NEC3 Engineering & Construction Contract

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

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

for **The construction of four temporary Hazardous Waste Storage Facilities within Kriel Power Station for a period of 9 months**

Contents:

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

Part C1: Agreements & Contract Data

Contents:

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:

The construction of four temporary Hazardous Waste Storage Facilities within Kriel Power Station for a period of 9 months

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

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

Signature(s) .....

Name(s) .....

Capacity .....

For the tenderer: .....

(Insert name and address of organisation)

Name & signature of witness ..... Date .....

Tenderer's CIDB registration number .....

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

Acceptance

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

The terms of the contract, are contained in:

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

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

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

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

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

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

Signature(s) .....

Name(s) .....

Capacity .....

for the Employer

.....

(Insert name and address of organisation)

Name & signature of witness .....

Date .....

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

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

Note:

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

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

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

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

	For the tenderer:	**For the Employer**
Signature	.....	.....
Name	.....	.....
Capacity	.....	.....
On behalf of	..... *(Insert name and address of organisation)*	..... *(Insert name and address of organisation)*
Name & signature of witness	.....	.....
Date	.....	.....

C1.2 ECC3 Contract Data

Part one - Data provided by the *Employer*

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

Clause	Statement	Data
1	**General**	
	The *conditions of contract* are the core clauses and the clauses for main Option	
		B: Priced contract with bill of quantities
	dispute resolution Option	**W1: Dispute resolution procedure**
	and secondary Options	
		X2 Changes in the law
		X7: Delay damages
		X16: Retention
		X18: Limitation of liability
		Z: *Additional conditions of contract*
	of the NEC3 Engineering and Construction Contract, April 2013 (ECC3)	
10.1	The *Employer* 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 *Project Manager* is: (Name)	**Simphiwe Dez Jack**
	Address	**Kriel Power Station, Private Bag X5009 Bethal/Ogies Road, Kriel, Mpumalanga, SA 2271**
	Tel	Will be completed upon award
	Fax	
	e-mail	

10.1	The *Supervisor* is: (Name)	**Montsheng Ramoshaba**
	Address	**Kriel Power Station, Private Bag X5009 Bethal/Ogies Road, Kriel, Mpumalanga, SA 2271**
	Tel No.	To complete upon award
	e-mail	
11.2(13)	The *works* are	**The construction of four temporary Hazardous Waste Storage Facilities within Kriel Power Station for a period of 9 months**
11.2(14)	The following matters will be included in the Risk Register	- **Costs increases due to rain** - **Covid19 restrictions**
11.2(15)	The *boundaries of the site* are	**Kriel Power Station**
11.2(16)	The Site Information is in	**Part 4: Site Information**
11.2(19)	The Works Information is in	**Part 3: Scope of Work and all documents and drawings to which it makes reference.**
12.2	The *law of the contract* is the law of	**the Republic of South Africa**
13.1	The *language of this contract* is	**English**
13.3	The *period for reply* is	**3 days**

2 The *Contractor's* main responsibilities

Data required by this section of the core clauses is provided by the *Contractor* in Part 2 and terms in italics used in this section are identified elsewhere in this Contract Data.

3 Time

11.2(3)	The *completion date* for the whole of the *works* is	Date will be reflected upon award (project duration 9 months)		
11.2(9)	The *key date*s and the *condition*s to be met are:	***Condition* to be met**		***key date***
		1	**Construction drawings submission and approval**	**1 month after contract award**
		2	**QCP approvals including programme**	**1 month after contract award**
		3	**QCP sign off on intervention points**	**1 day after assessment**
30.1	The *access dates* are:	**Part of the Site**		**Date**
		1	**Site Establishment**	**2 weeks after contract award**

		2	**Construction work**	**1 month after award**
31.1	The *Contractor* is to submit a first programme for acceptance within	**2 weeks after the Contract Start Date**		
31.2	The *starting date* is (proposed)	**01 November 2022**		
32.2	The *Contractor* submits revised programmes at intervals no longer than	**2 weeks**		
35.1	The *Employer* is not willing to take over the *works* before the Completion Date.			
4	**Testing and Defects**			
42.2	The *defects date* is	**52 weeks after Completion of the whole of the *works***		
43.2	The *defect correction period* is	**2 weeks**		
	except that the *defect correction period* for	**Minor defects are 2 weeks**		
	and the *defect correction period* for	**Major defects are 1 week**		
5	**Payment**			
50.1	The *assessment interval* is	**between the 25th day of each successive month**		
51.1	The *currency of this contract* is the	**South African Rand.**		
51.2	The period within which payments are made is	**Depending on the BBBEE status 14- or 30-days payment from receipt of valid invoice**		
51.4	The *interest rate* is	**the publicly quoted prime rate of interest (calculated on a 365 day year) charged from time to time by the Standard Bank of South Africa Limited (as certified, in the event of any dispute, by any manager of such bank, whose appointment it shall not be necessary to prove) for amounts due in Rands and** **(ii) the LIBOR rate applicable at the time for amounts due in other currencies. LIBOR is the 6 month London Interbank Offered Rate quoted under the caption "Money Rates" in The Wall Street Journal for the applicable currency or if no rate is quoted for the currency in question then the rate for United States Dollars, and if no such rate appears in The Wall Street Journal then the rate as quoted by the Reuters Monitor Money Rates Service (or such service as may replace the Reuters Monitor Money Rates Service) on the due date for the payment in question, adjusted *mutatis mutandis* every 6 months thereafter and as certified, in the event of any dispute, by any manager employed in the foreign exchange department of The Standard Bank of South Africa Limited, whose appointment it shall not be necessary to prove.**		

6	**Compensation events**	
60.1(13)	The place where weather is to be recorded is:	**Bethal**
	The *weather measurements* to be recorded for each calendar month are,	**the cumulative rainfall (mm)** **the number of days with rainfall more than 10 mm** **the number of days with minimum air temperature less than 0 degrees Celsius** **the number of days with snow lying at 09:00 hours South African Time** **and these measurements:**
	The *weather measurements* are supplied by	**South Africa Weather Services**
	The *weather data* are the records of past *weather measurements* for each calendar month which were recorded at:	**Bethal**
	and which are available from:	**the South African Weather Bureau and included in Annexure A to this Contract Data provided by the *Employer***
60.1(13)	Assumed values for the ten-year return *weather data* for each *weather measurement* for each calendar month are:	**As stated in Annexure A to this Contract Data provided by the *Employer*.**
7	**Title**	**There is no reference to Contract Data in this section of the core clauses and terms in italics used in this section are identified elsewhere in this Contract Data.**
8	**Risks and insurance**	
80.1	These are additional *Employer*'s risks	**Covid-19 restrictions**
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**	
B	**Priced contract with bill of quantities**	
60.6	The *method of measurement* is	**Bill of quantity published by Price List and amended as stated in Part C2.1, Pricing Assumptions.**
11	**Data for Option W1**	
W1.1	The *Adjudicator* is	**the person selected from the ICE-SA Division (or its successor body) of the South African**

		Institution of Civil Engineering Panel of Adjudicators by the Party intending to refer a dispute to him. (see www.ice-sa.org.za). If the Parties do not agree on an Adjudicator the Adjudicator will be appointed by the Arbitration Foundation of Southern Africa (AFSA).
W1.2(3)	The *Adjudicator nominating body* is:	**the Chairman of ICE-SA a joint Division of the South African Institution of Civil Engineering and the London Institution of Civil Engineers. (See www.ice-sa.org.za) or its successor body.**
W1.4(2)	The *tribunal* is:	**arbitration.**
W1.4(5)	The *arbitration procedure* is	**the latest edition of Rules for the Conduct of Arbitrations published by The Association of Arbitrators (Southern Africa) or its successor body.**
	The place where arbitration is to be held is	**Kriel Power Station, South Africa**
	The person or organisation who will choose an arbitrator - if the Parties cannot agree a choice or - if the arbitration procedure does not state who selects an arbitrator, is	**the Chairman for the time being or his nominee of the Association of Arbitrators (Southern Africa) or its successor body.**
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 *works* are	**R20 000.00 per day up to a limit of R200 000.00**
X16	**Retention (not used with Option F)**	
X16.1	The *retention free amount* is	**R0.00**
	The *retention percentage* is	**10%**
X18	**Limitation of liability**	
X18.1	The *Contractor*'s liability to the *Employer* for indirect or consequential loss is limited to:	**R0.0 (zero Rand)**
X18.2	For any one event, the *Contractor*'s liability to the *Employer* for loss of or damage to the *Employer*'s property is limited to:	**the amount of the deductibles relevant to the event**
X18.3	The *Contractor*'s liability for Defects due to his design which are not listed on the Defects Certificate is limited to	**The greater of** **the total of the Prices at the Contract Date and** • **the amounts excluded and unrecoverable from the *Employer*'s assets policy for**

		correcting the Defect (other than the resulting physical damage which is not excluded) plus the applicable deductible as at contract date.
X18.4	The *Contractor*'s total liability to the *Employer* for all matters arising under or in connection with this contract, other than excluded matters, is limited to:	**the total of the Prices other than for the additional excluded matters.** **The *Contractor's* total liability for the additional excluded matters is not limited.** **The additional excluded matters are amounts for which the *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) 10 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 *Contractor* or a third party, such party's employees, agents, or Subcontractors or Subcontractor's employees, or any one or more of all of these parties' relatives or friends,

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

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

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

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

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

Obstructive Action means a Committing Party unlawfully or illegally destroying, falsifying, altering or concealing information or making false statements to materially impede an investigation into allegations of Prohibited Action, and

Prohibited Action means any one or more of a Coercive Action, Collusive Action Corrupt Action, Fraudulent Action or Obstructive Action.

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

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

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

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

Z13 Insurance

Z 13.1 Replace core clause 84 with the following:

Insurance cover 84

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

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

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

INSURANCE TABLE A

Insurance against	Minimum amount of cover or minimum limit of indemnity
Loss of or damage to the *works*, Plant and Materials	The replacement cost where not covered by the *Employer*'s insurance The *Employer*'s policy deductible, as at Contract Date, where covered by the *Employer*'s insurance
Loss of or damage to Equipment	The replacement cost
Liability for loss of or damage to property (except the *works*, Plant and Materials and Equipment) and liability for bodily injury to or death of a person (not an employee of the *Contractor*) caused by activity in connection with this contract	Loss of or damage to property *Employer*'s property The replacement cost where not covered by the *Employer*'s insurance The *Employer*'s policy deductible, as at Contract Date, where covered by the *Employer*'s insurance

	Other property The replacement cost Bodily injury to or death of a person The amount required by applicable law
Liability for death of or bodily injury to employees of the *Contractor* arising out of and in the course of their employment in connection with this contract	The amount required by the applicable law

Z 13.2 **Replace core clause 87 with the following:**
The *Employer* provides the insurances stated in the Insurance Table B.

INSURANCE TABLE B

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

Z14 Nuclear Liability

Z14.1 The *Employer* is the operator of the Koeberg Nuclear Power Station (KNPS), a nuclear installation, as designated by the National Nuclear Regulator of the Republic of South Africa, 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 44 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 44 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 ooccupational exposure limit.

Parallel Measurements means measurements performed in parallel, yet separately, to existing measurements to verify validity of results.

Safe Levels means airborne asbestos exposure levels conforming to the Standard's requirements for safe processing, handling, storing, disposal and phase-out of asbestos and asbestos containing material, equipment and articles.

Standard means the *Employer*'s Asbestos Standard 32-303: Requirements for Safe Processing, Handling, Storing, Disposal and Phase-out of Asbestos and Asbestos Containing Material, Equipment and Articles.

SANAS means the South African National Accreditation System.

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

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

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

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

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

Z15.5 The *Contractor*'s personnel are entitled to stop working and leave the contaminated area forthwith until such time that the area of concern is declared safe by either Compliance Monitoring or an AAIA approved control measure intervention, for example, per the emergency asbestos work plan, if applicable.

Z15.6 The *Contractor* continues to Provide the Services, without additional control measures presented, on presentation of Safe Levels. The contractually agreed dates to Provide the Services, including the Completion Date, are adjusted accordingly. The contractually agreed dates are extended by the notification periods required by regulations 3 and 21 of the Asbestos Regulations, 2001.

Z15.7 Any removal and disposal of asbestos, asbestos containing materials and waste, is done by a registered asbestos contractor, instructed by the *Employer* at the *Employer*'s expense, and conducted in line with South African legislation.

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

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

	Weather measurement				
Month	Cumulative rainfall (mm)	Number of days with rain more than 10mm	Number of days with min air temp **<** 0 deg.C	Number of days with snow lying at 08:00 CAT	[Other measurements if applicable]
January	**97.7**	**3**	**0**	**0**	none
February	**50.9**	**2**	**0**	**0**	none
March	**256.2**	**7**	**0**	**0**	none
April	**2**	**0**	**0**	**0**	none
May	**31.5**	**1**	**4**	**0**	none
June	**1**	**0**	**16**	**0**	none
July	**0**	**0**	**15**	**0**	none
August	**0**	**0**	**6**	**0**	none
September	**14.1**	**0**	**0**	**0**	none
October	**110.5**	**6**	**0**	**0**	none
November	**192.9**	**7**	**0**	**0**	none
December	**159.5**	**7**	**0**	**0**	none

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

COMPLETE BOTH PAGES AND WHERE NOT RELEVANT, INDICATE NOT APPLICABLE – DO NOT LEAVE AREAS BLANK

C1.2 Contract Data

Part two - Data provided by the *Contractor*

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

Clause	Statement	Data
10.1	The *Contractor* is (Name): Address Tel No. Fax No.	
	E-mail address	
	Fee percentage is for compensation events: accepted quotation will be invoiced plus this percentage	
11.2(8)	The *direct fee percentage* is The *subcontracted fee percentage* is	_____**%** _____**%**
11.2(18)	The *working areas* are the Site and	
24.1	The *Contractor's* key persons are: 1 Name: Job: Responsibilities: Qualifications: Experience: 2 Name: Job Responsibilities: Qualifications: Experience:	**CV's (and further key persons data including CVs) are appended to Tender Schedule entitled .**
11.2(3)	The *completion date* for the whole of the *works* is	
11.2(14)	The following matters will be included in the Risk Register	
11.2(19)	The Works Information for the *Contractor*'s design is in:	

31.1	The programme identified in the Contract Data is			
B	**Priced contract with bill of quantities**			
11.2(21)	The *bill of quantities* is in	**C2.2**		
11.2(31)	The tendered total of the Prices is	**(In figures)**		
		(in words), excluding VAT		
	Data for Schedules of Cost Components	*Note "SCC" means Schedule of Cost Components starting on page 60, and "SSCC" means Shorter Schedule of Cost Components starting on page 63 of ECC3 (April 2013).*		
B	**Priced contract with bill of quantities**	**Data for the Shorter Schedule of Cost Components**		
41 in SSCC	The percentage for people overheads is:	**%**		
21 in SSCC	The published list of Equipment is the last edition of the list published by			
	The percentage for adjustment for Equipment in the published list is	**Minus %**		
22 in SSCC	The rates of other Equipment are:	**Equipment**	**Size or capacity**	**Rate**
61 in SSCC	The hourly rates for Defined Cost of design outside the Working Areas are **Note: Hourly rates are estimated 'cost to company of the employee' and not selling rates.** **Please insert another schedule if foreign resources may also be used**	**Category of employee**	**Hourly rate**	
62 in SSCC	The percentage for design overheads is	**%**		
63 in SSCC	The categories of design employees whose travelling expenses to and from the Working Areas are included in Defined Cost are:			

C1.3 Forms of Securities

Pro formas for Bonds & Guarantees

For use with the NEC3 Engineering & Construction Contract

[Note to contract compiler:
Once it has been decided which securities are required for this contract delete from this file the ones not required, revise the notes below accordingly and delete this note.]

The *conditions of contract* stated in the Contract Data Part 1 include the following Secondary Options:

Option X4: Parent company guarantee
Option X13: Performance Bond
Option X14: Advanced payment to the *Contractor*

Each of these secondary Options requires a bond or guarantee "in the form set out in the Works Information". Pro forma documents for these bonds and guarantees are provided here for convenience but are to be treated as part of the Works Information.

Option X16: Retention (not used with Option F)

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

The *Contractor* shall guarantee his ASGI-SA Obligations by providing the *Employer* with an ASGI-SA Guarantee in the form provided here.

[Note to contract compiler: If there are no ASGI-SA Obligations in this contract, delete the above statement]

The organisation providing the bond / guarantee does so by copying the pro forma document onto his letterhead without any change to the text or format and completing the required details. The completed document is then given to the *Employer* within the time stated in the contract.

Pro forma Parent Company Guarantee (for use with Option X4)

(to be reproduced exactly as shown below on the letterhead of the Contractor's Parent Company)

Eskom Holdings SOC Ltd
Megawatt Park
Maxwell Drive
Sandton
Johannesburg Date:

Dear Sirs,

Parent Company Guarantee for Contract No

With reference to the above numbered contract made or to be made between

Eskom Holdings SOC Ltd (the *Employer*) and

{Insert registered name and address of the *Contractor*}
(the *Contractor*), for

{Insert details of the *works* from the Contract Data} (the *works*).

I/We the undersigned .....

on behalf of the *Contractor*'s parent company .....

of physical address .....

and duly authorised thereto do hereby unconditionally guarantee to the *Employer* that the *Contractor* shall Provide the Works in accordance with the above numbered Contract.

1. If for any reason the *Contractor* fails to Provide the Works, we hereby agree to cause to Provide the Works at no additional cost to the *Employer*.

2. If we fail to comply with the terms of this Deed of Guarantee, the *Employer* may itself procure such performance (whether or not the Agreement be formally determined). The *Employer* is to notify us and we shall indemnify the *Employer* for any additional cost or expense it incurs.

3. Our liability shall be as primary obligor and not merely as surety and shall not be impaired or discharged by reason of any arrangement or change in relationship made between the *Contractor* and the *Employer* and/or between us and *Contractor*; nor any alteration in the obligations undertaken by the *Contractor* or in the terms of the Agreement; nor any indulgence, failure, delay by you as to any matter; nor any dissolution or liquidation or such other analogous event of the *Contractor*.

4. The *Employer* shall not be obliged before taking steps to enforce the terms of this Deed of Guarantee to obtain judgement against the *Contractor* in any court or other tribunal, to make or file any claim in liquidation (or analogous proceedings) or to seek any remedy or proceed first against the *Contractor*.

5. This Deed of Guarantee shall be governed by and construed in accordance with the laws of the Republic of South Africa and we hereby submit to the non-exclusive jurisdiction of the High Court of South Africa.

Signed at _____ on this _____ day of _____ 200_

Signature(s)		
Name(s) (printed)		
Position in parent company		
Signature of Witness(s)		
Name(s) (printed)		

Pro forma Performance Bond – Demand Guarantee (for use with Option X13)

(to be reproduced exactly as shown below on the letterhead of the Contractor's Parent Company)

Eskom Holdings SOC Ltd
Megawatt Park
Maxwell Drive
Sandton
Johannesburg Date:

Dear Sirs

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

Performance Bond – Demand Guarantee: *[Drafting Note: Name of Contractor to be inserted]*

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

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

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

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

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

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

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

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

"Guaranteed Sum" - means the sum of R [●] ([●] Rand);

"Project" - means [insert if applicable.].

