AIRPORTS COMPANY SOUTH AFRICA

CAPE TOWN INTERNATIONAL AIRPORT

TENDER NO.: CTIA7333/2023/RFP

THE REHABILITATION OF THE RUNWAY 01/19 (RWY 01/19) AND THE REHABILITATION OF THE AIRSIDE APRON TAXILANE AT CAPE TOWN INTERNATIONAL AIRPORT

THE CONTRACT

C1. Agreement and Contract Data

C2. Pricing Data

C3. Scope of Work

C4. Site information

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C1. AGREEMENT AND CONTRACT DATA

C1.1 Form of Offer and Acceptance – Agreement

OFFER

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

Contract No. CTIA7333/2023/RFP: THE REHABILITATION OF THE RUNWAY 01/19 (RWY 01/19) AND THE REHABILITATION OF THE AIRSIDE APRON TAXILANE AT CAPE TOWN INTERNATIONAL AIRPORT

The tenderer, identified in the Offer signature block, has examined the documents listed in the Tender Data and addenda thereto as listed in the Returnable Schedules, 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.

THE OFFERED ALL INCLUSIVE TOTAL (CARRIED FORWARD FROM THE CALCULATION OF CONTRACT SUM IN PART C2.2) IS:		
		Rand (in words)
R		**(in figures)**

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 to the tenderer before the end of the period of validity stated in the Tender Data, whereupon the tenderer becomes the party named as the Contractor in the conditions of contract identified in the Contract Data.

For the tenderer:	
Signature(s)	
Name(s)	
Date	
Capacity	
Organisation name	
Organisation address	
Witness:	
Signature	
Name	

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Date	

ACCEPTANCE

By signing this C1.1.2 Acceptance part of this Form of Offer and Acceptance - Agreement, the Employer identified below accepts the Tenderer's Offer. In consideration thereof, the Employer shall pay the successful Tenderer 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:

(i) Part C1: Agreement and contract data, (which includes this agreement)

(ii) Part C2: Pricing data

(iii) Part C3: Scope of work

(iv) Part C4: Site information

(v) and drawings and documents or parts thereof, which may be incorporated by reference into Parts C1 to C4 above.

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 changes to the terms of the Offer agreed by the Tenderer and the Employer during this process of offer and acceptance, are contained in C1.1.3 the Schedule of Deviations attached to and forming part of this Agreement. No amendments to or deviations from said documents are valid unless contained in this Schedule, which must be duly signed by the authorized representative(s) of both parties.

Notwithstanding anything contained herein, this Agreement comes into effect on the date when the successful Tenderer receives a fully completed signed Contract Document inclusive of this Agreement consisting of parts C1.1.1 Offer, C1.1.2 Acceptance, C1.1.3 Schedule of Deviations and C1.1.4 Confirmation of Receipt and acknowledges receipt thereof by completing and signing the C1.1.4 Confirmation of Receipt part of the Agreement.

Unless, the successful Tenderer within five 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 and the date on which it was received as recorded on the Confirmation of Receipt part, will be the Commencement Date.

The successful Tenderer (now Contractor) shall within 2 weeks after receiving the fully completed and signed Contract Document, submit to the Employer's Agent (whose details are given in the Contract Data) bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the Conditions of Contract identified in the Contract Data. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this Agreement.

The Employer's Agent shall issue a written instruction to commence the execution of the Works, or to resubmit documentation, within 7 days from the actual date of submission of these required documentation.

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For the employer:		**Witness:**	
Signature		**Signature**	
Name		**Name**	
Date		**Date**	
Capacity			
Organisation name			
Organisation address			

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SCHEDULE OF DEVIATIONS

The extent of deviations from the tender documents issued by the Employer before the tender closing date is limited to those permitted in terms of the Conditions of Tender.

A tenderer's covering letter shall not be included in the final contract document. Should any matter in such letter, which constitutes a deviation as aforesaid, become the subject of agreements reached during the process of offer and acceptance, the outcome of such agreement shall be recorded here.

If any other matter arising from the process of offer and acceptance either as a confirmation, clarification or change to the tender documents and which it is agreed by the Parties becomes an obligation of the contract, it shall also be recorded here.

Any change or addition to the tender documents arising from the above agreements and recorded here shall also be incorporated into the final draft of the Contract.

SCHEDULE OF DEVIATIONS		
No.	**Subject**	**Details**

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By the duly authorised representatives signing this Schedule of Deviations, the Employer and the Tenderer agree to and accept the foregoing Schedule of Deviations as the only deviations from and amendments to the documents listed in the Tender Data and Addenda thereto as 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 Agreement shall have any meaning or effect in the contract between the Parties arising from this Agreement.

For the tenderer:	
Signature(s)	
Name(s)	
Date	
Capacity	
Organisation name	
Organisation address	
Witness:	
Signature	
Name	
Date	

For the employer:	
Signature	
Name	
Date	
Capacity	
Organisation name	
Organisation address	
Witness:	
Signature	
Name	
Date	

Confidential

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CONFIRMATION OF RECEIPT

The Tenderer, (now Contractor), identified in the Offer part of this Agreement hereby confirms receipt from the Employer, identified in the Acceptance part of this Agreement, of one fully completed and signed Contract Document inclusive of this Agreement today, the Commencement Date of the Contract:

COMMENCEMENT DATE		
the		**(day)**
of		**(month)**
20		**(year)**
at		**(place)**

For the Contractor:	
Signature(s)	
Name(s)	
Date	
Capacity	
Organisation name	
Organisation address	
Witness:	
Signature	
Name	
Date	

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C1.2 Contract Data

GENERAL CONDITIONS OF CONTRACT

The following standardized General Conditions of Contract:

General Conditions of Contract for Construction Works (Third Edition) 2015 (hereinafter referred to as the General Conditions of Contract),

as prepared by the South African Institution of Civil Engineering (SAICE) shall apply to and form the General Conditions of Contract for this contract. Copies of these conditions of contract are obtainable from the South African Institution of Civil Engineering (SAICE), Private Bag X200, Halfway House 1685, Tel: (011) 805 5947, Fax: (011) 805 5971, e-mail: civilinfo@saice.org.za.

The General Conditions of Contract are available for inspection and scrutiny at the offices of the Employer and Employers Agent.

The Pro-Forma pages referred to as Appendix 1, Appendix 2 and Appendix 3 in General Conditions of Contract, shall not apply to this Contract and shall be replaced with the relevant documentation bound into this Contract Document.

SPECIAL CONDITIONS OF CONTRACT

Variations, amendments and additions to the General Conditions of Contract as Special Conditions of Contract prescribed by the Employer are set out below. Each item of the Special Conditions of Contract given below is cross-referenced to the clause in the General Conditions of Contract to which it mainly applies.

The following Special Conditions of Contract as prescribed by the Employer, referring to the General Conditions of Contract are applicable to this Contract:

1.1 Definitions

Add the following to Clause 1.1.1.16:

"Where reference is made to the term 'Engineer' in the Project Specifications or anywhere in the contract document, the terms 'Engineer and Employer's Agent' shall have the same meaning."

Replace Clause 1.1.1.28 with the following:

"1.1.1.28 "Scope of Work" means the document(s) containing the Standard Specifications, the Project Specifications and the Drawings, that specifies and describes the Works, which are to be provided, and any other requirements and constraints relating to the manner in which the work is to be carried out."

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Add the following clause after Clause 1.1.1.34:

"1.1.1.35 "Drawings" means all drawings, calculations and technical information forming part of the Contract Documents and any modifications thereof or additions thereto from time to time approved in writing by the Employer's Agent or delivered to the Contractor by the Employer's Agent."

1.2 Interpretations

Add the following after Clause 1.2.1.2

"1.2.1.3A printed copy of all correspondence between the Contractor and the Employer shall be delivered to the other party's physical address.

1.2.1.4 Where communication is delivered by electronic mail – excluding electronic social media platforms and messaging services – it shall be deemed delivered on the date on which it is can be proven to have entered the Addressee's network server or two working days before a hand-written, typed or printed copy has been delivered to the Addressee's physical address – whichever is the later. "

1.3 General Provisions

Add the following at the end of Clause 1.3.1

"Any failure or omission by any party to enforce any provision of this agreement shall not constitute a waiver of such provision or affect such party's rights to require the performance of such provision in the future."

Insert the following clause after Clause 1.3.6

"1.3.7 The Contractor shall treat the details of the Works comprised in this Contract as private and confidential (save in so far as may be necessary for the purposes hereof) and shall not publish or disclose the same or any particulars thereof in any trade or technical paper elsewhere without the prior written consent of the Employer's Agent."

2.4 Ambiguity or Discrepancy

Add the following clause after Clause 2.4.2

"2.4.3 The documents forming the Contract are to be taken as mutually explanatory of one another. For the purpose of interpretation, the priority of the documents shall be in accordance with the following sequence:

1. Form of Offer and Acceptance, including Schedule of Deviations
2. Special Conditions of Contract
3. General Conditions of Contract
4. Scope of Works including project specifications
5. General Specifications and special specifications
6. Drawings
7. All schedules and any other documents forming part of the Contract."

4.3 Legal provisions

Add the following clause after Clause 4.3.2:

"4.3.3 The Employer and the Contractor shall enter into an agreement to complete the work required for the construction of the works in terms of the provisions of Section 37(2) of the Occupational Health and Safety Act (Act 85 of 1993) and the Construction Regulations promulgated thereunder.

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An agreement, in the form provided by the Employer, shall be completed and submitted to the Employer together with a letter of good standing from the Compensation Commissioner or a Licensed Compensation Insurer within fourteen (14) days after signing the Confirmation of Receipt. The Contractor shall ensure that the letter of good standing shall be timeously renewed in order that it remains in full force for the duration of the Contract. Failure to have a valid letter of good standing shall be sufficient cause to terminate the contract"

4.4 Subcontracting

Add the following clause after Clause 4.4.7

"4.4.8 Except where otherwise provided in the Contract, the Contractor shall not subcontract any part of the Contract without the prior written consent of the Employer's Agent, which consent shall not be unreasonably withheld."

****Also note the following:**

Sub-Contracting (As per contractor's proposal/commitment)

- *As part of this bid and subsequent contract, ACSA **requires** a minimum of 30% sub-contracting for this bid to local black owned (at least 51% black owned) EMEs and/or QSEs for local economic empowerment. Refer form C11 contractor completed and the related proposal provided at tender stage.*
- *Sub-contractors must have a CIDB grading of 3CE – 6CE.*
- *The promotion of sub-contractors located in the Western Cape Province for work to be done or services to be rendered in that province.*

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5.1 Time calculations

Replace Clause 5.1.1 with the following:

"5.1.1 Except **for the time-spans as defined in Clauses 1.1.1.13 and 1.1.1.14 and** where otherwise provided by the Contract, where a specific time-span is stipulated in the Contract for carrying out any task or for the termination of any right or the duration of any event or circumstance,"

5.4 Access to the Site

Add the following to Clause 5.4.2:

"Access to and possession of the site shall not be exclusive to the Contractor insofar as the provisions of Clause 4.8 apply, and where on-going use by the airport operations is required."

