of this monthly schedule as well as the level of detail of backup information required are to be agreed between the *Project Manager* and the *Contractor*. Clause 52 of the ECC shall apply in terms of accounts to be kept by the *Contractor* to verify the above monthly schedule of actual costs.

2.8.2 Records and Returns

This Section relates to the preparation and submission of records and returns by the *Contractor*, to be submitted to the *Supervisor* in a form that is acceptable to him.

- At Start Up of the works
- Prior to First Commencement of a Particular Work Activity
- On Completion of a Work Activity or Part Thereof
- Daily
- Weekly
- Monthly
- On Completion of the works.

3 Engineering and the *Contractor's* design

3.1 *Employer's* design

The Employer's operating performance specification to which the Contractor is to comply when he is required to design the works is that the Contractor designs, procures, constructs and commissions a standalone system that will provide sufficient pressure and flow with all irrigation sprinklers currently installed operating. Considering the distance between the pump and users, the pump should start and stop automatically depending on the demand. This will eliminate the need for landscaping personnel to travel the long distance to start and stop the pump.

3.2 Parts of the works which the *Contractor* is to design

3.2.1 System Description

The farthest point of the clean dam from the irrigation tie-in is located a distance of approximately 1730 km (straight line).

3.2.2 Mechanical Scope of Work

The scope of work is for the design, selection, procurement, fabrication, workshop assembly, testing, inspection, labelling, packing, delivery to site, erection, project management, cold and hot commissioning of the entire engineering works to ensure a fully functional recovered water system for site irrigation, herein after referred to as the Works.

The Works shall include provision of field devices and feeding of signals where necessary.

3.2.3 Major Components for the works

The design shall include pump(s), piping, supports, gauges, valves (isolating and venting) and electrical works such as cabling, earthing and other relevant protection devices.

The pipework will run above ground except at road crossings where it will have to be buried.

There will be a need to excavate and bury the pipes across four roads including two gravel and two tarred. The excavation on the tarred roads will approximately be 15m and 25m in length respectively, while the gravel roads excavation is expected to cover approximately 15m and 45m.

There will also be a need to cross security perimeter fencing. It is anticipated that a small window (roughly 400x400mm), the width of the pipe will need to be cut. Eskom will provide the approval to make the cut, the supplier will be responsible for the actual cutting of the fence (high tensile 4mm wire).

3.3 Procedure for submission and acceptance of *Contractor's* design

The design work shall be prepared as part of the Quality Control Procedures (QCPs) and in accordance with document 240-53113685 Design Review Procedure. The QCP document, listing key important steps in the project shall provide for intervention points including "Hold points". At the design stage, the Contractor shall supply designs and calculations from an ECSA-accredited Engineer to the Employer for acceptance. The design work shall include calculations and drawings for all applicable engineering disciplines.

3.4 Design of Equipment

Where HDPE is used, it will be for the Contractor's responsibility to join the pipes using his own plastic welding equipment and personnel. The same applies to excavations and re-tarring of roads. The Contractor will also be responsible for connecting and wiring the electrical works into existing power supplies provided by the Employer.

3.5 As-built drawings, operating manuals and maintenance schedules

At least 1 month before notification of Completion of the works, the *Contractor* shall revise drawings where necessary to show the Plant as installed and send two copies for acceptance. Drawings shall also be submitted in an electronic format compatible with Micro Station Ver.8 supplied by Bentley Systems Inc, DWG, one PDF and two hard copies, in paper size A2. After acceptance, prints shall be provided as required of the type and in such quantities as shall be determined by the *Project Manager*.

Drawings shall include those drawings necessary for the efficient maintenance of the Plant. The specific KKS code of each plant, equipment and component shall appear on all drawings. The prints and electronic files shall be deemed to form part of the works for the purpose of the Defects Liability Certificate. As-built drawings shall have the next revision number applicable to that drawing with status "As-built" on the title block.

Before a Certificate of Completion will be issued all "as-built" data must be provided to the *Project Manager* on Completion of the Permanent Works. The data must be provided in electronic form or where appropriate marked up on a set of drawings. Any information in the possession of the *Contractor* which is necessary for the *Supervisor* to check the "as built" drawings shall be supplied to the *Supervisor* on a regular basis and all information must be delivered before a Certificate of Completion will be issued. Any information in the possession of the *Contractor* which is required under this contract shall be supplied timeously to the *Supervisor* on a regular basis.