At the instance of the Contractor, we the undersigned _____ and _____, in our respective capacities as _____ and _____ of the Bank, and duly authorized thereto, confirm that we hold the Guaranteed Sum at the disposal of Eskom, as security for the proper performance by the Contractor of all of its obligations in terms of and arising from the Contract and hereby undertake to pay to Eskom, on written demand from Eskom received prior to the Expiry Date, any sum or sums not exceeding in total the Guaranteed Sum.

A demand for payment under this guarantee shall be made in writing at the Bank's address and shall:

be signed on behalf of Eskom by a Group Executive, Divisional Executive, Senior General Manager, General Manager or its delegate;

state the amount claimed ("the Demand Amount');

state that the Demand Amount is payable to Eskom in the circumstances contemplated in the Contract.

Notwithstanding the reference herein to the Contract the liability of the Bank in terms hereof is as principal and not as surety and the Bank's obligation/s to make payment:

is and shall be absolute provided demand is made in terms of this bond in all circumstances; and

is not, and shall not be construed to be, accessory or collateral on any basis whatsoever.

The Bank's obligations in terms of this Guarantee:

shall be restricted to the payment of money only and shall be limited to the maximum of the Guaranteed Sum; and

shall not be discharged and compliance with any demand for payment received by the Bank in terms hereof shall not be delayed, by the fact that a dispute may exist between Eskom and the Contractor.

Eskom shall be entitled to arrange its affairs with the Contractor in any manner which it sees fit, without advising us and without affecting our liability under this Guarantee. This includes, without limitation, any extensions, indulgences, release or compromise granted to the Contractor or any variation under or to the Contract.

Should Eskom cede its rights against the Contractor to a third party where such cession is permitted under the Contract, then Eskom shall be entitled to cede to such third party the rights of Eskom under this Guarantee on written notification to the Bank of such cession.

This Guarantee:

shall expire on the Expiry Date until which time it is irrevocable;

is, save as provided for in 0 above, personal to Eskom and is neither negotiable nor transferable;

shall be returned to the Bank upon the earlier of payment of the full Guaranteed Sum or expiry hereof;

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

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

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

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

Signed at _____ Date _____

For and behalf of the Bank

Bank Signatory: _____ Bank Signatory: _____

Witness: _____ Witness: _____
Bank's seal or stamp

Pro forma Advanced Payment Bond (for use with Option X14)

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

Eskom Holdings Limited
Megawatt Park
Maxwell Drive
Sandton
Johannesburg Date:

Dear Sirs,

Advanced Payment Bond for Contract No.

With reference to the above numbered contract made or to be made between

Eskom Holdings SOC Limited (the *Employer*) and

{Insert registered name and address of the *Contractor*} (the *Contractor*), for

{Insert details of the *works* from the Contract Data} (the *works*).

I/We the undersigned .....

on behalf of the Surety .....

of physical address .....

.....

and duly authorised thereto do hereby bind ourselves as Surety and co-principal debtors in solidum for the due and proper repayment by the *Contractor* to the *Employer* of the advanced payment made by the *Employer* to the *Contractor* under the Contract, and for all losses and expenses that may be suffered or incurred by the *Employer* as a result of non-payment by the *Contractor*, subject to the following conditions

1. The terms *Employer*, *Contractor*, and the *works* have the meaning as assigned to them by the *conditions of contract* listed in the Contract Data for the aforesaid Contract.

2. We renounce all benefits from the legal exceptions "Benefit of Excussion and Division", "No value received" “Revision of Accounts”, “Cession of Action” and any other exceptions which might or could be pleaded against the validity of this bond, with the meaning and effect of which exceptions we declare ourselves to be fully acquainted.

3. The *Employer* has the absolute right to arrange his affairs with the *Contractor* in any manner which the *Employer* deems fit and without being advised thereof the Surety shall not have the right to claim his release on account of any conduct alleged to be prejudicial to the Surety. Without derogating from the foregoing compromise, extension of the construction period, indulgence, release or variation of the *Contractor's* obligation shall not affect the validity of this Advance Payment bond.

4. This bond expires on the date when the Surety receives a notice from the *Project Manager* stating that the advanced payment has been repaid to the *Employer* in terms of the Contract, or liquidated by deductions from other payments due to the *Contractor.*

5. The amount of the bond shall be payable to the *Employer* upon the *Employer's* demand and no later than 7 days following the submission to the Surety of a certificate signed by the *Project Manager* stating the amount of the *Employer's* losses, damages and expenses incurred as a result of the non-

performance aforesaid. The signed certificate shall be deemed to be conclusive proof of the extent of the *Employer's* loss, damage and expense.

6. Our total liability hereunder shall not exceed the sum of ..... (R .....) which is equal to the advance payment.

7. This Advanced Payment Bond is neither negotiable nor transferable and is governed by the laws of the Republic of South Africa.

Signed at _____ on this ..... day of ..... 200_

Signature(s)		
Name(s) (printed)		
Position in Surety company		
Signature of Witness(s)		
Name(s) (printed)		

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

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

Eskom Holdings SOC Limited
Megawatt Park
Maxwell Drive
Sandton
Johannesburg Date:

Dear Sirs

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

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

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

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

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

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

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

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

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

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

1.7 "Guaranteed Sum" - means the sum of R [●] ([●] Rand); [Drafting Note: Insert amount of Retention Money Guarantee.].

1.8 "Project" - means the……..

2. At the instance of the Contractor, we the undersigned _____ and _____, in our respective capacities as _____ and _____ of the Bank, and duly authorized thereto, confirm that we hold the Guaranteed Sum at the disposal of Eskom, as security for the proper performance by the Contractor of all of its obligations in terms of and arising from the Contract and hereby undertake to pay to Eskom, on written demand from Eskom received prior to the Expiry Date, any sum or sums not exceeding in total the Guaranteed Sum.

3. A demand for payment under this guarantee shall be made in writing at the Bank's address and shall:

3.1 be signed on behalf of Eskom by a director of Eskom or his authorised delegate.

3.2 state the amount claimed (“the Demand Amount’);

3.3 state that the Contractor has failed to carry out his obligation(s) to rectify certain defect(s) for which he is responsible under the Contract (and the nature of such defect(s)) alternatively that the Demand Amount is payable to Eskom in the circumstances contemplated in the Contract.

4. Notwithstanding the reference herein to the Contract the liability of the Bank in terms hereof is as principal and not as surety and the Bank’s obligation/s to make payment:

4.1 is and shall be absolute provided demand is made in terms of this bond in all circumstances; and

4.2 is not, and shall not be construed to be, accessory or collateral on any basis whatsoever.

5. The Bank’s obligations in terms of this Guarantee:

5.1 shall be restricted to the payment of money only and shall be limited to the maximum of the Guaranteed Sum; and

5.2 shall not be discharged and compliance with any demand for payment received by the Bank in terms hereof shall not be delayed by the fact that a dispute may exist between Eskom and the Contractor.

6. Eskom shall be entitled to arrange its affairs with the Contractor in any manner which it sees fit, without advising us and without affecting our liability under this Guarantee. This includes, without limitation, any extensions, indulgences, release or compromise granted to the Contractor or any variation under or to the Contract.

7. Should Eskom cede its rights against the Contractor to a third party where such cession is permitted under the Contract, then Eskom shall be entitled to cede to such third party the rights of Eskom under this Guarantee on written notification to the Bank of such cession.

8. This Guarantee:

8.1 shall expire on the Expiry Date until which time it is irrevocable;

8.2 is, save as provided for in **0** above, personal to Eskom and is neither negotiable nor transferable;

8.3 shall be returned to the Bank upon the earlier of payment of the full Guaranteed Sum or expiry hereof;

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

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

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

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

Signed at _____ Date _____ Bank’s seal or stamp

For and behalf of the Bank

Bank Signatory: _____ Bank Signatory: _____

Witness: _____ Witness: _____

PART 2: PRICING DATA
ECC3 Option B

Document reference	Title	No of pages
C2.1	Pricing assumptions: Option B	
C2.2	The *bill of quantities*	

C2.1 Pricing assumptions: Option B

How work is priced and assessed for payment

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

Identified and defined terms 11
11.2 (21) The Bill of Quantities is the *bill of quantities* as changed in accordance with this contract to accommodate implemented compensation events and for accepted quotations for acceleration.

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

the quantity of the work which the *Contractor* has completed for each item in the Bill of Quantities multiplied by the rate and
a proportion of each lump sum which is the proportion of the work covered by the item which the *Contractor* has completed.

Completed work is work without Defects which would either delay or be covered by immediately following work.

(31) The Prices are the lump sums and the amounts obtained by multiplying the rates by the quantities for the items in the Bill of Quantities.

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

Function of the Bill of Quantities

Clause 55.1 in Option B states, “Information in the Bill of Quantities is not Works Information or Site Information”. This confirms that specifications and descriptions of the work or any constraints on how it is to be done are not included in the Bill, but in the Works Information. This is further confirmed by Clause 20.1 which states, “The *Contractor* Provides the Works in accordance with the Works Information”. Hence the *Contractor* does **not** Provide the Works in accordance with the Bill of Quantities. The Bill of Quantities is only a pricing document.

Guidance before pricing and measuring

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

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

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

plus Fee is used.

Measurement and payment

Symbols

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

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

General assumptions

Unless otherwise stated, items are measured net in accordance with the drawings, and no allowance has been made in the quantities for waste.

The Prices and rates stated for each item in the Bill of Quantities shall be treated as being fully inclusive of all work, risks, liabilities, obligations, overheads, profit and everything necessary as incurred or required by the *Contractor* in carrying out or providing that item.

An item against which no Price is entered will be treated as covered by other Prices or rates in the *bill of quantities*.

The quantities contained in the Bill of Quantities may not be final and do not necessarily represent the actual amount of work to be done. The quantities of work assessed and certified for payment by the *Project Manager* at each assessment date will be used for determining payments due.

The short descriptions of the items of payment given in the *bill of quantities* are only for the purposes of identifying the items. Detail regarding the extent of the work entailed under each item is provided in the Works Information.

Departures from the *method of measurement*

Amplification of or assumptions about measurement items

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

C2.2 the *bill of quantities*

Item Number	Section Description	Units	Qty	Rate	Amount
1	**PRELIMINARY AND GENERAL (ALL WORKS)**				
1,1	**SCHEDULED FIXED-CHARGE AND VALUE-RELATED ITEMS**				
1.1.1	**Contractual Requirements**				
1	Other Contractual Requirement	Sum	1,00		
2	Contractor's initial obligations in respect of the Occupational Health and Safety Act and Construction Regulations	Sum	1,00		
1.1.2	**Establishment of Facilities on the Site**				
1.1.2.1	**Facilities for Contractor**				
1	Offices and storage sheds	Sum	1,00		
2	Living accommodation	Sum	1,00		
3	Tools and equipment	Sum	1,00		
4	Dealing with water	Sum	1,00		
5	Plant - For all requirements including cranage	Sum	1,00		
6	Transport on Site	Sum	1,00		
7	Transport of workforce to and from Site	Sum	1,00		
8	Safety induction of all staff (1day course)	Sum	1,00		
9	Staff medicals on entry and exit (completion) of all staff	Sum	1,00		
10	Removal of Site Establishment	Sum	1,00		
11	First Aid and Medical Services	Sum	1,00		
1,2	**SCHEDULED TIME RELATED ITEMS**				
1	Tools and equipment	Sum	1,00		
2	Supervision for Duration of Construction	Sum	1,00		
3	Provision of full-time construction safety officer	Sum	1,00		
4	Submission of the Health and Safety File	Sum	1,00		
	Total				
2	**SITE CLEARANCE**				
2,1	**Transport materials and debris to unspecified sites and dump**				
1	Disposal of approximately 280 m^3 of poor material from Sewage plant to Ash Dam Complex	m^3.km			Rate Only
	Total				

Item Number	Section Description	Units	Qty	Rate	Amount
3	**EARTHWORKS**				
3.1.1	**Excavate in all materials**				
1	Bulk Excavation of Soft Material (Waste Oil Storage Facility)	m^3	25,00		
2	Bulk Excavation of Soft Material (Oil Contaminated & Sulphur Storage Facility)	m^3	130,00		
3	Bulk Excavation of Soft Material (Sewage Sludge Storage Facility)	m^3	205,00		
4	Bulk Excavation of Soft Material (Access Road for Oil Contaminated & Sulphur Storage Facility)	m^3	110,00		
5	Bulk Excavation of Soft Material (Access Road for Sewage Sludge Storage Facility)	m^3	37,00		
3.1.2	**Extra over Item for**				
1	1) Intermediate excavation	m^3			Rate Only
2	2) Hard rock excavation	m^3			Rate Only
3	3) Boulder excavation, Class A	m^3			Rate Only
4	4) Boulder excavation, Class B	m^3			Rate Only
3,2	**EARTHWORKS (ROADS, SUBGRADE)**				
3.2.1	**Treatment of subgrade**				
1	Backfill and compact insitu material in 150 mm layers to 95% Mod AASHTO density (Waste Oil Storage Facility)	m^3	10,00		
2	Backfill and compact insitu material in 150 mm layers to 95% Mod AASHTO density (Oil Contaminated & Sulphur Storage Facility)	m^3	110,00		
3	Backfill and compaction of 150 mm of insitu material to 90% Mod AASHTO density (Access Road for Oil Contaminated & Sulphur Storage Facility)	m^3	35,00		
4	Backfill and compaction of 150 mm of insitu material to 90% Mod AASHTO density (Access Road for Sewage Sludge Storage Facility)	m^3	5,00		
5	Importing of G8 material and placing and compacting to 95% Mod AASHTO density in 150 mm layers (Sewage Sludge Storage Facility)	m^3	170,00		
3.2.2	**In-situ testing of compacted layers**				
1	In-situ Nuclear Density and DCP testing of each layer in accordance with SANS 1200DM (Waste Oil Storage Facility)	m^3	10,00		
2	In-situ Nuclear Density and DCP testing of each layer in accordance with SANS 1200DM (Oil Contaminated & Sulphur Storage Facility)	m^3	110,00		
3	In-situ Nuclear Density and DCP testing of each layer in accordance with SANS 1200DM (Sewage Sludge Storage Facility)	m^3	170,00		

Item Number	Section Description	Units	Qty	Rate	Amount
4	In-situ Nuclear Density and DCP testing of each layer in accordance with SANS 1200DM (Access Road for Oil Contaminated & Sulphur Storage Facility)	m^3	35,00		
5	In-situ Nuclear Density and DCP testing of each layer in accordance with SANS 1200DM (Access Road for Sewage Sludge Storage Facility)	m^3	5,00		
3.2.3	**Selected layers - Bedding Sand for Pavement (Imported from commercial sources)**				
1	Oil Contaminated & Sulphur Storage Facility	m^3	12,00		
2	Sewage Sludge Storage Facility	m^3	2,50		
	Total				
4	**CONCRETE (STRUCTURAL)**				
4,1	**FORMWORK**				
4.1.1	**Vertical, smooth**				
1	Waste Oil Storage Facility	m^2	77,00		
2	Oil Contaminated & Sulphur Storage Facility	m^2	290,00		
3	Sewage Sludge Storage Facility	m^2	110,00		
4.1.2	**Horizontal, smooth**				
4.1.2.1	Underside of roof of Sump	m^2	4,00		
4,2	**REINFORCEMENT**				
4.2.1	**Steel Bars**				
1	High tensile (Waste Oil Storage Facility)	t	7,00		
2	High tensile (Oil Contaminated & Sulphur Storage Facility)	t	14,00		
3	High tensile (Sewage Sludge Storage Facility)	t	5,00		
4,3	**CONCRETE**				
4.3.1	**Strength Concrete**				
4.3.1.1	**Foundation and Stub (Grade 35 MPa/19 mm)**				
1	Waste Oil Storage Facility	m^3	21,00		
2	Oil Contaminated & Sulphur Storage Facility	m^3	24,00		
3	Sewage Sludge Storage Facility	m^3	9,00		
4.3.1.2	**Floor Slab, Ramp & Apron Slab (Grade 35 MPa/19 mm)**				
1	Waste Oil Storage Facility	m^3	5,00		
2	Oil Contaminated & Sulphur Storage Facility	m^3	72,00		
3	Sewage Sludge Storage Facility	m^3	18,00		

Item Number	Section Description	Units	Qty	Rate	Amount
4.3.1.3	**Sump (Grade 35 MPa/19 mm)**				
1	Waste Oil Storage Facility	m^3	4,00		
2	Oil Contaminated & Sulphur Storage Facility	m^3	4,00		
3	Sewage Sludge Storage Facility	m^3	4,00		
4.3.2	**JOINTS**				
1	Isolation joints Waste Oil Storage Facility	m	55,00		
2	Isolation joints Oil Contaminated & Sulphur Storage Facility	m	50,00		
3	Isolation joints Sewage Sludge Storage Facility	m	15,00		
4,4	**GROUTING 50mm thick**				
1	Under base plates Waste Oil Storage Facility	m^2	1,50		
2	Under base plates Oil Contaminated & Sulphur Storage Facility	m^2	3,00		
3	Under base plates Sewage Sludge Storage Facility	m^2	1,00		
4,5	**HOLDING DOWN BOLTS AND MISCELLANEOUS METAL WORK**				
1	Waste Oil Storage Facility M20 Grade 8.8	No.	24,00		
2	Oil Contaminated & Sulphur Storage Facility M20 Grade 8.8	No.	48,00		
3	Sewage Sludge Storage Facility M16 Grade 8.8	No.	16,00		
4,6	**Miscellaneous (Fencing, Screeding, and Piping) - 40% of item 4.3.1.2**				
1	Waste Oil Storage Facility	Sum	1,00		
2	Oil Contaminated & Sulphur Storage Facility	Sum	1,00		
3	Sewage Sludge Storage Facility	Sum	1,00		
	Total				
5	**STRUCTURAL STEELWORK**				
5,1	**STRUCTURAL STEELWORK**				
5.1.1	**Supply and fabrication**				
1	Preparation of shop detail drawings Waste Oil Storage Facility	t	6,00		
2	Preparation of shop detail drawings Oil Contaminated & Sulphur Storage Facility	t	11,00		
3	Preparation of shop detail drawings Sewage Sludge Storage Facility	t	4,00		
5.1.2	**Supply and fabrication of steelwork**				
1	Waste Oil Storage Facility	t	6,00		
2	Oil Contaminated & Sulphur Storage Facility	t	11,00		
3	Sewage Sludge Storage Facility	t	4,00		