Add the following to Clause 5.4.3:

"The Contractor shall bear all costs and charges for special and temporary rights of way required by him in connection with access to the Site."

5.6 Programme

Omit the second sentence of Clause 5.6.1

5.7 Progress of the Works

Replace the first sentence of the first paragraph of Clause 5.7.1 with the following:

"If the rate of progress of the Works, or any part thereof has fallen behind the approved programme ***by a period of more than 7 days,*** the Employer's Agent may notify the Contractor in writing, with specific reference to this Clause."

5.13 Penalty for delay

Replace Clauses 5.13.2, 5.13.2.1 and 5.13.2.2 with the following:

"5.13.2 No reduction in the penalty for delay will be made before the issuing of the Certificate of Practical Completion of the whole of the Works, even if a Certificate of Practical Completion has been issued for part of the Works or the Employer, his agents, employees or other contractors (not employed by the Contractor) have occupied part of the Works."

6.2 Security

Delete Clause 6.2.2 in its entirety.

6.8 Adjustments in rates and/or prices

Add the following to Clause 6.8.3:

"Details of special materials are indicated in Part 2: Contract Data provided by the Contractor in C1.2: Contract Data. Price adjustments for variations in the costs of special materials (such as bitumen-based products) shall only be considered with supporting documentary evidence."

Add the following to Clause 6.8.4:

"Notwithstanding the above, in the event that a public holiday is proclaimed after 28 days before the closing date for tenders, no costs other than those that can be claimed under Clause 5.12.3 shall be added to the contract price."

6.10 Payments

In the second paragraph of Clause 6.10.1.5 after the phrase "*an indemnity,*" insert "*in the form of a suitable bond for materials on site*".

Add the following after the second paragraph of Clause 6.10.2:

"The total valuation of materials brought onto site to be included in interim payments pursuant to Clause 6.10.1.5 shall at all times be limited to the value of the bond for materials on site provided by the Contractor in terms of Clause 6.10.1.5."

Add the following to Clause 6.10.4:

" Notwithstanding the above, the Employer's Agent shall be empowered to withhold the delivery of the payment certificate until the Contractor has complied with his obligations to report in terms of Clause 4.10.2 and as described in the Scope of Work."

6.11 Variations exceeding 15 per cent

Amend Clause 6.11 as follows:

Replace "15 per cent" in the heading, the marginal heading and in Clause 6.11.1.3 with "20 per cent".

8.6 Insurances

Delete and replace with the following:

"8.6.1 Insurance Effected By The Employer

1.1) Notwithstanding anything elsewhere contained in this Contract and without limiting the obligations, liabilities or responsibilities of the Contractor in anyway whatsoever (including but not limited to any requirement for the provision by the Contractor of any other insurances) the **Employer** shall effect and maintain for the duration of the construction and maintenance periods of the Contract - as appropriate in the joint names of the Employer, the Contractor and where relevant Sub-Contractors the following insurances which are subject to the terms, limits, exceptions and conditions of the Policy:

a. Contract Works/Contractors Public Liability/ Removal Of Lateral Support Liability

Section 1 Of The Policy – Contract Works

Contract Works Insurance for the full value of the Works to provide cover against accidental physical loss of or damage to the Works, Temporary Works and materials intended for incorporation in the Works all being the subject matter of this Contract including to the extent provided for in the policy whilst in transit or temporarily stored at any premises enroute to or from the Site (other than where this is a continuation of Marine Transit) within the territorial limits of the policy.

This insurance may specifically exclude any cost necessary to replace or rectify any of the property insured, which is in a defective condition due to defect in design, plan specification, material or workmanship.

This insurance contains the following limitations and warrantees;

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Open Trench Limitation
In respect of loss or damage to open trenches and pipes, conduits or cables laid therein, caused directly or indirectly by rain, inundation or flood, Insurers liability shall be limited in respect of the aggregate length of open trenches at any one time to ***2500 meters****.*

Exposed Layer Works (applicable to works involving paving, roadways, bulk earthworks and runways and taxiways)
In respect of loss or damage to Exposed Layer Works relating to paving, roadways and runways (including taxiways) caused directly or indirectly by rain, inundation or flood, Insurers liability shall be limited in respect of the aggregate length of Exposed Layer Works at any one time to ***25,000 square meters.***

Section II of the Policy – Contractors Public Liability

Public Liability Insurance which provides indemnity against legal liability in the event of accidental death of or injury to persons and/or loss of or damage to property (other than the Works the subject matter of this Contract) arising from the execution of the Contract with a limit of indemnity of **R100,000,000** in respect of any one occurrence or series of occurrences consequent on or attributable to one source or original cause.

Section III of the Policy – Removal Of Lateral Support Liability

Removal Of Lateral Support Liability which provides indemnity against legal liability in the event of accidental death of or injury to persons and/or loss of or damage to property (other than the Works the subject matter of this Contract) arising out of or in connection with shock or vibration or the removal or weakening of or interference with support to property in the vicinity of the Contract Site and arising out of or in connection with the Insured Contract (but not in respect of tunneling works) and occurring during the Period of Insurance.

The Limit of Indemnity being limited to **R50,000,000** attributable to one source or original cause.

b. Contract Works SASRIA – Providing physical loss of or damage to the Works, Temporary Works and materials intended for incorporation in the Works as covered by the underlying Contract Works policy as noted in (a) above due to perils as covered in terms of the SASRIA Contract Works wording as issued by SASRIA SOC.

The Contract Works SASRIA cover excludes consequential or indirect loss or damage of any kind or description whatsoever.

The SASRIA Contract Works policy is limited to **R500,000,000 (Incl VAT)** in the aggregate during the policy period of insurance.

The Contract Works SASRIA policy wording can be obtained from the SASRIA website http://www.sasria.co.za/ which notes the covers and policy exclusions.

c. Aviation Liability Insurance which provides indemnity against legal liability in the event of accidental death of or injury to persons and/or loss of or damage to property (other than the Works the subject matter of this Contract) arising from the execution of the Contract with a limit of indemnity of

R2,000,000,000 in respect of any one occurrence or series of occurrences consequent on or to one source or original cause.

This insurance is in respect of liability relating to aircrafts.

d. Design & Construct Professional Indemnity Insurance which provides indemnity against legal liability to pay compensation as a result of any actual or alleged negligent act, error or omission in the performance of the Professional Duties of the insured and arising from the execution of this project. The limit of indemnity under this insurance shall be ***R25,000,000 in the aggregate during the annual policy period of insurance that ACSA effect such cover during the policy period from 1 April to 31 March during each policy period of insurance.**

****The limits of indemnity applies to all ACSA contracts as a whole and does not apply specifically to this contract. The aggregate limit could be exhausted by claims under other ACSA contracts and there is no guarantee that this insurance cover will provide sufficient cover to this specific contract should the aggregate limit be exhausted.***

The Policy only covers the rectification of the works and excludes all consequential losses.

Professional Duties do not include:

a. Labour and construction work which would normally be the responsibility of the building or engineering contractor.

b. Supervision of the construction works usually undertaken by a building or engineering contractor.

1.2) **The Contractor** shall familiarise itself fully with the details of such insurance effected by the Employer. The Contractor shall comply to all the terms and conditions of the Employer arranged policies and the Contractor shall be deemed to be fully aware of all the conditions, limits, limitations, exclusions/exceptions and deductibles that are contained in the Employer arranged policies. Copies of the Employer arranged policies are obtainable on request from the Employer and if the Contractor is of the opinion that additional insurance is required, such shall be for the Contractors account.

1.3) The Employer shall pay the premium in connection with the insurances effected by the Employer. The Employer is entitled to all return premiums, dividends, discounts, or adjustments in connection with the insurances effected by the Employer.

1.4) The Contractor shall not include any premium charges for this insurance except to the extent, which he may deem necessary in his own interests to effect supplementary insurance to the insurance effected by the Employer. The Employer reserves the right to call for full information regarding insurance costs included by the Contractor.

In the event that the Contractor purchases any insurances in addition to those indicated above, the premium and taxes, duties, etc. shall be borne entirely by the contractor.

1.5) Any further clarification of the scope of cover provided by the Policies arranged by the Employer should be obtained from the Employer.

1.6) The Contractor and/or any other party who obtains indemnity under the policies effected under 8.6.1.1 shall become liable for the deductibles (first amount payable) which are

applicable in respect of each and every occurrence or series of occurrences attributable to one source or cause giving rise to loss or damage or indemnifiable liability. The deductibles applicable to the policies effected under 8.6.1.1 are as follows:

a) Contract Works/Contractors Public Liability/ Removal Of Lateral Support Liability

Unless stated otherwise in the Policy Extensions the Deductibles shall be as follows which will apply in respect of each and every occurrence or series of occurrences arising out of or in connection with any one event giving rise to loss or damage:

Section 1 Of The Policy – Contract Works

In respect of all loss or damage **R150,000** but increased to **R250,000** in respect of loss or damage arising out of or in connection with testing and commissioning.

Section 2 Of The Policy – Contractors Public Liability

R75,000 each and every claim in respect of Property Damage.

Section 3 Of The Policy – Removal Of Lateral Support Liability

R75,000 each and every claim.

b) Contract Works SASRIA

In respect of theft as a result of the SASRIA perils insured - **R25,000** each and every occurrence.

c) Aviation Liability Insurance;

In respect of each and every loss or damage or injury - **US$250,000.**

d) Design & Construct Professional Indemnity Insurance

In respect of each and every occurrence **– R10,000,000.**

1.7) In the event of any occurrence which is likely to give rise to a claim under the insurance arranged by the Employer, the Contractor shall:

a) In addition to any statutory requirement or other requirements contained in the Contract immediately notify the Employer and the Employer's Insurance Brokers by telephone, mobile phone or email giving the circumstances, nature and an estimate of the loss or damage or liability. The Contractor must also complete the Claim Advice Form (Appendix "A").

The following persons/insurers must be advised immediately on the occurrence of a claim on site or even a possibility of a claim arising due to an incident occurring on site:

Airports Company South Africa:

Nokulunga Masiza

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Nokulunga.Masiza@airports.co.za

Airports Company South Africa:

Buhle Mnguni

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M: +27 (0)74 535 9075

Buhle.Mnguni@airports.co.za

b) Preserve damage and make it available for inspection by a representative of the Insurers.

c) Wherever possible, photographs of damage should be taken.

d) Inform the police authorities promptly in the event of loss or damage by theft, burglary or any malicious persons(s) for the purpose of recovering any property so lost, discovering the guilty person or persons, and having him, her or them duly prosecuted.

e) Advise the Insurers of any other insurance(s) which may cover the same loss, damage or injury, or any part thereof.

f) Give to the Insurers every assistance to enable the Insurers to settle or resist any claim against the Insured, or institute any proceedings;

g) On completion the Claims Advice Form, the form must be sent to the Employers Insurance Brokers for further action (the original may be emailed to the Employers Insurance Broker). (Please do not remove the Claims Advice Form out of this document. Rather photocopy the form and send the copy to the Employers Insurance Brokers).

h) The Employer and the employers Insurance brokers / Insurers or their appointed loss adjusters shall have the right to make all and any enquiry's on the Site of the Works or elsewhere as to the cause and results of any such occurrence and the Contractor shall co-operate in carrying out such enquiry's.

i) The Contractor, Project Managers and Consultants must allow free access to Insurers' assessors for the purpose of investigating and assessing the loss or damage.

j) The Contractor must not proceed with the making good any off the loss without the prior authorisation of the Insurers.

k) The Contractor must keep separate records of the costs involved in making good any loss or damage and these records should be available at all times for inspection by Insurers. Such records should include inter alia the entire cost of labour, materials, transport and equipment.

l) Where required by the Employer, negotiate the settlement of claims with the Insurer or their appointed loss adjusters through the Employer's Insurance Brokers and shall obtain the Employer's approval of such settlement.

m) Once the amount of a claim is agreed by the Insurers and the Contractor, an "Agreement of Loss" form must be signed by the Contractor and if required this shall be counter signed by the Employer or the Project Managers.

n) The proceeds of such claim will, if required by the Employer, be paid net of any Deductible applicable under the policy by the Insurers to the Employer who on receipt thereof will arrange for payment to be made in terms of the Conditions of Contract. In the event that it is agreed by the Employer that such claims payment be made directly to the Contractor, the Contractor shall arrange for the Employer to endorse the "Agreement of Loss" to this effect.

