



NEC3 Engineering & Construction Contract

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

and
(Reg No. _____)

for **Re-routing of Coal Trucks Access Road and
Relocation of Tarpaulin Cover Removal Area at Arnot
Power Station for a period of One (1) Year**

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CONTRACT No.

Part C1: Agreements & Contract Data

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

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:

Re-routing of Coal Trucks Access Road and Relocation of Tarpaulin Cover Removal Area at Arnot Power Station for a Period of One (1) Year

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

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

Signature(s)

Name(s)

Capacity

**For the
tenderer:**

(Insert name and address of organisation)

Name &
signature of
witness

Date

Tenderer's CIDB registration number (if applicable)

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

Acceptance

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

The terms of the contract, are contained in:

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

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

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

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

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

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

Signature(s)

Name(s)

Capacity

**for the
Employer**

Eskom Holdings SOC Limited
Arnot Power station
Private bag x2
Rietkuil
1097

Date

Name &
signature of
witness

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		

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)*
 Eskom Holdings SOC Limited
 Arnot Power station
 Private bag x2
 Rietkuil
 1097
Name &
signature
of witness

Date

C1.2 ECC3 Contract Data

Part one - Data provided by the *Employer*

Clause	Statement	Data
1	General	
	The <i>conditions of contract</i> are the core clauses and the clauses for main Option	
		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
		X15: Limitation of the <i>Contractor's</i> liability For his design to reasonable skill and care
		X16: Retention
		X17: Low performance damages
		X18: Limitation of liability
		Z: <i>Additional conditions of contract</i>
	of the NEC3 Engineering and Construction Contract, April 2013 (ECC3)	
10.1	The <i>Employer</i> is (Name):	Eskom Holdings SOC Ltd (reg no: 2002/015527/30), a state owned company incorporated in terms of the company laws of the Republic of South Africa
	Address	Registered office at Megawatt Park, Maxwell Drive, Sandton, Johannesburg
10.1	The <i>Project Manager</i> is: (Name)	
	Address	Eskom Holdings SOC Limited Arnot Power station Private bag x2 Rietkuil 1097
	Tel	
	e-mail	
10.1	The <i>Supervisor</i> is: (Name)	

Address

Tel No.

e-mail

11.2(13)	The <i>works</i> are	Re-routing of Coal Trucks Access Road and Relocation of Tarpaulin Cover Removal Area	
11.2(14)	The following matters will be included in the Risk Register	• Unfavourable soil/ground conditions • Traffic disruptions • Environmental contraventions • Community unrest • Inclement weather • Equipment mobilization • Delays in obtaining permits • Labour/union strikes	
11.2(15)	The <i>boundaries of the site</i> are	Arnot Power Station's coal stockyard access road	
11.2(16)	The Site Information is in	Part 4: Site Information	
11.2(19)	The Works Information is in	Part 3: Scope of Work and all documents and drawings to which it makes reference.	
12.2	The <i>law of the contract</i> is the law of	the Republic of South Africa	
13.1	The <i>language of this contract</i> is	English	
13.3	The <i>period for reply</i> is	Two (2) weeks	
2	The Contractor's main responsibilities	Data required by this section of the core clauses is provided by the <i>Contractor</i> in Part 2 and terms in italics used in this section are identified elsewhere in this Contract Data.	
3	Time		
11.2(3)	The <i>completion date</i> for the whole of the <i>works</i> is	One (1) Year	
11.2(9)	The <i>key dates</i> and the <i>conditions</i> to be met are:	Condition to be met	key date
		1 Contractor submits a final and approve design report and construction drawings	Eight (8) weeks after the kick off date
30.1	The <i>access dates</i> are:	Part of the Site	Date
		1 Arnot Power Station-Coal Stock Yard	One (1) week of contract award
31.1	The <i>Contractor</i> is to submit a first programme for acceptance within	Two (2) weeks of the Contract Date.	
31.2	The <i>starting date</i> is	[•]	

32.2	The <i>Contractor</i> submits revised programmes at intervals no longer than	Two (2) weeks
35.1	The <i>Employer</i> is not willing to take over the <i>works</i> before the Completion Date.	
4	Testing and Defects	
42.2	The <i>defects date</i> is	Fifty-Two (52) weeks after Completion of the whole of the <i>works</i>.
43.2	The <i>defect correction period</i> is	One (1) week
5	Payment	
50.1	The <i>assessment interval</i> is	Between the 25th day of each successive month.
51.1	The <i>currency of this contract</i> is the	ZAR (South African Rand)
51.2	The period within which payments are made is	30 days after the receipt of correct and undisputed tax invoice ATTENTION: Eskom's standard policy on payment term for all contracts valued above R50 000 000.00 (Fifty Million Rand), including VAT, is 60 days. Bidders are requested to bear this payment term in mind when submitting bids and concluding contracts.
51.4	The <i>interest rate</i> 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 <i>mutatis mutandis</i> every 6 months thereafter and as certified, in the event of any dispute, by any manager employed in the foreign exchange department of The Standard Bank of South Africa Limited, whose appointment it shall not be necessary to prove.
6	Compensation events	
60.1(13)	The place where weather is to be	Arnot Power Station

recorded is:

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

Arnot Power Station

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

Arnot Power Station

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 <i>weather data</i> for each <i>weather measurement</i> for each calendar month are:	As stated in Annexure A to this Contract Data provided by the <i>Employer</i> .
7	Title	There is no reference to Contract Data in this section of the core clauses and terms in italics used in this section are identified elsewhere in this Contract Data.
8	Risks and insurance	
80.1	These are additional <i>Employer's</i> risks	The <i>Employer's</i> additional risks shall be as set out in the Risk Register.
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 <i>method of measurement</i> is	Standard System of Measure published by ASAQs and amended as stated in Part C2.1, Pricing Assumptions.
11	Data for Option W1	
W1.1	The <i>Adjudicator</i> is	the person selected from the ICE-SA Division (or its successor body) of the South African Institution of Civil Engineering Panel of Adjudicators by the Party intending to refer a dispute to him. (see www.ice-sa.org.za). If the

		Parties do not agree on an Adjudicator the Adjudicator will be appointed by the Arbitration Foundation of Southern Africa (AFSA).
	Address	[•]
	Tel No.	[•]
	Fax No.	[•]
	e-mail	[•]
W1.2(3)	The <i>Adjudicator nominating body</i> is:	the Chairman of ICE-SA a joint Division of the South African Institution of Civil Engineering and the London Institution of Civil Engineers. (See www.ice-sa.org.za) or its successor body.
W1.4(2)	The <i>tribunal</i> is:	arbitration.
W1.4(5)	The <i>arbitration procedure</i> is	the latest edition of Rules for the Conduct of Arbitrations published by The Association of Arbitrators (Southern Africa) or its successor body.
	The place where arbitration is to be held is	South Africa
	The person or organisation who will choose an arbitrator	
	- if the Parties cannot agree a choice or	the Chairman for the time being or his nominee
	- if the arbitration procedure does not state who selects an arbitrator, is	of the Association of Arbitrators (Southern Africa) or its successor body.
12	Data for secondary Option clauses	
X2	Changes in the law	There is no reference to Contract Data in this Option and terms in italics are identified elsewhere in this Contract Data.
X7	Delay damages (but not if Option X5 is also used)	
X7.1	Delay damages for Completion of the whole of the <i>works</i> are	0.05% to 0,10% of Contract Value per day up to a limit of 10% of the Price of the delayed work
X15	Limitation of the <i>Contractor's</i> liability For his design to reasonable skill and care	There is no reference to Contract Data in this Option and terms in italics are identified elsewhere in this Contract Data.
X16	Retention (not used with Option F)	
X16.1	The <i>retention free amount</i> is	Nil
	The <i>retention percentage</i> is	Five (5) % Contract Value
X18	Limitation of liability	
X18.1	The <i>Contractor's</i> liability to the <i>Employer</i> for indirect or consequential loss is limited to:	R0.0 (zero Rand)

X18.2	For any one event, the <i>Contractor's</i> liability to the <i>Employer</i> for loss of or damage to the <i>Employer's</i> property is limited to:	the amount of the deductibles relevant to the event
X18.3	The <i>Contractor's</i> liability for Defects due to his design which are not listed on the Defects Certificate is limited to	The greater of • the total of the Prices at the Contract Date and • the amounts excluded and unrecoverable from the <i>Employer's</i> assets policy for correcting the Defect (other than the resulting physical damage which is not excluded) plus the applicable deductible as at contract date.
X18.4	The <i>Contractor's</i> total liability to the <i>Employer</i> for all matters arising under or in connection with this contract, other than excluded matters, is limited to:	the total of the Prices other than for the additional excluded matters. The <i>Contractor's</i> total liability for the additional excluded matters is not limited. The additional excluded matters are amounts for which the <i>Contractor</i> is liable under this contract for • Defects due to his design which arise before the Defects Certificate is issued, • Defects due to manufacture and fabrication outside the Site, • loss of or damage to property (other than the <i>works</i>, Plant and Materials), • death of or injury to a person and • infringement of an intellectual property right.
X18.5	The <i>end of liability date</i> is	(i) Two (2) years after the <i>defects date</i> 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 <i>Employer</i> or the <i>Supervisor</i> before the <i>defects date</i>, without requiring any inspection not ordinarily carried out by the <i>Employer</i> or the <i>Supervisor</i> during that period. If the <i>Employer</i> or the <i>Supervisor</i> do undertake any inspection over and above the reasonable inspection, this does not place a greater responsibility on the <i>Employer</i> or the <i>Supervisor</i> to have discovered the Defect.
Z	The <i>Additional conditions of contract</i> are	Z1 to Z14 always apply.

Z1 Cession delegation and assignment

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

Z2 Joint ventures

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

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

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

Z4 Confidentiality

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

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

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

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

Z5 Waiver and estoppel: Add to core clause 12.3:

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

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

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

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

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

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

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

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

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

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

Z8 Notifying compensation events

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

Z9 *Employer's* limitation of liability

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

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

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

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

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

Z12 Ethics

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

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

Action concealing information or making false statements to materially impede an investigation into allegations of Prohibited Action, and

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

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

Z13 Insurance

Z 13.1 Replace core clause 84 with the following:

Insurance cover 84

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

INSURANCE TABLE A

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

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

Z 13.2**Replace core clause 87 with the following:**

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

INSURANCE TABLE B

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

Z14 Asbestos

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

AAIA means approved asbestos inspection authority.

ACM means asbestos containing materials.

AL means action level, i.e. a level of 50% of the OEL, i.e. 0.1 regulated asbestos fibres per ml of air measured over a 4 hour period. The value at which proactive actions is required in order to control asbestos exposure to prevent exceeding the OEL.

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

Z14.1 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.

Z14.2 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.

Z14.3 The *Employer* manages asbestos and ACM according to the Standard.

Z14.4 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.

Z14.5 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.

Z14.6 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.

- Z14.7 Any removal and disposal of asbestos, asbestos containing materials and waste, is done by a registered asbestos contractor, instructed by the *Employer* at the *Employer's* expense, and conducted in line with South African legislation.

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

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

Month	Weather measurement				
	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	[•]	[•]	[•]	[•]	
February	[•]	[•]	[•]	[•]	
March	[•]	[•]	[•]	[•]	
April	[•]	[•]	[•]	[•]	
May	[•]	[•]	[•]	[•]	
June	[•]	[•]	[•]	[•]	
July	[•]	[•]	[•]	[•]	
August	[•]	[•]	[•]	[•]	
September	[•]	[•]	[•]	[•]	
October	[•]	[•]	[•]	[•]	
November	[•]	[•]	[•]	[•]	
December	[•]	[•]	[•]	[•]	

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

C1.2 Contract Data

Part two - Data provided by the *Contractor*

Notes to a tendering contractor:

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

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

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

¹ Available from Engineering Contract Strategies Tel 011 803 3008, Fax 011 803 3009 or see www.ecs.co.za

		CV's (and further key persons data including CVs) are appended to Tender Schedule entitled .		
11.2(3)	The <i>completion date</i> for the whole of the <i>works</i> is			
11.2(14)	The following matters will be included in the Risk Register			
11.2(19)	The Works Information for the <i>Contractor's</i> design is in:			
31.1	The programme identified in the Contract Data is			
B	Priced contract with bill of quantities			
11.2(21)	The <i>bill of quantities</i> is in			
11.2(31)	The tendered total of the Prices is	(in figures) (in words), excluding VAT		
	Data for Schedules of Cost Components	<i>Note "SCC" means Schedule of Cost Components starting on page 60, and "SSCC" means Shorter Schedule of Cost Components starting on page 63 of ECC3 (April 2013).</i>		
B	Priced contract with bill of quantities	Data for the Shorter Schedule of Cost Components		
41 in SSCC	The percentage for people overheads is:	%		
21 in SSCC	The published list of Equipment is the last edition of the list published by The percentage for adjustment for Equipment in the published list is	Minus %		
22 in SSCC	The rates of other Equipment are:	Equipment	Size or capacity	Rate
61 in SSCC	The hourly rates for Defined Cost of design outside the Working Areas are Note: Hourly rates are estimated 'cost to company of the employee' and not selling rates. Please insert another schedule if foreign resources may also be used	Category of employee		Hourly rate

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

PART 2: PRICING DATA

ECC3 Option B

Document reference	Title	No of pages
	This cover page	1
C2.1	Pricing assumptions: Option B	3
C2.2	The <i>Bill of Quantities</i>	17
	Total number of pages	21

C2.1 Pricing assumptions: Option B

1. How work is priced and assessed for payment

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

Identified and defined terms	11	
	11.2	(21) The Bill of Quantities is the <i>bill of quantities</i> as changed in accordance with this contract to accommodate implemented compensation events and for accepted quotations for acceleration.
		(28) The Price for Work Done to Date is the total of - the quantity of the work which the <i>Contractor</i> has completed for each item in the Bill of Quantities multiplied by the rate and - a proportion of each lump sum which is the proportion of the work covered by the item which the <i>Contractor</i> has completed. Completed work is work without Defects which would either delay or be covered by immediately following work.
		(31) The Prices are the lump sums and the amounts obtained by multiplying the rates by the quantities for the items in the Bill of Quantities.

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

2. Function of the Bill of Quantities

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

3. Guidance before pricing and measuring

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

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

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

plus Fee is used.

4. Measurement and payment

4.1. Symbols

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

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

4.2. General assumptions

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

4.3. Departures from the *method of measurement*

4.3.1.

4.4. Amplification of or assumptions about measurement items

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

4.4.1.