Item Number	Section Description	Units	Qty	Rate	Amount
5,2	**Delivery to site**				
5.2.1	**Normal delivery**				
1	Waste Oil Storage Facility	t	6,00		
2	Oil Contaminated & Sulphur Storage Facility	t	11,00		
3	Sewage Sludge Storage Facility	t	4,00		
5,3	**Erection on site**				
1	Waste Oil Storage Facility	t	6,00		
2	Oil Contaminated & Sulphur Storage Facility	t	11,00		
3	Sewage Sludge Storage Facility	t	4,00		
5,4	**Erection bolts, Welds, Cleats and Bracing (15% of items 5.1.2, 5.2.1 and 5.3)**				
1	Waste Oil Storage Facility	Sum	1,00		
2	Oil Contaminated & Sulphur Storage Facility	Sum	1,00		
3	Sewage Sludge Storage Facility	Sum	1,00		
5,5	**CORROSION PROTECTI0N OF STRUCTURAL STEELWOKK**				
5.5.1	**Surface dressing and repairs at place of fabrication prior to galvanising**				
1	Waste Oil Storage Facility	t	6,00		
2	Oil Contaminated & Sulphur Storage Facility	t	11,00		
3	Sewage Sludge Storage Facility	t	4,00		
5.6.1	**Transport to and from galvanising facility**				
1	Waste Oil Storage Facility	t	6,00		
2	Oil Contaminated & Sulphur Storage Facility	t	11,00		
3	Sewage Sludge Storage Facility	t	4,00		
5.6.2	**Surface preparation and hot dip galvanising**				
5.6.2.1	**In the shop**				
1	Waste Oil Storage Facility	t	6,00		
2	Oil Contaminated & Sulphur Storage Facility	t	11,00		
3	Sewage Sludge Storage Facility	t	4,00		
5,2	**IBR Sheeting**				
1	Waste Oil Storage Facility	m^2	130,00		
2	Oil Contaminated & Sulphur Storage Facility	m^2	290,00		
3	Sewage Sludge Storage Facility	m^2	80,00		
	Total				

Item Number	Section Description	Units	Qty	Rate	Amount
6	**SUBBASE**				
6,1	**Construct the subbase/shoulders/gravel wearing course with material from commercial sources or designated excavations**				
1	150 mm G7 subbase compacted to 93% Mod AASHTO density (Access Road for Oil Contaminated & Sulphur Storage Facility)	m^3	90,00		
2	150 mm G7 subbase compacted to 93% Mod AASHTO density (Access Road for Sewage Sludge Storage Facility)	m^3	20,00		
6,2	**In-situ testing of compacted layers**				
1	In-situ Nuclear Density and DCP testing of each layer in accordance with SANS 1200DM (Access Road for Oil Contaminated & Sulphur Storage Facility)	m^3	90,00		
2	In-situ Nuclear Density and DCP testing of each layer in accordance with SANS 1200DM (Access Road for Sewage Sludge Storage Facility)	m^3	20,00		
	Total				
7	**BASE**				
7,1	**Construct base with material from commercial sources or designated borrow areas**				
1	100 mm G5 base compacted to 95% apparent density (Access Road for Oil Contaminated & Sulphur Storage Facility)	m^3	90,00		
2	100 mm G5 base compacted to 95% apparent density (Access Road for Sewage Sludge Storage Facility)	m^3	20,00		
7,2	**In-situ testing of compacted layers**				
1	In-situ Nuclear Density and DCP testing of each layer in accordance with SANS 1200DM (Access Road for Oil Contaminated & Sulphur Storage Facility)	m^3	90,00		
2	In-situ Nuclear Density and DCP testing of each layer in accordance with SANS 1200DM (Access Road for Sewage Sludge Storage Facility)	m^3	20,00		
	Total				

Item Number	Section Description	Units	Qty	Rate	Amount
8	**Segmented Paving**				
8,1	**Construction of paving complete (60 mm thick type S-A, class 25 concrete interlocking paving blocks)**				
1	Oil Contaminated & Sulphur Storage Facility	m^2	40,00		
2	Sewage Sludge Storage Facility	m^2	10,00		
	Total				
9	**Supply and install perimeter fence**				
1	Asbestos Storage Facility	m	27,00		
	Total				

SUMMARY

PRELIMINARY & GENERAL		R
SITE CLEARANCE		R
EARTHWORKS		R
CONCRETE (STRUCTURAL)		R
STRUCTURAL STEELWORK		R
SUBBASE		R
BASE		R
SEGMENTED PAVING		R
SUPPLY AND INSTALL PERIMETER FENCE		R
TOTAL RAND VALUE EXCLUDING VAT		**R**

Signature: _____ Date: _____

PART 3: SCOPE OF WORK

Document reference	Title	
	This cover page	
C3.1	*Employer*'s Works Information	
C3.2	*Contractor*'s Works Information	

C3.1: EMPLOYER'S WORKS INFORMATION

Contents

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1 Description of the *works*

EXECUTIVE SUMMARY

Kriel Power Station is a coal fired power station which is located in Mpumalanga Province. At Kriel Power Station, all hazardous wastes generated on site are being stored at various locations throughout the power station. A detail design was undertaken to design four temporary hazardous waste storage facilities that comply with all applicable environmental legalisation. The four designed hazardous waste storage facilities are:

i. Waste Oil Storage Facility
ii. Oil Contaminated Waste Storage Facility
iii. Sewage Sludge Storage Facility
iv. Asbestos Storage Facility

1. Introduction

Kriel Power Station comprises of six 500 MW Units, giving the station an installed capacity of 3 000 MW. A Unit consists of one boiler, a turbine and a generator set. Construction and commissioning of the station was completed in 1979.
During normal operations of the station, various types of hazardous wastes are generated. Such wastes produced are waste oil, oil contaminated waste, sewage sludge, asbestos and sulphur. Therefore, the aim of the project was to design four new temporary hazardous waste storage facilities that will comply with all applicable environmental legalisation.

2. Supporting Clauses

2.1 Scope

This document covers the minimum construction technical specification relating to the construction of four temporary hazardous waste storage facilities within Kriel Power Station. Construction of the storage facilities are to be undertake by the appointed *Contractor*. The scope of works includes the following:

i. Site establishment
ii. Fencing and barricading of Working Area
iii. Site clearance of the Working Area
iv. Excavation & backfilling
v. Erecting and stripping of formwork
vi. Reinforcing of concrete
vii. Structural steel members for structure
viii. Construction of drainage system

2.1.1 Purpose

The purpose of this document is to outline the minimum construction specifications required for the appointed *Contractor* to execute the project.

2.1.2 Applicability

This document is applicable to Group Technology Plant Engineering, Kriel Power Station, Civil and Structural Department, and all other stakeholders responsible for planning and executing project.

2.2 NORMATIVE / INFORMATIVE References

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

2.2.1 Normative

The following reports/documents must be read in conjunction with this detail design report.

[1] ISO 9001 Quality Management Systems

[2] National Environmental Management Act (NEMA) 107 of 1998

[3] Construction Regulations, 2014

[4] 32-727 - Eskom Safety, Health, Environment and Quality (SHEQ) Policy

[5] Occupational Health and Safety Act No. 85 of 1993

[6] 377-KRL-AABB-D00139-19: Concept Design Report for Kriel Power Station – Temporary Hazardous Waste Storage Facility

[7] 377-KRL-AABZ4-AS0000-2: Fire Protection Assessment Kriel Power Station – Temporary Hazardous Waste Storage Facilities

[8] 377-KRL-BBBB-D00139-12: Detail Design Report for Temporary Hazardous Waste Storage Facility at Kriel Power Station -

[9] 10052018: Geotechnical Investigation for Kriel Hazardous Waste Storage Facilities - Planned Positions of Trial Pit Excavation

[10] 28012019: Geotechnical Investigation Report for Kriel Hazardous Waste Storage Facilities

[11] 474-11106: Kriel Power Station Hazardous Waste Handling Investigation Report

[12] 32-245: Eskom Waste Management Standard

2.2.2 Informative

The following reports/documents are for information purposes only and not requires to be read in conjunction to the detail design report.

[13] 240-53113685: Design Review Procedure

[14] 474-58 (Rev1): Document and Records Management

[15] 240-53114002 Engineering Change Management Procedure

[16] National Environmental Management Waste Act, Act 59 of 2008: Norms and Standards for Storage of Waste No 926 of 29 November 2013

[17] Eskom Kriel Power Station – Environmental Legal Compliance Audit Report

[18] Occupational Health and Safety Act, 1993

2.3 Definitions

2.3.1 Disclosure Classification

Controlled Disclosure: **Controlled Disclosure to external parties (either enforced by law, or discretionary).**

2.4 Abbreviations

Abbreviation	Description
BOQ	Bill of Quantity
CoE	Centre of Excellence
ECSA	Engineering Council of South Africa
ERA	Engineering Risk Assessment
ID	Inside Diameter
ITP	Inspection Test Plan
NCR	Non-conformance Report
NOD	Notice of Defect
QCP	Quality Control Plan

2.5 Roles and responsibility

Roles and responsibilities shall be as per the *Employer's* Design Review Procedure [13].

Eskom Engineering:

The *Employer* will play the role of the design authority ensuring the following:

- The design satisfies the design requirements;
- All relevant Eskom design standards, procedures and guidelines have been adhered to;
- The design is suitable and correct (calculations, philosophy, functionality, etc.);
- The design is integrated by identifying all interfaces with other packages/plant systems/assets and ensuring that these interfaces are catered for.

Contractor:

The Contractor will be responsible for the following:

- Construction of all works as defined in the works information.
- Complying with all regulations and standards.

Design Review Committee

Establish agreed acquisition requirements baseline by:

- Verifying whether Works Information/Employers Requirements comply with previously set baseline.
- Verifying those deviations from previously set baseline were identified and managed by means of formal Engineering Change Management.

- Reviewing complete scope of supply/services/extent of work.
- Reviewing all requirements (such as system operating philosophies, performance requirements, and all particular system requirements).
- Reviewing the applicability of all specified codes, standards and procedures (internal and external).
- Reviewing technical schedules.
- Reviewing technical tender returnable.
- Reviewing referenced drawings in Works Information/Employers Requirements.
- Reviewing Bill of Quantities (BOQ) as applicable.
- Reviewing tender technical evaluation strategy.
- Reviewing all detailed system/package boundaries and interfaces.
- Reviewing the technical contents of the contract strategy

2.6 Related/supporting documents

Refer to section 2.2 for all supporting documents related to the project.

2.7 Process for monitoring

The process will be monitored via the Engineering Change Management process [15]. This process will allow relevant stakeholders and management to be informed of all decisions made in the design phase by the relevant system engineer. The maintenance actions of the new structures and systems will be added to the relevant Plant Maintenance Strategies

3. Description of the *works*

3.1 Employer's objectives and purpose of the works

During normal operations of the station, various types of hazardous wastes are generated. Such wastes produced are waste oil, oil contaminated waste, sewage sludge, asbestos and sulphur. The facilities in which these hazardous wastes are temporarily stored do not comply with the requirements stipulated in the National Environmental Management: Waste Act, 2008 (Act No 59 of 2008). In addition, these facilities pose a threat to the environment and/or health of the employees entering the power station. Therefore, the aim of the project was to design four new temporary hazardous waste storage facilities that will comply with all applicable environmental legalisation.

4. Management and start-up

4.1 Management meetings

Meetings will be held every week between the *Project Manager*, the *Contractor* and/or any person instructed by the *Project Manager* to attend. The *Contractor* is represented at each meeting by at least the Site Manager for the *Contractor*. It is noted that representatives of the *Contractor* and/or *Employer* attending the meetings must have the authority to make decisions and execute the decisions. Additional ad hoc meetings may also be scheduled by either the *Project Manager* and/or *Contractor* for urgent issues that may need to be addressed.

The *Project Manager* will, as and when necessary, require the *Contractor* to attend meetings with other *Contractors* on the Project. This requirement does not constitute a compensation event.
The venue for meetings is as determined by the *Project Manager*. The *Project Manager* writes the minutes of meetings and circulates to attendees, for comments and acceptance, within ten working days. Any actions from either the *Project Manager* and/or the *Contractor* implied in the minutes of meetings are to be confirmed by a separate formal communications (i.e. formal transmittal) between the *Project Manager* and the *Contractor*.
All meetings are recorded using minutes and attendance registers prepared and circulated by the person who convened the meeting.
During the weekly meetings, the *Contractor* reports the overall progress and the following as a minimum requirement:

i. *Contractor's* current activity progress and planned finish dated
ii. *Contractor's* planned start and finish dates for the works
iii. Discussion on the *Contractor's* programme
iv. Health, safety and quality issues
v. The progress of any other relevant activities
vi. Discussion on any technical and commercial issues
vii. Problem areas or concerns

4.2 Documentation Control

All documents and records management are performed according to Technical Document and Record Management Work Instruction (240-76992014). The *Employer* ensures that the *Contractor* is provided with the latest revision. Any uncertainty regarding the work instruction should be clarified with the *Employer* and clarification updates should be reflected in updated versions of the work instruction.
All documents, correspondence, certificates and all wording on drawings are to be in English. The *Employer* will not undertake any translation, and any errors or misunderstandings made by the *Contractor,* or his sub-contractor and their agents and officers shall be deemed to be the responsibility of the *Contractor*.
Transmittal letters are provided with each document submittal. The transmittal letter must include the Contractor's drawing number, revision number, and title for each drawing attached. Each drawing title must be unique and must be descriptive of the specific drawing content. In addition, the Contractor is provided with the following standards which must be adhered to:

- Documentation Management Review and Handover Procedure for Gx Coal Projects (240-66920003)
- Project Document Deliverable Requirement Specification (240-65459834).
- Technical Document and Record Management Work Instruction (240-76992014).

4.2.1 Change Management

Design change management is performed in accordance to the latest revision of the Eskom Project Change Management Procedure (240-53114026) and the *Employer* ensures that the *Contractor* is provided with latest revisions of the procedure. Any uncertainty regarding this procedure should be clarified with the *Employer* and clarification updates are reflected in updated versions of this procedure.

4.2.2 AKZ Classification System

4.2.2.1 Plant Codification

The AKZ Keypart is used by the *Contractor* for classifying and designating both plant and their associated documents. The rules for applying the AKZ codes are contained in the AKZ Standards that is to be provided by the *Employer*. The Contractor uses the Kriel AKZ Coding Manual (ECM0005) which will be advised after Signing of the Contract Agreement.

Codification of plant and equipment is generated by the *Employer*; the *Contractor* submits a request for coding of instruments and equipment to the *Project Manager*. Labelling of all equipment and documentation supplied as part of *works* is the responsibility of the *Contractor*
The *Contractor* makes use of the relevant codification standard provided by the *Employer*. Unless otherwise stated, the codification is limited to the lowest component level of coding and applies to all systems included in the *works*.
English descriptions are provided for all labelling. Abbreviations to description on labels are generally not acceptable. Where abbreviation is unavoidable due to the limited number of character that can be engraved on labels abbreviations are in accordance with the with the *Employer's* abbreviation standard. Plant coding is done according to the following standards:

- 4011 - Plant Labelling & Coding Procedure
- 240-109607332 - Eskom plant Labelling Abbreviation Standard

The *Contractor* is responsible for ensuring the accuracy, completeness and consistency of the designations in all documents. This applies both to designations within documents (Plant designations) and of documents (document designations). The *Contractor* submits these for the *Employer's* acceptance.
The *Contractor* provides the *Employer* with outline drawings or diagrams showing the *Contractor's* reference coding for materials as per schedule of submittals.

4.2.2.2 Plant Labelling

The *Contractor* manufactures and installs labels according to the Kriel AKZ Plant Labelling Guideline (ECM0005) that will be provided. Detailed nameplate or label lists with the service legends, including the AKZ code are prepared by the *Contractor*, are to be submitted to the *Employer* for review and comment before commencing with the manufacturing of labels.

4.3 Environmental constraints and management

The *Contractor* ensures that all goods, services or works supplied in terms of the Contract comply with all applicable environmental legislations. The *Contractor* is responsible for keeping the work area clean of any environmental waste. All waste introduced and/or produced on the *Employer's* premises by the *Contractor* for this Contract, is handled in accordance with the National Environmental Management: Waste Act 59 of 2008, Waste Management and Classification Regulations, National Norms and Standards for Waste Disposal to Landfill as proclaimed by the Department of Environment, Forestry and Fisheries; as well as the Employer's environmental requirements (Waste Management Standard [32-245] and Kriel Power Station's Waste Management Procedure [RER-0221].
All environmental incidents must be reported to the *Project Manager* within 24 hours of such occurrences. All environmental incidents occurring on the Project Site and/or on the *Employer's* property must be recorded detailing how each incident was dealt with in an Environmental Incident register.

4.4 Quality Assurance requirements

4.4.1 General

The *Contractor* complies with the *Employer's* quality and technical requirement as included in this works information

4.4.2 Quality Management Documents Requirements

The *Contractor* is required to compile and submit to the *Project Manager* all QCPs and ITPs for review and acceptance. The *Contractor* submits to the *Project Manager* with a detailed contract organogram showing the quality personnel to be used in the *contract*.

The *Contractor* submits as a minimum the following documents, as required by the *Project Manager*, which requirements does not constitute a compensation event, during the execution of the works:

- Updated QCP register including the *Client's* Intervention points.
- Inspection notifications accompanied by their inspection report.
- Non-conformance and Defect registers and reports.
- Updated site inspection schedules.
- Inspection and test reports
- Monthly contract quality progress report
- Data books for the completed *works*.

4.4.3 Quality Responsibility

The *Contractor* is accountable for the quality of the output and liable for any failures. The *Contractor* is responsible for defining the level of intervention of QA/QC or inspections. Such intervention points are to be in line with the *Employer's* requirements.
The *Contractor* is responsible for defining the level of intervention of QA/QC or inspections to be imposed on all Sub-Contractor's, suppliers and sub-suppliers and must ensure that these are in line with the *Employer's* requirements.
The intervention requirements take into consideration the criticality of the *plant* and *materials*. The interventions points include all witness, hold, verification, review and approval points required by the *Employer*. Failure by the *Contractor* to allow for such intervention points will constitute a non-conformance.

4.4.4 Inspections

The *Contractor* is required to conduct sufficient inspections and tests to satisfy himself that all requirements of the Works Information are being met and the results of inspections and tests shall be submitted to the *Project Manager* in accordance with the *Contractor's* Quality Management System (i.e. accepted QCP/ITP).
The *Employer* only verifies that the *works* is conducted as per the *contract*.
Where the *Contractor's* or *Employer's* inspections and/or tests reveal that the requirements of the Works Information have not been attained, the *Contractor* is required, at his expense, to rectify the work to the extent that it does conform with the Works Information.
The *Contractor* drafts a QCP or ITP which shows each activity from the Works Information and submits to the *Project Manager* for acceptance. The *Contractor* provides suitably qualified personnel to conduct onsite inspections.
The *Contractor* ensures that all *works* are inspected and approved before the *Employer* is invited for verification/inspection.
The *Contractor* provides a minimum of 2 working days' notice when inviting the *Employer* to verify/inspect the *works*. The notice to the *Employer* is to contain as a minimum the type of inspection to be conducted, structure/component to be inspected and all relevant QC report and/or documents to be filled/completed.
Damages as a result of the *Contract's* failure to comply with the inspection notice period as specified in the above paragraph will be borne by the *Contractor* and no compensation events will arise out of this.

4.4.5 Non-Conformance and Defects

Where NCR's and defects notifications are issued, the *Contractor* acknowledges receipt within 48 hours and proposes corrective and preventive actions to the *Project Manager* as per the *contract* response period. The corrective and preventive actions will include the implementation and completion dates. Progress on all NCR's and defect notifications issued to the *Contractor* must be report the *Project Manager* on a weekly basis.
The *Contractor's* quality manager keeps a register of all NCR's and defect notifications issued. Deviations from the *contract* are treated as a non-conformance. Records of NCRs and Defect Notifications are kept and form part of the data book records.

4.4.6 Quality Reporting

The *Contractor* submits a monthly quality report, on the last working day of the month, to the *Project Manager*. The report includes but not limited to the following:

i. A register of NCRs and defects
ii. Updated QCP/ITP register
iii. QA monthly report summary
iv. Planned and completed local inspection dates
v. Completed and outstanding inspections
vi. Principal material orders and stocks on site
vii. *Contractor's* equipment, plant and temporary works on the site or due to be delivered to or removed from the site.