8.6.2 Insurance Effected by the Contractor

In addition to Clause 8.6.1.1 in respect of the insurances effected by the Employer the following Insurances to be effected by the Contractor:

2.1) Without limiting the Contractor's obligations, responsibilities and liabilities, the Contractor and Sub-contractor shall maintain at the Contractor's and Subcontractor's expense and where applicable provide as a minimum the following insurances:

a) **Insurance of Construction Plant and Equipment** (including tools offices and other temporary structures and contents) and other things (except those intended for incorporation into the Works) brought onto the site for a sum sufficient to provide for their replacement.

The Employer shall be named as additional insured and a waiver of subrogation shall be provided to the Employer.

b) **Contractor's Common Law Liability/ Worker's Compensation Insurance**

The Contractor shall take out and maintain employer's liability insurance with a limit of indemnity of not less than **R20,000,000** and/or workmen's compensation insurance covering personal injury to or death of the employees of the Contractor engaged in connection with the Works to the minimum value required by applicable law.

The Contractor shall procure that its Subcontractors take out and maintain similar insurance in respect of its Subcontractor's personnel performing the Works.

In the event that a claim is made against the Employer in connection with such insurance, the Contractor shall indemnify and hold harmless the Employer against any such claim. The Employer shall be named as additional insured and a waiver of subrogation shall be provided to the Employer.

c) **Motor Vehicle Liability Insurance** comprising (as a minimum) "Balance of Third Party" Risks including Passenger Liability indemnity with a limit of indemnity of not less than **R5 000 000** for all owned, non-owned, leased and hired vehicles.

d) **Insurance For Buy-Down Cover Of Employer's Deductibles**

Should the Contractor believe that the Employer effected Contract Works, Public Liability, Removal Of Support Liability, Aviation Liability and Design & Construct Professional Indemnity deductibles as noted in Clause 1.6 (a),(c) and (d) be considered to be unacceptable to the Contractor, then the Contractor must obtain Buy Down cover for these deductibles to a deductible considered by the Contractor as being acceptable in respect of the works being undertaken.

e) Where the Contract involves manufacturing and/or fabrication of the Works or parts thereof at premises other than at the Contract Site the Contractor shall satisfy the Employer that all materials and equipment for incorporation in the Works are adequately insured during manufacture and/or fabrication. In the event of the Employer having an insurable interest in such Works during manufacture or fabrication then such interest shall be noted by endorsement to the relevant Policies

of Insurance.

Such insurance shall name Employer as an additional insured, and shall be primary to any insurance maintained by the Employer.

f) **Public Liability** insurances in excess of the Employers Public Liability insurances as stated under clause 1.1(a).

g) **Aviation Liability** insurances in excess of the Employers Aviation Liability insurances as stated under clause 1.1(c).

h) **Contractor's Professional Indemnity Insurance** in excess of the Employers Design & Construct Professional Indemnity insurances as stated under clause 1.1(d) and if applicable to cover the deductible that applies to the Employer effected insurance.

i) **Marine Cargo Insurance (If Applicable)**

Cover: Imports of cargo, equipment, goods, plant, machinery and materials ("**Insured Property**") to the site where the Permanent Works will be constructed.

Sum Insured: Not less than the value of the largest single cargo shipment, conveyance or the value in storage, whichever is the greater (CIF plus 10%).

Marine / Air Cargo Insurance covering the Insured Property against all risks of physical loss or damage while in transit by land, sea or air from country of origin anywhere in the world to the site where the Permanent Works will be constructed including loading, or vice versa, from the commencement of the time the insured items are loaded prior leaving the warehouse or factory for shipment to the said site.

The insured parties are the Employer, the Contractor and its Subcontractors, and all their personnel involved in the execution of any Works on the construction site.

j) **Miscellaneous Insurance**

Other insurance as is customary, desirable or necessary to comply with applicable Laws in the Country.

2.2) The insurances to be provided by the Contractor and his Sub-contractor shall be effected with Insurers and on terms approved by the Employer (which approval shall not be unreasonably withheld) and shall be maintained in force for the duration required (including any period of maintenance/defects liability period). The Contractor shall within twenty-eight (28) days of commencement of the contract produce to the Employer the relevant Policy or Policies of Insurance.

2.3) In the event that the Contractor or his Sub-contractor receives any notice of cancellation or restrictive modification to the insurance provided to them they shall immediately notify the Employer in writing of such cancellation or restriction and shall advise what action the Contractor or his Sub-contractor will take to remedy such action.

If the Contractor fails to effect and keep in force the insurances referred to then the Employer may effect and keep in force any such insurances and pay such premium or premiums as may be necessary for that purpose and from time to time deduct the amount paid by the Employer from any monies due or which may become due to the Contractor or recover same as a debt from the Contractor.

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2.4) Sub-Contractors

The Contractor shall:

a) ensure that all potential and appointed Sub-contractors are aware of the whole contents of these Insurance Clauses, and

b) enforce the compliance by sub contract agreement between the Contractor and Sub-Contractor and where applicable that the Sub Contractor effect similar insurance relating to the insurances required to be effected by the Contractor under Clause 2 (Contractor effected insurances).

APPENDIX A

CONTRACTORS CLAIMS ADVICE FORM - FOR ACSA INSURED CONTRACTS UNDER THE ANNUAL POLICY

Send to : Airports Company South Africa

*****.....
E-Mail The Following People : .....
Nokulunga.Masiza@airports.co.za .....
Buhle.Mnguni@airports.co.za .....
.....
…….....

***** (Please provide name of contracting company, site address, telephone numbers and e-mail address).

RE :ACSA CONTRACTORS : CAR/PL/PI : CLAIM

Date of loss : _____

Reported to site agent by : _____ Date : _____

Reported to Insurance Broker by : _____ Date : _____

Locality of Incident _____

How did the loss occur (cause) ? _____

Details and nature of loss or damage to Contract Works _____

Details of other property damaged _____

_____

Names and address of witnesses _____

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Estimated cost of repairs (Separate records of all costs must be kept) R_____

Person whom assessor should contact _____

Telephone/Mobile Numbers Of Contact Person_____

Email Address of Contact Person_____

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9.2 Termination by Employer

Add the following after Clause 9.2.1.3.8:

"9.2.1.3.9 The Contractor committed a corrupt or fraudulent act during the procurement process or the execution of the contract, or;

9.2.1.3.10 An official or other role player committed any corrupt or fraudulent act during the procurement process or in the execution of the contract that benefited the Contractor, unless such act has occurred without the Contractor's knowledge."

Add the following new contractual clause:

11 Skills Development Goals (CSDG)

The Contractor shall comply with the requirements of the CIDB Build Skills Development Goals as stated under Section C3.5.5.

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CONTRACT PRICE ADJUSTMENT SCHEDULE

- In Clause 1 replace the descriptions of the indices with the following:

  ""L" is the "Labour Index" and shall be the Geographical Indices: CPI per Province for the Province, as stated in the Contract Data, and as published in the Statistical News Release, P0141, Table A – Consumer Price Index: Main Indices of Statistics South Africa.

  "E" is the "Equipment Index" and shall be the price index for "Plant and equipment", as published in the Statistical Release P0151.1, Table 4 the "Mining and construction plant and equipment price index", of Statistics South Africa.

  "M" is the "Materials Index" and shall be the price index for "Civil engineering materials" as specified in the Contract Data, as published in the Statistical Release P0151.1, Table 6 the "Civil engineering material price indices", of Statistics South Africa.

  "F" is the "Fuel Index" and shall be the price index for "Coal and petroleum products: Diesel", as published in the Statistical Release P0142.1, Table 1 the "PPI for final manufactured goods", of Statistics South Africa.

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CONTRACT SPECIFIC DATA

(a) Part 1: Contract Data provided by the Employer

The General Conditions of Contract make several references to the Contract Data for specific data, which together with the General and Special conditions collectively describe the risks, liabilities and obligations of the contracting parties and the procedures for the administration of the Contract. The Contract Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the General Conditions of Contract.

The General Conditions of Contract shall be read in conjunction with the variations, amendments and additions set out in the Contract Specific Data below. Each item of data given below is cross-referenced to the clause in the General Conditions of Contract to which it mainly applies.

The Contract Data and General Conditions of Contract shall have precedence over the Scope of Work, as contained in Part C3, in the interpretation of any ambiguity or inconsistency between these documents.