4 Procurement

4.1 Plant and Materials

4.1.1 *Contractor's* procurement of Plant and Materials

It is highly desirable that selected components be off-the-shelf items that can be procured from a large selection of suppliers. The is encouraged to not use pumps and valves which are customised for this specific project only.

4.1.2 Spares and consumables

The *Contractor* is required to provide the following spares list as per the final accepted design and should be supplied prior to Completion.

- Mechanical spares
- Electrical spares
- Control and Instrumentation spares

5 Construction

5.1 Temporary works, Site services & construction constraints

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

5.1.1.1 Access to Site

Access to the site is controlled and it is governed by the terms and conditions lay down by Medupi Power Station 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 the Gx 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 Gx 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. This message should be handed over to any Subcontractor that will be working on Medupi Power Station.

5.1.1.2 Site Regulations

The *Contractor* complies with the Site Regulations as per Employer's Safety Health and Environmental Specification 240-127760320.

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.

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

The *Contractor* is required to keeps records of his people on Site, including those of his SubContractors which the *Project Manager* or *Supervisor* has access to, at any time.

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

Temporary works shall be any work or infrastructure and or establishment which the Contractor requires in order to provide the works; which includes, inter alia his facilities, connection to existing water, sewer, electricity, etc. All such temporary works shall be adequately decommissioned, restoration to natural environment and the area made good on completion of the works to the acceptance of the Project Manager.

5.1.4 Health and safety facilities on Site

The *Contractor* provides a First Aid service and SHE representative to his employees and Sub-Contractors. In the case where these prove to be inadequate, like in the event of a serious injury, the *Employer's* Medical Centre and facilities will be available. Outside the *Employer's* office hours, the *Employer's* First Aid Services are only available for serious injuries and life-threatening situations. The *Employer* recovers the costs incurred, in the use of the above *Employer's* facilities, from the *Contractor*.

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

Medupi Waste Management Procedure – 240-101861550, National Environmental Management Act (NEMA, Act No. 107 of 1998) and the National Environmental Management Waste Act (NEMWA, Act No. 59 of 2008).

5.1.6 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).

5.1.7 Publicity and progress photographs

In terms of the Contract, the *Contractor* is not required to provide the *Project Manager* or the *Supervisor* with photographs of work progress. The *Contractor* is not allowed to take photographs of the *works* or parts thereof without prior written authorisation by the *Project Manager*.

5.1.8 Contractor's Equipment

- a) The *Contractor* provides all Equipment that is required to complete the *works*.
- b) 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).

5.1.9 Site services and facilities

Water and electricity shall be provided by Eskom at fixed points on the plant. There is also a tuck-shop on site, but both only operate on weekdays and are for the *Contractor's* own cost. The *Contractor* shall provide everything else necessary for Providing the Works.

5.1.10 Facilities provided by the Contractor

The *Contractor* is to supply all the personal protective equipment, transport, accommodation, tools, equipment, and consumables to perform all the required tasks on site.

5.1.11 The boundaries of the site are

The *Contractor* is to perform work only on the area which is stated in this works information. No *contractor* personnel is to be in prohibited areas such as HV yard.

5.2 Completion, testing, and commissioning

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 the entire network, including civil, mechanical, control and electrical drawings.	Within 14 days after Completion
	Performance testing of the <i>works</i> in use as specified in paragraph 3.1 of this Works Information.	See performance testing requirements.

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

The Contractor shall provide procedures for putting the works into operation as well as maintaining the works in operation.

5.2.3 Performance tests after Completion

The Contractor must prepare performance test procedures which shall be approved/accepted by the Employer.

5.2.4 Training and technology transfer

The Employer requires the Contractor to provide training in the use and maintenance of the works or any associated transfer of technology from him to the Employer.

6 Plant and Materials standards and workmanship

6.1 Investigation, survey, and Site clearance

In order to provide a system that works, the Contractor must carry out further investigations on site to establish facts such as site elevations and site clearance.

7 Annexures

7.1 Engineering

Table 4: Process Design Deliverables Guidelines and Standards

Owner	Number	Description
Eskom	240-86973501	Engineering Drawing Standard – Common Requirements
Eskom	240-93576498	KKS Coding Standard
Eskom	240-71432150	Plant Labelling Standard
Eskom	240-109607332	Eskom Plant Labelling Abbreviation Standard
Eskom	240-49230111	Hazard and Operability (HAZOP) Studies
Eskom	240-49230046	Failure Mode Effects and Criticality Analysis (FMECA)
Eskom	240-52844017	System Reliability, Availability and Maintainability Analysis Guideline
Eskom	240-72249423	Instrument Schedule
Eskom	240-61379755	Drive and Actuator Schedule
Eskom	240-72344339	Virtual signal list
Eskom	240-72346360	Load Schedules for UPS Supply