C2.2 the *bill of quantities*

SUMMARY OF SECTIONS

Description	Amount R	
1.0 PRELIMINARIES AND GENERAL	R	-
2.0 ACCOMMODATION OF TRAFFIC	R	-
3.0 CLEARING AND GRUBBING	R	-
4.0 DRAINS	R	-
5.0 CULVERTS	R	-
6.0 EXCAVATION	R	-
7.0 COMMERCIAL MATERIALS	R	-
8.0 ROADBED	R	-
9.0 ROAD PAVEMENT LAYERS	R	-
10.0 STABILISATION	R	-
11.0 SEGMENTAL BLOCK PAVING LAYERS	R	-
12.0 LANDSCAPING AND PLANTING PLANTS	R	-
13.0 FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS	R	-
14.0 TESTING MATERIALS AND JUDGEMENT OF WORKMANSHIP	R	-
SUBTOTAL	R	-

1.0 PRELIMINARIES AND GENERAL

Item	Description	Unit	Quantity	Rate	Amount R
	CONTRACTOR'S SITE ESTABLISHMENT AND GENERAL OBLIGATIONS				
	The Contractor's general obligations:				
	<u>Fixed-Charge and Value Related Items</u>				
	<i>Site Establishment</i>				
	<u><i>Establishment of site offices, ablutions, secure storage, and utility connections.</i></u>				
1.1	Transport of all plant and equipment to site	Once Off	1		
1.2	Site offices, ablutions, changing room, eating area, storage and signage	Once Off	1		
1.3	Temporary utility connections	Once Off	1		
	<i>Safety:</i>				
	<u><i>SHE REQUIREMENTS (Compliance with Eskom induction and safety, health and environmental requirements)</i></u>				
	<i>Items listed are indicative minimums only. Final PPE selection must be confirmed through a site-specific OHS Risk Assessment as required by the OHS Act No. 85 of 1993 and Section 3.1.2 of Eskom PPE Standard 240-44175132.</i>				
1.4	Health and safety file	Once Off	1		
1.5	Occupational health medicals (pre-employment)	No	30		
1.6	Police Clearance Certificates (SAPS)	No	30		
1.7	Hard hat (white, industrial, SABS mark), with adjustable 3-point webbing chin strap, shortened peak per Section 3.13.1, compliant with SANS 139	No	30		
1.8	Sun brim for hard hat, navy blue, 100% cotton flame retardant D59, minimum 90mm brim per Section 3.13.2	No	30		
1.9	General safety boots, steel/carbon fibre toe, full grain leather, dark brown, oil/slip/heat resistant, SABS SANS 20345	No	30		

Item	Description	Unit	Quantity	Rate	Amount R
1.10	Reflective vest (fluorescent orange-red, for "Employee at Work" category), minimum 50mm retro-reflective tape, SANS 50471 compliant per Section 3.10	No	30		
1.11	Dust mask FFP2 with valve, disposable, EN 149:2001+A1 2009 FFP2 NR D, protection factor 10x WEL per Section 3.19.1	No	30		
1.12	Safety spectacles/goggles, impact/dust resistant, anti-fog, anti-scratch, ANSI Z87.1 and CE-EN 166 compliant per Section 3.14.3	No	30		
1.13	Hearing protection — disposable foam earplugs, corded, 32 NRR ANSI, slow expanding PU foam per Section 3.15	No	30		
1.14	Hearing protection — earmuffs, dielectric construction, SNR 30 NRR 28, CE compliant per Section 3.15	No	30		
1.15	Two-piece boiler suit, navy blue (Pantone 19_3920), pre-shrunk 100% cotton D59, flame & acid retardant SANS 1423-1 class C cat 1, reflective strips, SANS	No	30		
1.16	General purpose gloves, cut-resistant, micro-foam nitrile coated, EN 388 minimum level 3 cut resistance per Section 3.17.2	No	30		
1.17	Socks, non-conductive, anti-static, anti-bacterial, 72-75% cotton/poly/silver fibre per Section 3.16.9	No	30		
1.18	Gumboots, solid rubber/PU, black, protective toe cap, acid/oil resistant, SANS 20345 per Section 3.16.7	No	30		
1.19	Provision of reflective safety vests for visitors	No	5		
1.20	Provision of hard hats for visitors	No	5		
	Survey, Setting Out & Design				
1.21	Detailed topographical survey of entire site including setting out, establishment of control points and demarcation of road alignment and centreline	Sum	1		
1.22	Preparation, submission and approval of Geometric and Stormwater Design Report (PDF, DWG and A0 hardcopies), signed by ECSA Pr.Eng	Sum	1		

Item	Description	Unit	Quantity	Rate	Amount R
1.23	Preparation and submission of As-built Drawings (PDF, DWG compatible with Bentley MicroStation and A0 hardcopies) signed by Contractor's Engineer on completion	Sum	1		
1.24	Preparation and submission of Rubicon Toolbox Pavement Design Verification Report including capacity analysis, traffic loading, climate and material properties, signed by ECSA Pr.Eng	Sum	1		
	Documentation & Compliance				
1.25	Preparation and submission of Skills Transfer and Training documentation including attendance records and topics covered	Sum	1		
1.26	Preparation, submission and approval of Quality Control Plan (QCP) prior to commencement of works	Sum	1		
1.27	Obtaining, submitting and managing all Telkom and other service provider wayleave approvals including liaison, relocation of poles and raising of overhead cables	Sum	1		
1.28	Preparation and submission of Material and Test Summary Dossier (comprehensive laboratory and field test results in PDF format)	Sum	1		
1.29	Preparation and submission of Rehabilitation and Environmental Compliance Report signed by Eskom Environmental Officer and Contractor's Engineer	Sum	1		
1.30	Appointment of SANAS-accredited laboratory for all material testing and field density testing for the full duration of the works	Sum	1		
1.31	Site De-establishment	Once Off	1		
1.32	Transport of all plant and equipment off site	Once Off	1		
1.33	Exit medicals	Once Off	1		
	<u>Time-related obligations - Contractual Requirements</u>				
	Environmental Management:				
1.34	Monitoring of compliance with and reporting on the EMP	Month	3		
	<u>Monthly running cost of site offices, ablutions, secure storage, and utility connections.</u>				

Item	Description	Unit	Quantity	Rate	Amount R
1.35	Site offices, ablutions, change room, eating area and storage - monthly rental/maintenance	Month	3		
1.36	Temporary utility connections	Month	3		
1.37	ECSA Professionally Registered Engineer (Pr.Eng), minimum 5 years road construction and maintenance experience post-registration	Month	3		
1.38	Construction Manager	Month	3		
1.39	Health and Safety Officer	Month	3		
1.40	Site Agent/Supervisor	Month	3		
Total Carried Forward to Summary					

2.0 ACCOMMODATION OF TRAFFIC

Item	Description	Unit	Quantity	Rate	Amount R
	Establishment of Traffic Accommodation				
2.1	Preparation, submission and approval of traffic control plan prior to commencement of works	Sum	1		
2.2	Supply, erect and commission all temporary road signs, cones, delineators, traffic stations and associated traffic control measures at all construction zones along the access road and intersections; compliant with SARTSM for pedestrians, vehicular traffic and non-motorised traffic	Sum	1		
2.3	Flagmen	Month	3		
2.4	Traffic controllers	Month	3		
2.5	Traffic safety officer	Month	3		
2.6	Traffic safety vehicle	Month	3		
	Additional traffic accommodation facilities ordered by the Engineer:				
2.7	Provision of additional traffic accommodation facilities	Sum	1		
2.8	Liaison with traffic authorities	Month	3		
	De-establishment of Traffic Accommodation				

Item	Description	Unit	Quantity	Rate	Amount R
2.9	Remove, dismantle and clear all temporary traffic signs, cones, barriers, delineators and solid barricading from site on completion of works; reinstate road shoulders and verges disturbed by traffic accommodation to acceptable condition	Sum	1		
Total Carried Forward to Summary					

3.0 CLEARING AND GRUBBING

Item	Description	Unit	Quantity	Rate	Amount R
	Clearing and Grubbing Notes: All cleared material and surplus topsoil to be removed to approved spoil sites identified and provided by the Contractor All costs for loading, hauling and tipping to approved spoil sites to be included in respective item rates Clearing and Grubbing - Greenfield Operational Areas				
3.1	Clear and grub new tarpaulin removal area; includes all vegetation, debris, trees and obstructions	m ²	3000		
3.2	Clear and grub new staging area	m ²	4000		
3.3	Clear and grub laydown area	m ²	1000		
	Removal and grubbing of large trees and tree stumps:				
3.4	Girth equal to or exceeding 1,0 m up to and including 2,0 m (quantities are provisional)	No	20		
	Existing services location, detection and verification:				
3.5	Using hand excavation to locate, expose and verify services	m ³	500		
Total Carried Forward					

4.0 DRAINS

Item	Description	Unit	Quantity	Rate	Amount R
	Notes: All drain types, positions, gradients and dimensions to be confirmed by Contractor's approved Geometric and Stormwater Design Report signed by ECSA Pr.Eng All stormwater drainage to connect to Arnot Power Station CSY drainage network All drains to achieve continuous uniform fall free from ponding and obstructions Stone pitching to comply with COTO (2020) grouted stone pitching specification Trapezoidal Earth Side Drains				
4.1	Excavate, shape and compact trapezoidal earth side drains along both sides of new road carriageway; achieve continuous, uniform fall free from ponding and obstructions; spread and compact suitable excess material on adjacent embankments; connect to CSY drainage network	m ³	2500		
	Mitre Drains				
4.2	Construct mitre drains at approximately 50m intervals along both sides of the road, tarpaulin removal area, laydown area and staging area, or at natural low points; at angle of approximately 30° downslope from side drain to efficiently discharge surface runoff into surrounding natural ground without causing erosion as per. Rate includes all excavation, shaping and finishing to neat uniform profile	No	10		
	Stone Pitched Aprons				
4.3	Construct grouted stone-pitched aprons at mitre drain discharge points where erosion potential is high; supply stone, mortar grouting and all finishing to neat appearance as per. Rate includes all materials, labour and grouting	m ²	70		
	CSY Drainage Network Connection				
4.4	Connect completed stormwater drainage system to Arnot Power Station Coal Stockyard drainage network; including all excavation, pipework, connections, structures and all associated works required.	Sum	1		
4.5	Loading and hauling of material in excess of	m ³ -km	3		

	1,0 km				
Total Carried Forward to Summary					

5.0 CULVERTS

Item	Description	Unit	Quantity	Rate	Amount R
	CULVERTS Notes: All culvert types, sizes and positions to be confirmed by Contractor's approved Geometric and Stormwater Design Report Stone pitching to comply with COTO (2020) Backfill to be compacted to minimum 90% Mod AASHTO density The rate for culvert structural members shall be inclusive of all materials including reinforcement Quantities are provisional pending geometric and stormwater design				
5.1	Excavation for culvert structures to required depth and width; trim and shape invert; batter sides where necessary to prevent collapse; dispose of surplus material to approved spoil sites	m ³	70		
5.2	Backfill using imported G5 quality gravel material from commercial source, in layers not exceeding 150mm; compact to minimum 90% Mod AASHTO	m ³	25		
	Concrete pipe culverts:				
5.3	Supply and install precast concrete pipe culvert, DN300 (spigot-and-socket with elastomeric seal, SANS 986/677 compliant), laid to line and level. Item includes all pipe sections and jointing materials for one completed road crossing	m	200		
5.4	Provide and lay granular Class B bedding and haunching to culvert pipes	m	200		
5.5	Construct in-situ reinforced concrete headwalls and wingwalls to all culverts; including all excavation, formwork, steel reinforcement	No	20		
5.6	Construct grouted stone pitching at culvert inlets and outlets to prevent scouring; compliant with COTO (2020)	m ²	70		

Item	Description	Unit	Quantity	Rate	Amount R
5.7	Geotextile separator (Class A2/A3) under mitre drain aprons	m ²	70		
5.8	Loading and hauling of material in excess of 1.0km arising from culvert excavations and associated works	m ³	70		
Total Carried Forward Summary					

6.0 EXCAVATION

Item	Description	Unit	Quantity	Rate	Amount R
	EXCAVATION				
	Excavating material by using conventional road construction equipment, to spoil in sites designated by the Contractor				
6.1	Natural gravel and sand materials	m ³	10000		
6.2	Coarse fill and rock fill	m ³	1000		
6.3	Removal of oversize material	m ³	1500		
	Excavating material by using labour enhanced methods of construction:				
6.4	Natural gravel and sand materials	m ³	500		
	Stockpiling of road layer materials:				
6.5	Natural gravel material	m ³	10000		
Total Carried Forward to Summary					

7.0 COMMERCIAL MATERIALS

Item	Description	Unit	Quantity	Rate	Amount R
	Notes:				
	This Bill covers supply and delivery only of all material				
	All materials to be tested by SANAS-accredited laboratory prior to delivery on site				
	No material to be delivered without written approval from Eskom's Engineer				

Item	Description	Unit	Quantity	Rate	Amount R
	Granular Materials				
7.1	G7 quality gravel	m ³	3000		
7.2	G6 Gravel quality gravel	m ³	1000		
7.3	G5 Gravel for C4 Base Layer	m ³	3000		
7.4	G5 Gravel for Wearing Course	m ³	3000		
	Stabilisation Materials				
7.5	Supply Portland composite cement CEM II 32.5N for C4 chemical stabilisation	t	100		
	Bituminous Materials				
7.6	Supply CAT 65 spray-grade bituminous emulsion (SS60) for fog spray application	t	2.5		
	Laydown Area Materials				
7.7	Supply and haul to site well-graded clean river sand for 25mm bedding layer in laydown area	m ³	30		
7.8	Supply 60mm interlocking concrete block pavers; compliant with SANS 1058; Class 30/2.0 MPa (compressive/tensile strength); Type Class S-A (interlocking on all sides)	m ²	1000		
7.9	Supply precast concrete kerbs (E1 profile - 75x150) for edge restraints along perimeter of laydown area	m	130		
7.10	Supply ready-mix concrete 20MPa for kerb bedding and backing to precast concrete kerbs	m ³	5		
Total Carried Forward to Summary					

8.0 ROADBED

Item	Description	Unit	Quantity	Rate	Amount R
	ROADBED PREPARATION				
8.1	In-situ treatment by ripping and re-compaction to a minimum of 90% Mod AASHTO	m ³	3000		
8.2	Construction of roadbed comprising a pioneer layer	m ³	1500		
Total Carried Forward to Summary					