The following contract specific data are applicable to this Contract:

Clause number	Contract Specific Data
1.1.1.13	Defects Liability Period The Defects Liability Period is **12** months inclusive of non-working days, and special non-working days referred to in Clause 5.8.1 below.
1.1.1.14	**Due Completion Date** The time for achieving Practical Completion is **8 months (consisting of 2 months mobilization period and 6 months construction period)**, inclusive of non-working days, and special non-working days referred to in Clause 5.8.1 below.
1.1.1.15	**Employer** The **Employer** is the **Airports Company South Africa (ACSA)**, represented by any such other person or persons duly authorised thereto by the Employer in writing and is referred to in this Contract Document by the terms "Employer", as the context provides.
1.1.1.16	**Employer's Agent (Combined)** The **Employer's Agent**, referred to in the documents, is as follows: **Lead Employer's Agent:** **Riaan Viviers** of the organisation **Mariswe (Pty) Ltd** **Support Employer's Agent:** **Clever Kativhu** of the organisation **Thembakele Consulting Engineer (Pty) Ltd**
1.1.1.26	**Pricing Strategy** The Pricing Strategy is a **Re-measurement Contract** as defined in Clause 1.1.1.27
1.2.1.2	**Interpretations** The address of the Employer is: **Administrative Building** **Cape Town International Airport** **Matroosfontein** **Cape Town** **7490** **Tel: 021 937 1200**

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	The address of the Lead Employer's Agent is: **Greenford Office Estate, Block D,** **Punters Way,** **Kenilworth,** **7708** **Tel: 021 761 6999** The address of the Support Employer's Agent is: **Unit 6,** **Gardens Business Park,** **Ateljee Street,** **Randpark Ridge,** **Johannesburg** **Tel: 011 475 4560** **Fax: 011 475 9140**
3.2.3	**Functions of the Employer's Agent** The Employer's Agent shall obtain the specific approval of the Employer before executing any of his functions or duties according to the following Clauses of the General Conditions of Contract: (i) Clause 3.3.1 Nomination of Employer's Agent's Representative (ii) Clause 3.3.4 Authority to delegate (iii) Clause 5.11.2 Suspending the progress of the Works (iv) Clause 5.12.4 Issuing of an instruction for acceleration instead of extension of time (v) Clause 5.13.2 Reducing of a penalty for delay (vi) Clause 6.11.1 Agreeing of the adjustment of the sums for general items (vii) Clause 10.1.5.1 Agreeing of an extension to the 28 day period (viii) Clause 10.2.3 Inclusion of credits in the next payment certificate
5.1.1	**Time calculations** Extension of time or standing time claims shall be considered for the period prior to the instruction to Commencement of the Works. The Construction Period will only commence on the instruction to Commence with the Works has been issued.
5.2	**Commencement of the Contract** Should a delays of any nature result in delaying the mobilization period the available construction window might be lost and the Employer my instruct the deferment of the works by a period to be determined by the Employer and/or the Agents. Contract Price Adjustments will be applicable as per the Contract (See Clause 6.8.2).
5.3.1	**Commencement of the Works** The Contractor shall, within **14 days** after signing the Confirmation of Receipt, submit the following documentation to the Employer's Agent for his approval: (i) Confirmation of valid Tax Clearance (valid on date of Confirmation of Receipt) by providing: • Tax Reference Number, • Security Pin Number, and • Tax Clearance Certificate Number (ii) A Health and Safety Plan (GCC Clause 4.3) (iii) An initial programme (GCC Clause 5.6) (iv) Performance Guarantee (Security – GCC Clause 6.2) (v) Insurances (GCC 8.6 - as specified) with proof of validity and premium payment made (vi) Occupational Health and Safety Agreement (vii) Letter of Good Standing from the Compensation Commissioner (if not insured with a Licensed Compensation Insurer) (viii) Proof of payment in terms of Compensation for Occupational Injuries and Diseases Act, 1993 (ix) Signed Declaration of Compliance to the Manual of Procedure for Working Airside (x) Submission of proposed Electrical Engineer to be appointed by the Contractor. Commencement of the Works shall only be instructed once: • The Construction Works Permit has been issued to the Contractor by the Department of Labour • Upon the Electrical Engineer's validation of the electrical specifications and products, the Employer's approval of the Change Request for the electrical works and the delivery on site of the electrical products. • Once ACSA training requirements, e.g. (AVOP, Security Awareness Training, Airside Induction Training, PARTAC, etc) have be completed by the Contractor's staff as detailed in the Contract. • Once Gate 6 has been enabled to an operational state as approved by the Employer and in terms of the specifications.

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5.4.2	**Access to Site** The access and possession of the Site shall not be exclusive to the Contractor but as set out in Site Information.
5.4.3	**Delay in giving possession** Extension of time or standing time claims shall be considered for the period prior to the instruction to Commencement of the Works. The Construction Period will only commence on the instruction to Commence with the Works has been issued.
5.8.1	**Non-working times** The non-working days are Sundays. Normal working days are Mondays to Fridays, or as otherwise agreed by the Employer's Agent in writing Normal working hours are over-night from 00h00 to 05h00, or as otherwise agreed by the Employer's Agent in writing. The special non-working days are: (i) All gazetted public holidays falling outside the year end break. (ii) A year-end break during which the Contractor grants the majority of his permanent workforce leave around 15 December and the first Monday of the subsequent year (as defined by SAFCEC).
5.12	**Extension of time to Practical Completion** Extension of time or standing time claims shall be considered for the period prior to the instruction to Commencement of the Works. The Construction Period will only commence on the instruction to Commence with the Works has been issued.
5.13.1	**Penalty for delay** The penalty for failing to complete the Works within the specified time limit plus approved extensions of time, is **R65,000.00** per calendar day. The penalty for failing to meet the taxiway or runway opening requirement is **R200,000.00** per occurrence and **R25,000.00** per minute (60 seconds) until the airport facility is in operation; and any additional expenses as may result from the delay in opening the facility.
5.14.1	**Requirements for Practical Completion** The requirements for achieving Practical Completion shall be as set out in the Scope of Works.
5.16.3	**Latent defects liability** The latent defects liability period is **10 years**.
6.2.1	**Delivery of Security** The time to deliver the Security is within 14 days of the date of signing the Confirmation of Receipt. The security to be provided by the Contractor shall be a performance guarantee of **10%** of the Contract Sum. The Form of Guarantee shall contain the exact wording of the document included in C1.3.
6.5.1.2.3	**Dayworks** The percentage allowance to cover overhead charges is **10%**
6.8.2	**Adjustment in rates and/or prices** "L" is the "Labour Index" and shall be the Consumer Price Index for **Western Cape: Province.** "E" is the "Equipment Index" and shall be the price index for "**Plant and equipment**", as published in the Statistical Release P0151.1, Table 4 the "Mining and construction plant and equipment price index", of Statistics South Africa. "M" is the "Materials Index" and shall be the price index for "**Civil Engineering Material – Total** **Civil Engineering Material – Roads, Reseal (Excl. Bitumen)** ", as published in the Statistical Release P0151.1, Table 6 the "Civil engineering material price indices", of Statistics South Africa. "F" is the "Fuel Index" and shall be the price index for "**Coal and petroleum products: Diesel**", as published in the Statistical Release P0142.1, Table 1 the "PPI for final manufactured goods", of Statistics South Africa.

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	NOTE: The Contract Price Adjustment factor shall be calculated to six decimal places.
6.8.3	**Variation in cost of special materials** The Contract Price shall be subject to price adjustment for variations in the cost of special materials. The following material is classified as a special material: • Net bitumen content of all penetration grade bituminous products, measured in ton. The net amount of any variation incurred shall be determined from the ex-refinery rate for bitumen at time of purchase relative to that of the base month for the supplier (refinery) of bitumen actually used to produce the relevant bituminous product. • Runway and taxi lane lights, measured in number. The net amount of any variation incurred shall be determined from the exchange rate of the purchase currency at the time of payment of the runway and taxi lane lights relative to that of the exchange rate of the purchase currency at the base month.
6.10.1.5	**Payments** The percentage advance on materials not yet built into the Permanent Works is **80%**. The procurement of electrical equipment may be accommodated under the provisions of a '**Letter of Lien'** pending approval by the Employer for materials off-site.
6.10.3	**Retention money** Notwithstanding the provision of a performance guarantee in terms of Clause 6.2.1, interim payments to the Contractor shall be subject to retention by the Employer of an amount of **5%** of the said amounts due to the Contractor. The limit of retention money is **5%** of the Contract Sum, including allowances for contingencies and Contract Price Adjustment. A guarantee in lieu of retention is permitted.
8.6.1.1.2	**Plant and material insurance** The value of Plant and materials supplied by the Employer to be included in the insurance sum is **R0.00 (Nil**).
10.1	**Contractor's claim** Extension of time or standing time claims shall be considered for the period prior to the instruction to Commencement of the Works. The Construction Period will only commence on the instruction to Commence with the Works has been issued.

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10.4	**Amicable Settlement** Amicable Settlement will be by means of appointing an Independent Third Party. As soon as the Employer accepts Amicable Settlement, the Notice Period of the dispute will be suspended. A suitably experienced independent third party must be appointed. The Employer will recommend three (3) persons (and CV's upon request) to the Contractor for acceptance. If the Contractor does not accept these three names, the Contractor may recommend three (3) alternative, suitably qualified persons to act as the independent third party. In the event the Employer and Contractor cannot agree to an independent third party, the dispute will refer to adjudication and the time Notice Period will re-commence. Once the independent party is appointed, the payment due to independent third party will be split equally between the Employer and Contractor. The independent third party will be appointed to give their *opinion* on the dispute, using the following process. i. The Parties shall submit their respective claims/rulings and any supporting documentary evidence to the Third-Party no less than seven days in advance of a meeting ("the Meeting") scheduled by the Third-Party as per item ii below. ii. The Third-Party shall schedule a meeting at an agreed time and venue acceptable to all Parties. iii. The Third-Party shall review the information provided in advance of the Meeting and may request additional information from either or both Parties, as the Third-Party deems necessary. Any additional information requested by the Third-Party prior to the Meeting is to be provided at the Meeting. iv. At the Meeting, each Party will present its case (Claimant first and Respondent second). v. After the presentations, the Third-Party may question either Party to gain clarity on any matters he deems necessary. vi. While some discussion between the Parties during the meeting is acceptable, all questions are to be addressed to the Third-Party, who will have final discretion as to whether these questions should be answered, or if any further discussion is required on certain matters. vii. Any further additional information requested by the Third-Party at the Meeting is to be submitted within 7 days of the Meeting having been concluded. viii. On receipt of all information requested by the Third-Party, an opinion on the matter shall be delivered to the Parties by the Third-Party within 14 days. ix. Upon receipt of the opinion, the Employer and Contractor can, within 7 days of receipt thereof, agree in writing that the independent third party opinion will be adopted as the revised ruling. x. If the Parties agree to accept the opinion or the original ruling, they shall notify the Third-Party within 7 days xi. If either or both Parties reject the opinion, or fail to respond within 7 days pursuant to item x above, the amicable settlement process will be deemed to have failed and the matter will immediately revert to dispute under processes as provided in the Conditions of Contract.
10.5	**Adjudication** Dispute resolution shall be by means of Ad-hoc Adjudication The number of Ad-hoc Adjudication Board Members to be appointed is **1(one).**
10.7	**Arbitration** The determination of disputes shall be by arbitration.

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(b) Part 2: Contract Data provided by the Contractor

Clause number	Contract Specific Data
1.1.1.9	**Contractor** The name of the Contractor is
1.2.1.2	**Interpretations**

Physical address	
Postal address	
Telephone number	
Fax	
Email	

For the tenderer:	
Signature(s)	
Name(s)	
Date	

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C1.3 Pro forma Performance Guarantee

For use with the General Conditions of Contract for Construction Works, Third Edition, 2015.

GUARANTOR DETAILS AND DEFINITIONS

"**Guarantor**" means: [Insert details]

Physical address: [Insert details]

"**Employer**" means: Airports Company South Africa

"**Contractor**" means: [Insert details]

"**Employer's Agent**" means: Mariswe (Pty) Ltd

"**Works**" means: Contract No. CTIA7333/2023/RFP : THE REHABILITATION OF THE RUNWAY 01/19 (RWY 01/19) AND THE REHABILITATION OF THE AIRSIDE APRON TAXILANE AT CAPE TOWN INTERNATIONAL AIRPORT

"**Site**" means: The site as defined in Clause 1.1.1.29 of the General Conditions of Contract.

"**Contract**" means: The Agreement made in terms of the Form of Offer and Acceptance and such amendments or additions to the Contract as may be agreed in writing between the parties.