4.4.7 Preservation and transportation Requirements

The *Contractor* is responsible for ensuring that all products are preserved in their appropriate manner as described in their specifications or in Eskom's Preservation, Shipping and Transportation procedures as applicable. The *Employer* may choose to witness the packaging, loading and offloading of the products depending on their criticality, this will be indicated in the intervention points on the QCP/ITP documents. The *Contractor* also ensures that all storage requirements for products are properly implemented to preserve the products against adverse conditions, deterioration, damage, etc. Storage and preservation procedures for the different products must be submitted to the *Project Manager* for review and acceptance. The *Employer* may request to inspect the stored products at any given point during the storage period of the product.

4.5 Programming constraints

4.5.1 Methods and Procedures

4.5.1.1 General

Construction methods must be of such a nature that no person, property or improvements in the vicinity of the works is endangered. The *Employer* accepts no responsibility for any *works* executed without written permission outside the site of *works*.

4.5.1.2 Method Statement

The *Contractor* submits a detailed Construction Method Statements for each activity of his work, together with activity durations, to the *Project Manager* for review and acceptance prior to starting any work. As a minimum, the following requirements are to be included in the method statement:

i. The scope of the particular Method Statement
ii. Activity:

The Contractor illustrates the description of the major activities as of the construction programme.

iii. Quantity:

The method statement shows the quantity of that particular activity taken from the Bill of Quantities with its unit of measurement which is directly influenced by the method to be used.

iv. Method

The Method Statement provides a short but complete description of how the activity will be executed and highlighting the risks associated with the method to be used.

v. Sequence

The Method Statement shows the sequence of the activities that will be required to perform a particular task taking into consideration access restrictions and safety requirements.

vi. Resource

All necessary plant, equipment and labour required to complete a particular activity must be indicated. The Method Statement is to include a clear description of the responsibilities of the *Contractor's* personnel involved in the activity, including (where applicable) his Project Manager, Site Quality Manager, Site Engineer, Health and Safety Manager, Technical Office Manager, Production Manager, Supervisor, Environmental Officer and other personnel required for the activity work

vii. Duration

The duration of the activity will be indicated in the Method Statement.

viii. Quality control points as accepted by the *Project Manager*

ix. Temporary works to be used including *Project Manager's* acceptance where such is supported off existing structures

x. Rigging studies and design calculations where applicable

xi. Manufacturer's literature/ Technical Data Sheets for all materials used including product description, composition, material and performance properties, installation and application procedures, use limitations and recommendations

xii. Plan for confining, collecting and disposing of broken concrete and other waste materials as a result of removal operations, where applicable

xiii. Works required to safeguard existing infrastructure and services

xiv. Risk assessments associated with shutdown of plant/ equipment were deemed necessary, in order to execute the works

All work Method Statements include the name and qualification of the personnel working in the specified activity in conjunction with the requirements as set out in Supplier Quality Management Specification (240-105658000).

5. Engineering and the contractor's design

5.1 *Employer's* design

5.1.1 Civil and Structural

The Employer provides a detail design package for the construction of the Civil and Structural *works* to be executed, excluding the detailed construction drawings for the perimeter fencing and access gate for the Asbestos Storage Facility and Sulphur Storage Facility.

The *Employer* will supply the *Contractor* with construction drawings in addition to the *Works Information* in order for him to execute the project as per specifications. The design package will include:

i. Detail architecture specifications in the form of construction drawings.
ii. Site layout drawings.
iii. Detailed structural steel layouts and specifications in the form of construction drawings.
iv. Detailed concrete layouts and specifications in the form of construction drawings
v. Detailed reinforcement drawings
vi. Bending schedules
vii. Detailed access road layouts and specifications in the form of construction drawings.
viii. General fencing arrangement and gate details (Note, these drawings are for information purpose).

Where applicable, information that is not supplied by the *Employer*, it is the responsibility of the *Contractor* to propose a solution. The *Contractor* informs the *Project Manager* of such an event and awaits for instructions before proceeding.

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

The *Contractor* is responsible for the supply and design of the below mentioned *works*. The design and/or construction drawings must be submitted to the *Project Manager* in advance in order for the *Employer* to review and accept. A method statement, clearly defining the execution of the *works*, must be submitted to the *Project Manager* for approval as part of the design package.

5.2.1 Responsibility for Design

i. The *Contractor* takes full professional accountability and liability for all designs done by the *Contractor*.
ii. The *Contractor* is responsible for the design of all temporary *works* required for the execution of the project.
iii. The *Contractor* takes full professional accountability and liability for all designs of all temporary *works* required for execution of the project.
iv. All designs, design reports and construction drawings prepared by the *Contractor* are signed off by an ECSA Professionally registered Technologist and/or Engineer who takes full professional accountability for the designs.
v. The *Contractor* is mandated in terms of Construction Regulations 2014: Duties of Designer, 6(1) g to fulfil the duties described therein for the detailed designs done by the Contractor. Any risk associated with the *Contractor's* design is highlighted to the *Employer* together with mitigation measures.
vi. The *Contractor's* design is required to be in accordance with all National Standards and Specifications referenced in this *Works Information* as well as the *Employer's* Standards referenced in Appendix A. Specifications referenced within referenced documents are also adhered to as indicated in Section 2.2.

5.2.2 Civil and Structural

i. The *Contractor* is responsible for the design, supply and erection of all temporary works required for the project.
ii. The *Contractor* is responsible for the design and shop detail drawings of any outstanding items not supplied by the *Employer*. The *Contractor* must inform the *Project Manager* of such items and await instruction on how to proceed as per *Project Manager's* recommendation.
iii. The *Contractor* is responsible for the design, supply and installation of the perimeter fence and access gate to be installed at the Asbestos Storage Facility and Sulphur Storage Facility. The *Employer* has supplied general arrangement details and design requirements, in the form of drawings, for the perimeter fence and access gate. Such drawings can be found in Table 1. The *Contractor* notes that such drawings are for information purpose only.
iv. The *Contractor* submits the final design, method statement and detailed construction drawings of the perimeter fence and access gate to the *Project Manager* for acceptance prior to construction and/or installation.
v. The *Employer* has conducted a geotechnical investigation of the site. The *Project Manager* issues the Geotechnical Investigation Report to the *Contractor* for information. The *Contractor* is required to conduct any additional geotechnical investigations required for his design should the existing geotechnical information be inadequate for the design.

5.2.3 Fire Protection

i. The Contractor is required to supply and install a total of five 9kg (or 2 x 45kg) Dry Chemical Powder (DCP) fire extinguishers that will be positioned at the entrance of the following facilities:
    - Two DCP fire extinguishers to be installed at the Waste Oil Storage Facility
    - Three DCP fire extinguishers to be installed at the Oil Contaminated Waste Storage Facility.
ii. Dry Chemical Powder (DCP) fire extinguishers to be located outdoors must be housed in a weatherproof cabinets with their operating instructions facing outwards. The units must be positioned

in such a way as to allow easy removal. The use of fiberglass cabinets is recommended as experience has shown that these cabinets weather far better than their metal counterparts.

iii. The *Contractor* is required to submit the design and drawings to the *Project Manager* for review and acceptance.

5.2.4 Signage

i. The *Contractor* is required to provide applicable signage's for the following system:
   - Fire Protection system
   - Access control system

ii. The Contractor provides all signs in accordance with SANS 1186.

5.3 Other requirements of the *Contractor*'s design

5.3.1 General

The *Contractor* provides all system, equipment, materials and services required to execute all *works* necessary to fulfil all requirements specified in the *Works Information*. The *works* complies with professional practice and standards for fossil fuel power systems and are designed for the environmental conditions prevailing at Kriel Power Station.
The *Contractor* liaises with the *Project Manager* and *Others* to ensure the successful completion of the *contract* requirements.
The Works Information includes the provision of the following:

i. AKZ labels (*Employer* provides the AKZ codes)
ii. Cost control and progress reporting
iii. Quantity surveying documentation
iv. Quality assurance
v. Quality control
vi. Acceptance testing and handling over to the *Employer*
vii. Documentation

Where an alternative design is initiated by the *Contractor*, the *Contractor* is responsible for timely obtaining any required design criteria from the *Project Manager* as necessary and for the submissions of full design proposals and cost implication for the *Project Manager's* consideration.

5.4 Equipment required to be included in the *works*

i. The Contractor is required to provide lifting facilities (hoist/crane) and all other equipment required for the execution of the complete works.

5.5 drawings, operating manuals and maintenance schedules

5.5.1 Construction Drawings issued by *Employer*

Immediately upon receipt of the *Employer's* design drawings, the *Contractor* satisfies himself that the drawings contain all the information required for the preparation of his own shop drawings and supporting calculations, together with any other necessary details. The *Contractor* submits these drawings to the *Project Manager* for acceptance.

5.5.2 Fabrication and Erection Drawings

The *Contractor* develops fabrication (shop drawings) and erection drawings for all civil and structural components of the Works to be issued for construction, together with mark-ups of the as-built condition of the Plant.
The *Contractor's* drawings and supporting calculations are submitted to the *Employer* prior to commencement of fabrication. Before the commencement of fabrication, the *Contractor* obtains acceptance, from the *Project Manager*, for the shop details in writing. The acceptance given by the *Project Manager* does not absolve the *Contractor* from the liability and responsibility for the accuracy of the drawings. Any detail design drawings, manufacturing or fabrication drawings are supplied to the *Project Manager* by the *Contractor*.
The *Employer's* border frame will be provided to the *Contractor*. The *Contractor* uses this border frame for all drawings and the *Contractor* might insert their own title block also on the frame. In the event of additional drawings created by the *Contractor*, the *Employer* will issue drawing numbers to such drawings. The *Contractor* is responsible for requesting drawing numbers from the *Project Manager.* The tile block of the Contractor must at least contain the following: Contractor drawing number, Contractor drawing description, Contractor drawing revision, Contractor draft person signature and date, Contractor's drawing verifier signature and date and Contractor's drawing approver signature and data.

5.5.3 Operating Manuals and Maintenance schedules

All operating manuals and maintenance schedules, where and if applicable to any civil and structural related objects, must be submitted to the *Project Manager.*
The operation and maintenance manuals are to consist of the following as a minimum:

i. List of Contents (Index)
ii. Introduction
iii. General description of the functions of each of the systems including detailed description of each element of each system, how it functions, how it operates and how to maintain it and what attic stock or tools to carry.
iv. Full as-built drawings and detailed drawings, brochures and catalogues for each system and each element of each system.
v. The format of the O & M documentation is to be A4 and are to be a specially bound document with hard cover and with metal ring binding. (All drawings and details are to be reduced to A3 format and folded into A4 format.)
vi. The names, addresses and telephone/fax numbers/email addresses of all responsible persons and manufacturers/suppliers are to be listed in the O& M document.
vii. A full list with reference numbers are to be included to enable the O&M staff to order materials and equipment.
viii. Colour diagrams are be provided to illustrate the operation and function of each system with reference to the relevant as-built drawings or brochures of equipment. These diagrammatic drawings are to also indicate the locations of valves with their numbers.

6. Procurement

6.1 Plant and Materials

6.1.1 Quality

i. Only components of high reliability will be utilised, with a proven operating history, to enable the Plant to achieve required reliability and availability. Plant and Material design, engineering and manufacture will accord with the best modern practice applicable to high-grade products of the type to be furnished,

so as to ensure the efficiency and reliability of the *works* and the strength and suitability of the various parts for the *works*.

ii. Plant and Materials withstands ambient conditions and the variations of temperature arising under working conditions without distortion, deterioration or undue strains in any part.

iii. All parts are made accurately, and where practicable, to standard gauges so as to facilitate replacement and repairs. Like parts are interchangeable.

iv. No repair of defective Plant and/or Materials will be permitted without the *Project Manager*'s acceptance and any such repair, if accepted, will be carried out to the satisfaction of the *Employer*.

v. The *Contractor* is require to produce the Quality Control Plans (QCP) for the project which indicates the level of product quality control to be applied. The QCPs to be developed will comply with the Eskom Quality Standard (QM 58).

vi. The Contractor is to submit the QCP for review to the *Project Manager*.

vii. The *Project Manager* is free to specify holding and witness points during the installation and on site testing stages of the project. The *Contractor* issues preliminary notification of such holding and witness points by fifteen working days advance notice to the *Project Manager*, and confirms such holding and witness points at least seven working days prior to the activity.

viii. Typical hold points are listed below:
- Design Review
- Factory Acceptance Test
- Delivery to Site
- Erection
- Site Acceptance Test
- All manuals and drawings (in the specified format)
- Commissioning

ix. In addition to maintaining appropriate inspection and test records to substantiate conformance to requirements, the following records are safely stored for a minimum period of seven years following the final completion of the Works:
- Construction, layout and component approvals
- Type and routine test certificates
- Construction drawings and approvals

x. After this period, the *Contractor* offers these records to the *Employer* (in writing) and obtains a disposal instruction.

xi. All *work* is to be done in accordance with the quality management system of Kriel Power Station as set out in the quality manual, in addition to the ISO 9001:2015 quality management system. High quality standards are also assured by conforming to the following:
- The use of sound design and engineering principles
- The design process uses a good performance and functional specification
- All installations conforms to the Works Information
- Design Review Procedure is followed
- Engineering Change Procedure
- QA/QC on the project (manufacturing, installation)

6.1.2 *Contractor's* Procurement of Plant and Materials

The Contractor takes all necessary steps to ensure that all Plant and Materials are adequately protected against damage during transport and storage.

6.2 Test and inspections before delivery

i. The *Employer* carries out quality inspections at own discretion. The *Employer* will inspect and accept stages of manufacture of all equipment necessary to ensure the correct quality of equipment as prescribed in the accepted project quality plan.

ii. All inspections and testing to be performed in accordance with the Quality Control Procedure (QCP) developed by the *Contractor* after acceptance by the *Project Manager*.
iii. The *Contractor* must provide facilities for inspection of all items of equipment at the place of the manufacture and this requirement must extend to all Subcontractors and suppliers. All material labour or assistance, tools, gauges, articles or apparatus that the *Employer* may require for the purpose of testing, gauging and inspection, must be provided by the *Contractor*. The *Contractor* provides all such facilities for testing and the contract price must include for this.
iv. The *Employer* reserves the right to reject items that do not conform to the requirements of the Works Information. When the plant has passed the test referred to in this Works Information, the *Employer* will furnish to the *Contractor* a certificate or endorse the *Contractor's* test certificate to that effect. Examination by the *Employer* are to not relieve the *Contractor* from the responsibility of carrying out all tests which may be necessary to ensure the required standard of manufacture or from any obligations in terms of the contract.
v. The achievement of adequate standards during the tests at the place of manufacture, if performed, is only the first requirement. The final criterion will be performance onsite, and any of the requirement which proves defective due to bad workmanship or material must be replaced forthwith by the *Contractor* at his own cost on the instruction of the *Employer*.
vi. The following tests are conducted by the *Contractor* and are to be witnessed by the *Employer* at the manufacturer's works or *Contractor's* premises as a minimum requirement:
    - Visual inspection of the equipment
    - Review of the certification requirements
    - Functional tests of the systems
    - Inspection of paint work and corrosion protection.
    - Verification that all components are delivered to the *Contractor*'s premises.
    - Verification that components installed is correct.
    - Verification that all labels are correct.
    - Phase rotation

6.2.1 Test Certificates

i. One copy of all type-test certificates and results must be submitted to the *Project Manager* for approval to substantiate the details stated in the Works Information.
ii. Two copies of all routine-test certificates and results must be supplies/submitted to the *Project Manager*.

6.3 Marking Plant and Materials outside the working areas

All Plant and Materials paid for by the *Employer* must be clearly labelled as being the *Employer's* property

6.4 *Contractor's* Equipment (including temporary *works*)

The *Contractor* provides all permanent and temporary plant, materials and equipment required in order to complete the *works*. The *Contractor* supplies, installs, maintains and removes all temporary construction facilities and utilities necessary to provide the *works*.

7. Construction

7.1 Temporary works, site services & construction constraints

7.1.1 Employer's Site Entry and Security Control, Permits and Site Regulations

Access to the site will be via the main security gate only. The *Employer* informs the *Contractor* of the access procedures and the *Contractor* should expect that such procedures might change depending on the prevailing security situation. The *Contractor* should recognise and allow that the *Contractor's* price and programme is fully inclusive of delays that could be experienced as a result of the following or any other delay related to site access and departure which may include the following:

i. Delays at the security gate
ii. All *Contractor's* personnel will be required to attend a compulsory 1 day safety and induction briefing before access is granted to the site
iii. The *Employer* reserves the right for its Security personnel to search persons or vehicles entering or leaving the premises. This includes briefcases, laptops and toolboxes.

The *Contractor* makes his own assessment of, and allow in his rates for those access problems that may be encountered. No extra payment or claim of any kind is allowed on account of difficulties of access to the *works*, or for the requirement of working adjacent to or in the same area as the *Employer.*
Access to the site is controlled and is governed by the terms and conditions lay down by the Power Station security officials. The Proposed site is shown to the *Contractor* during the site meeting or clarification meeting.
The *Contractor* liaises with the Power Station security staff in order to obtain temporary permits for his staff and vehicles which will be working within the station. The *Contractor* submits his application for vehicle permit to the *Project Manager.* The personnel and vehicles entering and leaving the site are subjected to routine searched and alcohol tests. The *Contractor* ensures that all its employees carry their access cards at all times.
The *Contractor* obtains "Gate Permit" from the *Project Manager* before materials and equipment can be removed from site. "Gate Permits" gives itemised list of materials and equipment to be removed from site.

7.1.2 Restrictions to access on Site, Roads, Walkways and Barricades

The *Contractor* is expected to adhere to all the road markings and road signs within the station, including the adherence of Eskom's Life Saving Rules. All passengers are to be in position of their access permits for access at the main gate every day that the *Contractor* will be on site (i.e. Power Station).
It is important to note that all signs and barricades that are within the Power Station must be adhered to by all employees of the *Contractor*. All necessary Personal Protective Equipment (PPE) are to be worn by all employees of the *Contractor* when working in specific areas. All moving equipment such as mobile cranes and tower cranes are to obtain permits to work on a specific area before they are used by the *Contractor* and all inspections are done prior entering the Power Station.

7.1.3 Title to Materials from Demolition and Excavation

The *Contractor* has not title to any materials from the demolition and excavation required for the *works*.

7.1.4 Equipment provided by the *Employer*

No equipment will be provided by the *Employer* for the execution of the *works*.