9.0 ROAD PAVEMENT LAYERS

Item	Description	Unit	Quantity	Rate	Amount R
	ROAD PAVEMENT LAYERS				
	Notes: This Bill covers placing, compacting of G7 selected layer, G6 subbase layer, G5 wearing course and fog spray All layers to be proof rolled after compaction by Contractor's Engineer prior to placing next layer				
9.1	Compiling and implementing M&U plans for the construction of all the pavement layers Construction of pavement layers: <u>Roadway</u>	No	3		
9.2	Lower G7 selected subgrade layer (150mm) compacted to 93% Mod AASHTO	m ³	2000		
9.3	Lower G5 subbase gravel layer (chemically stabilised to achieve a 150mm C4 layer) compacted to 95% Mod AASHTO	m ³	2000		
9.4	Gravel wearing course layer 150mm compacted to 95% Mod AASHTO	m ³	2000		
	<u>Tarpaulin Removal Area and Staging Area</u>				
9.5	Lower G7 selected subgrade layer (150mm) compacted to 93% Mod AASHTO	m ³	1100		

Item	Description	Unit	Quantity	Rate	Amount R
9.6	Upper G6 selected subgrade layer (150mm) compacted to 95% Mod AASHTO	m ³	1100		
9.7	Lower G5 subbase gravel layer (chemically stabilised to achieve a 150mm C4 layer) compacted to 95% Mod AASHTO	m ³	1100		
9.8	Gravel wearing course layer 150mm compacted to 95% Mod AASHTO	m ³	1100		
	<u>Laydown Area</u>				
9.9	Lower G5 subbase gravel layer (unstabilised) (200mm) compacted to 95% Mod AASHTO	m ³	200		
	<u>Bituminous fog spray</u>				
9.10	Application of bituminous fog spray (SS60) at 1%–1.5% by mass of dry aggregate over G5 wearing course; spray content verified and approved by Contractor's Engineer.	m ²	3000		
Total Carried Forward Summary					

10.0 STABILISATION

Item	Description	Unit	Quantity	Rate	Amount R
	STABILISATION				
	Notes:				
	This Bill covers mixing, placing and compacting of C4 chemically stabilised base layer only				
	Material supply (G5 gravel and CEM II cement) covered elsewhere				
	Minimum 7-day curing period to be allowed for all C4 layers before placing wearing course				
	Chemical stabilisation:				
10.1	Chemical stabilisation of 150mm C4 base layer	m ³	3000		
	Cementitious stabilisation agents for pavement layers:				
10.2	Addition of cementitious stabilisation agents for pavement layers and spreading the agent using bags and labour enhancement methods:				

Item	Description	Unit	Quantity	Rate	Amount R
10.3	Cement (for subbase layer)	t	100		
10.4	Provision and application of water for curing	kℓ	250		
Total Carried Forward Summary					

11.0 SEGMENTAL BLOCK PAVING LAYERS

Item	Description	Unit	Quantity	Rate	Amount R
	SEGMENTAL BLOCK PAVING LAYERS				
	Notes:				
	Applies to laydown area only (1 000 m ²)				
	Runoff directed to perimeter drains at 2% - 3% crossfall				
	Provision and application of approved herbicide and ant poison:				
11.1	Provision of materials	Sum	1		
11.2	Contractor's charges and profit added to the prime cost sum	%	10		
	Interlocking Concrete Block Pavers				
11.3	Lay 60mm interlocking concrete block pavers(Class 30/2.0 MPa; Type Class S-A) to approved laying pattern over entire laydown area, fill all joints with fine dry sand - compliant with SANS 1058	m ²	200		
	Concrete Kerb Edge Restraints				
11.4	Lay precast concrete kerbs (E1 profile) as edge restraints along entire perimeter of laydown area; lay in 20MPa concrete bedding and backing on subgrade to confine block pavers	m	130		
	Re-sanding of joints in segmental block paving:				
11.5	Concrete block paving (60mm Class 30/2.0MPa, Type S-A)	m ²	200		
Total Carried Forward To Summary					

12.0 LANDSCAPING AND PLANTING PLANTS

Item	Description	Unit	Quantity	Rate	Amount R
	LANDSCAPING AND PLANTING PLANTS 3 indigenous trees to be planted for every tree removed during clearing and grubbing Tree species: White Stinkwood, Yellowwood or Camelthorn in 45–50 litre containers All tree planting positions to be identified by Eskom Environmental representative Re-vegetation of disturbed areas to use locally indigenous grass species approved by Eskom Environmental representative Provisional tree quantity based on estimated clearing area — to be confirmed after clearing and grubbing Indigenous Tree Planting				
12.1	Supply and plant White Stinkwood, Yellowwood or Camelthorn in 45–50 litre containers at positions identified by Eskom Environmental representative	No	75		
12.2	Shaping of roadside embankments	m ²	8000		
Total Carried Forward to Summary					

13.0 FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS

Item	Description	Unit	Quantity	Rate	Amount R
	FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS Notes: All finishing operations to be carried out to the satisfaction of Eskom's Engineer All temporary works areas and stockpile areas to be reinstated to original or otherwise acceptable condition All surplus and waste material to be removed to approved spoil sites identified and provided by the Contractor				

Item	Description	Unit	Quantity	Rate	Amount R
	Final Road Finishing - New Road				
13.1	Final road finishing entire site: trim and clear completed carriageway, shoulders and road reserve of all surplus material, boulders, debris, unwanted vegetation, construction waste; shape all shoulders to drain freely away from carriageway edge; all to the satisfaction of Eskom's Engineer	Sum	1		
	Road Signs - New Road				
13.2	Supply, deliver and install R201 Regulatory Speed Limit 30 km/h sign Class 2 retro-reflective sheeting; back plate; galvanised mild-steel post in concrete footing minimum 600mm embedment depth; vertically and horizontally levelled; compliant with SARTSM	No	4		
13.3	Supply, deliver and install R1 STOP sign; Class 2 retro-reflective sheeting; back plate; galvanised mild-steel post in concrete footing minimum 600mm embedment; levelled; compliant with SARTSM	No	4		
13.4	Supply, deliver and install R4.1 One-Way Left regulatory sign; Class 2 retro-reflective sheeting; back plate; galvanised mild-steel post in concrete footing minimum 600mm embedment; levelled; compliant with SARTSM	No	1		
13.5	Supply, deliver and install R4.2 One-Way Right regulatory sign; Class 2 retro-reflective sheeting; back plate; galvanised mild-steel post in concrete footing minimum 600mm embedment; levelled; compliant with SARTSM	No	2		
Total Carried Forward to Summary					

14.0 TESTING MATERIALS AND JUDGEMENT OF WORKMANSHIP

Item	Description	Unit	Quantity	Rate	Amount R
	TESTING MATERIALS AND JUDGEMENT OF WORKMANSHIP				
	Notes:				
	All testing to be performed by SANAS-accredited laboratory				
	All test results to be submitted to Contractor's Engineer for approval and to Eskom's Engineer for acceptance before next layer is placed				

Item	Description	Unit	Quantity	Rate	Amount R
	No material to be delivered to site without written approval of test results by Eskom's Engineer				
	All costs for SANAS-accredited laboratory establishment are covered in Bill Preliminaries and General				
	Material Compliance Testing (Laboratory - Pre-Delivery)				
14.1	Full compliance test set on G5 gravel wearing course material per batch	No	4		
14.2	Full compliance test set on G5 gravel material per batch	No	4		
14.3	Full compliance test set on G6 gravel material batch	No	4		
14.4	Full compliance test set on G7 gravel batch	No	4		
	Field Testing				
14.5	Field density test on subgrade — laydown area	No	3		
14.6	Field density test on subgrade — Staging area	No	6		
14.7	Field density test on subgrade — Tarpaulin removal area	No	3		
14.8	Field density test on subgrade — Roadway	No	12		
14.9	Field density test on G7 selected layer — Staging area	No	6		
14.10	Field density test on G7 selected layer — Tarpaulin removal area	No	3		
14.11	Field density test on G7 layer — Roadway	No	12		
14.12	Field density test on G6 layer - Tarpaulin removal area	No	3		
14.13	Field density test on G6 layer - Staging area	No	6		
14.14	Field density test on G5 base — laydown area	No	3		
14.15	Field density test on C4 layer — Roadway	No	12		
14.16	Field density test on C4 layer - Tarpaulin removal area	No	6		
14.17	Field density test on C4 layer - Staging area	No	6		

Item	Description	Unit	Quantity	Rate	Amount R
14.18	Field density test on G5 wearing course — Roadway	No	12		
14.19	Field density test on G5 wearing course - Tarpaulin removal area	No	3		
14.20	Field density test on G5 wearing course - Staging area	No	6		
	Laboratory Testing				
	<u>Collect and sample for laboratory testing:</u>				
14.21	G7 gravel samples	No	10		
14.22	G6 gravel samples	No	3		
14.23	G5 gravel samples	No	3		
14.24	G5 wearing course samples	No	10		
14.25	C4 layer samples	No	10		
	Proof Rolling				
14.26	Proof rolling of subgrade and each compacted pavement layer using approved loaded roller under supervision of Contractor's Engineer to identify weak spots prior to placing next layer	Sum	1		
	Provisional Additional Testing				
14.27	Additional tests requested by Eskom's Engineer beyond those listed in this Bill	Sum	1		
Total Carried Forward To Summary					

PART 3: SCOPE OF WORK

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C3.2	<i>Contractor's Works Information</i>	9
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1 Description of the works

1.1 Executive overview

This Scope of Works details the maintenance and re-routing of the Coal Stockyard (CSY) Access Road at Arnot Power Station (locality shown in Figure 1).

The CSY access road currently accommodates approximately 500 seven-axle and nine-axle coal haulage trucks daily. This road is currently accessed via Road D2225 and traverses an unlicensed gravel road on private property. The coal trucks go through a tarpaulin removal area prior to proceeding to access the CSY. The site experiences significant operational and environmental challenges. During the wet season, polluted surface runoff from the access road and tarpaulin removal area flows onto the adjacent private land, resulting in contamination of vegetation. Additionally, during the dry season, the site experiences high levels of generated coal dust which also contaminates the vegetation of the adjacent private land and contributes to air quality and occupational health concerns.

It is further noted that the wearing course exhibits high plasticity when wet, leading to poor trafficability. In wet conditions, the wearing course softens and becomes muddy, leading to slipperiness, formation of extensive corrugations, deformation and potholes along the access road. Due to inadequate drainage, ponding and severe erosion leading to trenches. Consequently, the heavy vehicles often lose traction and become immobilised.

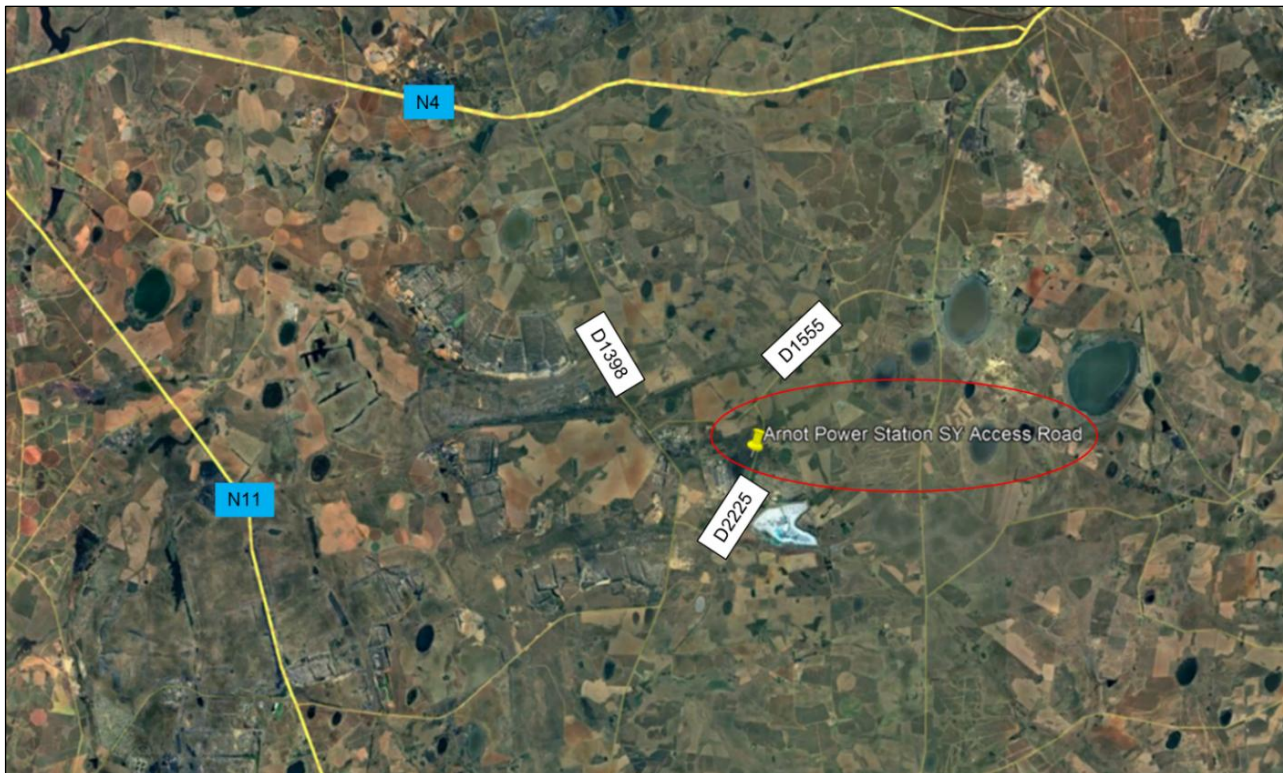


Figure 1: Arnot Power Station Locality

The *Contractor* is required to:

- Obtain all necessary telecommunication wayleaves and approvals from the relevant service providers to execute the works within, across, or adjacent to the existing telecommunication servitude affected by the proposed road alignment.
 - Where the proposed road alignment passes beneath existing overhead telecommunication lines, the *Contractor* shall liaise with the service provider to facilitate the raising of overhead cables and relocation of poles as may be required to ensure sufficient clearance as specified by the service provider and adequate vertical space for earthworks and vehicle passage.