"**Contract Sum**" means: The accepted amount inclusive of tax of R

Amount in words: [Insert details]

"**Guaranteed Sum**" means: The maximum aggregate amount of R

Amount in words: [Insert details]

"**Expiry Date**" means: The date of issue by the Employer's Agent of the Certificate of Completion of the Works

CONTRACT DETAILS
Employer's Agent issues: Interim Payment Certificates, Final Payment Certificate and the Certificate of Completion of the Works as defined in the Contract.

PERFORMANCE GUARANTEE
1. The Guarantor's liability shall be limited to the amount of the Guaranteed Sum.

2. The Guarantor's period of liability shall be from and including the date of issue of this Performance Guarantee and up to and including the Expiry Date or the date of issue by the Employer's Agent of the Certificate of Completion of the Works or the date of payment in full of the Guaranteed Sum, whichever occurs first. The Employer's Agent and/or the Employer shall advise the Guarantor in writing of the date on which the Certificate of Completion of the Works has been issued.

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3. The Guarantor hereby acknowledges that:
   3.1 any reference in this Performance Guarantee to the Contract is made for the purpose of convenience and shall not be construed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a suretyship;
   3.2 its obligation under this Performance Guarantee is restricted to the payment of money.

4. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 4.1 to 4.3:
   4.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Employer's Agent in an Interim or Final Payment Certificate has not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 4.2;
   4.2 A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) days has elapsed since the first written demand in terms of 4.1 and the sum certified has still not been paid;
   4.3 A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum certified in 4.

5. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Performance Guarantee, such demand stating that:
   5.1 the Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 5; or
   5.2 a provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Performance Guarantee is called up in terms of 5; and
   5.3 the aforesaid written demand is accompanied by a copy of the notice of termination and/or the provisional/final sequestration and/or the provisional liquidation court order.

6. It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 4 and 5 shall not exceed the Guarantor's maximum liability in terms of 1.

7. Where the Guarantor has made payment in terms of 5, the Employer shall upon the date of issue of the Final Payment Certificate submit an expense account to the Guarantor showing how all monies received in terms of this Performance Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of this Performance Guarantee shall bear interest at the prime overdraft rate of the Employer's bank compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund.

8. Payment by the Guarantor in terms of 4 or 5 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.

9. Payment by the Guarantor in terms of 5 will only be made against the return of the original Performance Guarantee by the Employer.

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10. The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may deem fit and the Guarantor shall not have the right to claim his release from this Performance Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.

11. The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.

12. This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 2, where after no claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.

13. This Performance Guarantee, with the required demand notices in terms of 4 or 5, shall be regarded as a liquid document for the purposes of obtaining a court order.

14. Where this Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Courts Act No 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.

Signed at .....

Date .....

Guarantor's signatory (1) .....

Capacity .....

Guarantor's signatory (2) .....

Capacity .....

Witness signatory (1) .....

Witness signatory (2) .....

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C1.4 Pro forma form or bond for unused plant and materials brought on to site, or fabricated and/or stored at places other than the site

DETAILS AND DEFINITIONS

"**Bank or Company**" : [Insert details]

Physical address: [Insert details]

"**Employer**" means: Airports Company South Africa

"**Contractor**" means: [Insert details]

"**Employer's Agent**" means: Mariswe (Pty) Ltd

"**Works**" means: Contract No. CTIA7333/2023/RFP : THE REHABILITATION OF THE RUNWAY 01/19 (RWY 01/19) AND THE REHABILITATION OF THE AIRSIDE APRON TAXILANE AT CAPE TOWN INTERNATIONAL AIRPORT

"**Site**" means: The site as defined in Clause 1.1.1.29 of the General Conditions of Contract.

"**Contract**" means: The Agreement made in terms of the Form of Offer and Acceptance and such amendments or additions to the Contract as may be agreed in writing between the parties.

"**Contract Sum**" means: The accepted amount inclusive of tax of R
Amount in words: [Insert details]

"**Guaranteed Sum**" means: The maximum aggregate amount of R
Amount in words: [Insert details]

"**Expiry Date**" means: The date of issue by the Employer's Agent of the Certificate of Completion of the Works

"**GCC**" means : General Conditions of Contract for Construction Works, Third Edition (2015)

"Plant and Materials" means: Plant and materials brought on to the Site, by or on behalf of the Contractor or which are fabricated or stored at places other than the Site and have been agreed in writing by the Employer and Contractor to be governed by Clause 6.9.1 of the GCC

SURETY

1. We the *(Bank or Company) do hereby bind ourselves as surety in solidum and co-principal debtors to recompense the Employer in the event of his:*

   1.1 not acquiring ownership of Plant and materials for whatever reason, or
   1.2 lawfully being required to make payment of any sum of money to any third party in order to obtain or retain ownership or full and free possession of the said Plant and materials,

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2. in *circumstances* where the Employer has paid the Contractor for the said Plant and materials in terms of Clause 6.10.1.5 of the GCC, and for all losses, damages and expenses that may be suffered or incurred by the Employer as a result of such payment for the said Plant and materials, renouncing all benefits from the legal exceptions *ordinis seu excussionis et divisionis* "No value received" and all other exceptions which might or could be pleaded against the validity of this guarantee, with the meaning and effect of which exceptions we declare ourselves to be fully acquainted;

3. provided that the liability of the undersigned under this guarantee is limited to and shall not exceed the amount stipulated herein as the Value of Surety and will lapse after issue of the Completion Certificate in terms of the Contract, unless the surety is advised in writing by the Employer before issue of the said Certificate of his intention to institute claims and the particulars thereof, in which event this guarantee shall remain in force until all such claims are paid or settled.

4. Subject to the maximum liability referred to in 3, the Bank or Company undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Bank or Company at the Bank or Company's physical address calling up this Surety, such demand stating that:

    4.1 the Contract has been terminated due to the Contractor's default and that this Surety is called up in terms of 4; or
    4.2 a provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Surety is called up in terms of 4; and
    4.3 the aforesaid written demand is accompanied by a copy of the notice of termination and/or the provisional/final sequestration and/or the provisional liquidation court order.

5. Where the Bank or Company has made payment in terms of 4, the Employer shall upon the date of issue of the Final Payment Certificate submit an expense account to the Bank or Company showing how all monies received in terms of this Surety have been expended and shall refund to the Bank or Company any resulting surplus. All monies refunded to the Bank or Company in terms of this Surety shall bear interest at the prime overdraft rate of the Employer's bank compounded monthly and calculated from the date payment was made by the Bank or Company to the Employer until the date of refund.

6. Payment by the Bank or Company in terms of 4 or 5 shall be made within seven (7) calendar days upon receipt of the first written demand to the Bank or Company.

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7. Payment by the Bank or Company in terms of 5 will only be made against the return of the original Surety by the Employer.

Signed at ……

Date ……

Bank or Company signatory (1) ……

Capacity ……

Bank or Company signatory (2) ……

Capacity ……

Witness signatory (1) ……

Witness signatory (2) ……

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C1.5 Occupational Health and Safety Agreement

AGREEMENT

AGREEMENT MADE AND ENTERED INTO BETWEEN THE ACSA (HEREINAFTER CALLED THE "EMPLOYER") AND

(Contractor)	

IN TERMS OF SECTION 37(2) OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, ACT No. 85 OF 1993 AS AMENDED.

This is to certify that I,	
representing (tenderer name)	

, as an employer in its own right, do hereby undertake to ensure, as far as is reasonably practicable, that all work will be performed, and all equipment, machinery or plant used in such a manner as to comply with the provisions of the Occupational Health and Safety Act (OHSA) and the Regulations promulgated thereunder.

I furthermore confirm that I am/we are registered with the Compensation Commissioner and that all registration and assessment monies due to the Compensation Commissioner have been fully paid or that I/We are insured with an approved licensed compensation insurer.

COID ACT Registration Number:			
OR Compensation Insurer:		**Policy No.:**	

I undertake to appoint, where required, suitable competent persons, in writing, in terms of the requirements of OHSA and the Regulations and to charge him/them with the duty of ensuring that the provisions of OHSA and Regulations as well as the Employer's Special Conditions of Contract, Way Leave, Lock-Out and Work Permit Procedures are adhered to as far as reasonably practicable.

I further undertake to ensure that any subcontractors employed by me will enter into an occupational health and safety agreement separately, and that such subcontractors comply with the conditions set.

I hereby declare that I have read and understand the appended Occupational Health and Safety Conditions and undertake to comply therewith at all times. I hereby also undertake to comply with the Occupational Health and Safety Specification and Plan.

For the Contractor:		**For the Employer:**	
Signature		**Signature**	
Name		**Name**	
Date		**Date**	
Witness:		**Witness:**	
Signature		**Signature**	
Name		**Name**	
Date		**Date**	

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1. DEFINITIONS

1.1 **"acceptable tender"** means any tender which, in all respects, complies with the specifications and conditions of tender as set out in the tender document.

1.2 **"affidavit"** is a type of verified statement or showing, or in other words, it contains a verification, meaning it is under oath or penalty of perjury, and this serves as evidence to its veracity and is required for court proceedings.

1.3 **"all applicable taxes"** includes value-added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies;

1.4 **"B-BBEE"** means broad-based black economic empowerment as defined in section 1 of the Broad-Based Black Economic Empowerment Act;

1.5 "**B-BBEE status level of contributor"** means the B-BBEE status of an entity in terms of a code of good practice on black economic empowerment issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;

1.6 **"bid"** means a written offer on the official bid documents or invitation of price quotations and "tender" is the act of bidding /tendering; ***(Therefore in the context of the 2022 regulations "bidder" and "tenderer" have the same meaning***

1.7 "**Code of Good Practice"** means the generic codes or the sector codes as the case may be;

1.8 **"consortium or joint venture"** means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract;

1.9 **"contract"** means the agreement that results from the acceptance of a bid by an organ of state;

1.10 **"EME"** is an Exempted Micro Enterprise with an annual total revenue of R10 million or less.

1.11 **"Firm price"** means the price that is only subject to adjustments in accordance with the actual increase or decrease resulting from the change, imposition, or abolition of customs or excise duty and any other duty, levy, or tax, which, in terms of the law or regulation, is binding on the contractor and demonstrably has an influence on the price of any supplies, or the rendering costs of any service, for the execution of the contract;

1.12 **"functionality"** means the ability of a tenderer to provide goods or services in accordance with specification as set out in the tender documents;

1.13 **"Large Enterprise"** is any enterprise with an annual total revenue above R50 million;

1.14 **"non-firm prices"** means all prices other than "firm" prices;

1.15 **"person"** includes a juristic person;

1.16 **"price"** includes all applicable taxes less all unconditional discounts;

1.17 **"proof of B-BBEE status level contributor"** means-

(a) The B-BBEE status level certificate issued by an authorized body or person;

(b) A sworn affidavit as prescribed in terms of the B-BBEE Codes of Good Practice; or

(c) Any other requirement prescribed in terms of the Broad- Based Black Economic Empowerment Act.