Table 5: Mechanical Design Deliverables Guidelines and Standards

Owner	Number	Description
SANS	10140-3	Identification colour markings of pipelines
EN	1092-1	Flange standard
Eskom	240-86973501	Engineering Drawing Standard – Common Requirements
Eskom	240-56364545	Structural Design And Engineering Standard
SANS	10143	Building Drawing Practice
Eskom	240-105020315	Standard for Low Pressure Valves
Eskom	240-123801640	Standard for Low Pressure Pipeline
Eskom	240-89147446	Instrument Piping for Fossil, Hydro, Renewable and Aero-Derivative Power Plants Standard
Eskom	240-101712128	Standard for the Internal Corrosion Protection of Water Systems, Chemical Tanks and Vessels and Associated Piping with Linings
Eskom	240-106365693	Standard for the External Corrosion Protection of Plant, Equipment and Associated Piping with Coatings
Eskom	240-106628253	Standard for Welding Requirements on Eskom Plant
Eskom	240-83539994	Eskom NDT Personnel Approval (NPA) for Quality Related Special Processes on Eskom Plant Standard.
Eskom	240-49230111	Hazard and Operability (HAZOP) Studies
Eskom	240-49230046	Failure Mode Effects and Criticality Analysis (FMECA)
Eskom	240-52844017	System Reliability, Availability and Maintainability Analysis Guideline

Table 6: Civil and Structural Codes and Standards








Owner	Number	Description	Standard
Eskom	240-86973501	Engineering Drawing Standard – Common Requirements	 240-86973501 Engineering Drawing :
Eskom	240-56364545	Structural Design And Engineering Standard	 240-56364545 - Structural Design and
Eskom	240-107981296	Constructability Assessment Guideline	 240-107981296 Constructability Asses:
Eskom	240-57127953	Execution of Site Preparations and Earthworks Standard	 240-57127953 Execution of Site Prep
Eskom	240-57127955	Geotechnical And Foundation Engineering Standard	 240-57127955 Geotechnical and Fou
Eskom	240-91244751	Specification for Geotechnical Investigations Standard	 240-91244751 Specification for Geot
Eskom	240-57127951	Standard for the Execution of Site Investigations	 240-57127951 Standard for the Exe

Table 7: Electrical Codes and Standards

Number	Description
240-56227443	Requirements for control and power cables for power stations
240-56357424	MV and LV Switchgear Protection Standard
240-56227426	Earthling and Lightning Protection
0.84/3482	Medupi Power Station Earthing Standards
240-56227516	Specification for switchboards and associated equipment for AC 1000V and DC 1200V
240-56227573	Metal enclosed switchgear and control gear for voltages above 1 kV up to and including 52 Kv
240-57617975	Procurement of Power Station Low Voltage Electric Motors Specification Standard
240-56227589	List of Approved Electronic Devices to be Used on Eskom Power Stations Standard

Table 8: C&I Specific Minimum Standards and Guidelines

Owner	Number	Description
Eskom	240-56227443	Requirements for control and power cables for power stations
Eskom	240-56355466	Alarm Management System Standard
Eskom	240-56355729	Plant Control Modes Guideline
Eskom	240-52844017	System Reliability, Availability and Maintainability Analysis Guideline
Eskom	240-56355754	Field Instrument Installation Standard
Eskom	240-56355815	Junction Boxes and Cable Termination Standard
Eskom	240-56355843	Pressure Measurement Systems Installation Standard
Eskom	240-56355888	Temperature Measurement Systems Installation Standard
Eskom	240-55410927	Cyber Security Standard for Operational Technology
Eskom	240-49230046	Failure Mode and Effects Analysis Guideline
Eskom	240-49230111	HAZOP Analysis Guideline
IEC	IEC 62381	Automation systems in the process industry - Factory acceptance test (FAT), site acceptance test (SAT), and site integration test (SIT)
Eskom	240-56355728	Human Machine Interface Design Requirements Standard
SANS	10142 – Part 1	The Wiring of Premises Part 1: Low-voltage installations
Eskom	240-55714363	Coal Fired Power Stations Lighting and Small Power Installation Standard
Eskom	240-56356396	Earthing and Lightning standard
Eskom	240-72249423	Instrument Schedule
Eskom	240-61379755	Drive and Actuator Schedule

Table 9: Configuration Management Codes and Standards

Owner	Number	Description
Eskom	240-85521112	Vendor Document Submittal Schedule
Eskom	240-65459834	Project Documentation Deliverable Requirement Specification
Eskom	240-53114186	Project/Plant Specific Technical Document and Records Management Procedure
Eskom	240-54179170	Technical Documentation Classification and Designation Standard
Eskom	240-53113685	Design Review Procedure
Eskom	240-53114026	Project Engineering Change Management Procedure
Eskom	240-66920003	Documentation Management Review and Handover Procedure for Gx Coal Projects

7.2 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.