- No construction shall commence within telecommunication servitudes until formal wayleave approvals, and all clearance confirmations have been obtained and submitted to the *Eskom Engineer* for record. The *Contractor* shall ensure full compliance with all servitude conditions, safety standards, and requirements throughout the execution of the works.
- Carry out and report a detailed geometric and stormwater design for the entire road and sections covered under this scope of works. The design shall ensure that the road geometry, vertical and horizontal alignments, and drainage system are functionally effective, safe, and fully compliant with TRH 15 (1994), TRH 17 (1988), and TRH 20 (2009) and meet the requirements stated in this document. All designs and reports are to be signed by an ECSA Professionally Registered Engineer (Pr.Eng) with a minimum of eight (8) years of experience in road construction and maintenance projects.
- Carry out and report a *Rubicon Toolbox* analysis of the pavement structure specified in this document, detailing capacity analysis and taking into account, the heavy traffic loading (average of 500 7-axis and 9-axis coal haulage trucks daily), climate and environmental conditions.
- Supply all materials, machinery, equipment, labour and all other resources necessary to carry out and complete the requirements of this scope of works.
- Appoint a SANAS accredited laboratory to conduct all materials testing and field density testing.
- Construct the Coal Stockyard (CSY) Access Road in accordance with the requirements set out in this Scope of Works as follows:
 - The layerworks shall be constructed in accordance with specifications of this scope of works.
 - The geometry and stormwater shall be constructed in accordance with the design compiled, signed by the *Contractor's Engineer* and accepted by the *Eskom Engineer*.
- Compile and provide all relevant construction drawings.
- Compile and provide all as-built drawings.
- Actively involve the *Eskom Engineer* in the design development process for the geometric and stormwater design components for the purposes of skills transfer and training to ensure meaningful technical exposure and capacity building. This training shall be conducted and supervised by the *Contractor's* Professionally Registered Engineer (Pr.Eng), who shall be responsible for explaining the design methodologies, standards application, and practical considerations used in the preparation of the design report and drawings. The objective of this requirement is to facilitate knowledge sharing, enhance technical capability, and ensure that the *Employer's Engineer* gains a clear understanding of the design rationale, calculations and construction implications.

All works executed under this Scope shall be undertaken under the direct supervision and authorisation of the *Contractor's* ECSA Professionally Registered Engineer (Pr.Eng) with a minimum of eight (8) years of experience in road construction and maintenance projects. This *Engineer* shall be accountable for issuing of formal authorisations and certifications confirming compliance with the relevant specifications, and applicable statutory requirements at each critical phase of the works.

Project Specifications

The works under this scope of works comprise attaining wayleaves, construction and regravelling of the CSY access road, including earthworks, layerworks, stormwater drainage infrastructure, the establishment of a tarpaulin removal area, a staging area, and associated ancillary works as defined in this section. Additionally, the *Contractor* shall carry out a detailed geometric and stormwater design to ensure that the road geometry, vertical and horizontal alignments, and drainage system are sound, safe, and fully compliant with COTO (2020), TRH 15 (1994), TRH 17 (1988), and TRH 20 (2009) requirements. The locality and site layout are shown in Section 13.1: The Site.

This section outlines the specifications for wayleaves, site preparation, earthworks, pavement layerworks, establishment of the tarpaulin removal area, laydown area, staging area, stormwater management, road signage and finishing.

The purpose of the works is to deliver a sound, durable and operationally efficient access road into Arnot Power Station's CSY that is safe to accommodate heavy coal-haulage traffic under varying seasonal conditions.

The *Contractor* shall supply all materials, machinery, equipment, labour and all other resources necessary to carry out and complete the requirements of this scope of works.

Wayleaves

A telecommunication servitude belonging to Telkom was identified within the site where the proposed road alignment (entry and exit intersection) is to be constructed. The servitude is shown on Figure 2 below. The *Contractor* shall verify such services (including other services such as electrical, water) and obtain the necessary wayleaves and approvals from the relevant service providers to execute the works within, across, or adjacent to the servitude affected by the proposed road alignment. The *Contractor* shall liaise with the relevant service provider(s) to facilitate the raising of overhead cables and relocation of poles as may be required to ensure sufficient clearance as specified by the service provider and adequate vertical space for earthworks and vehicle passage.

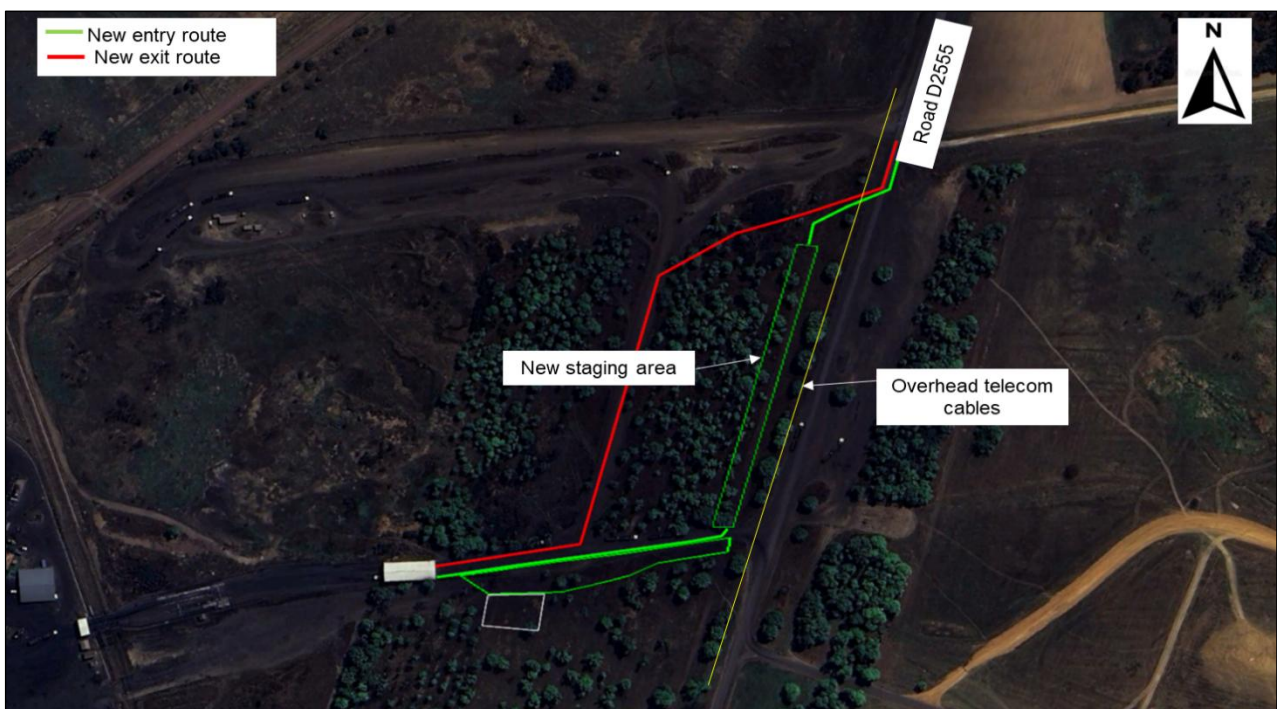


Figure 2: Site layout showing location of telecom servitude

Site preparation

The *Contractor* shall prepare the site for executing the works. The following shall be considered:

- **Setting out:** The *Contractor* shall establish control points, undertake setting out, and demarcate the new road alignment and centreline.
- **Survey:** The *Contractor* shall carry out a detailed topographical survey of the site to establish the horizontal and vertical alignment of the access road. Subsequently, remeasurements and detailing of estimated quantities of cut and fill material required to achieve balanced earthworks shall be carried out. Formation levels shall be established to provide smooth geometric tie-ins with Road D2225 and the CSY ticket issuing access.
- **Clearing and grubbing:** The road reserve shall be cleared of topsoil and excess materials, with all vegetation, debris, and obstructions removed within a 5m width from the edge of the roadway to accommodate shoulders. This includes a greenfield area of approximately 0.4ha for the new tarpaulin

removal area, 0.3ha for the staging area and 0.34ha for the 150m section of the exit route. The *Contractor* shall remove from site, transport and dispose all cleared materials including trees at designated spoil sites identified and provided by the *Contractor*.

- **Trees:** The *Contractor* shall supply and plant three (3) indigenous trees for every tree removed during clearing and grubbing. These trees shall be planted at positions identified by the *Eskom* Environmental representative(s).
- **Stockpile area:** Approved stockpile areas shall be established on site for imported materials, ensuring the prevention of contamination by in-situ soils.
- **Traffic accommodation:** Appropriate traffic accommodation and control measures shall be implemented in compliance with the South African Road Traffic Signs Manual (SARTSM), ensuring minimal disruption to ongoing operations.
- **Safety:** All works shall adhere to the Occupational Health and Safety Act, 1993 & Construction Regulations, 2014, and Arnot Power Station Health and Safety Requirements - Doc. No. 32-136 (made available on request).

The *Contractor* shall be responsible for the removal and transportation of all excess material from site to spoil sites provided by the *Contractor*.

Existing Access Road

The *Contractor* shall execute regravelling works along the existing access road including earthworks, layerworks, and road finishing operations. A new section of road shall be constructed along a greenfield area to complete the exit route.

Earthworks and layerworks

a) Excavation of unsuitable material:

Excavation of the existing wearing course material shall be carried out to a minimum depth of 100mm or until the subgrade is exposed. All excavated material shall be removed from site, transported and disposed of at approved spoil sites provided by the *Contractor*.

The *Contractor* shall be fully responsible for the excavation, loading, hauling, and disposal of all excavated and surplus material arising from the works to approved spoil sites, which shall be identified, secured, and maintained at the *Contractor's* own cost.

The *Contractor* shall implement appropriate dust suppression and control measures throughout the works to ensure compliance with environmental and occupational health standards.

b) Formation and shaping of subgrade:

The subgrade shall be ripped and recompact in-situ to a depth of 150mm at a minimum of 90% Mod AASHTO density. A uniform crown and crossfall of approximately 4% shall be established to allow effective and adequate surface drainage.

The subgrade material shall be worked to achieve a plasticity index (PI) of approximately 4 to ensure a stable foundation suitable for supporting the overlying pavement layers. The final formation shall be neatly trimmed and shaped to allow free runoff.

Proof rolling shall be conducted using assess the layer stability.

c) Layerworks:

The *Contractor* shall supply and construct a pavement structure comprising a 150mm G7 gravel selected layer to provide uniform support, 150mm thick G5 gravel base chemically stabilised with Portland composite cement (CEM II 32.5N) to achieve a C4 layer, and a 150mm G5 gravel wearing course.

The C4 layer shall comply with the requirements specified in Table 1 below informed by COTO (2020), while the G5 gravel wearing course and G7 gravel material comply with the requirements outlined in Table 2 informed by TRH20 (2009).

A minimum of a 7-day curing period shall be allowed for the C4 layer. Samples of this layer shall be collected and tested by a SANAS accredited laboratory. All laboratory results shall be submitted to the *Contractor's Engineer* for approval and to *Eskom's Engineer* for acceptance.

Upon completion of the wearing course, the *Contractor* shall supply and apply a bituminous fog spray consisting of CAT 65 spray-grade emulsion diluted with 40% water (SS60). This fog spray shall be applied at a rate of 1%–1.5% by mass of dry aggregate to achieve surface binding and effective dust suppression. The suitable spray content shall be verified and approved by the *Contractor's Engineer*. The finished road surface shall be shaped to a uniform 4%–5% crossfall to promote efficient drainage. The shoulders shall be sloped directly away from the edge of the road to allow free flow of water from the road and prevent ponding along the edges.

Table 1: Requirements for C4 layer (COTO, 2020)

Property	Requirement
Maximum particle size	50mm
PI after stabilisation	≤6%
7day UCS (Unconfined Compression Strength) at a minimum of 98% Mod AASHTO Maximum dry density	0.75 – 3.0 MPa
ITS (Indirect Tensile Strength) (kPa) at 98% Mod AASHTO	200 – 450 kPa
Curing	A 7-day curing period shall be allowed, upon which UCS and ITS shall be determined. Accelerated curing approved by the <i>Contractor's Engineer</i> may be conducted given that at least six (6) cubes per batch are collected for a 7-day reference curing.

Table 2: Requirements for wearing course and G7 gravel material (TRH20, 2009; COTO, 2020)

G5 Gravel wearing course	
Property	Requirement
Maximum particle size	50mm
Oversize index (Io)	≤5%
Shrinkage product (Sp)*	100 - 240
Grading coefficient (Gc)**	16 - 34
Soaked CBR at 95% Mod AASHTO	≥18%
Treton impact value	20-65%
G7 Gravel	
Grading modulus (GM)	0.75 - 2.5
Plasticity index (PI)	≤ 3GM + 10
CBR at 93% Mod AASHTO	15%

*Linear shrinkage x percent passing 0,425 mm sieve

**(% passing 28mm sieve – %passing 2mm sieve) x % passing 5 mm sieve/100

Work on greenfield

The new tarpaulin removal area, laydown area, staging area and a 150m section of the exit route fall on a greenfield.

Tarpaulin removal area, staging area and 150m section of exit route

The *Contractor* shall clear and grub approximately 0.4ha for the new tarpaulin removal area, 0.3ha for the staging area and 0.34ha for the 150m section of the exit route. As stated in Section 2.2.2, the *Contractor* shall supply and plant three (3) indigenous trees for every tree removed during clearing and grubbing. These trees shall be planted at positions identified by the *Eskom* Environmental representative(s). Topsoil and unsuitable material shall be removed to a depth of 500mm or until the subgrade is reached.

The *Contractor* shall supply all material required to construct a multi-layer gravel pavement structure detailed in Table 3, at the new tarpaulin removal and staging areas, as well as the 150m section of the exit route.

Table 3: Layerworks for the tarpaulin removal area, staging area and section of exit route

150mm G5 wearing course	G5 quality crushed stone wearing course constructed to the requirements specified in Table 2 of Section 2.2.3. The <i>Contractor</i> shall supply and apply a bituminous fog spray consisting of CAT 65 spray-grade emulsion diluted with 40% water (SS60) shall be applied at a rate of 1%–1.5% by mass of dry aggregate to achieve surface binding and effective dust suppression.
150mm C4 Base layer	G5 quality gravel base material (compliant with COTO-2020 specification) chemically stabilised with Portland composite cement (CEM II 32.5N) to achieve a C4 layer to the requirements specified in Table 1 of Section 2.2.3.
150mm G6 Subbase layer	G6 quality gravel constructed to the requirements specified in Table 4. This surface is to be scarified prior to placing the base layer to enhance bonding of these layers.
150mm G7 Selected layer	G7 quality gravel constructed to the requirements specified in Table 2. This surface is to be scarified prior to placing the subbase layer to enhance bonding of these layers.
Subgrade	Rip and recompacting the subgrade in-situ to a 150mm depth to at least 90% of Mod AASHTO at optimum moisture. Layer to be worked to achieve a plasticity index of the subgrade formation should be approximately 4 to ensure a stable foundation. Shape the subgrade to a 4%-5% crossfall. The final formation shall allow free runoff on all directions.