1.18 **QSE** is a Qualifying Small Enterprise with an annual total revenue between R10 million and R50 million;

1.19 **"rand value"** means the total estimated value of a contract in Rand, calculated at the time of the tender invitation;

1.20 **"sub-contract"** means the primary contractor's assigning, leasing, making out work to, or employing, another person to support such primary contractor in the execution of part of a project in terms of the contract;

1.21 **"the Act"** means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000);

1.22 "**the Regulations**" means the Preferential Procurement Regulations, 2022;

1.23 **"total revenue"** bears the same meaning assigned to this expression in the Codes of Good Practice on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act and promulgated in the *Government Gazette on 11 October 2013;*

1.24 **"trust"** means the arrangement through which the property of one person is made over or bequeathed to a trustee to administer such property for the benefit of another person; and

1.25 **"trustee"** means any person, including the founder of a trust, to whom property is bequeathed in order for such property to be administered for the benefit of another person.

2. GENERAL CONDITIONS

2.1 The following preference point systems are applicable to all bids:

- the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included); and
- the 90/10 system for requirements with a Rand value above R50 000 000 (all applicable taxes included).

2.2 Preference point system for this bid:

- Either the 80/20 or 90/10 preference point system will be applicable to this tender

2.3 Preference points for this bid shall be awarded for:

- Price; and

2.4 B-BBEE Status as per ACSA's Preference Goals. The maximum points for this bid will be allocated based the applicable system determined by the value of the lowest valid tender.

2.5 Failure on the part of a bidder to fill in, sign this form and submit in the circumstances prescribed in the Codes of Good Practice either a B-BBEE Verification Certificate issued by a Verification Agency accredited by the South African Accreditation System (SANAS) or an affidavit confirming annual total revenue and level of black ownership together with the bid or an affidavit issued by Companies Intellectual Property Commission, will be interpreted to mean that preference points for B-BBEE status level of contribution are not claimed.

2.6 The purchaser reserves the right to require of a bidder, either before a bid is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the purchaser.

2.7 In the event that the bidder is appointed to carry out the Works associated with this bid, the bidder shall maintain B-BBEE status level of contribution claimed hereunder for the full duration of construction. Furthermore the bidder is to advise the purchaser of any changes in B-BBEE status level of contribution within seven days of becoming aware of such change, and provide detailed reasons and motivations for such changes.

3. ADJUDICATION USING A POINT SYSTEM

3.1 Subject to Regulation 11 of the Regulations, the bidder obtaining the highest number of total points will be awarded the contract.

3.2 A tenderer must submit proof of its B-BBEE status level of contributor in order to claim points for B-BBEE.

3.3 A tenderer failing to submit proof of B-BBEE status level of contributor or is a non-compliant contributor to B-BBEE will not be disqualified but will only score points awarded for price.

3.4 Points scored must be rounded off to the nearest 2 decimal places.

3.5 In the event that two or more bids have scored equal total points, the successful bid must be the one scoring the highest number of preference points for B-BBEE.

3.6 When functionality is part of the evaluation process and two or more bids have scored equal total points including equal preference points for B-BBEE, the successful bid must be the one scoring the highest points for functionality.

3.7 Should two or more bids be equal in all respects; the award shall be decided by the drawing of lots.

4. POINTS AWARDED FOR PRICE

4.1 THE 80/20 OR 90/10 PREFERENCE POINT SYSTEM

A maximum of 80 or 90 points is allocated for price on the following basis:

C2. PRICING DATA

C2.1 Pricing Instructions

C2.1.1 GENERAL

Measurement and payment shall be in accordance with the relevant provisions of the COLTO Standard Specification for Road and Bridge Works for State Authorities (1998 edition) as amended in the Scope of Works.

C2.1.2 UNITS OF MEASUREMENT

The units of measurement described in the Bill of Quantities are metric units. Abbreviations used in the Bill of Quantities are as follows:

Unit	Description	Unit	Description
%	percent	mm	millimetre
h	Hour	m²	square metre
ha	hectare	m²-pass	square metre-pass
kg	kilogram	m³	cubic metre
kl	Kilolitre	m³-km	cubic metre-kilometre
km	kilometre	MN	meganewton
km-pass	kilometre-pass	MN.m	meganewton-metre
kPa	kilopascal	MPa	megapascal
kW	kilowatt	No	number
litre	Litre	ton	ton (1000 kg)
m	Metre	Veh.mth	vehicle-month
		W/day	work day

Confidential

C2.1.3 DEFINITIONS

For the purpose of the Bill of Quantities, the following words shall have the meanings hereby assigned to them:

(i) **Unit**: The unit of measurement for each item of work as defined in the Standard Specifications.

(ii) **Quantity:** The number of units of work for each item.

(iii) **Rate**: The agreed payment per unit of measurement.

(iv) **Amount**: The product of the quantity and the agreed rate for an item.

(v) **Lump sum**: An agreed amount for an item, the extent of which is described in the Bill of Quantities but the quantity of work of which is not measured in any units.

(vi) **Provisional sum**: An amount provided for work the scope and/or the necessity of which is undecided and which will be dealt with in accordance with clause 6.6.1 of the General Conditions of Contract.

(vii) **Prime cost sum**: An amount provided to cover the cost price of certain goods, services or materials in accordance with clause 6.6.2 of the General Conditions of Contract.

C2.1.4 GENERAL PRICING INSTRUCTIONS

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

It will be assumed that prices included in the bills of quantities are based on Acts, Ordinances, Regulations, By-laws, International Standards and National Standards that were published 28 days before the closing date for tenders. (Refer to www.stanza.org.za or www.iso.org for information on standards).

The prices and rates in the Bill of Quantities are to be fully inclusive prices for the work described under the several items. Such prices and rates cover all costs and expenses that may be required in and for the execution of the work described in accordance with the provisions of the Scope of Work, and shall cover the cost of all general risks, liabilities, and obligations set forth or implied in the Contract Data, as well as overhead charges and profit. Reasonable prices shall be inserted as these will be used as a basis for assessment of payment for additional work that may have to be carried out.

Where the Scope of Work requires detailed drawings and designs or other information to be provided, all costs associated therewith are deemed to have been provided for and included in the unit rates and sum amounts tendered for such items.

A price or rate shall be entered against each item in the Bill of Quantities. Should the Tenderer not wish to make any charge in respect of an item, a rate of zero "R0.00" or "Nil" shall be entered. An item against which no price is entered will be considered to be covered by the other prices or rates in the Bill of Quantities. Except where rates only are required, insert all amounts to be included in the total tendered price in the "Amount" column and show the corresponding total tendered price. The Tenderer may not group a number of items together and tender one lump sum for such group of items.

The tendered rates shall be valid irrespective of any change in the quantities during the execution of the works under the contract.

No unauthorized amendment shall be made to the Bill of Quantities or any part of the Pricing Data. If such amendment is made or if the Bill of Quantities is not properly completed, the tender will be rejected.

The quantities set out in the Bill of Quantities are approximate and do not necessarily represent the actual amount of work to be done. The quantities of work accepted and certified for payment will be used for determining payments due and not the quantities given in the Bill of Quantities.

Reasonable compensation will be received where no pay item appears in the Bill of Quantities in respect of work required in terms of the Contract and which is not covered in any other pay item.

The short descriptions of the items of payment given in the Bill of Quantities are only for the purposes of identifying the items. More details regarding the extent of the work entailed under each item appear in the Scope of Work.

The item numbers appearing in the Bill of Quantities refer to the corresponding item numbers in the COLTO Standard Specification for Road and Bridge Works for State Authorities (1998 edition).

Those parts of the contract to be constructed using labour-intensive methods have been marked in the Bills of Quantities with the letters L in a separate column filled in against every item so designated. The works, or parts of the works so designated are to be constructed using labour-intensive methods only. The use of plant to provide such works, other than plant specifically provided for in the scope of work, is a variation to the contract. The items marked with the letters L are not necessarily an exhaustive list of all the activities which must be done by hand, and this clause does not over-ride any of the requirements in the generic labour intensive specification in the Scope of Works.

Payment for items which are designated to be constructed labour-intensively (either in this schedule or in the Scope of Works) will not be made unless they are constructed using labour-intensive methods. Any unauthorised use of plant to carry out work which was to be done labour-intensively will not be condoned and any works so constructed will not be certified for payment.

C2.1.5 ACSA PRICING INSTRUCTIONS

C2.1.5.1 The Pricing/Activity Schedules /Bill of Quantities form part of and must be read in conjunction with the entire bid document.

C2.1.5.2 Prices must be quoted in South African Currency (Rands).

C2.1.5.3 Prices must include for all costs (material, labour, transport etc).

C2.1.5.4 Bidder's offers that contain correctional fluid will be disqualified.

C2.1.5.5 Corrections must be countersigned.

C2.1.5.6 All Provisional Sums, Estimated Quantities and Contingency will be reimbursed against proven costs upon approval by ACSA representative. Tenderers are reminded that this amount is for illustrative purposes only and that ACSA will not be under any obligation to expend the full or any portion of this amount.

C2.1.5.7 Should there be any queries regarding the pricing schedule/s, same must be sent in writing via e-mail by the Query Closure Date.

C2.1.5.8 Permit costs:

- Permit costs will need to be paid up front by the successful bidder and ACSA will reimburse against proof of payment.

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- No mark-up to be levied on Permit costs.
- All employees will be checked for criminal records.
- Cost for lost permits and new employees will not be reimbursed by ACSA.
- Foreign Nationals will need to provide a valid working permit.

C2.1.5.9 No cost/mark-up to be levied on items provided by ACSA (e.g. Electricity etc.)

C2.1.5.10 3rd Party Procured Items/Services:

- VAT shall not form part of mark-up calculations.
- All Discounts to be deducted prior to mark-up
- Price to include delivery to site

C2.1.5.11 The Bid offer must be inclusive of VAT.