Table 10: List of drawings

Drawing number	Revision	Title
0.84/43909 sheet 1	3	Admin Island landscaping irrigation layout
0.84/43909 sheet 2	1	Access Control landscaping irrigation layout
0.84/7242 sheet 22	8	Admin Island pump station

7.3 SHEQ

Table 11: SHEQ Procedures, Policies, Specification and Standards

Document Number	Revision	Title
32-1123	Rev 0	HIV/AIDS in the workplace
32-95	Rev 6	Environmental Occupational Health Incident Management Procedure
240-62196227	Rev 5	Life Saving Rules
32-727	Rev 1	SHEQ Policy
32-1126	Rev 1	Smoking Policy
32-1123	Rev 0	HIV-AIDS in the Workplace Policy
32-93	Rev 5	Vehicles and Driver Safety Management
32-136	Rev 3	<i>Contractor</i> Health and Safety Requirements
202-7402	Rev 1	Traffic Monitoring Procedure
202-7457	Rev 0	Traffic Management Plan
202-7281	Rev 4	Alcohol Testing
240-44175132	Rev 0	Eskom Personal Protective Equipment (PPE) Specification
32-418	Rev 3	Working at Height Standard
32-407	Rev 1	Behaviour Safety Observations Procedure
	N/A	Baseline Risk Assessment Medupi Security & Infrastructure Project

C3.2 *CONTRACTOR'S* WORKS INFORMATION

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

Typical sub headings could be

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

This section could also be compiled as a separate file.

PART 4: SITE INFORMATION

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

PART 4: SITE INFORMATION

Core clause 11.2(16) states

“Site Information is information which

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

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

General description

Medupi Power Station is situated in the west of Lephalale in the Limpopo province, South Africa. With the following address: Unnamed Road, Lephalale, 0555. And coordinates 23.7049° S, 27.5632° . The site is starting from the clean water dam and goes along the side of the road. The project will cross a number of roads. Excavation to be done on the roads where the pipe will be crossing. A security fence will have to be cut for pipe access. *See picture below for reference.*

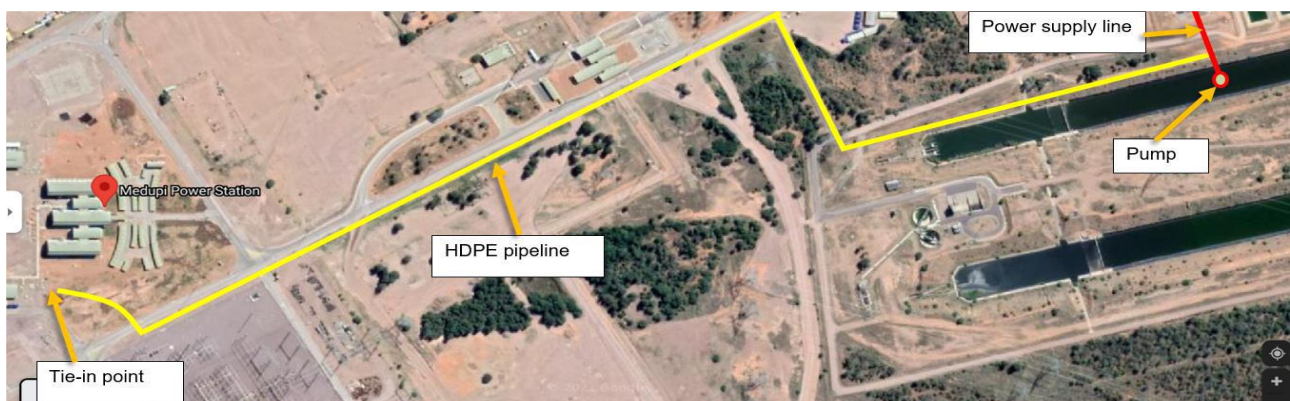


Figure 1:

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

The site existing roads will have to be excavated where the pipe will be crossing. Details of the existing sprinkler network are provided for in drawings listed in 7.2 above.