Table 4: Requirements for G6 quality material

Property	Requirement
G6 Gravel	
Grading modulus (GM)	1.5 -2.5
Plasticity index (PI)	≤ 2GM +10
Linear shrinkage (LS)	≤6%
CBR at 95% Mod AASHTO	25%

Laydown area

This area shall accommodate the new office space. This area shall be cleared of all topsoil to of 0.1ha.

The layerworks on this area shall be constructed as specified in Table 5 below. Concrete kerbs as shown in Figure 3 shall be provided and laid as edge restraints along the perimeter of this area to confine the block pavers. These kerbs shall be laid with 20MPa bedding/backing on the subgrade. Runoff shall be directed to perimeter drains at a 2% - 3% (preferably 2.5%) crossfall.

Table 5: Laydown area layerworks

Layer	Requirement
60mm Interlocking concrete block paver	Compliant with SANS 1058 Class (Compressive/Tensile Strength): 30/2.0 MPa Type Class S-A (interlocking on all side)
25mm Sand bedding	Well-graded clean river sand bedding layer. Screeded to uniform thickness
125mm G5	Compacted to at least 95% Mod AASHTO density to achieve a CBR $\geq$ 45%
150mm G7	In-situ or imported compacted to at least 90% Mod AASHTO density to achieve a CBR $\geq$ 15%

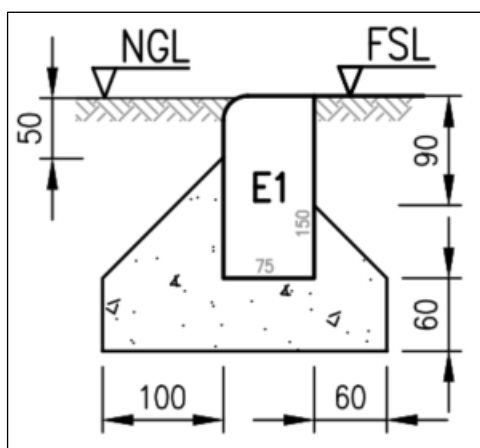


Figure 3: Required edge restraint

Road Geometry and Stormwater

Carry out and report a detailed geometric and stormwater design for the entire road and sections covered under this scope of works. Drainage works shall include the construction of trapezoidal earth side drains, mitre drains, and culverts. These designs shall ensure that the road geometry, vertical and horizontal alignments and drainage system are functionally effective, safe, and fully compliant with this TRH 15 (1994), TRH 17 (1988), and TRH 20 (2009) and meet the requirements stated in this section. The designs shall be compiled and signed by the *Contractor's Engineer* and submitted to the *Eskom Engineer* for acceptance.

Construct the CSY Access Road in accordance with the signed/approved and accepted geometric and stormwater design. The *Contractor* shall provide a sound road geometric design for the roadway, tarpaulin removal area, laydown area and staging area as described above.

The *Contractor* shall supply and delivery to site, all required materials for the construction of stormwater structures.

a) Intersections

The entry and exit route intersection shall be constructed in such a manner that the route retains its crown and crossfall. At the point of intersection, the surface of the entry and exit route shall be levelled to match Road D2225 while maintaining continuous surface drainage to prevent ponding. Where

required and as determined by the *Contractor's Engineer*, suitable material shall be used to backfill low-laying areas to correct the road levels and tie-ins.

Appropriate tie-in strategies shall be implemented where the CSY Access Road intersects with Road D2225 and at the CSY ticket-issuing entry point. These tie-ins shall be constructed to achieve a smooth, well-compacted, and stable transition free from surface irregularities.

b) Curve towards the exit intersection

The crown of the exit route towards the exit curve shall be adjusted to transition into an appropriate superelevated surface. The superelevation shall be appropriately developed gradually and maintained uniformly throughout the curved section. A controlled and smooth transition shall then be effected at the end of the curve to tie seamlessly into the Road D2225, ensuring geometric continuity and efficient surface drainage.

c) Earth drains

The *Contractor* shall construct the roadside drainage system to ensure efficient collection and conveyance of surface runoff away from the road, tarpaulin removal area and staging area. The stormwater drainage shall be connected to the Power Station's CSY drainage network.

Excess and spoil material shall be spread, levelled, and compacted on the adjacent embankments where suitable. The drains shall be neatly finished to achieve a continuous, uniform fall in the direction of flow, free from ponding and obstructions.

d) Mitre drains

Appropriate mitre drains shall be constructed at intervals of approximately 50m along the road, tarpaulin removal and laydown area, and staging area or at natural low points, at an angle of roughly 30° downslope from the side drain such that they efficiently discharge surface runoff into the surrounding natural ground without causing erosion (see Figure 4). Stone-pitched aprons shall be provided at discharge points where erosion potential is high.

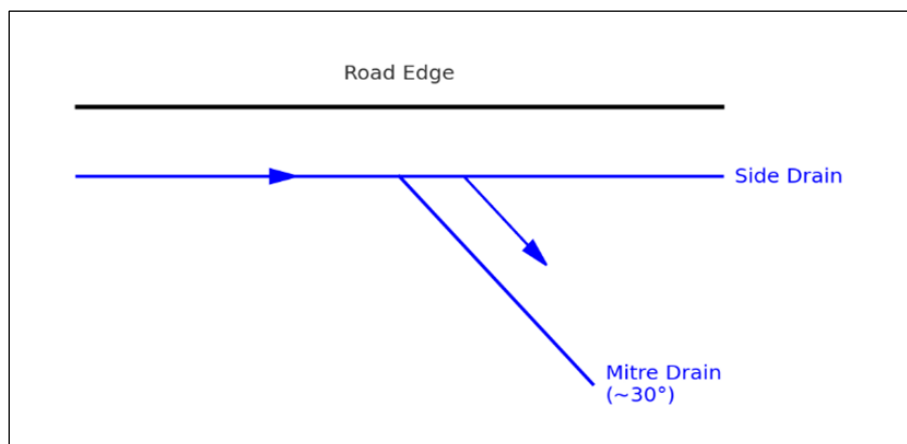


Figure 4: Mitre/Cut off drains

e) Culverts

At locations where side drains intersect the existing natural watercourses, the *Contractor* shall install appropriately sized precast concrete pipe culverts, laid to the correct gradient and alignment as approved by the *Contractor's Engineer*. Stone-pitched aprons, headwalls and wingwalls shall be constructed for the culverts. Excavations shall be appropriately backfilled and compacted to a minimum of 90% Mod AASHTO density, with suitable bedding and haunching to prevent settlement or pipe displacement.

Grouted stone pitching compliant with COTO, (2020) shall be provided at the culvert inlets and outlets to prevent scouring. The installation of any French drains or additional culverts shall be undertaken upon instruction by the *Contractor's Engineer*.

Embankments

All roadside embankments shall be trimmed, shaped and compacted to achieve stable side slopes and a neat, uniform appearance. The final slope configuration shall not be steeper than 1V:2H unless otherwise directed by the *Contractor's Engineer*. The embankment formation shall be constructed using the in-situ material, compacted to a minimum of 90% Mod AASHTO density and moisture-conditioned to achieve optimum stability.

Embankment slopes shall be graded smoothly to tie into the surrounding natural ground and adjoining road shoulders without abrupt changes in profile. The finished embankments shall allow for free surface runoff.

Road Signs

The *Contractor* shall supply, deliver and install all permanent road traffic signage along the CSY access road, the staging area, and the tarpaulin removal area. All signage shall comply with the standards and requirements prescribed in the South African Road Traffic Signs Manual (SARTSM).

The installation of road signs shall be carried out under the direction and approval of the *Contractor's Engineer*, ensuring correct positioning, visibility, and orientation relative to traffic flow. The signage shall include, but not be limited to, the following:

- R201 Regulatory Speed Limit signs (30 km/h) at all entries to the CSY Access Road.
- R1 STOP signs at all intersections.
- R4.1 One-way left regulatory sign to control truck movements.
- R4.2 One-way right regulatory sign to control truck movements.

All signposts shall be galvanised mild-steel or equivalent, installed in concrete footings to a minimum embedment depth of 600mm or as directed by the *Contractor's Engineer*. The *Contractor* shall ensure all signage installations are vertically and horizontally levelled.

Road finishing

Upon completion of all construction activities, the *Contractor* shall carry out final road finishing operations to the satisfaction of the *Eskom Engineer*. The completed road reserve shall be neatly trimmed and cleared of all surplus material, boulders, debris, unwanted vegetation, and waste or excess material generated during the works. The *Contractor* shall rehabilitate all temporary works areas including stockpiles to their original or otherwise acceptable condition.

The *Contractor* shall be responsible for the removal and transportation of all materials resulting from finishing operations from site to spoil sites provided by the *Contractor*.

1.2 Employer's objectives and purpose of the works

The objective of the works is to carry out maintenance works on the Coal Stockyard (CSY) Access Road to improve operational efficiency, road safety and surface drainage. Secondary objectives include minimising dust emissions and reducing truck queuing along Road D2225.

1.3 Interpretation and terminology

The following abbreviations are used in this Works Information:

Abbreviation	Meaning given to the abbreviation
--------------	-----------------------------------

AFC	Approved for construction
OBL	Outside battery limits

2 Management and start up.

2.1 Management meetings

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

Title and purpose	Approximate time & interval	Location	Attendance by:
Risk register and compensation events	Weekly on _____ at _____		
Overall contract progress and feedback	Monthly on _____ at _____		<i>Employer, Contractor, Supervisor, and _____</i>

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

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

2.2 Documentation control

The *Contractor* shall submit to the *Eskom Engineer* in electronic formats:

- **Quality Control Plans** (QCPs) documentation for approval by *Eskom's Engineer* prior to commencement of works.
- **Wayleave Approvals:** Prior to the commencement of construction works, the *Contractor* shall obtain and submit to the *Eskom Engineer*, copies of all relevant wayleave approvals and correspondence from affected service providers. These wayleaves shall cover all works that fall within or cross existing telecommunication, electrical, water, or other service servitudes. The submitted documentation shall include confirmation that all required inspections, relocations, and safety clearances have been completed, and that permission has been granted to execute the works within the specified servitude corridors. Construction works shall commence upon review and acceptance of the wayleave documentation by the *Eskom Engineer*.
- **Geometric and stormwater design report and drawings:** Prior to the construction works on site, The *Contractor* shall prepare and submit to the *Eskom Engineer*, a detailed Geometric and Stormwater Design Report (in pdf format), accompanied by detailed construction drawings (in dwg, pdf format and A0 hardcopies), for review and acceptance. This submission shall demonstrate that the proposed road geometry, drainage layout, and levels fully comply with the requirements of this Scope of Works and applicable standards, including COTO (2020), TRH 17 (1988), and TRH 15 (1994). The report shall include plan and elevation drawings, cross-sections, drainage flow paths to connection with Arnot Power Station Coal Stockyard drainage network, pipe sizing, and catchpit locations. The report and

drawings shall be signed off by the *Contractor's* ECSA Professionally Registered Engineer (Pr.Eng) meeting the requirements specified in Section 2.4 of this report.

- **Pavement Design Verification Report** (in pdf format): Prior to the construction works on site, the *Contractor* shall prepare a *Rubicon Toolbox* analysis of the specified pavement structure, detailing the capacity analysis taking into account, the heavy traffic loading, climate and environmental conditions and construction materials properties based on laboratory test results. The report shall also include all material laboratory test results analysis and interpretation, including strength, moisture, density and Atterberg limit properties. The pavement life of the pavement structure shall be shown. Report shall be signed, by the *Contractor's* Professionally Registered *Engineer* (Pr.Eng) meeting the requirements specified in Section 2.4 of this report. The report shall be submitted to the *Eskom Engineer* for review and acceptance prior to the issuance of the Final Completion Certificate.
- **As-built Drawings** signed by the *Contractor's Engineer*: Submitted in .pdf format, .dwg format suitable for viewing on Bentley MicroStation Software and A0 hardcopies.
- **Material and Test Summary File (Dossier)**: Comprehensive file of all laboratory and field test results, and compliance statements in .pdf format.
- **Rehabilitation and Environmental Compliance Report**: Signed statement by *Eskom's* Environmental Officer and *Contractor's Engineer* confirming reinstatement of site, spoil areas, and compliance with EMP conditions. This report shall be submitted to *Eskom's Engineer* for acceptance.
- **Skills Transfer and Training**: Documentation of the training activities, including attendance records and topics covered, discussed in detail.

All communications from the *Contractor* shall carry the *contract* number and title and is numbered sequentially on the basis of the communication source. The *Employer* shall respond in likely manner, numbering communications.

Note: All correspondence headings include:

- Arnot Power Station
- The *Contract* or order description
- The *Employer's contract* or order number
- The correspondence subject matter

Where appropriate, the correspondence shall include the *Employer's* reference, i.e. initials of contact person and *Employer's* letter reference.

2.3 Health and safety risk management

The *Contractor* shall comply with the health and safety requirements contained in Annexure _____ to this Works Information.

- The *Contractor* shall prepare and submits a safety file with related risk assessments for all works to be done on site.
- The *Contractor* shall provide all safety related equipment to complete the works.
- The *Contractor* to provide solid barricading around the work area.
- The *Contractor* shall provide and maintain traffic control measures. Traffic accommodation shall comply with the requirements of lane closure as per the South African Road Traffic Signs Manual (SARTSM).
- The *Contractor* shall comply with the *Employers* safety requirements as stipulated in Arnot Power Station *Contractor* Health and Safety Requirements Doc no 32-136 and latest revision of the OHS act and construction regulations. Documents will be made available on request.

The *Contractor* ensures the following:

- Ensure all employees doing work on site wear the appropriate Personal Protective Equipment (PPE)
- Ensure the pre-job brief is done prior to undertaking any tasks
- Ensure that all work is carried out under the supervision of an experienced supervisor.
- Ensure a safe working environment for his/her employees.

2.4 Environmental constraints and management

Removal of waste

The *Contractor* shall provide for the removal of all unsuitable material and waste produced from site activities, and area or waste skip for the waste generated.