C2.1.5.12 The VAT portion must be indicated separately

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C2.2 Bill of Quantities

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SCHEDULE A: GENERAL

SECTION B1200

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
B1200	**GENERAL REQUIREMENTS AND PROVISIONS**				
B12.01	**Standing time**	hr	18		
B12.02	**Control of dust and pollution**	L/Sum	1		
B12.03	**Safety induction course, AVOP, PARTAC and permits**	L/Sum	1		
B12.04	**Traffic Safety Officer**	L/Sum	1		
B12.05	**Escort services for all project vehicles**	Person. months	12		
B12.06	**Emergency Removal Equipment**	L/Sum	1		
B12.07	**Supply of radios**	Prov Sum	1	R25 000.00	R25 000.00
B12.08	**Detection of Services**	Prov Sum	1	R25 000.00	R25 000.00
B12.09	**Topographical survey requested by Engineer**	Prov Sum	1	R80 000.00	R80 000.00
B12.12	**Provisional Sum for the Employer's approved security services at Gate 6:**				
	(a) Direct payment by Contractor to the approved Security Service Provider for Security Supervisors	Prov Sum	1	R750 000.00	R750 000.00
	(b) Contractor's charges in respect of subitem B12.12(a)	%	R750 000.00		
	(c) Direct payment by Contractor to the approved Security Service Provider for Security Guards	Prov Sum	1	R2 500 000.00	R2 500 000.00
	(d) Contractor's charges in respect of subitem B12.12(c)	%	R2 500 000.00		
B12.13	**Enablement of Gate 6 during the Mobilization Period**				
	(a) Provisional Sum for the works required for the enablement of Gate 6 as described in the payment clause	Prov Sum	1	R2 000 000.00	R2 000 000.00
	(b) Contractor's charges in respect of subitem B12.13(a)	%	R850 000.00		
B1200	TOTAL CARRIED FORWARD TO SUMMARY				

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SCHEDULE A: GENERAL

SECTION B1300

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
B1300	**CONTRACTOR'S ESTABLISHMENT ON SITE AND GENERAL OBLIGATIONS**				
B13.01	**Contractor's general obligations:**				
	(a) Fixed obligations	L/sum	1		
	(b) Value-related obligations	L/sum	1		
	(c) Time-related obligations				
	(i) Mobilization Period	Month	2		
	(ii) Execution of the works	Month	6		
	(d) Suspension Costs				
	(i) De-establishment	No	1		
	(ii) Re-establishment	No	1		
	(iii) Suspension period	month	12		
B13.02	**Preparation and submission of as-built drawings, manuals and operating instructions**	Sum	1		
B13.03	**Contract sign boards**	No.	2		
13/C10.01	**Health and Safety Plan**	Sum	1		
13/C10.02	**Implementation of health and safety plan**	month	6		
13/D10.01	**Implementation of Construction Environmental Management Plan**	month	6		
13/E10.01	**Implementation of the CPG requirements**	L/sum	1		
13/F10.01	**Implementation of the CIDB B.U.I.L.D program**	month	6		
13/B42.22	**Asphalt mix designs**				
	(a) Stone skeletal mixes:				
	(i) UTFC surfacing (A-R2 modified binder, NMPS 14mm)	L/sum	1		
	(ii) Continuously graded base (35/50 penetration binder, design level I B, NMPS 26.5mm)	L/sum	1		
	(iii) Continuously graded base (A-P1 modified binder, design level II, NMPS 26.5mm)	L/sum	1		
	(b) Sand skeletal mixes:				
	(i) Continuously graded surfacing (A-P1 modified binder, design level II, NMPS 14mm)	L/sum	1		
	(ii) SMA asphalt surfacing (A-P1 modified binder, design level II, NMPS 14mm)	L/sum	1		
13/B42.28	**Provision of Performance Guarantees in respect of UTFC**	L/Sum	1		
13/B15.18	**Allowance to illustrate access and evacuation plans**	Shift	2		
B1300	TOTAL CARRIED FORWARD TO SUMMARY				

SECTION B1400

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
B1400	**HOUSING, OFFICES AND LABORATORY FOR THE ENGINEER'S SITE PERSONNEL**				
14.01	**Office and laboratory accommodation**				
	(a) Offices (interior floor space only)	m²	100		
	(d) Roofs over open concrete working floors	m²	30		
	(e) Ablution units	m²	10		
	(f) Stores	m²	40		
	(g) Kitchen (interior floor space only)	m²	10		
	(h) Steel containers (6 m x 2,4 m x 2,6 m including two windows and doors)	No	1		
14.02	**Office and laboratory furniture**				
	(a) Chairs	No	10		
	(d) Desks, complete with drawers and locks	No	4		
	(e) Drawing table	No	1		
	(f) Conference table	No	1		
B14.03	**Office and laboratory fittings installations and equipment:**				
	(a) Items measured by number				
	(i) 220/250 volt power points	No	6		
	(iii) Double 80 watt fluorescent light fittings complete with ballast and tubes	No	5		
	(x) Fire extinguishers, 9,0 kg,all purpose dry powder type, complete, mounted on wall with brackets	No	3		
	(xi) Air conditioning units with 2,2 kW minimum capacity, mounted and with own power connection	No	4		
	(xiv) General-purpose steel cupboards with shelves	No	2		
	(xvi) Refrigerators	No	1		
	(xix) Electric kettle	No	1		
	(xx) Flood lights complete with poles and 500W (min) globes	No	2		
	(xxi) Water dispenser	No	1		
	(xxii) White board (1.5m x 1.2m)	No	2		
	(xxiiI) Steel drawing rack	No	1		
	(xxiv) Table (1.0 m2)	No	1		
	(xxv) ACSA approved lime coloured reflective safety jackets (with lettering)	No	6		
	(xxvi) Rechargeable 500 000 candlelight halogen lamps	No	3		
	(xxviii) Two-way hand held radio VHF/AM Dittel FSG5 complete with charger, carrying bag with strap and adapter cable	No	2		
	(xxix) Vehicle mounted flashing lights	No	4		
	(xxx) Construction' sticker for vehicles with 100 mm high lettering	No	6		
B1400	TOTAL CARRIED FORWARD				

SECTION B1400

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
BROUGHT FORWARD					
B14.03 (cont)	**(b) Prime cost items and items measured and paid by the lump sum:**				
	(ix) The provision of a complete voice and data communication service with broadband data and local area network facilities, including the cost of telephone calls and data in connection with contract administration and telephone line rental	PC Sum	1	R65 000.00	R65 000.00
	(ii) Handling costs and profit in respect of sub item 14.03(b)(ix)	%	R65 000.00		
	(c) Items measured by area				
	(i) Shelving as specified complete with brackets	m²	4		
	(vii) Venetian blinds	m²	12		
	(viii) Notice boards as specified	m²	3		
14.04	**Car ports**	No	4		
14.07	**Rented, hotel and other accommodation:**				
	(a) Provisional Sum for providing rented housing, hotel or other accommodation as described in subsubclause 1403(c)(ii)	Prov Sum	1	R396 000.00	R396 000.00
	(b) Handling costs and profit in respect of subitem 14.07(a)	%	R396 000.00		
14.08	**Services:**				
	(a) Services at office and laboratories:				
	(i) Fixed costs	Sum	1		
	(ii) Running costs	month	6		
B14.10	**Provision of combination colour printer/copier/scanner/facsimile machine**	month	6		
B1400	TOTAL CARRIED FORWARD TO SUMMARY				

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SCHEDULE A: GENERAL

SECTION B1800

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
B1800	**DAYWORKS**				
B18.01	**Vehicles, plant and equipment:**				
	(a) Light delivery vehicle (LDV)	hour	16		
	(b) 8 - 10 tonne tipper truck	hour	32		
	(c) 16 tonne pneumatic roller	hour	8		
	(d) 10 - 12 tonne vibratory roller	hour	8		
	(e) Plate compactor	hour	24		
	(f) Tractor loader backhoe (TLB)	hour	16		
	(g) Water truck (9 000 litres)	hour	10		
	(h) Air compressor complete with all tools, drills, jackhammers etc. (10 m^3/min)	hour	30		
B18.02	**Labour:**				
	(a) Labourer	hour	120		
	(b) Charge hand / supervisor	hour	24		
	(c) Surveyor, including survey assistants, equipment and transport)	hour	8		
	(d) Ganger	hour	20		
	(e) Flagmen	hour	50		
B18.03	**Materials:**				
	(a) Procurement of materials	Prov Sum	1	R75 000.00	R75 000.00
	(b) Contractor's handling costs, profit and all other charges on respect of subitem B18.03(a)	%	75 000		
B18.04	**Transport:**				
	(a) LDV	km	5 000		
	(b) Flatbed truck	km	1 000		
	(c) Tipper truck (5 m^3)	km	40		
	(d) Minibus (20-seater) for use during site inspections /meetings	km			Rate only
B1800	TOTAL CARRIED FORWARD TO SUMMARY				

SCHEDULE A: GENERAL SECTION B8100

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
B8100	**TESTING MATERIALS AND WORKMANSHIP**				
81.02	**Other special tests requested by the engineer**	Prov Sum	1	R120 000.00	R120 000.00
B81.04	**Payment of independent site laboratory for acceptance control testing:**				
	(a) Direct payment by Contractor	Prov Sum	1	R850 000.00	R850 000.00
	(b) Contractor's charges in respect of subitem B81.04(a)	%	R850 000.00		
B8100	TOTAL CARRIED FORWARD TO SUMMARY				

REHABILITATION OF RUNWAY 01/19 AND REHABILITATION OF THE AIRSIDE APRON TAXI LANE AT CAPE TOWN INTERNATIONAL AIRPORT

SCHEDULE B: CIVIL WORKS RUNWAY 01/19

SECTION B1500

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
B1500	**ACCOMMODATION OF TRAFFIC**				
B15.03	**Temporary traffic-control facilities**				
	(a) Flagmen	man-day	300		
	(d) Amber flicker lights	No	14		
	(h) Delineators (TW401 & TN402) (250 mm x 1 000 mm)				
	I. Mounted back to back	No	200		
	(j) Traffic cones (750 mm)	No	20		
15.04	**Relocation of traffic-control facilities**	Lump Sum	1		
B15.14	**Safety Barriers:**				
	(a) Manufacturing and supply of aircraft barriers as per Drawing No. **14029-010**	No	5		
	(b) Moveable barricade (red and white alternating) HDPE plastic barrier as per drawing **14029-010**	No.	20		
	(c) Placing, repositioning and final removal of vehicle and aircraft barriers upon completion of shifts	L/Sum	1		
	(d) Runway Closure Marker as per Drawing No. **14029-010**	No.	2		
B15.15	**Provision of lighting on site to work areas**	L/Sum	1		
B15.16	**Provision of lighting on site to work areas as requested by the Engineer**	hours	600		
B15.17	**Penalty to be deducted for non-compliance with requirements:**				
	(a) Accommodation of traffic as set out in B1230 and B1500				
	(i) Fixed penalty per occurrence	No		-R50 000.00	rate only
	(ii) Time related penalty	hours		-R50 000.00	rate only
	(b) Failing to meet runway or taxiway opening requirements:				
	(i) Fixed penalty per occurrence	No		-R250 000.00	rate only
	(ii) Time related penalty	min		-R50 000.00	rate only
B1500	TOTAL CARRIED FORWARD TO SUMMARY				

REHABILITATION OF RUNWAY 01/19 AND REHABILITATION OF THE AIRSIDE APRON TAXI LANE AT CAPE TOWN INTERNATIONAL AIRPORT

SCHEDULE B: CIVIL WORKS RUNWAY 01/19

SECTION B1700

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
B1700	**CLEARING AND GRUBBING**				
B17.05	**Cleaning out of hydraulic structures**				
	(e) Pipes, box culverts and side drains or grid inlets	m^3	20		
B17.08	**Clearing, excavating and spoiling existing material from site camp:**				
	(a) Bituminous material on stockpile	m^3	600		
	(b) Milled material	m^3	350		
	(c) Concrete	m^3	12		
B17.09	**Clearing, excavating and removal of stockpiled materials:**				
	(a) Bituminous material on stockpile	m^3	120		
	(b) Milled material	m^3	9000		
B1700	TOTAL CARRIED FORWARD TO SUMMARY				