7.1.5 Survey Control and Setting out of the *works*

7.1.5.1 General

The *Contractor* is required to perform all setting out and check surveying of the *works* in accordance with methods accepted by the *Project Manager* before work commences. The method and programme of checking is to be such as to ensure the construction of every part of the *works* to the correct line and level, subjected to the tolerances specified. The *Project Manager* may at any time request the *Contractor* to submit proof that the setting out has been satisfactorily checked.
The number of points required for setting out as well as the spacing between these points is to be determined by the *Contractor* together with the *Project Manager* in accordance with the type of work. Where this is not possible for any reason, the *Contractor* is to inform the *Project Manager* in writing and an alternative position will be agreed with the *Contractor* and confirmed in writing. In addition to any co-ordinated points and datum levels that the *Contractor* establishes for his own use, the *Project Manager* may require that certain or all of these tags can be retained after completion of the construction.
The *Contractor* is required to install sufficient sight rails, batter boards, pegs level markers or other survey points to accurately control construction of the *works.*

7.1.5.2 Site Survey

The *Contractor* carries out a comprehensive site survey and verifies coordinates, elevations and dimensions with those shown on the *Employer's* drawings, a month prior to the commencement of any construction works. The *Contractor* submits this site survey in the form of a report for acceptance by the *Project Manager*. This report highlights any discrepancies, errors or omissions found in the survey and/or construction drawings.

7.1.5.3 Preservation and Replacement of Beacons and Pegs subjected to the Land Survey

Immediately upon taking over the site, the *Contractor* must identify and mark all relevant cadastrial boundary pegs. After the completion of earthworks, the *Contractor* must, under the direction of the *Project Manager*, search for these pegs and compile a list of such pegs that are apparently in their correct positions. The C*ontractor* must certify this list for future reference.
In the case where cadastrial boundary pegs have already been placed, these pegs will be pointed out and handed over to the *Contractor* and he must take all precautions necessary to ensure that such pegs are not disturbed or destroyed. Any costs in connection with the replacement of pegs for which the *Contractor* is responsible will be recoverable from the *Contractor* by deduction from the monthly certificate of payment.
A land Surveyor must verify all cadastrial boundary pegs after the completion of all operations. All disturbed pegs must be replaced at the *Contractor's* expense.

7.1.6 Excavations and Associated Water Control

7.1.6.1 Dealing with Water

All water, whether from rain or subsurface water and/or infiltration must be dealt with in such a way as to ensure the safety of the *works*. It is required that adequate preventive measures are taken and maintained to ensure that the *works* are protected from damage due to water from any source.
The *Contractor* must design, construct and maintain all drains and other temporary works necessary for the dewatering and flood protection of the permanent *works*. All methods of dewatering and flood protection must be submitted to the *Project Manager* for acceptance.
In the event that the *Contractor* fails to protect the *works*, action must be taken immediately to protect the *works* from further damage. The cost of such activities must be carried by the *Contractor*. The damage caused by the water to the *works* must be made good by the *Contractor*.

The *Contractor* must be responsible for and must repair at his expense any damage to the foundations, structure or any part of the *works* caused by floods, water or failure of any part of the dewatering and flood protection works.
All temporary *works* must be removed, backfilled or levelled such that the operation of the *works* must not be affected in anyway.

7.1.6.2 Excavation

The *Contractor* is required to obtain an excavation permit, from the *Project Manager*, prior to the commencement of any form of excavation. No excavations are permitted without an excavation permit. The *Contractor* complies with the requirements of the Construction Regulations. Excavations are performed such that it imposes a minimum restriction on access to Site for Others.
The *Contractor* is required to take the necessary precautions to prevent the ingress of surface water runoff into all excavations and construction *works*. In addition, the *Contractor* takes all necessary steps to ensure that any water entering any surface excavation does not endanger and/or compromise the stability of the excavated side walls and/or that water entering such surface excavation does not erode any portion of the excavation.
The *Contractor* ensures that no concentration or accumulation of water occurs either within or around or above the area of any open excavation which may affect the safety of the excavation. Where possible, the *Contractor,* maintains excavations such that ponding of rainwater is prevented by suitably sloping surfaces and the construction of channels and sumps.
Where excavations are not self-draining, the *Contractor* constructs sumps and installs pumps of adequate capacity to keep the water level in such sumps 0.5 m below the lowest excavated surfaces for as long as required for construction of the *works*. Diesel powered standby pumps are to be readily available in the event of breakdowns.
The *Contractor* is responsible for the safety and care of all excavations by taking the following into consideration:

i. The *Contractor* excavates the sides of the excavations which are not positively supported to slopes which will remain stable
ii. The sides of excavations which are not cut to a stable slope are properly and adequately supported to the extent necessary to ensure stability during the period of construction and the excavation is then backfilled unless otherwise indicated on the Drawings;
iii. The *Contractor* is responsible for the installation and subsequent removal of all necessary sheeting, timbering, strutting, shoring and the like to secure the excavations, to prevent any movement of adjacent ground and to ensure the safety of workmen and freedom from damage to adjacent structures.

7.1.6.3 Protection of Structures

All peripheral damage caused by any excavation, backfilling or reinstatement operations must be repaired by the *Contractor* and all surfaces affected by the *works* must be properly cleaned on completion of the *works*.
All waste must be removed from site or placed in the waste disposal areas as indicated by the *Project Manager*.
Where other features, such as pipes, drainage channels, etc. are affected, they must be reinstated such that they function properly and to the satisfaction of the *Project Manager*.

7.1.7 Underground Services, Other Existing Services, Cable and Pipe Trenches and Covers

7.1.7.1 Location of Underground Infrastructure

The *employer has* conducted an underground survey to determine the presence of any underground services (e.g. location of pipes, cables, etc.) which may be within the proposed location of the facilities. The *Employer* will issue the results of the survey and report to the *Contractor* for information purposes only.

i. The *Contractor* is required to identify the location of all underground services in all areas impacted by the *works*.
ii. The *Contractor* is required to excavate and expose all services impacted by the *works* prior to the finalising of the *Contractor's* detailed design to ensure no clashes with existing infrastructure during construction.

7.1.7.2 Protection of the Overhead and Underground Services

The *Contractor* is required to make provisions in protecting and maintaining any existing services for the duration of the contract. No payment will be made of this and all costs must be included in the tendered rates.
While the *Contractor* is in occupation of the site, the *Contractor* must be liable of all damages caused by the *Contractor* and/or by *Others*, to known services as well as for the consequential damage arising there from, whether caused directly by the *Contractor's* operations or by the lack of proper protection.

7.1.8 Constructability Analysis

The *Contractor* uses the *Employer's* standard: 240-107981296, *Constructability Assessment Guideline* to perform the constructability analysis.
The *Contractor* submits a Constructability Analysis Report based on the general Construction Method Statement to the *Project Manager*, for his review and acceptance. The submission of the report is submitted as part of the tender documents and clearly indicates how the *Tenderer* takes into account interfaces with Others, where applicable, together with the Site and time constraints and rigging studies. This report clearly illustrates how the construction would be completed within the allowable timeframes and highlights the risks of meeting this requirement. The *Contractor* is required to plan his activities to avoid the following interface risks and any other risks relevant to the *works:*
This report clearly illustrates the construction sequencing and durations for the completion of the *works* within the contract period. The *Contractor* submits a risk assessment as part of the general Construction Work Method Statement which is informed by the Constructability Analysis Report that advises on a proposed approach and methodology to mitigate risks described above and any other risks which may impede successful execution of the *works*.

7.1.9 Sequences of Construction or Installation

The Method Statement, developed by the *Contractor*, will detail the sequence of construction activities that will be required in executing the *works*. The *Employer* does not take over the *works* to allow access to *Other's*. Such activities will be the responsibility of the *Contractor*.

7.2 Inspections, Completion, testing, commissioning and correction of defects

7.2.1 Materials Facilities and Samples for Tests and Inspections

The *Contractor* provides all materials, facilities and/or samples required for tests and inspections. The *Employer* reserves the right to call for samples of equipment offered to inspect the workmanship as the work proceeds and either accept or reject the equipment or workmanship. The *Employer's* approval of the design,

material and workmanship are to in no way reduce the *Contractor's* liability to provide a complete and proper working plant which is abreast with modern technology.
The *Contractor* must allow for control samples of the following which are to be accepted by the *Employer* and are to be held in the site office to establish the quality standards:

i. Control sample of piping to establish the pipework quality standard
ii. Control sample of welded, and bolted to establish the structural connection quality standard

7.3 Construction Programme/schedule

The *Contractor* is required to submit a Level 3 construction programme/schedule, including all phases of the *works*, for review and acceptance by the *Project Manager*. The submission of the schedule is to be accompanied with a narrative which describes the basis of the programme and a list of assumptions that the programme was based on.

The programme/schedule is to clearly indicate the following:

i. Activities of all the project work to be done by the *Contractor* and the other work covered by the contract that is being done by the sub-contractors.
ii. Logical links, sequence, relationships and critical path that connect the various activities together (showing all hold points).
iii. The *works* is completed within accepted durations that are in consistence with key dates provided in the Contract Data. Milestone dates in line with Key Date/Contract Data shown on the schedule.
iv. Schedule Work Package Classifications (Deliverable-, Engineering-, Procurement-, Manufacturing-, Supply-, Construction- and Installation Work Packages).
v. The amount of shifts planned per day for each section of the *works*.
vi. The way in which the *Contractor* plans to interface with Others. Interface points with Others are identified in the programme.
vii. A comprehensive description of each activity, including the name and designation of the responsible person.
viii. Any erection and/or commissioning activities that may affect other maintenance and construction activities on Site.
ix. Sufficient information with regard to the activity duration and a description to enable measurement of the progress of the activity within the required update period.
x. Each description in the programme explains and represents the performance of the activity, including tangible deliverables or products;
xi. Single source of responsibility or ownership per activity.

7.4 outbreak of Epidemics

In the event of any outbreak of illness of a highly contagious or epidemic nature, the *Contractor* is required to comply with and carry out such regulations, orders and requirements as may be made by the relevant authorities and the *Employer*.

8. Plant and Materials standard and workmanship

8.1 civil engineering and structural *works*

During the construction of the *works* there are numerous standards and specifications to which the *Contractor* must adhere to. The documents listed below, including normative references within, are not bound in this document but are obtained by the *Contractor* at his own expense and must be adhered to during the implementation of the *works*.

All references to standard/codes/publications are to be the latest issue of each, together with the latest additions and/or amendments thereto, as of the date of contract, unless otherwise indicated. This list is not all-inclusive and does not relieve the Contractor from complying with all applicable codes.

SANS 1200 HA	**Standardized specification for civil engineering construction Section HA: Structural steelwork (sundry items)**
SANS 1200 HB	**Standardized specification for civil engineering construction Section HB: Cladding and sheeting**
SANS 1200 HC	**Standardized specification for civil engineering construction Section HC: Corrosion protection of structural steelwork**

The following specifications are required to be complied to:

List of Applicable Standards	
240-56364545	Structural Design and Engineering Standard
240-85549846	Standard for Design of Drainage and Sewerage Infrastructure
240-84418186	Road Specification Manual
SANS 10400	**The Application of the National Building Regulations**
SANS 2001-BE1	**Construction works Part BE1: Earthworks (general)**
SANS 2001-BS1	**Construction works Part BS1: Site clearance**
SANS 2001-CC1	**Construction works Part CC1: Concrete works (structural)**
SANS 2001-CC2	**Construction works Part CC2: Concrete works (minor works)**
SANS 2001-CM1	**Construction works Part CM1: Masonry walling**
SANS 2001-CM2	**Construction works Part CM2: Strip footings, pad footings and slab-on-the-ground foundations for masonry walling**
SANS 2001-CS1	**Construction works Part CS1: Structural steelwork**
SANS 2001-DP1	**Construction works Part DP1: Earthworks for buried pipelines and prefabricated culverts**
SANS 2001-DP5	**Construction works Part DP5: Stormwater drainage**
SANS 1200 A	**Standardized specification for civil engineering construction Section A: General**
SANS 1200 D	**Standardized specification for civil engineering construction Section D: Earthworks**
SANS 1200 DK	**Standardized specification for civil engineering construction Section DK: Gabions and pitching**

SANS 1200 M	**Standardized specification for civil engineering construction Section M: Roads (general)**
SANS 1200 ME	**Standardized specification for civil engineering construction Section ME: Subbase**
SANS 1200 MF	**Standardized specification for civil engineering construction Section MF: Base**
SANS 1200 MJ	**Standardized specification for civil engineering construction Section MJ: Segmented paving**
SANS 1200 MK	**Standardized specification for civil engineering construction Section MK: Kerbing and channelling**
SANS 10109-1	**Concrete floors Part 1: Bases to concrete floors**

8.1.1 Particular Specifications

8.1.1.1 General

The following codes are required to be complied to:

i. SANS 1200 A**: General**
ii. **SANS 1921-1:** Construction and management requirements for works contracts, Part 1: **General engineering and construction works**
iii. GN 926 National Environmental Management Waste Act, 2008 (Act No 59 of 2008) National Norms and Standards for the Storage of Waste (GN 926) will apply.

The table below indicates particular specifications pertaining to SANS 1200 A and must be read in conjunction with the code.

Clause	Particular Specification
5.1	**Survey**
5.1.1	**Add:** The *Contractor* is responsible for the complete surveying and setting out of the *works* including the establishment of any beacons and benchmarks required to complete the works. The *Contractor* is required to consult the Surveyor-General's office to obtain information on available registered beacons near Kriel Power Station to use for the establishment of any required benchmarks close to the *works*.
6.2	**Degrees Of Accuracy**
6.2 b)	Degree of accuracy II is applicable to the *works*.

8.1.1.2 Site Clearance

The following codes are required to be complied to:

i. **SANS 2001 BS1: Site Clearance**
ii. **SABS 2001 C: Site Clearance (Only Clause 8 – Measurement and Payment)**
iii. **240-57127953: Execution of Site Preparation and Earthworks**

The table below indicates particular specifications pertaining to SANS 2001-BS1 and must be read in conjunction with the code.

Clause	Particular Specification
4.1	**Areas to be cleared and grubbed**
4.1.1	The designated areas are also as shown on the Drawings.
4.2	**Clearing**
4.2.1	Activity numbers 1, 5, 6, 8, 9 and 10 will apply.
4.2.1	The reusable material comprises of topsoil and is to be stacked as specified below in clause 4.9
4.2.3	Use of masonry units is not permitted.
4.4	**Disposal of material**
4.4.1	Materials from clearing and grubbing operations are to be disposed of at a disposal site accepted by the *Project Manager*. Disposal certificates are required to be kept on record by the *Contractor*.
4.4.1	Combustible material is required to be disposed of as follows: • Cleared combustible material is to be taken to an accepted waste disposal site. • Disposal certificates are to be kept on record by the *Contractor*.
4.4.2	Tree trunks and cleared tree debris are to be taken to a waste disposal site accepted by the *Project Manager*
4.4.4	The material which is to be reused is to be stacked at a site proposed by the *Contractor* which is accepted by the *Project Manager*.
4.9	**Conservation of topsoil**
4.9	Topsoil together with grass and other suitable vegetation are to be removed and placed in stock piles not higher than 1.5m
Variations	
Cl 4.9	Add the following Topsoil stripping is to be scheduled for the dry season, as far as possible.
Cl 4.9	Add the following Topsoil is handled twice only - once to strip and stockpile, and secondly to replace, level, shape and scarify.
Cl 4.9	Add the following Topsoil stripped from different sites are stockpiled separately and clearly identified as such.
Cl 4.10	Add the following: Where protected plant species of medicinal value is identified prior to commencement of construction on the Site, representatives of the South African San Council, Griqua National Council and National Khoisan Council must be contacted to provide an opportunity to collect and remove (with the appropriate permits for medicinal use) plant species such as *Harpagophyum procumbens*.
Additional Clauses	
1	The size of areas subjected to land clearance are to be kept to a

Clause	Particular Specification
	minimum
2	All vegetation not required to be removed are to be protected against damage
3	No trees may be removed without prior permission in writing from the *Project Manager*

8.1.1.3 Earthworks

The following codes are required to be complied to:

i. **SANS 2001 BE1: Earthworks (General)**
ii. **SANS 1200 D: Earthworks (Only Clause 8 – Measurement and Payment)**
iii. **SANS 1921-5: Construction and management requirements for works contracts, Part 5: Earthworks activities which are to be performed by hand**

The table below indicates particular specifications pertaining to SANS 2001-BE1 and must be read in conjunction with the code.

Clause	Particular Specification
3.1	**Classification for Excavation Purposes**
3.1	This Sub-Clause is deleted and the following classifications of material applies: Hard Material Material which cannot be excavated except by drilling and blasting, or with the use of pneumatic tools or mechanical breakers and; boulders exceeding 0,1m^3 are to be classified as hard material. Where more than 40% of any material (by volume) consists of boulders each exceeding 0,1m^3 in size, the material is classified as hard material. Soft Material All material not classified as hard material is classified as soft material NOTE: Should the *Contractor* consider that any material to be excavated can only be removed by explosives, he is required to submit a written request to the *Project Manager* for his ruling. Failing such a request, the excavations are deemed to be in soft material. The decision of the *Project Manager* as to the classification of the material is final and binding and any objection to the classification is to be made in writing before the excavations have been backfilled.
4.1.5.1	Topsoil is conserved
4.2.2.1.3	Sides off excavations are not used as formwork

8.1.1.4 Concrete Works (Structural)

The following codes are required to be complied to:

i. **SANS 2001 CC1: Concrete Works (Structural)**

ii. SANS 1200 G: Concrete (Structural) (Only Clause 8 – Measurement and Payment)

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

Clause	Particular Specification
4.2	**Materials**
4.2.1	Cementitious binders
4.2.1.1	Cement is to comply with the relevant requirements of CEM1-42.5N, Ordinary Portland Cement in accordance with SANS 50197
4.2.3	Aggregates
4.2.3.1 (b)	The coarse aggregate nominal size is to be specified as follows: Cover to rebar < 25 mm – 13.2 mm diameter Cover to rebar >= 25 mm – 19 mm diameter
4.2.3.4	Plums are not permitted
4.2.3.5	The following tests are required: • drying shrinkage on fine and coarse aggregates; • drying shrinkage of concrete; • flakiness index of the stone; • alkali-aggregate reaction.
4.2.4	Admixtures, air-entrainment agents and curing agents
4.2.4.1	The use of admixtures is permitted, provided that the results of trial tests which demonstrate their suitability and the following are made available: • The trade name of the admixture, its source and the manufacturers' recommended method of use. • Typical dosages and possible detrimental effects of under and over doses. • Whether compounds are likely to cause corrosion of the reinforcement or deterioration of the concrete. • The average expected air content of freshly mixed concrete containing an admixture that causes air to be entrained when the admixture is used at the manufacturer's recommended dose.
4.2.6	Grade of concrete
4.2.6	The grade of concrete is required to be as follows, unless otherwise stated on the Drawings. • Class 15 MPa/ 19 mm for Blinding/Mass Concrete (28 days), • Class 35 MPa/ 19 mm for Structural Concrete (28 days). • Class 35 MPa/ 13.2 mm for Screed/Topping
4.2.7	In general, one of the following types of non-shrink grout are required to be used: • Cement-based non-shrink grout, not less than 50 MPa; • Special proprietary non-shrink or expansive grout, not less than 50