Throughout the process, prioritise environmentally friendly solutions and consider the potential impact of the maintenance and construction activities on the surrounding ecosystem. Implement erosion control measures where necessary.

Planting of Trees

The *Contractor* shall supply and plant three (3) indigenous trees for every tree removed during clearing and grubbing. These trees shall be planted at positions identified by the *Eskom* Environmental representative(s).

The *Contractor* shall comply with the environmental criteria and constraints stated in Annexure _____

2.5 Quality assurance requirements

The *Contractor* shall provide a comprehensive activities schedule in the form of a Quality Control Plan (QCP) and implement them for all works. The *Contractor* shall comply with the *Employer's* Quality Requirements and ISO 9001. The *Contractor* shall procure at his costs, a site laboratory with SANAS accreditation to conduct on site material testing.

All construction materials shall be sampled and tested by a SANAS accredited laboratory prior to delivery on site. The *Eskom's Engineer* shall review and approve/reject all test results. No construction material is to be delivered to site without such approval.

The following laboratory results shall be conducted and reported:

Wearing course: The following results shall be produced:

- Maximum particle size
- Oversize Index
- Shrinkage product
- Grading coefficient
- Soaked CBR at 95% Mod AASHTO
- Treton impact value (%)

The following tests shall be conducted for the G5 Gravel material:

- Atterberg limits and linear shrinkage
- Grading
- Soaked CBR

- Moisture and density

The following tests shall be conducted for the G6 and G7 Gravel material:

- Atterberg limits and linear shrinkage
- Soaked CBR
- Moisture and density

Subgrade:

- Moisture and density
- Optimum moisture content
- Atterberg limits and linear shrinkage
- Soaked CBR

The *Contractor* shall conduct any additional tests that may be requested by the *Eskom Engineer*.

The *Contractor* shall ensure quality assurance and testing for construction works as follows:

- Field density tests on subgrade and overlaying layers shall be conducted by a SANAS accredited laboratory supplied by the *Contractor*. These results shall be submitted to the *Contractor's Engineer* for approval.
- Proof rolling after each layer to identify weak spots prior to placing the next layer. *Contractor's Engineer* to provide approval/rejection of constructed layer.
- All imported material to be properly stockpiled. All stockpile area shall be rehabilitated at completion of the project works. *Eskom's Engineer* to approve the rehabilitation.
- Road profile to be inspected by the *Contractor's Engineer* to ensure crossfall and camber meet the specifications of this scope of works. Such approval is to be provided in writing to the *Eskom Engineer* for acceptance.
- Intersection tie-ins;
- Drainage structure inspection;
- Embankment inspection;
- Road finishing inspection.
- Continuous inspection: *Contractor's Engineer* to provide approval documentation of the quality of each constructed layer prior to laying the next pavement layer. The documentation shall be submitted to the *Eskom Engineer*.
- Final Inspection: *Eskom Engineer* to conduct a final inspection of all the completed works to ensure compliance with project specifications and quality standards prior to issuing approval of completed works

Acceptance criteria

Approval for a successful completion of the project shall be provided by the *Eskom Engineer*.

2.6 Programming constraints

Describe the programming system (application) to be used if it is necessary to dictate this for project coordination purposes. Read clause 31.2 first then state the work of the *Employer* and Others to be shown on the programme per 4th bullet of clause 31.2 and what additional information (if any) is to go in the programme per the last bullet of clause 31.2. Describe any particular constraints on the order and timing of the work which the *Contractor* must take into account in his programme.

2.7 Contractor's management, supervision and key people

State any additional constraining requirements on *Contractor's* supervision and key people that are not already stated in other sections such as for Health and Safety. This section could be used to solicit an organogramme from the *Contractor* showing his people and their lines of authority / communication. This would be essential if the *Contractor* is a Joint Venture.

2.8 Invoicing and payment

The Z clauses make reference to invoicing procedures stated here in this Service Information. Also include a list of information which is to be shown on an invoice.

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

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

- Name and address of the *Contractor* and the *Project Manager*;
- The contract number and title;
- *Contractor's* VAT registration number;
- The *Employer's* VAT registration number 4740101508;
- Description of service provided for each item invoiced based on the Price List;
- Total amount invoiced excluding VAT, the VAT and the invoiced amount including VAT;
- (add other as required)

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

2.9 Insurance provided by the Employer

First read ECC3 Core Clause 87.1 and then add anything necessary for the management of insurance related issues such as a cross reference to where procedures for making claims can be found. Also provide contact details for persons capable of being able to answer any insurance related queries the *Contractor* may have, as well as to whom the information required by Marine Insurance may be addressed.

2.10 Contract change management

This section is intended to deal with any additional requirements to the compensation event clauses in section 6 of the core clauses; such as the use of standard forms. Not the same thing as documentation control.

2.11 Provision of bonds and guarantees

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

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

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

If Option C, D, E or F applies first read clause 52.2 and then state whether the *Contractor* is required to keep any other records. Include any other constraint which may be required in regard to format and filing of the records, and whether access for the *Project Manager* shall be provided in hard copy or electronically.

Could delete if Options A & B apply unless the *Employer* requires some form of control over the *Contractor's* record keeping.

2.13 Training workshops and technology transfer

Describe type and frequency of on job training workshops, as well as any obligation for technology transfer being included as part of the contract on Completion of the *works*.

3 Engineering and the *Contractor's* design

The content of this section will depend on whether the contract is for construction only with most of the design done by (or for) the *Employer* or whether it is a 'design and construct' contract. ECC provides for design by either Party in any proportion, which proportion done by the *Contractor* must be stated in this part of the Works Information.

The *Contractor* is required to carry out the following design components:

- Detailed geometric and stormwater design for the entire road and sections covered under this scope of works. The design shall ensure that the road geometry, vertical and horizontal alignments, and drainage system are functionally effective, safe, and fully compliant with TRH 15 (1994), TRH 17 (1988), and TRH 20 (2009) and meet the requirements stated in this document. All designs and reports are to be signed by an ECSA Professionally Registered Engineer (Pr.Eng) with a minimum of eight (8) years of experience in road construction and maintenance projects.
- *Rubicon Toolbox* analysis of the pavement structure specified in this document, detailing capacity analysis and taking into account, the heavy traffic loading (average of 500 7-axle and 9-axle coal haulage trucks daily), climate and environmental conditions.
- Compile and provide all relevant construction drawings.
- Compile and provide all as-built drawings.

3.1 *Employer's* design

The *Employer's* performance specification to which the *Contractor* is to comply when executing the design component of the Contract is outlined below.

The objective of the project is to provide a safe and durable access road for coal delivery trucks with effective stormwater infrastructure to ensure environmental compliance, uninterrupted coal delivery operations on Eskom property boundaries.

Functionally, the road shall be safe and accessible to coal trucks through all weather seasons.

- Geometric design requirements are as follows:
 - Provide sufficient sight distance and turning radius for coal delivery trucks
 - Provide adequate sight distance
 - Provide horizontal and vertical alignments suitable for the intended operating speeds
 - Minimise erosion and ponding
- Stormwater and drainage requirements:
 - Prevent water ponding on the road surface
 - Rapidly remove stormwater from the road prism
 - Prevent deterioration of pavement layers due to moisture ingress
 - Safely convey stormwater to approved discharge points.
- Pavement design requirements are as follows:
 - Accommodate traffic loading over a 15-year design life
 - Maintain structural integrity during wet weather conditions
- Environmental requirements:
 - Minimise dust generation.
 - Prevent contamination of surrounding properties and watercourses
 - Minimise erosion
 - Facilitate rehabilitation of disturbed areas.

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

This is a mandatory requirement of core clause 21.1 and must be addressed in detail. Even when the contract is a traditional 'construction only' contract, the *Contractor* is probably still required to carry out workshop details from overall drawings provided by the *Employer* and to design temporary works.

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

This is a mandatory requirement of core clause 21.2 and must be addressed. Identify the extent of detail (the particulars) of the *Contractor's* design which is to be submitted to the *Project Manager* for his acceptance. This procedure may also include a design stage activity matrix or requirements for co-operation with Others on a multi party project. State requirements for drawings to be prepared by the *Contractor*.

3.4 Other requirements of the *Contractor's* design

Use this section to describe any particulars which must be taken into account by the *Contractor* in his design; for example codification (configuration management) of Plant and Materials.

3.5 Use of *Contractor's* design

First read core clause 22.1 and then include here the exceptions and other purposes if applicable. If there are none this section could be deleted leaving the core clause to stand.

3.6 Design of Equipment

On some complex projects requiring sophisticated temporary works, it could be in the Parties best interests that some details of the *Contractor's* design or proposed design of Equipment are shared with the *Project Manager*, not necessarily for his acceptance but as an assurance that the Equipment will be able to allow the *Contractor* to Provide the Works efficiently and without delay. For example a tunnel boring machine, or specialised shuttering for a bridge or caisson. Draft in such a way that there is no doubt that the liability for such design and use of the Equipment remains with the *Contractor*. Clause 23.1 is always available to the *Project Manager* if this section is not used.

3.7 Equipment required to be included in the works

The defined term 'Equipment' in core clause 11.2(7) makes a cross reference to the Works Information concerning any Equipment which the *Contractor* is required to include in the works. Complete here or if not applicable either delete the heading or retain the heading and state 'None'.

3.8 As-built drawings, operating manuals and maintenance schedules

Use this section to describe these requirements. Pay particular attention to when and in what form they are required. Consideration should be given to obtaining operating manuals and maintenance schedules before Completion of the whole of the works when there is still considerable financial incentive for the *Contractor* to do so.

4 Procurement

There is a cross reference from the definition of Disallowed Cost in Options C D and E to the Works Information regarding procurement procedures. This part of the Works Information MUST include any such procedures to be able to administer this procedure. Options A & B may also require constraints on procurement procedures.

4.1 People

4.1.1 Minimum requirements of people employed on the Site

Specify any constraints relating to people employed to Provide the Works; for example permits for foreigners, training (other than H & S), use of labour from designated areas and industrial relations.

4.1.2 BBBEE and preferencing scheme

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

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

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

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

[Insert the agreed ASGI-SA Compliance Schedule here]

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

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

4.2 Subcontracting

4.2.1 Preferred subcontractors

ECC does not make use of nominated subcontracting, but the *Employer* may list which subcontractors or suppliers the *Contractor* is required to enter into subcontracts with. This is usually only required where Plant and Materials need to be obtained from a particular supplier or group of suppliers in order to comply with operational standards.

4.2.2 Subcontract documentation, and assessment of subcontract tenders

Specify any constraints on how the *Contractor* is to prepare subcontract documentation, whether use of the NEC system is compulsory or not (compulsory is recommended) and how subcontract tenders are to be issued, received, assessed (using a joint report?) and awarded.

4.2.3 Limitations on subcontracting

The *Employer* may require that the *Contractor* must subcontract certain specialised work, or that the *Contractor* shall not subcontract more than a specified proportion of the whole of the contract.

4.2.4 Attendance on subcontractors

State requirements for attendance on Subcontractors, if any

4.3 Plant and Materials

4.3.1 Quality

Quality is usually designed in or specified in the technical specifications referred to in section 6 of this Works Information. However to cover circumstances where quality may not be prescribed, this sub-paragraph could be used as an overarching default requirement. It could also be used to deal with how repairs are carried out after a Defect has been notified; for example can the item be fixed up or must it be replaced by a new one. See also SANS 1200A, sub-paragraph 3.1

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

State arrangements for collection by *Contractor* or delivery by others on behalf of the *Employer*, off loading, inspection, storage, care custody and control, return of unused Plant and Materials, etc. State whether any samples are to be provided by the *Employer* and if so how, where and when. Always include a statement to the effect that ‘all other Plant and Materials are to be provided by the *Contractor*’.

4.3.3 *Contractor's* procurement of Plant and Materials

Specify any constraints on how the *Contractor* is to order, codify, expedite, freight, import, transport to Site and any other requirements for delivery and storage before installation. The *Employer* may require warranties from suppliers to be in favour of the *Employer* and not just to the *Contractor* during the life of the contract. Also include requirements for vendor data which the *Employer* may need after Completion of the whole of the works. THIS IS A VERY IMPORTANT SECTION IN PROCESS PLANT AND UTILITY PROCUREMENT CONTRACTS.

4.3.4 Spares and consumables

Some contracts may need to include provision for the supply of a minimum category of spares, fuel, oil or other feed stock and consumables which the *Employer* may need at or just after take over and that it is best the *Contractor* provide these initially as part of his Providing the Works.

4.4 Tests and inspections before delivery

Core Clauses 40 and 41 both make reference to the Works Information regarding tests and inspections. Specify any requirements here for any tests and inspections that are to be done by the *Supervisor* or Others before delivery to the Working Areas, particularly if such tests and inspections are to be carried out by agents of the *Employer* overseas.

4.5 Marking Plant and Materials outside the Working Areas

Core clauses 70.1 and 71.1 require the Works Information to state how the *Contractor* is to “mark” Plant and Materials which is outside the Working Areas if they are to be paid for before delivery to the Working Areas. Specify here how the *Contractor* is to mark the Plant and Materials.

4.6 *Contractor’s* Equipment (including temporary works).

In contracts which require the *Contractor* to procure sophisticated or highly specialised Equipment that could have a major influence on the progress of the works, the *Employer* may wish to exercise constraints or include witness and hold points during manufacture, assembly or delivery of such Equipment. Include these constraints here taking care not to imply that the *Employer* or the *Project Manager* take on any liability as a result. See also section 3.6 above relating to the design phase of the *Contractor’s* Equipment.

4.7 Cataloguing requirements by the *Contractor*

State whether cataloguing is applicable, if it is, reference the requirements for cataloguing that need to be satisfied by the *Contractor* (consult Procurement Instruction Number 1 of 2018 – Incorporating Cataloguing into the Procurement Environment, Unique Identifier 240-1289988974).

5 Construction

This part of the Works Information addresses constraints, facilities, services and rules applicable to the *Contractor* whilst he is doing work on the Site during the construction and maintenance phase. It does not specify the work itself as that is included in Section 6 of the Works Information.

For contracts involving civil works the approach may be to incorporate SANS1200A or SANS 2000 into the contract. Whilst many of the headings below address the same issues, the list of headings below is more comprehensive. If the headings below are used, it may be prudent to delete paragraphs 3, 4 and 5 from 1200A after checking that their requirements have been included below as necessary. A similar approach can be used in contracts involving building works where the Model Trade Preambles are incorporated. Care should be taken to avoid inconsistency or ambiguity between this part of the Works Information and standard specifications incorporated by reference.