Clause	Particular Specification
	MPa.
4.2.11.4	Galvanising of cover plates is required.
4.3	**Formwork**
4.3.1	General
4.3.1.5	Earth cuts may not be used as forms for vertical surfaces
4.3.1.8	The formed surfaces are as follows: • Foundations (below 150 mm from finished floor level) – Rough finish is acceptable. • All concrete from 150 mm below finished floor level which receives an additional finish – Smooth finish is required • Off-shutter exposed concrete (not receiving any further finishes) – Smooth special finish is required.
4.4	**Reinforcement**
4.4	Add the following: • All reinforcement is stamped with a SANS quality assurance mark
4.4.1.3	Bars may not be hot bent
4.4.2.2	Welding of bars is not permitted
4.4.3	Cover
4.4.3.1	Cast in-situ concrete cover is required to be: • 50 mm or as shown on the Drawings
4.5	**Holes, chases and fixing bolts**
4.5.1	Fixtures to be embedded in the concrete are attached as shown on the Drawings.
4.6	**Embedded items**
4.6.3	Pipes, conduits and ducts
4.6.2.1	The type and location of pipes are as specified on the Drawings.
4.7	**Quality of Concrete**
4.7.1.1	• *Contractor* submits to the *Project Manager* full details and samples of all materials which he proposes to use for making concrete at least 28 days before the concreting of the works is due to commence.
4.7.3.2	Pumping of concrete is permitted.
4.7.4	Chloride and sulphate content
4.7.4.1	Efflorescence on exposed concrete surfaces is not permitted
4.7.6	Prescribed-mix concrete
4.7.6.1	The mix proportions for the prescribed mix are as determined by the *Contractor* for the required grade based on test results using the cement, fine and coarse aggregate available. Mix designs and the mix test results are to be submitted to the *Project Manager* for acceptance prior to the

Clause	Particular Specification
	commencement of work on site.
4.7.10	Add the following: • A layer of blinding concrete of 50 mm minimum thickness is required to be placed under foundations, sumps and trenches • A polyethylene sheet with a minimum thickness of 375 microns is required under ground slabs
4.7.10	Placing
4.7.10.11	Plums are not permitted.
4.7.10.15	Pumping of concrete is permitted.
4.7.12	Joints
4.7.12.1	Construction joints
4.7.12.1.1	Construction joints are not permitted, unless where shown on the Drawings.
4.7.12.2.3	All angled corners are chamfered 25 mm x 25 mm, unless such other larger size is detailed on the Drawings.
4.7.12.1.4	Where construction joints are shown on the Drawing, the follow is required: • Proprietary bonding compounds between old and new concrete is permitted.
4.7.12.4	Sealing of joints
4.7.12.4	Joints are sealed as shown on the Drawings.
4.7.19.3	• *Contractor* submits a detailed procedure for acceptance by the *Project Manager* on how he intends to carry out the repairs of structural concrete defects
4.7.22	• For concrete pour records, the *Contractor* submits a detailed Quality Control Plan to the *Project Manager* for acceptance. • In addition the *Contractor* supplies the *Project Manager* with two copies of these records each day covering works carried out the preceding day.
5.1	**Testing**
5.1.1.4	• Six 150 mm cube samples taken from each batch or place of concrete deposition, three cubes are tested at 7 days and three at 28 days. • Strength at 7 days is required to be at least two thirds of 28 day strength.
5.1.1.8	The test for the percentage of alkali-aggregate is to be ASTM C289 – Potential reactivity of aggregate (chemical method) or alternative method accepted by the *Project Manager*.
5.1.3.3	Add the following: • …, unless no more than three batches of concrete is being mixed.
5.2	**Tolerances**

Clause	Particular Specification
5.2.1.1	• Tolerances on all concrete work is required to be a level II degree of accuracy as specified in SANS 2001-CC1 with and is to be carefully maintained throughout the construction.
Variations	
Cl 4.7.8.2	Add the following: Should “ready-mixed” concrete be used, the uninterupted supply of the correct volume to Site should be guaranteed.
Cl 4.7.8.2	Add the following: The *Project Manager* may permit production of concrete at a central production facility other than on the Site of construction and reserves the right to inspect for acceptance of these central production facilities. The *Contractor* is responsible for conducting all control testing.
4.7.10	Add the following: Concrete may not be placed before the *Project Manager’s* acceptance has been given in writing and a minimum written notice period of 24 hours prior to pouring is required for each part of the structure.

8.1.1.4.1 Additional Requirements and Specifications

i. All concrete work is required to be in accordance with SANS 2001-CC1 and SANS 10100-2 unless otherwise stated.
ii. All concrete surfaces and cast-in items is required to be inspected and accepted by the *Project Manager* in writing before casting of concrete may commence.
iii. The *Contractor* is required to obtain written acceptance from the *Project Manager* for the use of any add-mixture or the use off ready mixed concrete, to pump concrete, or to use cement or cement blends other than Ordinary Portland Cement (OPC)
iv. Compaction of concrete is required to be done by means of mechanical vibrators only.
v. The *Contractor* is required to demonstrate, by means of a report from an approved laboratory, that the aggregates do not exhibit excessive shrinking properties in accordance with SANS 1083 and is also required to demonstrate that the aggregates do not have a potential alkali silica reaction.
vi. All concrete is required to have a maximum water/cement ratio of 0.45 with a minimum cement content of 420 kg/m^3
vii. The *Contractor* is required to perform a slump test on the same batch of concrete every time a sample is taken and the result recorded.

8.1.1.5 Masonry Walling

The following codes are required to be complied to:

i. SANS 2001 CM1: Masonry walling
ii. SANS 227: Burnt clay masonry units
iii. SANS 1090: Sand for plaster and mortar
iv. SANS 28: Metal ties for cavity walls
v. SANS 50413-1: Masonry cement
vi. SANS 10164: The structural use of masonry
vii. SANS 10249: Masonry walling

The table below indicates particular specifications pertaining to SANS 2001-CM1 and must be read in conjunction with the code.

Clause	Particular Specification
4.1	**Materials**
4.1.1	Masonry Units
4.1.1.2	Burnt Clay masonry units comply with the requirements of SANS 227 and have the following properties: 1. Class of unit is to be as shown on the Drawings. 2. Limit of water absorption: Refer to 4.7 of SANS 227 3. Limit of water soluble salts content: Refer to 4.7 of SANS 227 4. Limits of selected radicals: Refer to 4.7 of SANS 227 5. Limits of pH value of water extracts: Refer to 4.7 of SANS 227 6. Limits of moisture expansion: Refer to 4.7 of SANS 227 7. The quality verification is to be as follows: See Appendix F of SANS 227 8. The test for efflorescence is required.
4.1.4	Sand
4.1.4.1	Sands that comply with the requirements of SANS 1090 are required.
4.1.6	Mortar Admixtures
4.1.6	Mortar plasticizers and set-retarder admixtures are permitted.
4.1.9	Reinforcement
4.1.9.1	Brickforce
4.1.9.1.2	Permitted brickforce are shown on the Drawings
4.1.12	Wall Ties
4.1.12.1	Permitted wall ties are shown on the Drawings.
4.2	**Mortar**
4.2.1	General
4.2.1.2	Mortar plasticizers and set-retarder admixtures are permitted.
4.16	Roof anchors are to be in accordance with the requirements of SANS 10400.
4.9	**Weepholes and damp-proof courses**
4.9.2.1	Damp-proof courses to be provided.
5	**Compliance with the requirements**
5.1	**Permissible deviations**
5.1.1	Degree of accuracy
5.1.1	The degree of accuracy is II

8.1.1.6 Structural Steelwork

The following codes are required to be complied to:

i. SANS 2001 CS1: Structural Steelwork
ii. SANS 1200 H: Structural Steelwork (Only Clause 8 – Measurement and Payment)
iii. AWS D1.1: Structural welding code – steel

iv. SANS 1921-3: Construction and management requirements for works contracts, Part 3: Structural steelwork
v. SANS 50025-2: Hot rolled products of structural steels – Part 2- Technical delivery conditions for non-alloy structural steels
vi. SANS 1700: Fasteners
vii. SANS 10162: The structural use of steel

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

Clause	Particular Specification
4.1	**Materials**
4.1.1	Add the following: • All structural steelwork is required to be grade S355JR
4.1.4.1	• Electrodes for electric welding are required to be E7018.
4.1.5.1	• Ordinary bolts to be grade 8.8 with class 8 nuts, as a minimum
4.2	**Drawings**
4.2.4	Fabrication drawings (shop detailing)
4.2.4	The following clause is added: "Fabrication drawings are to be prepared by the *Contractor*. These are issued to the *Project Manager* for acceptance in the form of two paper prints and in "PDF" electronic format. The *Contractor* may not commence with fabrication until written acceptance from the *Project Manager* is received."
4.2.4.2	Attachments to facilitate erections may not remain as part of the permanent structure.
4.2.4.7	Connections to allow movements are as shown on the Drawings.
4.3	**Workmanship (General)**
4.3.1.1	All steel elements are marked to be traceable to a specific cast or heat of steel.
4.3.6	Holing
4.3.6	The following clause is added: "Flame cutting of holes is not permitted."
4.4	**Workmanship (Welding)**
4.4.4.3	Tack welds are not to be incorporated into the final welds.
4.5	**Workmanship (Bolting)**
4.5.1.3	The maximum protrusion beyond the nut is not less than 3mm, but not greater than 5mm.
4.5.1.4	Washers under nuts and bolt heads on flat surfaces are required.
4.6	**Workmanship - Erection**
4.6.5	• On site welding is not permitted

Clause	Particular Specification
5.3	**Non-destructive testing of welds**
5.3.3	• Fillet welds are required to undergo magnetic particle inspection (20 % of welds)
5.3.4	• All butt welds and full penetration welds are required to undergo ultrasonic non-destructive testing (100 % of welds)
Variations	
Cl 5.2	Add the following: Properly documented evidence of previous qualification of welders are acceptable.
Additional Clauses	
1	All materials are to be new and as specified in this document and on the relevant Drawings.
2	Materials not listed in this specification or on the relevant Drawings are not permitted.
3	In the event of any specified steel not being available, the *Contractor* advises the *Project Manager* in writing. The *Project Manager* is to reply in writing on alternative materials and / or sections.
4	Fabrication drawings are prepared by the *Contractor*. The drawings are issued to the *Project Manager* for acceptance in the form of two paper prints and in “PDF” electronic format and in Native Format (dgn or dwg). The *Contractor* does not commence with fabrication until written acceptance from the *Project Manager* is received.
5	All gutters and down pipes are provided to ensure free water flow away from the *works*.
6	Handling and lifting plant have sufficient capacity to ensure that steelwork is placed in its final position without distortion or undue stressing of members.
7	Except where otherwise authorised in writing by the *Supervisor*, the *Contractor* ensures that the work is carried out strictly in accordance with the relevant drawings supplied to the *Contractor* by the *Project manager* or supplied by the *Contractor* and accepted by the *Project Manager*
8	Tolerances: • Tolerances for overall dimensions (length, width, height, etc.) are 3mm unless otherwise specified by the drawing. • Tolerances for door locations are +/- 9mm. • Tolerances for stiffener, channels, angles and bars are +/- 3mm non-accumulative, unless noted of the drawing. • Tolerances for attachments such as supports, plates and pipes are located within 3mm of the required drawing location. • The centre line of a bolt hole is aligned within 1.5mm of the

Clause	Particular Specification
	drawing dimension. • Bolt hole spacing is 3mm (non-accumulative) and 6mm (overall) of the drawing dimension. • Bolt hole diameter is within 2mm of the drawing dimension. • Special tolerances are shown on the *Employer's* drawings and take precedence. Unless otherwise specified by the drawing, tolerances for all overall dimensions (length, width, height, etc.) are within 3mm.
9	The *Project Manager* may instruct the *Contractor* to replace any welding equipment which is unsuitable or unsatisfactory for the service in which it is being used.

The table below indicates particular specifications pertaining to SANS 1921-3 and must be read in conjunction with the code.

Clause	Particular Specification
4.2	**Responsibility for design and construction**
4.2.1	The responsibility strategy assigned to the *Contractor* is "B" for the portion of *works* designed by the *Employer*.
4.2.2	The structural engineer is The *Employer's*, Structural Design CoE for the *works* designed by the *Employer*.
4.3	**Planning, programme and method statement**
4.3.2	Programme
4.3.2.1	The requirements for sequencing of the *works* are: • The sequence of the work is as per the project Schedule.
4.3.2.1	The procedures to be followed where required are as shown on the Drawings or defined within the scope of work.
4.3.3	Method Statements
4.3.3.2	The steelwork *Contractor* provides the steelwork structural engineer with a detailed method statement for the erection of each structure. Add the following: The methodology for any work that will be carried out after hours must be accepted one week prior to the event.
4.4	**Quality assurance**
4.4.3	Inspections, tests and certification
4.4.3.4	The following items and procedures need to be tested/certified by a recognised body: • Welders qualification • Material certificates
4.5	**Drawings, information and calculations**
4.5.1	Format, number and register
4.5.1.1	Information, Drawings and calculations provided to the steelwork

Clause	Particular Specification
	Contractor will be provided in the following format: • 2D drawings provided electronically in PDF format.
4.5.1.2	The steelwork *Contractor* is to provide information in the following format: • Electronic in PDF format.
4.5.3	Drawings and other information provided by the steelwork *Contractor*
4.5.3.1	Drawings and other information are to be submitted in accordance with the steelwork *Contractor*'s accepted programme.
4.5.3.4	The steelwork *Contractor* is required to submit the following additional information with general arrangement drawings to the *Employer* for approval: • Erection methodologies. • Detail drawings marked up for each part, if different from the supplied details
4.7	**Site establishment**
4.7.6	The steelwork *Contractor* is required to make his own arrangements for the provision of the following services: • Compressed air • Welding machines • Cutting torches and gas • Lifting attachments
4.11	Health and Safety
4.11.1	The specific health and safety requirements are as per the requirements in conditions of contract.
4.11.3	The steelwork *Contractor* is required to submit a report on the assessment and management of risk.
4.11.4	The steelwork *Contractor* is required to enclose the steelwork for the protection of the public and others.

8.1.1.6.1 Additional Requirements and Specifications

i. The *Contractor* is responsible for the stability of the entire structure and all structural elements during all the erection stages.
ii. All dimensions are required to be verified on site by the *Contractor* before any fabrication of steelwork commences.
iii. All welding is required to be conducted by coded welders. Supporting documentation is also required to be submitted to the *Project Manager* for acceptance. All welding is required to comply with AWS D1.1 and 240-106628253 - Standard for Welding Requirements on Eskom Plant.
iv. All welds are required to be inspected using visual aids.
v. The *Contractor* is required to supply all bolts, washers, nuts etc. for the structural steelwork.
vi. Welded connections are required to be welded all around with a minimum of 6 mm fillet welds unless otherwise stated on the Drawings. Butt welds are required to be full penetration welds.
vii. Minimum thickness of gusset plates is to be 10 mm.

8.1.1.7 Structural Steelwork (Sundry Items)

The following codes are required to be complied to:

i. SANS 1200 **HA: Structural steelwork (sundry items)**

The table below indicates particular specifications pertaining to SANS 1200 HA and must be read in conjunction with the code.

Clause	Particular Specification
Variations	
Cl 5.1.2	Add the following: The said shop details and other drawings are to be submitted in duplicate to the *Project Manager* for acceptance at least 10 working days prior to fabrication.
Cl 5.2.10	Add the following: Where no corrosion protection system is specified, open grid flooring is to be hot dipped galvanised.
Cl 7.1	Add the following: Test certificates and cast analysis certificates are to be supplied to the *Project Manager* by the *Contractor*.

8.1.1.8 Cladding and Sheeting

The following codes are required to be complied to:

i. SANS 1200 **HB: Cladding and Sheeting**

The table below indicates particular specifications pertaining to SANS 1200 HB and must be read in conjunction with the code.

Clause	Particular Specification
Variations	
Cl 3.2.1	Add the following: Galvanized steel sheeting is to be coated with a minimum of 275 g zinc per m^2 and is free from white rust.
Cl 5.1.4	Add the following: The *Contractor* is solely responsible for ensuring that the materials and method of installation comply with the details set out on the Drawings. Any further modifications and additional details are to be accepted by the *Project Manager*.
Additional Clauses	
1	Where the use of nails and screws is required: • Galvanised iron nails and screws are to be used for galvanized sheet iron and sheet zinc.
2	Galvanised IRB sheeting requirement is indicated on the Drawing.

8.1.1.9 Corrosion Protection of Structural Steel

The following codes are required to be complied to:

i. SANS 1200 HC: Corrosion Protection of Structural Steel
ii. SANS 10064: The preparation of steel surfaces for coating
iii. SANS 121: Hot dip galvanized coatings on fabricated iron and steel articles

The table below indicates particular specifications pertaining to SANS 1200 HC and must be read in conjunction with the code.

Clause	Particular Specification
Variations	
Cl 5.3	Add the following: All burrs and sharp areas are to be removed by: • Chamfering or • Ground to a smooth radius of at least 1mm.
Cl 5.4.1	Add the following: The method of cleaning and preparing the substrate of steelwork prior to the application of the coating system is to be in accordance with the applicable provisions of SANS 10064
Cl 5.4.3.1. b)	Add the following: Dry abrasive blast cleaning: • Silica sand abrasive material not permitted. • Blast cleaning media is not recycled.
Cl 5.7	Add the following: The coating system is to be hot-dip galvanising which is carried out in accordance with SANS 121:2011.
Additional Clauses	
1	Surface preparation and painting is to be carried out as indicated on the Drawing.

8.1.1.10 Roads (General)

The following codes are required to be complied to:

i. SANS 1200 M: Roads (General)

The table below indicates particular specifications pertaining to SANS 1200 M and must be read in conjunction with the code.

Clause	Particular Specification
Variations	
5	Layerworks material and detailing is indicated on the Drawing.
7.3	Delete and replace with: The compliance of earthworks and layerworks with respect to layer density is to be determined in accordance with Appendix B - Statistical Judgement Plan.
7.4	Add the following: Refer to Clause 7.3: Methods of Test

9. Deliverables

The *Contractor* provides the following deliverables as part of the *works*:

9.1 Data Books

The *Contractor* submits signed off Data Books, for each facility constructed, to the *Project Manager* for his acceptance. Data books include the following, as a minimum (where applicable):

- Document List
- Instruction for Work/ Purchase Order
- Approved ITP's, QCP's
- Method statements and specifications adhered to
- Rigging studies
- Risk assessments
- Fabrication Drawings
- Material Certificates
- Weld Matrix Sheet
- Welding Consumables Certificates
- Welding Procedure
- Welders' Qualifications
- ESKOM approved NDT *Contractor*
- Approved NDT procedure
- NDT Reports/ Results
- Certificate of Manufacture
- Inspection Reports
- Corrosion Protection Consumables Certificates
- Calibration Certificates
- Notifications
- Modifications
- Concessions
- Technical Queries, Engineering Responses and communications with *Project Manager/ Employer*
- Non-conformance reports
- Calculations for any temporary works that may be required for the safe execution of the *works*
- Concrete 7 day and 28 day cube test results
- Slump test results
- Concrete mix designs including all required test results e.g. aggregate test results
- Steel grade certificates
- Pre-concrete and post concrete surveys

9.2 As-built drawings

On completion of the Scope of Work associated with each construction drawing, the Contractor provides a mark-up copy of the drawing. These drawings must incorporate all changes, amendments and additions that have occurred and drawings must be signed by the Contractor and submitted to the *Project Manager* for signature and acceptance.
Where surveying is required in order to determine as-built conditions, the *Contractor* must provide a land surveyor on site to undertake the as-built survey within 24 hours of being so instructed by the *Project Manager.*
As-built drawings must be submitted as hard copy, size A0 drawings, as well as one copy of CD's containing workable DGN files as well as its PDF version on it. Drawing transmittals must be included in all submissions.