5.1 Temporary works, Site services & construction constraints

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

Sites such as Sasol Secunda and Koeberg Nuclear Power Station have very strict entrance requirements which tenderers need to allow for in their prices, and the *Contractor* has to comply with. State these or similar requirements here.

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

In addition to the above there may be other restrictions once on the Site, plus rules relating to roads, walkways and the provision of barricades

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

Restrictions and hours of work may apply on some Sites. It is very important that 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.

5.1.4 Health and safety facilities on Site

Section 2.3 deals with contractual H & S requirements in addition to those of the OHSA Act. This section allows the *Employer* to state what measures are to be taken on Site against disease and epidemics and in emergencies. Also describe where First Aid facilities provided by the *Employer* are located and any other emergency arrangements. Do not use if already addressed in 2.3. The cross reference from Clause 27.4 applies.

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

This sub-paragraph may not be required if these matters are dealt with in the general environmental requirements referred to in paragraph 2.4 above.

5.1.6 Title to materials from demolition and excavation

Clause 73.2 states that the *Contractor* has title to materials from excavation and demolition (e. g. copper) only as stated in the Works Information. Hence state here any special arrangements regarding such title. If nothing is stated then the default position is the *Contractor* has no such title.

5.1.7 Cooperating with and obtaining acceptance of Others

This sub-paragraph could be used to deal with two issues.

- 1) The cross reference from core clause 25.1 about cooperation generally as well as details about Others with whom the *Contractor* may be required to share the working areas. See clause 11.2(10) for the definition of Others.
- 2) Requirements for liaison with and acceptance from statutory authorities or land owners.

5.1.8 Publicity and progress photographs

State requirements for notice boards, advertising rights, media relations, photography and progress photographs if required.

5.1.9 *Contractor's* Equipment

This sub-paragraph is intended to address how records are to be kept of Equipment on Site including whether it is owned or hired. Include any constraints about scaffolding, rigs, heavy lifts and cranes, including removal from the Working Areas. Also silencing similar to Clause 4.1 in SANS 1200 A

5.1.10 Equipment provided by the *Employer*

Provide details of equipment made available for use by the employer and set out conditions relating thereto.

5.1.11 Site services and facilities

This is a mandatory cross reference from clause 25.2 in ECC3. State what the *Employer* will provide in the way of power, water, waste disposal, telecomms, ablutions, fire protection, lighting etc. Give hook up locations and any constraints on how the hook up is to be done. Always conclude by stating that the *Contractor* shall provide everything else necessary for Providing the Works.

5.1.12 Facilities provided by the *Contractor*

Describe what the *Contractor* is to provide in the way of Site accommodation, laboratories, storage, vehicles and office equipment etc for the *Project Manager* and the *Supervisor*, and any restrictions or minimum requirements concerning the *Contractor's* own facilities. State requirements for facilities to be provided by the *Contractor* such as construction camps. Also state what happens to these facilities upon completion of the contract. Set out constraints, if any, as to the location by the *Contractor* of such facilities on the Site and requirements for drawings of Site facilities, as necessary.

5.1.13 Existing premises, inspection of adjoining properties and checking work of Others

Details under this sub-paragraph are very contract specific and may be quite extensive in some cases. State requirements for the inspection with the owners of adjacent buildings and properties and representatives of local authorities before commencing with the *works* that have the potential to damage surrounding buildings and property. State whether *Contractor* is required to inspect the work of Others to which he is required to connect and if so by when to avoid delays to his work.

5.1.14 Survey control and setting out of the *works*

Provide information on survey controls established by the *Employer*, if any, and state requirements for survey control and the setting out of the *works*.

5.1.15 Excavations and associated water control

State any particular requirements for handling deep foundations and controlling water from excavations.

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

Describe known services making reference to drawings containing known services and state requirements for locating, marking and recording such services.
 State requirements for the treatment of existing services i.e. their termination, diversion or continued use, either temporarily or permanently, and set out the procedures relating thereto.
 State requirements, as necessary, for the use and availability of detection equipment for the location of underground services.
 State responsibility for damage to services, known and unknown, and requirements for working in close proximity to services etc.
 State requirements and reinstatement procedures for the notification and repair of damage to services and any penalties applicable to the damage of services.

5.1.17 Control of noise, dust, water and waste

State requirements, if any.

5.1.18 Sequences of construction or installation

Only prescribe sequences of work where absolutely necessary such as when *Contractor* has to give access to Others (without take over) and for technical reasons such as under tidal conditions and in rivers.

5.1.19 Giving notice of work to be covered up

State the procedure for notifying the *Supervisor*

5.1.20 Hook ups to existing works

State any constraints

5.2 Completion, testing, commissioning and correction of Defects

5.2.1 Work to be done by the Completion Date

This is mandatory. Core clause 11.2(2) defines Completion as when the *Contractor* has done all the work which the Works Information states he is to do by the Completion Date. Rather than list all work to be done by the Completion Date, state that all work is to be done by the Completion Date except for [●]. For example:

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

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

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

Clause 35.2 in ECC3 provides that the *Employer* may use any part of the *works* before Completion has been certified but if he does so he takes over the part of the *works* except if the use is for a reason stated in the Works Information. State the reason here if this applies.

5.2.3 Materials facilities and samples for tests and inspections

State what materials facilities and samples for tests and inspections the *Contractor* and the *Employer* are to provide, per core clause 40.2.

5.2.4 Commissioning

Required mainly for contracts including mechanical and electrical work. Would typically refer to detailed commissioning procedure attached as an Annexure. Confirm whether commissioning is to be done before or after Completion. If after Completion, include this item of work in the list in sub-paragraph 5.2.1 above.

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

In order to put the *works* into operation the *Employer* may require the *Contractor* to either do this for him or be in attendance whilst he does it, depending on who is the responsible person. State requirements of the *Contractor* here together with any special arrangements associated with operating plant and machinery.

5.2.6 Take over procedures

Take over is after or at the same time as Completion. The *Employer* may require the *Contractor* to provide assistance, security personnel on a temporary basis etc.

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

Clause 43.4 requires that the *Project Manager* arranges for the *Employer* to allow the *Contractor* access to and use of a part of the *works* which has been taken over if needed to correct a Defect. After the *works* have been put into operation, the *Employer* may require the *Contractor* to undertake certain procedures before such access can be granted (for example barricading a motorway or in a nuclear power station). Include these here.

5.2.8 Performance tests after Completion

Many design and build or turnkey projects require the *Contractor* to demonstrate that the *works* can operate as guaranteed by the *Contractor* (in *Contractor's* Works Information) or specified by the *Employer* either here or elsewhere in this Works Information. State here the procedures for carrying out such proving tests. These details should link up with any performance levels stated in Contract Data if secondary Option X17 in ECC3 applies.

5.2.9 Training and technology transfer

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

5.2.10 Operational maintenance after Completion

The *Employer* may require the *Contractor* before the *defects date* to perform certain duties after Completion and take over which relate to maintenance of the *works*. (Not to be confused with Defect correction) For example oil and filter changes

6 Plant and Materials standards and workmanship

This section of the Works Information contains all the specifications for the work which is left behind; the permanent works. It is likely to be the largest section by far and may even be compiled in volumes, e. g. Section 6 Volume 1: Civil Engineering Works. In design and construct contracts, it may be compiled in accordance with systems within the *works*; e. g. Section 6 Volume 4: Crushers.

Because practice varies widely between employers it is not practical in a general template such as this to deal with all arrangements. Only the discipline based section subheadings are provided below in the order the *works* are likely to be constructed together with some notes of a general nature.

6.1 Investigation, survey and Site clearance

Some contracts may require the *Contractor* to carry out further investigation of existing facilities or of the Site before commencing final design. There could be constraints on Site clearance especially in pipeline or transmission grid servitudes.

6.2 Building works

Reference could be made to the latest Model Trade Preambles published by the Association of South African Quantity Surveyors. However these have been developed for use with the JBCC series of contracts and an approach where description of the work is made part of the bill of quantities, which is not the case in other forms of contract. Only parts of the Model Trade Preambles could be referenced by an ECC contract, with a covering note dealing with the changes in terminology. Further changes are required depending on which parts are to be selected.

This subsection would typically comprise

- a) Particular specifications provided by the *Employer*
- b) List of standardised specifications applicable to the *works* and
- c) Variations to the standardised specifications

6.3 Civil engineering and structural works

Reference could be made to the SANS1200 series of specifications developed and published by South African National Standards. However these are now very out of date and originally developed for use with SAICE general conditions of contract for works of civil engineering which have themselves been superseded twice. All SANS 1200 specifications are in the process of being updated to make them more compatible with a wider range of contracts, including NEC, and users should check availability of the new SANS 2000 series of specifications.

Sections 3, 4 and 5 of SANS1200A are probably already covered in section 5 of this Works Information.

This subsection would typically comprise

- a) Particular specifications provided by the *Employer*
- b) List of standardised specifications applicable to the *works* and
- c) Variations to the standardised specifications

If use is made of the 1200 series, users should include a covering note dealing with the changes in terminology, such as the one provided below. Further changes are required depending on which specifications in the 1200 series are selected.

6.4 Electrical & mechanical engineering works

These specifications are usually project specific and developed by the *Employer* to suit his operations. Either include these specifications here, or refer to them in attached Annexure.

Check the specifications for inconsistencies in terminology and that they do not contain any provisions already dealt with in the chosen NEC *conditions of contract* or clash with them in any way.

6.5 Process control and IT works

These specifications are usually project specific and developed by the *Employer* to suit his operations. Either include these specifications here, or refer to them in attached Annexure.

Check the specifications for inconsistencies in terminology and that they do not contain any provisions already dealt with in the chosen NEC *conditions of contract* or clash with them in any way.

6.6 Other [as required]

7 List of drawings

7.1 Drawings issued by the *Employer*

Construction drawings for this contract shall be compiled by the Contractor. The following figures can be referenced in Section C3.2 of this document:

- Figure a : Site layout
- Figure b : Site layout – Cross section positions
- Figure c : Entry route profile
- Figure d : Tarpaulin removal area profile
- Figure f : Exit route profile
- Figure g : Staging area profile

C3.2 *CONTRACTOR'S* WORKS INFORMATION

a) The Site

This road is located outside the Arnot Power Station and leads to the Coal Stockyard through Road D2225. The locality of this road and its current traffic flow are shown in Figure 5 and Figure 6.

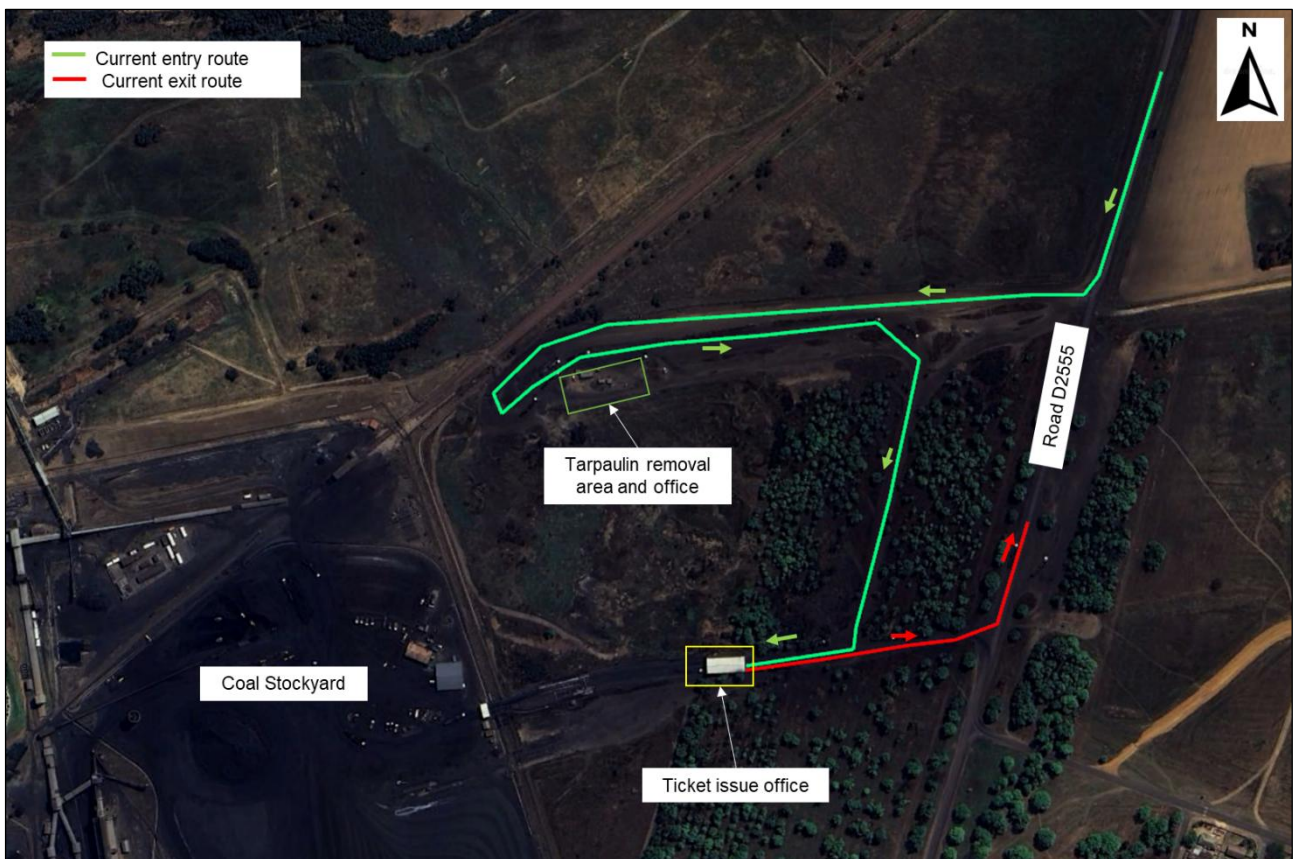


Figure a: Locality Plan – Coal Stockyard Access Road (Current route)