9.3 Construction Execution Plan

As a tender returnable, the *Contractor* submits a general Construction Execution Plan. This document clearly illustrates how the *Contractor* accounts for the project risks, objectives and requirements. The Construction Work Method Statement includes, at minimum, the following:

i. Constraints identified and considered by the *Contractor*
ii. Interfacing with Others (i.e. subcontractor), the *Contractor* illustrates an understanding of the work that is to be completed by Others and accommodates for the completion of such work in his methodology
iii. Description of the use of laydown areas and plot plan
iv. Detailed risk assessment which lists risks specific to the *works* and is accompanied with associated proposed mitigations
v. List and description of plant and machinery required to carry out the civil and structural components of the *works;*
vi. High-level description of the Inspection and quality control plan to be utilized on the project
vii. A clear description of the responsibilities of the *Contractor*'s personnel involved with the *works*, including (where applicable) his Project Manager, Site Quality Manager, Site Engineer, Health and Safety Manager, Technical Office Manager, Production Manager, Supervisor, Environmental Officer, Fabricator, Erection Engineer and other personnel required for the civil and structural *works*.
viii. Construction sequencing considerations which take into account the constraints as indicated in this Works Information.
ix. A Concrete Works Method Statement, which describes the following as a minimum:
    - Concrete sourcing
    - Testing facilities
    - Testing procedures
    - Concrete placing and curing
x. A Steelworks Method Statement, which describes the following as a minimum:
    - Corrosion protection and painting
    - Method of fabrication and erection
    - The physical location of manufacturing and fabrication
    - Erection procedures which includes considerations for modularisation and construction sequencing, including a lifting and rigging plan
    - Welding procedures that the *Contractor* plans to use
    - Steel transportation
xi. An Earthworks Method Statement which describes the following as a minimum:
    - Excavation procedure

10. List of drawings

10.1 Drawings issued by the *Employer*

The following drawings are issued to the *Contractor* to be used for tender. The *Employer* provides the *Contractor* with drawings issued for construction after contract award. Drawings for Tender are not used for procurement, fabrication or construction.
The *Employer* provides additional concrete reinforcement drawings and bending schedules, for the Civil & Structural drawings indicated below, issued for construction to the *Contractor* after contract award.
Some drawings may contain both Works Information and Site Information.

Table 1: *Employer's* detail design drawings

Drawing number	Revision	Sheet	Title	Status
28.45/60926	1.0	1	Kriel Power Station: Waste Oil Storage Facility - Locality Plan	For Tender
28.45/60927	1.0	1	Kriel Power Station: Waste Oil Storage Facility - Floor Plans, Sections, Elevations and Details	For Tender
28.45/60928	1.0	1	Kriel Power Station: Waste Oil Storage Facility - Super Structure General Arrangement	For Tender
28.45/60928	1.0	2	Kriel Power Station: Waste Oil Storage Facility - Super Structure Connection Details	For Tender
28.45/60929	1.0	1	Kriel Power Station: Waste Oil Storage Facility - Concrete Slab, Sump and Foundation - Concrete Layouts, Sections and Details	For Tender
28.45/60930	1.0	1	Kriel Power Station: Waste Oil Storage Facility - Concrete Sump and Ramp - Reinforcement Layout and Details	For Tender
28.45/60931	1.0	1	Kriel Power Station: Oil Contaminated Waste and Sulphur Storage Facility - Locality Plan	For Tender
28.45/60932	1.0	1	Kriel Power Station: Oil Contaminated Waste and Sulphur Storage Facility - Floor Plans, Sections, Elevations and Details	For Tender
28.45/60933	1.0	1	Kriel Power Station: Oil Contaminated Waste and Sulphur Storage Facility - Super Structure General Arrangement	For Tender
28.45/60933	1.0	2	Kriel Power Station: Oil Contaminated Waste and Sulphur Storage Facility - Super Structure Connection Details	For Tender

Drawing number	Revision	Sheet	Title	Status
28.45/60934	1.0	1	Kriel Power Station: Oil Contaminated Waste and Sulphur Storage Facility - Concrete Slab, Sump and Foundation - Concrete Layouts, Sections and Details	For Tender
28.45/60934	1.0	2	Kriel Power Station: Oil Contaminated Waste and Sulphur Storage Facility - Concrete Slab, Sump and Foundation - Concrete Layouts, Sections and Details	For Tender
28.45/60935	1.0	1	Kriel Power Station: Oil Contaminated Waste and Sulphur Storage Facility - Concrete Slab, Sump and Foundation - Reinforcement Layout and Details	For Tender
28.45/60935	1.0	2	Kriel Power Station: Oil Contaminated Waste and Sulphur Storage Facility - Concrete Slab, Sump and Foundation - Reinforcement Bending Schedules	For Tender
0.45/59293	1.0	1	Kriel Power Station Oil Contamination Waste Storage Facility: Access Road - Setting Out Plan and Layerwork Details	For Tender
0.45/59293	1.0	2	Kriel Power Station Oil Contamination Waste Storage Facility: Access Road - Road Profiles - Centre Line Right Edge of Pavement & Left Edge of Pavement	For Tender
0.45/59294	1.0	1	Kriel Power Station Oil Contamination Waste Storage Facility: Cross Sections Ch0-Ch5	For Tender
0.45/59294	1.0	2	Kriel Power Station Oil Contamination Waste Storage Facility: Cross Sections Ch10-Ch20	For Tender
0.45/59294	1.0	3	Kriel Power Station Oil Contamination Waste Storage Facility: Cross Sections Ch25-Ch34	For Tender
28.45/60937	1.0	1	Kriel Power Station: Sewage Sludge Storage Facility - Locality Plan	For Tender
28.45/60938	1.0	1	Kriel Power Station: Sewage Sludge Storage Facility - Floor Plans, Sections, Elevations and Details	For Tender
28.45/60939	1.0	1	Kriel Power Station: Sewage Sludge Storage Facility - Super Structure General Arrangement	For Tender
28.45/60939	1.0	2	Kriel Power Station: Sewage Sludge Storage Facility - Super Structure Connection Details	For Tender

Drawing number	Revision	Sheet	Title	Status
28.45/60940	1.0	1	Kriel Power Station: Sewage Sludge Storage Facility - Concrete Slab, Sump and Foundation - Concrete Layouts, Sections and Details	For Tender
28.45/60940	1.0	2	Kriel Power Station: Sewage Sludge Storage Facility - Concrete Slab, Sump and Foundation - Concrete Layouts, Sections and Details	For Tender
28.45/60941	1.0	1	Kriel Power Station: Sewage Sludge Storage Facility - Concrete Slab, Sump and Foundation - Reinforcement Layout and Details	For Tender
0.45/59295	1.0	1	Kriel Power Station Sewage Sludge Storage Facility: Access Road - Setting Out Plan and Layerwork Details	For Tender
0.45/59295	1.0	2	Kriel Power Station Sewage Sludge Storage Facility: Access Road - Road Profiles - Centre Line Right Edge of Pavement & Left Edge of Pavement	For Tender
0.45/59296	1.0	1	Kriel Power Station Sewage Sludge Storage Facility: Cross Sections Ch1-Ch5	For Tender
0.45/59296	1.0	2	Kriel Power Station Sewage Sludge Storage Facility: Cross Sections Ch6-Ch11	For Tender
0.45/59296	1.0	3	Kriel Power Station Sewage Sludge Storage Facility: Cross Sections Ch12-Ch13	For Tender
28.45/60936	1.0	1	Kriel Power Station: Asbestos Storage Facility - Locality Plan	For Tender
-	-	-	Asbestos Facility Typical Fence Steel Posts Arrangement and Gate Detail	Information Purpose
-	-	-	Asbestos Facility Typical Fence Foundation Detail	Information Purpose
-	-	-	Asbestos Facility Typical Fence Post Detail	Information Purpose

10.2 documents issued by the *employer*

The following documents are issued to the *Contractor* to be used for information purposes only and are not used for procurement, fabrication or construction until contract ward.

Table 2: Supporting documents

Document number	Revision	Title	Status
180328	1.0	A Factual Report on Utility Mapping at Kriel Power Station, Mpumalanga, South Africa	For Information
28012019	1.0	Geotechnical Investigation Report for Kriel Hazardous Waste Storage Facilities	For Information

EMPLOYER'S STANDARDS

Table A1: List of Employer's Standards

Number	Title
240-109607332	Eskom plant Labelling Abbreviation Standard
240-40643427	Coding and Labelling Standard
240-53113685	Design Review Procedure
240-54937439	Fire Protection & Detection Assessment Standard
240-54937450	Fire Protection and Life Safety Design Standard.
240-56356396	Earthing and Lightning Protection Standard
240-5636454d5	Structural Design and Engineering Standard
240-66920003	Documentation Management Review and Handover Procedure for Gx Coal Projects
240-71432150	Plant Labelling Standard
240-76992014	Project / Plant Specific Technical Documents and Records Management Work Instruction
240-85065548	Project Controls Specification for Contractor Integration
240-86973501	Engineering drawing Standard
240-93576498	KKS Coding Standard
240-106628253	Standard for Welding Requirements on Eskom Plant
36-1126	Specification for Corrosion Protection of Plant and Equipment with Coatings
240-123801640	Standard for Low Pressure Pipelines
240-105020315	Standard for Low Pressure Valves
240-56356376	On-Site Commissioning for Low Pressure Systems Standard
240-109607332	Eskom plant Labelling Abbreviation Standard

2. INVOICING AND PAYMENT

Invoicing Format and Process

The Contractor will submit a payment request to the Service Manager within 2 working days before assessment date. The Eskom Costing Consultant will compile a payment certificate within 3 working days. Within 3 working days of receiving a payment certificate from the Service Manager in terms of core clause 51.1, the Contractor provides the Employer with a Tax Invoice showing the amount due for payment equal to that stated in the payment certificate.

- No invoices to be handed to an individual. There is no need for the *Purchaser Representative* to sign invoices as they perform Goods Receipt in the system. The Goods Receipt serves as the approval of payment.
- **Invoices must be delivered to the Eskom Documentation Centre (email to: Invoiceseskomlocal@eskom.co.za) as this will speed up the payment process and ensure that invoices are not delayed for payment.**
- Eskom Documentation Centre will review invoices according to a checklist and on completion scan the documentation into Accounts Payable processing system **(Documentation can only be scanned where the <u>Purchase order no. and Goods Receipt Note no</u>. is reflected on the invoice, and the invoice complies with the VAT Act).**
- Invoices are processed and released for payment by Accounts Payable Section only where the source documentation is 100% correct

Invoices to be addressed to:
Eskom Holdings SOC Ltd
Reg. No. 2002/015527/30
Kriel Power Station
Accounts Payable
Private Bag X5009, Kriel 2271
Email to: Invoiceseskomlocal@eskom.co.za

The *Supplier* keeps records of all invoices submitted and paid up to the end of the project, as well as details of Actual Costs.

The Supplier is required to follow the correct process to ensure the payment is effected in accordance with contractual payment terms. The following information to be reflected on each invoice:

- Name and address of the *Supplier* and the Purchaser Representative*;*
- The contract number and title;
- *Supplier's* VAT registration number;
- The Purchaser's VAT registration number 4740101508;
- Description of service provided for each item invoiced based on the Price List;
- Total amount invoiced excluding VAT, the VAT and the invoiced amount including VAT

Supplier is required to follow the correct process to ensure the payment is effected in accordance with contractual payment terms.

Service related invoices

a) Once the *service* has been delivered/completed both parties have to agree that the *service* has been delivered/completed successfully prior to invoicing
b) An assessment payment certificate must be completed between the *Contractor* and *Service Manager* according to the *service* performed. Both parties have to sign the assessment/certificate
c) A copy of assessment/payment certificate must be obtained by the *Contractor* to enable the creation of an invoice and to prevent any discrepancies. A copy of the assessment/payment certificate must be attached to the original invoice
d) *Service Manager* performs a service entry and Goods Receipt on the SAP system. (Assessment/Payment Certificate issued as a source document for Service Entry Goods Receipt)
e) *Service Manager* will the forward the Service entry and Goods Receipt Note number to the *Contractor* within 3 working days after the *service* has been rendered and the Assessment/Payment certificate signed
f) *Contractor* must forward the original invoices together with a copy of the Assessment/Payment certificate to the Eskom Documentation Centre.

3. Documentation control

Documentation

General

A document is thus any written or pictorial/drawing information describing, defining, specifying or certifying activities, requirements, procedures and or results.

All documentation issued by the *Employer* for this contract is copyright protected and are not to be copied by the *Contractor,* except where the updating of all these documents is required as per the project new updated hand-over documents.

The *Contractor* submits all documentation on a formal transmittal form in triplicate to the Service Manager. All documents and reports shall be compiled and presented in English language, be in the required Microsoft Office Word, PowerPoint, Excel, Acrobat Reader and or Project file extensions format where necessary.

All reports and documents shall be compiled using an approved *Employer's* document template provided by the station's Documentation Management Department and or must comply to Eskom Documentation Management Procedure Rev 0 IARC - 210-76.

Reports documented for the purpose of this service contract shall remain a property of Eskom Kriel Power station.

All contractual correspondence formats shall be in the form of properly compiled letters or forms attached to e-mails and not as a message in the e-mail itself. The correspondence shall include the following details:

a. Kriel Power Station
b. Date
c. *Employer's* Contract number
d. Contract description
e. Correspondence subject matter
f. *Contractor's* reference number
g. *Employer's* reference number
h. Telephone number
i. FAX number
j. Reference to the relevant NEC Clause(s) (if applicable)
k. Function group number or name (if applicable)

Where appropriate the correspondence includes the *Service Manager* reference and is delivered as a single package.

All communications from the *Contractor* are numbered sequentially with a prefix as advised by the *Service Manager*. The *Service Manager* responds in like manner to a maximum of two address formats provided in writing by the *Contractor.* The prefix is to be decided upon at the kick off meeting.

SAFETY REQUIREMENTS

The Supplier shall, at his own expense, take all precautions requisite for the protection of life and property on, and about, and in any way connected with the service or equipment and shall indemnify, and keep indemnified, Eskom Holdings SOC Ltd against all losses, claims, demands, proceedings, damages, costs, charges and expenses of whatsoever nature, howsoever arising, in respect of injury to, or death of, any person at any time during the currency of the Contract.

COVID19
All South African Legislation, Eskom Rules and Regulations will be adhered to during COVID19 pandemic.

4. HEALTH AND SAFETY, THE ENVIRONMENT AND QUALITY ASSURANCE

- **Health and Safety Risk Management**

The *Contractor* undertakes to take all reasonable precautions to maintain the health and safety of persons in and about the execution of the *service*. Without limitation the *Contractor*: accepts that the *Employer* may appoint him as the "Principal Contractor" (as defined and provided for under the Construction Regulations 2003 (promulgated under the Occupational Health & Safety Act 85 of 1993) ("the Construction Regulations") for the Affected Property; 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 the *service*; and undertakes, in and about the execution of the *service*, 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.

The *Contractor*, in and about the execution of the *service*, 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.

Safety Officer
- Develop and Maintain a Safety Risk Programme
- Administer the safety incident reporting systems and check that the reporting, recording and investigation systems are in compliance with statutory and all Generation mandatory requirements.
- Coordinate Safety Training Programme
- Implement a marketing programme to create a safety awareness amongst all employees.
- Perform any other legitimate activity as required**.**

- **Environmental constraints and management**

All service providers appointed to render any services within Eskom Kriel Power Station are required to comply with the station's Environmental Management System requirements.

NB: Before commencing with any work, the service providers are required to visit the station's environmental section for evaluation. The station's environmental practitioner will evaluate the services to be rendered by the service provider and therefore allocate relevant legal and other requirements documents which the *Contractor* shall comply with during the works.

GN 926 National Environmental Management Waste Act, 2008 (Act No 59 of 2008) National Norms and Standards for the Storage of Waste (GN 926) will apply.

The service provider shall then commence with the works but paying inordinate attention towards implementing the relevant legal and other requirements measures as a minimum. Failure to comply with this agreement may ultimately lead to the termination of this contract. This requirement shall also be clearly stipulated in the NEC contracts between Eskom Kriel Power Station and any service providers.

It should always be noted that Kriel Power Station is ISO14001 certified and therefore promotes Integrated Environmental Management (IEM) philosophy which aims to achieve a desirable balance between conservation and development. All activities taking place within Kriel Power Station must consider section 28 of the National Environmental Management Act (107 of 1998) which makes provision for the duty of care approach. The contractor's team must commit to review and to continually improve environmental management, with the objective of improving overall environmental performance. The Contractor must consult with Kriel Environmental section on a regular basis for on-going assistance and advice.

The EMS shall clearly cover the following areas as per ISO 14001;

- Environmental policy
- Compliance obligations (Environmental legal and other requirements)
- Risk Assessments/Aspects & Impacts Register
- Improved management of monitoring and measurement documentation (e.g. devices calibration certificates).
- Provision of necessary resources (e.g. computers, adequate human resource) and allocation of roles and responsibility (through clear appointments) to achieve effective implementation of the EMS.
- Continuous commitment towards complying with operational controls such as work instructions, operational procedures, etc. (either provided by the Contractor or by *Service Manager*) as well as emergency preparedness and response procedures/plans.
- The contractor shall continually evaluate the compliance to legal requirements (e.g. sewage treatment plant permits and other applicable legislation); this should also be documented within the monthly environmental site inspections reports.
- Kriel Power Station's procedure for non-conformity, corrective action and preventive actions shall be followed in case of the environmental incidents.
- Contingency plans.

Environmental Management Programmes

- Environmental Management Programmes shall be established and maintained to ensure that objectives and targets are achieved.

Audits

Audits covering various Environmental aspects, Safety, Operational, IBI and Maintenance Management at the plant shall be carried out within an acceptable interval to ensure compliance with statutory requirements and Eskom's policies, Directives, procedures etc.

- **Quality Assurance Requirements**

The *Contractor* shall be required to demonstrate by means of a Contract Quality Plan (CQP) that this organisation is so structured that all the requirements of the specification will be properly monitored and controlled. The Contract Quality Plan (CQP), which must include the Quality Control Plan (QCP), is to be drafted in accordance with QM-58 and the Supplier Contract Quality Requirement Specification (QM58). The Quality documents are to be submitted for approval to *the Project Manager* within thirty (30) days after a contract has been awarded to the *Contractor.*

No work may commence unless the Contract Quality Plan and Quality Control Plan documents have been approved in writing and a copy submitted to *the Project Manager*. The *Contractor*, in conjunction with *the Project Manager* must sign off all Quality Control documents after completing all work as per the agreed scope. The *Contractor* to submit a copy of the final signed off documents/data packages to *the Project Manager* within one (1) week after completion of work.

The *Contractor* shall be required to read and fully understand the contents of the Supplier Contract Quality Requirement Specification (QM58) and a copy is to be kept in possession or on premises.

The *Contractor* shall comply with all *Employer's* requirements as set out in QM-58 (Supplier Contract Quality Specification). .

The *Contractor* further ensures that the subcontractor's programmes comply with the requirements of the Service Information.

The *Contractor* notifies the *Service Manager* of any changes to the Quality System and obtains agreement prior to implementation on existing orders and contracts, or sub orders and sub contracts.

The Supplier Contract Quality Requirement Specification (QM58) shall remain applicable in the event of the contract being extended or modified for reasons permitted.

By signature and acceptance of this contract the *Contractor* acknowledges and agrees to comply with and adhere to Eskom's policies and procedures (current and/or latest revisions) including the Supplier Contract Quality Requirement Specification (QM58).

Contract Quality Management Plan Requirement:

The *Contractor* prepares a contract quality management plan that, where appropriate, indicates the following:

- Indicates the interface with the *Contractors* quality system and applicable documents such as procedures and work instructions
- Establishes communication channels between the *Contractor* and the *Service Manager* in respect of quality and the integration of such with the prescribed contract communication channels
- Indicates how specific subcontractors will be monitored

- Identifies items or activities for which quality control plans will be prepared
- Identifies the specifications, drawings and acceptance criteria for material for which quality control plans are not required
- Identifies the areas or processes requiring special controls
- Identifies the *Contractor's* Management Representative and personnel responsible for the control of quality activities and their relationship to the *Contractor's* management structure
- Identifies the documents which are to be submitted to the *Service Manager*
- Indicates the *Contractor's* quality monitoring programme

The *Contractor* periodically updates the contract quality management plan to reflect changes in any of the above details. The frequency of such updates is determined by the *Service Manager* but will not be greater than one year.

Quality Control Plan

The *Contractor's* or Subcontractor's quality control plans cover inspection and test proposals for items or activities to be supplied as part of the *service*.

The quality control plan indicates the following as appropriate:

- The identification of the item.
- A list of the sequence of operations including inspections and tests.
- The identification of the specification, drawings or procedures for each operation.
- The acceptance criteria with reference to the appropriate technical specification, in-house, national or international standard and relevant clause number.
- The inspections and tests the Contractor has nominated for hold and witness points.
- Provision for inspections and tests nominated by the *Service Manager*.
- Provision for inspection status indication.
- Inspection and test records which are generated by the *Contractor*.
- Competence of the people-Level II welding inspector, Coded welders, N3 Fitters /Boiler makers
- Personnel qualifications from approved training and accredited institute
- ITPs and welding procedures
- Material certificates
- Organogram indicating the quality person and his/her duties
- Adhere to the QM58
- Follow the Eskom welding rule book

The quality control plans are reviewed by the *Service Manager* to allow for insertion of his specific requirements, including hold and witness points, prior to commencement of work. The *Contractor* does not commence work until the *Service Manager* accepts.

The *Contractor* shall comply with:

a) The Occupational Health and Safety Act, 1993, and all Regulations made there under.
b) All *Employer* Safety and Operating Procedures, which are attached hereto.

The *Contractor* acknowledges that he is fully aware of the requirements of all the above and undertakes to employ only people who have been duly authorised in terms thereof and who have received sufficient safety training to ensure that they can comply therewith.

The *Contractor* undertakes not to do, or not to allow anything to be done which will contravene any of the provisions of the Act, Regulations or Safety and Operating Procedures.

The *Contractor* shall appoint a person who will liaise with the *Emp*loyer Safety Officer responsible for the premises relevant to this contract. The person so appointed shall on request:

a) Supply the *Emp*loyer Safety Officer with copies of minutes of all Health and Safety Committee meetings, whenever he is required to do so.
b) Supply the *Emp*loyer Safety Officer with copies of all appointments in respect of employees employed on this contract, in terms of the Act and Regulations and shall advise the *Emp*loyer Safety Officer of any changes thereto.

*Emp*loyer may, at any stage during the currency of this agreement be entitled to:

a) Do safety audits at the *Contractor's* premises, its work places and on its employees.
b) Refuse any employees, sub-*Contractor* or agent of the *Contractor* access to its premises if such person has been found to commit any unlawful act or any unsafe working practice or is found to be not authorised or qualified in terms of the Act.
c) Issue the *Contractor* with a work stoppage order or a compliance order should *Emp*loyer become aware of any unsafe working procedures or conditions or any non-compliance with the Act, Regulations and Procedures by the *Contractor* or any of its Employees, sub-*Contractor*s or agents. Stoppages of this nature will not constitute a compensation event.

List of minimum statutory appointments required (where applicable), as required by the OHS Act:

OHS Act, Section 16(2)	Employer
OHS Act, Section 17	Health and Safety Rep
OHS Act, GAR 9	Incident investigation
OHS Act, GSR 3	First Aiders

5. CONTRACT CHANGE MANAGEMENT

Any change of the *Contractor's* company ownership should be communicated through to the *Service Manager*. Failing to do this may lead to contract termination with legal consequences.

The correct processes and procedures will be communicated through to the *Contractor* by the *Service Manager.*

If the *Employer's Service Manager* change the *Contractor* will be notified by the *Employer* as soon as possible to ensure that the *Contractor* follow the correct communication channels.

Records of Defined Cost to be kept by the *Contractor*

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

The *Contractor's* Site Manager will complete the daily log and this will be submitted to the *Service Manager* for his signature before 12 am of the following morning barring weekends. The Friday and weekend logs will be submitted before 12 am Mondays. The log will include but not be limited to the following:

- Date and day
- Weather
- Site Conditions
- Work Done
- People who are employed by the *Contractor*
- Work sub-contracted by the *Contractor*
- Any incidents during that period.

Any communication and documentation during this service agreement to be filed in the contract file. This file is in the possession of the *Service Manager* at all times

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

The *Contractor* will keep records as per his/her own system

6. PROCUREMENT

People

Minimum requirements of people employed

It is the Contractor's sole responsibility to ensure all its employees have permits to perform work in the Republic of South Africa. The people who are executing the work onsite need to be reflected in the safety file. New people to be approved by the Safety Officer and safety file to be revised.

BBBEE and preferencing scheme

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.

The *Contractor* is required to submit an updated verification certificate and necessary supporting documentation confirming the change in his B-BBEE status to the *Employer* within thirty days of the notification or as otherwise instructed by the *Employer*.

Where, as a result, the *Contractor's* B-BBEE status has decreased since the *starting date* the *Employer* may either re-negotiate this contract or alternatively, terminate the *Contractor*'s obligation to provide the *service*.

Failure by the *Contractor* to notify the *Employer* of a change in its B-BBEE status may constitute a reason for termination will be dealt with according to the NEC3 TSC penalty/termination clauses

The contractor will be required to maintain or improve their B-BBEE Recognition Level for the duration of the contract.

<u>SDL&I Penalty (contractual obligation)</u>

- Eskom will apply a penalty of 2.5% of the Contract Value for failure to meet SDL&I obligations.
- For the duration of the contract, Eskom will retain 2.5% of every invoice (excluding VAT) as security for the fulfilment of all SDL&I Obligations. The retained amounts shall only be released to the Contractor upon fulfilment of all SDL&I obligations at the end of the contract.
- Alternatively the Contractor shall submit a bond equivalent to 2.5% of the Contract Value and shall only be released to the Contractor upon fulfilment of all SDL&I Obligations

<u>SDL&I Reporting & Monitoring (contractual obligation)</u>

- The suppliers shall on a monthly/quarterly basis submit a report to Eskom in accordance with Data Collection Template on their compliance with the SDL&I obligations described above.
- Eskom shall review the SDL&I reports submitted by the suppliers within 60 (sixty) days of receipt of the reports and notify the suppliers in writing if their SDL&I obligations have not been met.

- Upon notification by Eskom that the suppliers have not met their SDL&I obligations, the suppliers shall be required to implement corrective measures to meet those SDL&I obligations before the commencement of the following report, failing which Retention clauses shall be invoked.
- Every contract shall be accompanied by the SDL&I Implementation Schedule which must be completed by the suppliers and returned to SDL&I representative for acceptance 28 days after contract award. This will be used as a reference document for monitoring, measuring and reporting on the supplier's progress in delivering on their stated SDL&I commitments**.**

The requirements below will be updated upon contract award as per the agreement with the successful tenderer.

Local Content (DTI)
Designated material threshold 100% local content for Steel OR Department of Trade and Industry Exempt Letter

Material	Threshold %
Steel	100%

Local Content to SA: _____

Skills Development

CIDB mandatory requirement training: 0.25% of the Construction Skills Development Goal % (CSDG): Structural Steel Works proposed	

Corporate Social Investment (CSI)

Corporate Social Investment was agreed to 1.5% contribution per invoice value

No money will be exchanged. In co-operation with the relevant Kriel Committee, the contractor will be approached to contribute the CSI value at the time towards a project on the identified list. The contractor will be directly involved.

a. Subcontracting

i.Preferred Subcontractors

The *Contractor* is to indicate on a list, the names of any sub-*contractors* whose services may be used to provide the works. The *Contractor* provides a short description of the work it is proposed to sub-contract to each sub-contractor as well as an approximate value of the work to be executed.

Where the sub-*contractor* will be required to do physical work on site the *Contractor* provides details on the experiences of the mentioned sub-contractor as well as a list of references involving work of a similar nature. Notwithstanding the inclusion of a sub-contractor's name below, the *Contractor* obtains the written acceptance of the *Project Manager* prior to the employment of such sub-contractor on the site.

The *Contractor* will provide details of previous works and references of work done by the intended sub-*contractor.*

Sub-contracting agreements can only be concluded with one of the following entities;
an EME or QSE which is at least 51% owned by black people;
an EME or QSE which is at least 51% owned by black people who are youth;
an EME or QSE which is at least 51% owned by black people who are women;

an EME or QSE which is at least 51% owned by black people with disabilities;
an EME or QSE which is 51% owned by black people living in rural or underdeveloped area or townships;
a co-operative which is at least 51% owned by black people;
an EME or QSE which is at least 51% owned by black people who are military veterans

ii. Subcontract documentation, and assessment of subcontract tenders

Where there's an agreement between the *Contractor* and the *Employer's Project Manager* with regard to subcontracting, the *Contractor* shall ensure that the sub-*contractor* complies with the documentation requirements stated in this *Works* Information.

iii. Limitations on subcontracting

Appointment and managing the sub-contractor is the full responsibility of the Principal contractor. The *Contractor* may request recommendations of sub-contractors

iv. Attendance on subcontractor

The sub-*contractor*, where applicable, will attend all meetings stated in this Scope of Work

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

No "free issue" plant or material will be provided by the *Employer*

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

All plant and materials for this project will be included in the price list

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

i. All persons entering and leaving the Site will be subject to security checks including breathalyser testing for alcohol levels. Persons failing the latter test will be denied entry to Site.
ii. No person may enter the Site without the necessary permits.
iii. All persons entering the Site for the first time shall attend a safety induction course.
iv. Copies of Site regulations shall be obtained by the *Contractor* and these regulations shall be made available to, and imposed on, all persons employed by the *Contractor* and on visitors accompanying the *Contractor* on site.
v. All persons shall obey road signs and no entry passed safety barricades shall be condoned.

viii. Restriction to access on Site, roads, walkways and barricades

As per the Safety regulations

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

Working hours will be adhered to as per negotiations. The *Contractor* keeps records of his people on Site, including those of his Subcontractors which the *Project Manager* or Supervisor have access to at any time. These records may be needed when assessing compensation events.

x. Health and safety facilities on Site

Safety offices are located at the Fire Station building within Kriel Power Station. Office hours for the safety department are:
Monday's to Thursday's 08:00 to 15:00.
Fridays: Only on appointment between 08:00 - 09:00 in the mornings.
Safety File Approval as per Construction Regulations (OHS Act no 85 of 1993**)**

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

All waste material will be disposed of in the correct waste skips. The *contractor* will be accountable for housekeeping of his area. The *Project Manager* will inspect before hand-over will be signed

xii. Title to materials from demolition and excavation

Not Applicable

xiii. Cooperating with and obtaining acceptance of others

Access for and interface with other *Contractors;*

The *Contractor* is required to make his own assessment of the problems and difficulties which may be encountered and no extra payment or claim of any kind will be allowed on account of providing reasonable access to and interfacing with others. Restrictions and hours of work may apply on some sites.

It is very important that the *Contractor* keeps records of his *employees* on site, including those of his subcontractors which the *Project Manager* or Supervisor have access to at any time. These records may be needed when assessing compensation events

xiv. Publicity and progress photographs

No photographs may be taken on Site without the written permission of the *Employer*

REPORTING, RECORDING AND INVESTIGATION OF ACCIDENTS AND INCIDENTS

In the case where Principal Contractors and/or Co-Contractors are Eskom departments then:

a) The reporting, recording and investigation of accidents and incidents must be done in accordance with the Occupational Health and Safety Act, the National Environmental management Act, National Water Act and the Eskom procedure for the reporting and recording and investigation of Incidents (ESKPVABN9 as revised). The Eskom BU's may use their own procedure provided it complies with the OHS Act, the National Environmental management Act, National Water Act and the COID Act and ESKPVABN9 procedure.
b) In the cases of fatality incidents, Eskom will also conduct an independent investigation and a case study will be compiled thereof.
c) Case studies will be compiled for all disabling injuries and fatalities by the business unit.

In the case where Principal Contractors and/or Co-contractors are not Eskom departments then:

a) The Principal Contractor shall inform the Eskom Client/agent about the accident or incident within 24 hours.
b) The Principal Contractor shall report all cases as required in terms of legislation.
c) The Principal Contractor shall ensure that all accidents/incidents are investigated by him/her and are discussed at the S.H.E committee meeting held on site.
d) Accidents/incidents shall be investigated and recorded in terms of the requirements of the Occupational Health and Safety Act, the National Environmental Management Act and National Water Act as applicable.
e) The Client shall be allowed to participate in any accident/incident investigation if the accident/incident is directly linked to any activity within the scope of the construction project.
f) Case studies will be compiled for all disabling injuries and fatalities by the business unit and forward to CS (SHE) for publication on the website.
g) The Principal Contractor shall keep a record of all accidents and incidents reported in the form of the Annexure 1 investigation form (Domino Form). (Incident Investigation Report)
h) The Principal Contractor shall provide SHE related statistics to the Client at the end of each month.

i) In any incidence resulting in fatality, Eskom may possibly also conduct an independent investigation and a case study will be compiled thereof.

j) The Principal Contractor may be required to attend or make available its contractor to attend a disciplinary process involving an incident that may have been caused by an Eskom employee.

DISCIPLINARY PROCESS

Eskom takes a Zero Tolerance stance on health and safety related at-risk behaviour.

Eskom will view the following at-risk behaviour in a very serious light:

a) No person may disregard any requirements contained in the Act, this document, site specific health and safety requirements, and requirements contained in the health and safety specifications and health and safety plan, whilst performing work for Eskom.

b) No person may perform an unsafe act or create an unsafe condition that will pose danger to him/her and/or to other persons within the area of execution.

c) No Principal Contractors shall allow any of its employee/s and/or co-contractors employee/s (including casual labourers, or labour broker employees) to perform work without ensuring that each employee has received proper training within the obligations of this service, .e. induction, accredited health and safety training, task specific risk assessments, task specific job observations, task specific training and any other additional training that might assist the employee in working in a healthy and safe manner.

If any of the above risk areas / rules / at risk behaviour are not adhered to, it will result in a disciplinary process, which it should be noted will have the power of dismissal. In the case of a Principal Contractor, it may result in cancellation of contract as well as the possibility of being black-listed.

ACCESS TO THE CONTRACTOR'S AND SUBCONTRACTOR(S) PREMISES AND FACILITIES

The *Contractor* and/or its subcontractor gives access to the Project Manager where appropriate to their premises and facilities at reasonable times to conduct quality assessments, audits, surveillances and inspections to establish compliance with the contractual requirements.

INSPECTION AND TESTING

The *Contractor* gives at least 72 hours advance notification to the Project Manager for inspection which requires their attendance.

The *Contractor* ensures that all work has been fully inspected, accepted and documented prior to requesting any inspection by the Service Manager.

PROGRAMME AND PLANNING

Purpose

The purpose of the program and planning is to define the *Employers* requirements for the time, cost and resource planning and control when using the *NEC* contract.

Scope

All project programming and contract progress monitoring for projects is based on *NEC* contract conditions.

Requirements: Compliance with all requirements as defined in this document.

- **PART 4: SITE INFORMATION**

General

The Kriel Power Station is situated approximately half way between Bethal and Ogies on the R545, being just over 30 km from each town and 10 km north-west of Kriel town.

Climate

Kriel Power Station is situated in a summer rainfall area with an average annual precipitation of about 750-mm falling almost entirely during the months of October to April. The average rainfall per month generally exceeds 40 mm during this period, although drought periods do occur which can last for 20 days or longer. Drought periods occur most frequently during the months of October/November and March/April. January is statistically the highest rainfall month with an average monthly rainfall of about 130-mm. June has the lowest rainfall with an average monthly rainfall of about 7 mm.

Approximately 85% of the annual rainfall occurs in the summer months and heavy falls of 125 to 150 mm occasionally occur in a single day. The annual average number of thunderstorms is about 75. These storms are often violent with severe lightning and strong (but short-lived) gusty winds and are sometimes accompanied by hail. This region has among the highest hail frequencies in South Africa; about 4 to 7 occurrences (depending mainly on altitude) may be expected annually.

January is normally the hottest month with an average daily maximum temperature of 27°C with a mean daily temperature in winter being about 16°C. Winter average daily temperatures vary from 18,5°C maximum to -1°C minimum. The extreme temperatures recorded range from 34,7°C to minus 12,4°C for the period 1920 - 1984. (Source: Weather Bureau, Pretoria)

Winds are generally light to moderate except during thunderstorms. Generally the prevailing wind directions are from the North West during the day and from the east at night. During daytime, the prevailing winds are from the north-western direction. During night-time, the prevailing winds are from the north-eastern direction. The highest recorded average wind speed is 17, 6 km/hour. The average wind velocity over the year is 14, 5 km/hour.

Relative Humidity

Records for Bethal (2008 - 2009)
The average relative humidity on an annual base are as follows:
08:00 = 80%
14:00 = 52%
20:00 = 73%

Prevailing Winds

Records for Bethal (2008 - 2009)
Winds are mostly north-westerly except for February and March when they are easterly to south-easterly. The highest wind speeds are recorded from the south-east: on average 14km/h.

Other Climatic Factors

Records for Bethal (2008 - 2009)
Thunder occurs mostly from November to January with average of 35.7 days annually.

a) Hail occurs mostly in December with average of 2.8 days annually.
b) Fog occurs mostly in the winter months with an average of 19 days annually.
c) Snow rarely occurs
d) Cloud coverage is highest in the summer months with annual average as follows:
   - 08:00 = 2.8/8
   - 14:00 = 3.8/8
   - 20:00 = 3.1/8

   Evaporation for the area is in rage of 75mm to 190mm per month. The highest evaporation occurs in December, and the lowest in June.

Topography

The surface topography of the Kriel area is typical of the Mpumalanga Highveld consisting in the main of a gently undulating plateau. The flood plains of the local streams are at an average elevation of ± 1540 meters above mean sea level and drainage generally is a northerly direction.

Air Quality

The existing and potential sources of air pollution in Kriel area are the following:

- Kriel Power Station stack emissions
- Kriel Power Station dry dust (fly ash) handling plant
- Dust blow from the Eskom coal stock yard
- Dust blow from the roads in the area
- Seasonal dust blow caused by ploughing of farmlands, and dust blow off denuded fields
- Dust blow from dried out exposed surfaces of the wet ash dam.

However, Eskom utilises the majority of the top surface of the ash dam as an evaporation pan for polluted water, which means that the exposed surface is constantly wet. The sides of the ash dam have largely been rehabilitated, with the result that dust blow from the ash dam.