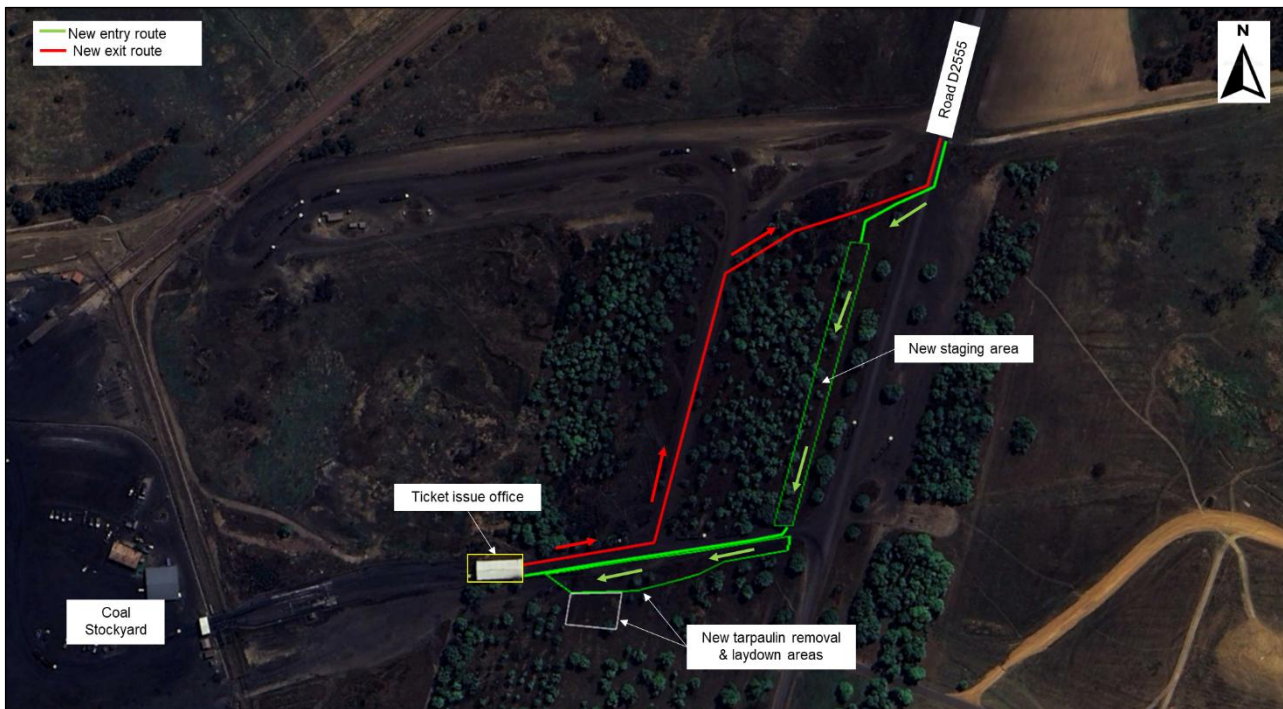


Figure b: Locality Plan – Coal Stockyard Access Road (New route)

b) Access limitations

The *Contractor* must make himself aware of all the access limitations as well as all Arnot Power Station procedures for access.

c) Barricading

All barricading on site must be solid barricading where applicable, and traffic accommodation shall comply with the requirements of lane closure as per the South African Road Traffic Signs Manual (SARTSM).

SITE FIGURES

Site Layout



Figure c: Site layout

Reference Coordinates (Approximate)

Area	Latitude	Longitude
Ticket issue office	25°56'18.95"S	29°47'57.26"E
Laydown area	25°56'19.46"S	29°47'58.45"E
	25°56'20.23"S	29°47'58.27"E
	25°56'20.39"S	29°47'59.69"E
	25°56'19.51"S	29°47'59.94"E
Tarpaulin Removal Area	25°56'19.04"S	29°47'57.80"E
	25°56'19.46"S	29°47'58.45"E
	25°56'19.42"S	29°48'0.34"E
	25°56'19.11"S	29°48'1.66"E
	25°56'18.76"S	29°48'2.66"E
	25°56'18.44"S	29°48'4.79"E
Staging Area	25°56'10.77"S	29°48'6.12"E
	25°56'10.88"S	29°48'6.66"E
	25°56'17.79"S	29°48'4.49"E
	25°56'17.87"S	29°48'4.05"E

Cross Sectioning



Figure d: Site layout – Cross section positions

Typical Profiles

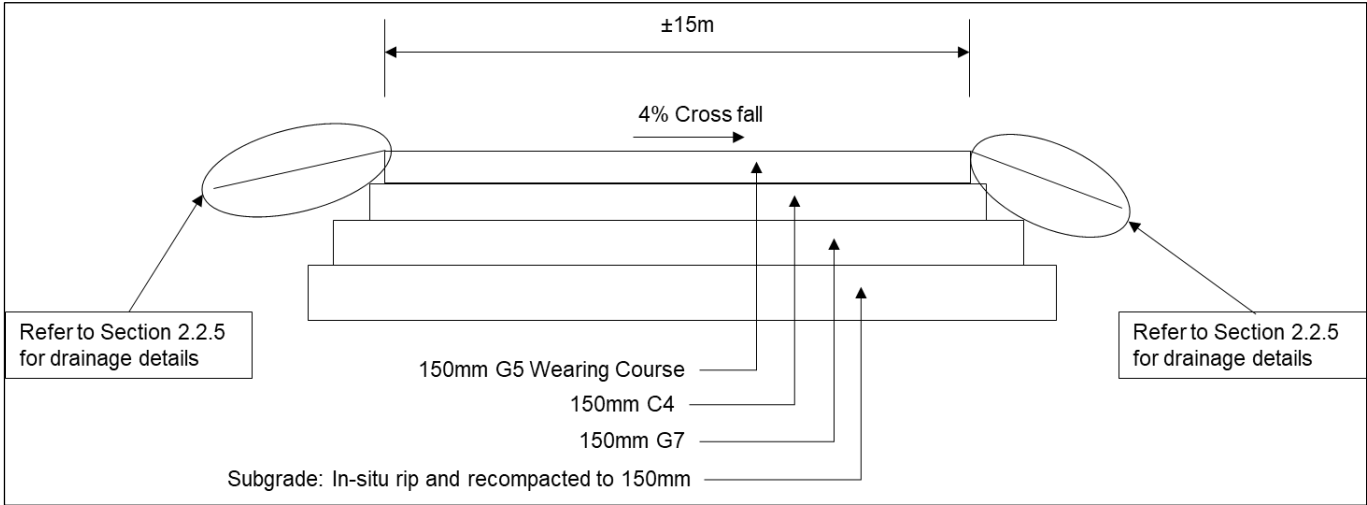


Figure e: Section A-A Entry route profile (N.T.S)

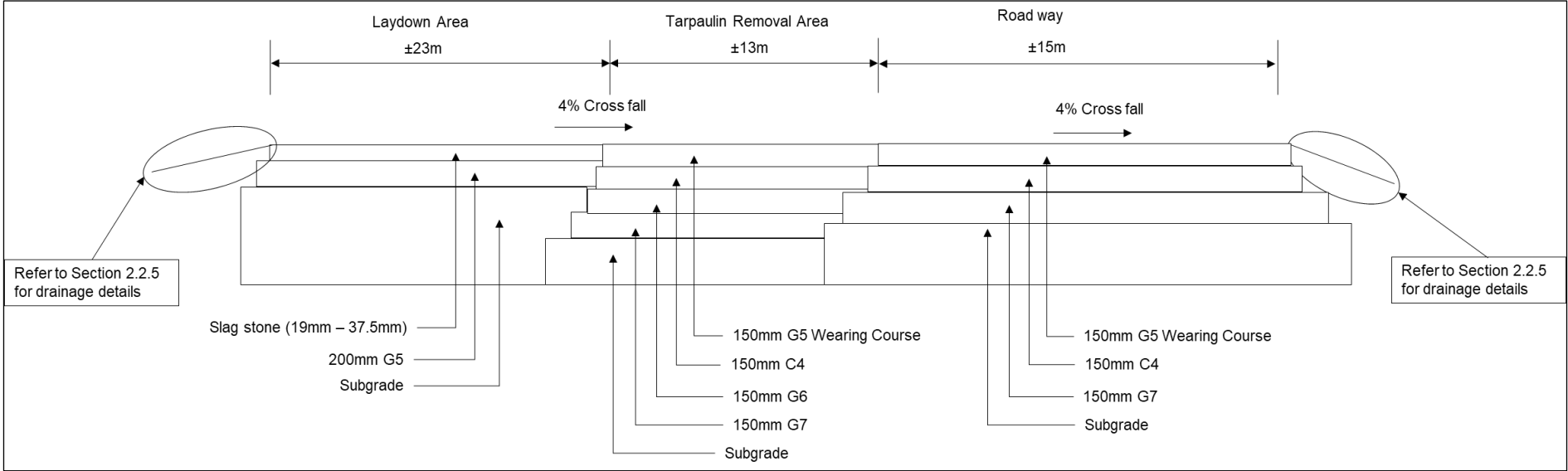


Figure f: Section B-B Tarpaulin removal area layerworks (N.T.S)

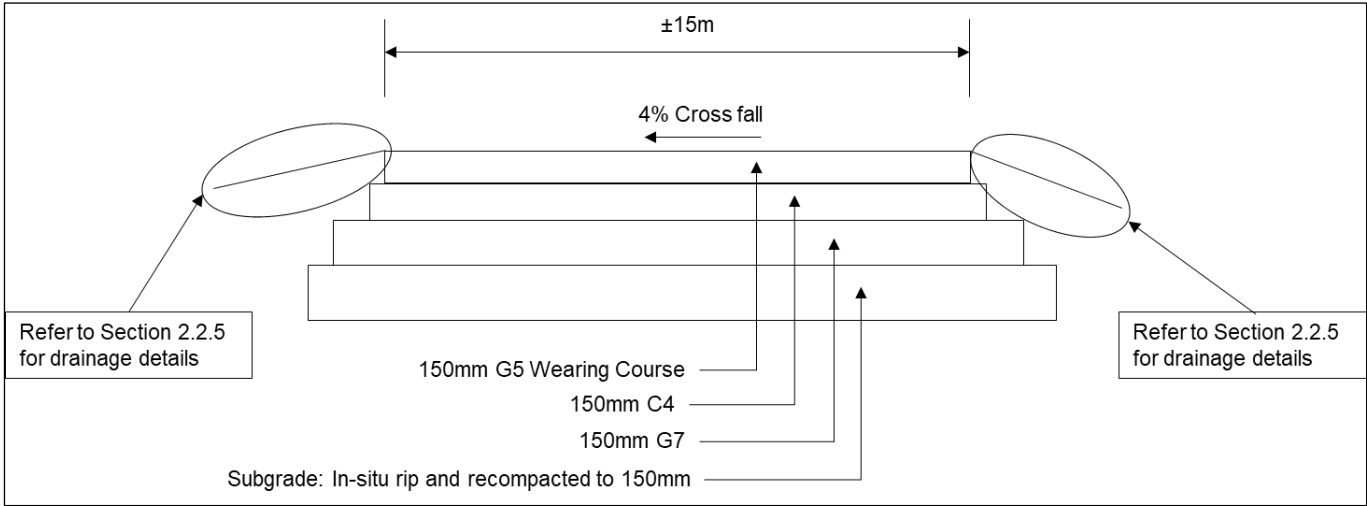


Figure g: Section C-C Roadway layerworks (N.T.S)

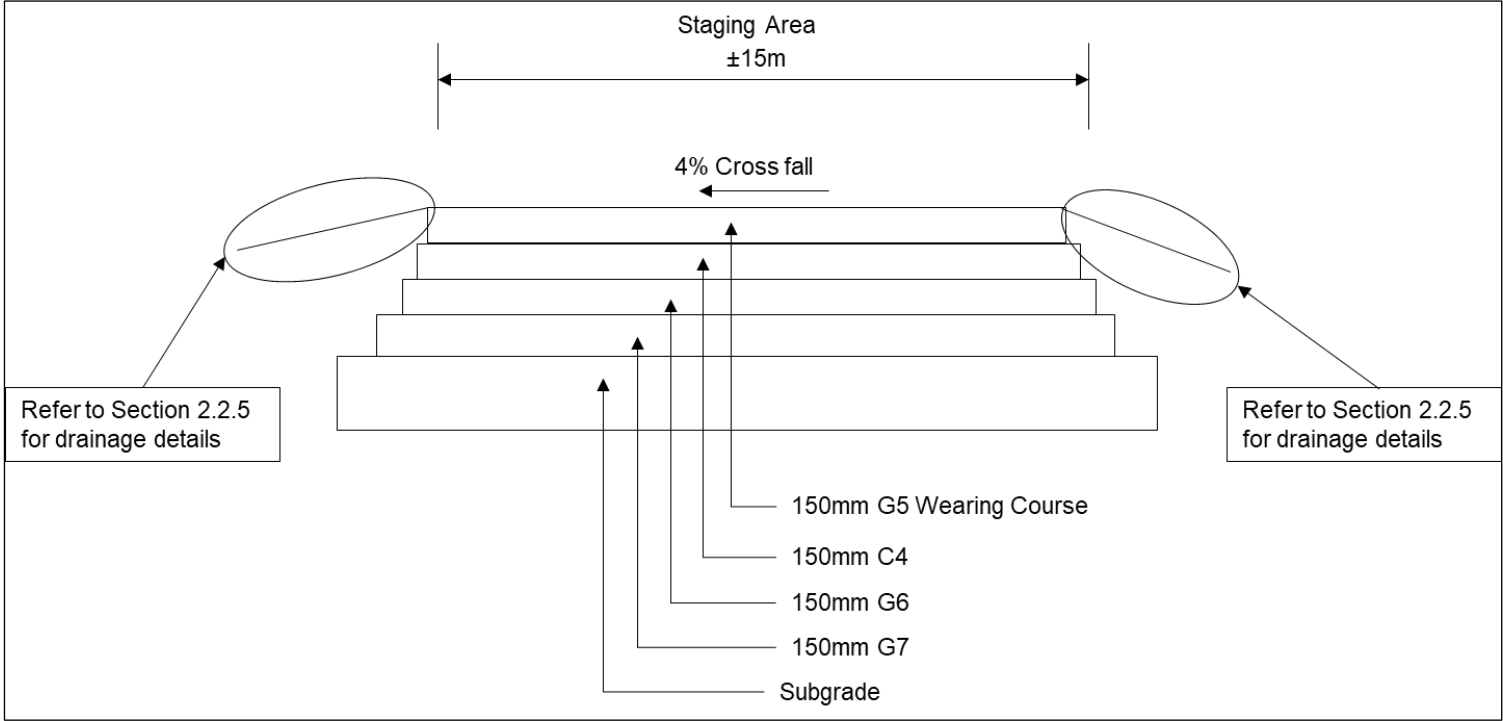


Figure h: Section D-D Staging Area