REHABILITATION OF RUNWAY 01/19 AND REHABILITATION OF THE AIRSIDE APRON TAXI LANE AT CAPE TOWN INTERNATIONAL AIRPORT

SCHEDULE B: CIVIL WORKS RUNWAY 01/19

SECTION B3800

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
B3800	**BREAKING UP EXISTING PAVEMENT LAYERS**				
B38.02	**Milling out existing bituminous material with an average milling depth:**				
	(a) Not exceeding 30 mm				
	(i) At Runway UTFC surfacing (25mm thickness)	m^3	4 100		
	(b) Exceeding 30 mm but not exceeding 60 mm				
	(i) At Runway Threshold surfacing	m^3	220		
	(c) Exceeding 60 mm				
	(i) At runway surfacing patches	m^3	40		
	(ii) At base patch repairs on runways	m^3	40		
	(d) Varying depth from 0 mm to 120 mm for keys				
	(i) At surfacing patches	m^3	50		
	(ii) At base patch repairs	m^3	30		
38.10	**Preparing stockpile sites**	m^2	10000		
B38.16	**Removal of rubber deposits from runways**				
	(a) Removal of rubber deposits by water blasting	Prov Sum	1	R50 000.00	R50 000.00
	(b) Handling cost and profit in respect of subitem B38.16(a)	%	R50 000.00		
B3800	TOTAL CARRIED FORWARD TO SUMMARY				

REHABILITATION OF RUNWAY 01/19 AND REHABILITATION OF THE AIRSIDE APRON TAXI LANE AT CAPE TOWN INTERNATIONAL AIRPORT

SCHEDULE B: CIVIL WORKS RUNWAY 01/19

SECTION B4200

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
B4200	**ASPHALT BASE AND SURFACING**				
B42.04	**Tack coat**				
	(a) 30% stable-grade emulsion				
	(i) At base patch repairs on runways	l	500		
	(ii) At surfacing patches on runways	l	310		
	(iii) At Runway THR19 surfacing	l	5 500		
	(b) Stable grade modified with 3% SBR	l	100		
B42.07	**Trial sections**				
	(a) 25mm UTFC (A-R2 modified binder, NMPS 14mm and placing technique - UTFC spray paver):	m²	900		
	(b) Removal of the trial section under B42.07(a) where so instructed by the Engineer	m²	900		
	(c) 40mm Surfacing (using A-P1 Modified bitumen and placing technique - paver):	m²	900		
	(d) Removal of the trial section under B42.07(c) where so instructed by the Engineer	m²	900		
B42.08	**Cores in asphalt paving**				
	(i) 100mm	No	150		
	(ii) 150mm	No	50		
B42.11	**Asphalt layer constructed for rehabilitation purposes in accordance with the provisions of subsubclauses 4213(f)(ii) or 4213(f)(iii):**				
	(b) Surfacing or overlay constructed with new asphalt:				
	(i) Sand skeletal mix - continuously graded as defined (40 mm layer thickness, A-P1 modified binder, design level II, NMPS 14 mm and placing technique - paver)	tons	528		
42.15	**Application of prime or tack coat to the edges of a layer**				
	(a) At base patch repairs on runways	l	3		
	(b) At surfacing patches on runways	l	8.5		
	(c) At Runway THR19 surfacing	l	5.5		
42.20	**Backfilling of excavations for patching with:**				
	(a) Asphalt Base - 120mm thickness Using 35/50 penetration grade bitumen, NMPS 26.5mm, design level I B and placing technique - paver				
	(1) At base patch repairs on runways	tons	200		
	(b) Asphalt Surfacing - 65mm thickness (A-P1 modified binder, design level II, NMPS 14 mm and placing technique - paver)				
	(1) At surfacing pacthes on runways	tons	100		
B4200	TOTAL CARRIED FORWARD				

SECTION B4200

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
BROUGHT FORWARD					
B42.21	**Extra over all asphalt items for the use of net bitumen supplied by a refinery outside the Western Cape Province:** (a) 35/50 penetration grade net bitumen (% bitumen contained in product)	tons	rate only		
B42.24	**Provision of asphalt cold mix in plastic bags**	tons	5		
B42.25	**Establishment of UTFC pavers on site**	L/Sum	1		
B42.27	**Ultra-thin asphalt surfacing (14 mm aggregate) course** (a) Construction of Ultrathin Friction Courses (UTFC) (25mm layer thickness, A-R2 modified binder, NMPS 14mm and placing technique - UTFC spray paver):	m^2	158500		
B4200	TOTAL CARRIED FORWARD TO SUMMARY				

SECTION B5700

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
B5700	**ROAD MARKINGS**				
57.01	**Road marking paint:**				
	(a) White Lines (broken or unbroken)				
	(v) 900 mm wide	km	10.0		
	(b) Yellow lines (broken or unbroken)				
	(ii) 150 mm wide	km	1.5		
	(d) White lettering and symbols	m²	80		
	(h) White solid (threshold, TDZ and aiming marks)	m²	5200		
B57.10	**Setting out and pre-marking for temporary road-marking paint**	km	50		
B57.11	**Temporary road marking paint at half the normal application rate:**				
	(a) White lines (broken or unbroken)				
	(iv) 900 mm wide	km	10.0		
	(b) White lettering and symbols	m²	80		
	(c) White solid (threshold, TDZ and aiming marks)	m²	5200		
B5700	TOTAL CARRIED FORWARD TO SUMMARY				

REHABILITATION OF RUNWAY 01/19 AND REHABILITATION OF THE AIRSIDE APRON TAXI LANE AT CAPE TOWN INTERNATIONAL AIRPORT

SCHEDULE B: CIVIL WORKS RUNWAY 01/19

SECTION B5900

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
B5900	**FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS**				
B59.01	**Finishing and cleaning of the works**				
	(c) Runway at the end of each shift	No.	180.0		
B5900	TOTAL CARRIED FORWARD TO SUMMARY				

REHABILITATION OF RUNWAY 01/19 AND REHABILITATION OF THE AIRSIDE APRON TAXI LANE AT CAPE TOWN INTERNATIONAL AIRPORT

SCHEDULE C: CIVIL WORKS APRON TAXILANE

SECTION B1500

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
B1500	**ACCOMMODATION OF TRAFFIC**				
B15.01	**Accommodating traffic and maintaining temporary deviations:**				
	(a) On service roads on and around the Airport	km	2.0		
B15.02	**Earthworks for temporary deviations:**				
	(a) Shaping of temporary deviations	km	0.5		
	(b) Cut and borrow to fill	m^3	40		
	(c) Cut to spoil	m^3	20		
B15.03	**Temporary traffic-control facilities:**				
	(a) Flagmen	man-day	660		
	(b) Portable STOP and GO-RY signs	number	6		
	(c) Temporary traffic-control signals as Specified or as shown on the Drawings	number			Rate only
	(d) Revolving amber flashing lights	number	4		
	(e) Road signs, R- and TR-series, 1200 mmin diameter	number	8		
	(f) Road signs, TW-series, 1200 mm sides	number	8		
	(g) Rectangular road signs, TGS-, TIN- and TW-series (excluding TW-series delineatorsand barricades)	m^2	20		
	(h) Delineators TW401/TW402 (250 mm x				
	(i) Single sided	number	20		
	(ii) Double sided	number	20		
	(i) Movable barricade/road sign combination1200 mm	number	2		
	(j) Traffic cones	number	20		
	(k) Single guardrails attached to posts	m			Rate only
	(l) Movable barriers:				
	(i) Concrete NJ-type barriers	m			Rate only
	(ii) Plastic NJ-Type barriers	m	12		
15.04	**Relocation of traffic-control facilities**	Lump Sum	1		
B1500	**TOTAL CARRIED FORWARD TO SUMMARY**				

REHABILITATION OF RUNWAY 01/19 AND REHABILITATION OF THE AIRSIDE APRON TAXI LANE AT CAPE TOWN INTERNATIONAL AIRPORT

SCHEDULE C: CIVIL WORKS APRON TAXILANE

SECTION B1700

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
B1700	**CLEARING AND GRUBBING**				
17.01	**Clearing and grubbing** (on service roads used for access to works)	m^2	2 800		
B17.06	**Removal of topsoil and unsuitable materialand temporary stockpiling thereof in:**				
	(a) Topsoil in windrows alongside the workarea	m^3	20		
	(a) Topsoil on Temporary stockpiles after loading material into trucks	m^3	40		
	(d) Unsuitable material in temporary stockpiles	m^3	30		
B17.09	**Clearing, excavating and spoiling materials:**				
	(a) Bituminous material	m^3	20		
	(b) Milled material	m^3	8 294		
	(d) All other materials	m^3	30		
B1700	**TOTAL CARRIED FORWARD TO SUMMARY**				

REHABILITATION OF RUNWAY 01/19 AND REHABILITATION OF THE AIRSIDE APRON TAXI LANE AT CAPE TOWN INTERNATIONAL AIRPORT

SCHEDULE C: CIVIL WORKS APRON TAXILANE

SECTION B3800

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
B3800	**BREAKING UP EXISTING PAVEMENT LAYERS**				
38.04	**Excavating and spoiling material from an existing pavement and/or the underlying fill:**				
	(d) Asphalt Material	m^3	4 608		
38.08	**Sawing or cutting asphalt or cemented pavement layers:**				
	(a) Sawing asphalt	m^2	996		
	(b) Cutting asphalt	m	64		
38.13	**Drilling cores:**				
	(a) In asphalt	number	20		
	(c) In cemented material	number			Rate only
B3800	**TOTAL CARRIED FORWARD TO SUMMARY**				

REHABILITATION OF RUNWAY 01/19 AND REHABILITATION OF THE AIRSIDE APRON TAXI LANE AT CAPE TOWN INTERNATIONAL AIRPORT

SCHEDULE C: CIVIL WORKS APRON TAXILANE

SECTION B3900

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
B3900	**PATCHING AND REPAIRING EDGE BREAKS**				
39.01	**Sawing asphalt or cemented pavementlayers for patching:**				
	(a) Sawing asphalt to an average depth:				
	(i) Not exceeding 50 mm	m²	20		
	(ii) Exceeding 50 mm but not exceeding100 mm	m²	60		
39.02	**Excavation in existing pavements forpatching in:**				
	(a) Asphalt layers	m³	11		
	(b) Cemented layers	m³	12		
	(c) Other layers	m³			Rate only
39.03	**Backfilling of excavations for patching with:**				
	(a) Chemically stabilized pavement materialfor a patch with a surface area:				
	(i) Not exceeding 5 m²	m³			Rate only
39.04	**Compacting the floor of excavations forpatching**	m²	60		
39.05	**Cutting back the edges of the existing surfacing for the repairing of edge breaks**	m			Rate only
B3900	**TOTAL CARRIED FORWARD TO SUMMARY**				

REHABILITATION OF RUNWAY 01/19 AND REHABILITATION OF THE AIRSIDE APRON TAXI LANE AT CAPE TOWN INTERNATIONAL AIRPORT

SCHEDULE C: CIVIL WORKS APRON TAXILANE

SECTION 4100

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
B4100	**PRIME COAT**				
41.01	**Prime coat:**				
	(c) MC-30 cut-back bitumen	litre	10 560		
41.02	**Aggregate for blinding**	m^2			Rate only
41.03	**Extra over item 41.01 for applying the primecoat in areas accessible only to hand held equipment**	litre			Rate only
B4100	**TOTAL CARRIED FORWARD TO SUMMARY**				

REHABILITATION OF RUNWAY 01/19 AND REHABILITATION OF THE AIRSIDE APRON TAXI LANE AT CAPE TOWN INTERNATIONAL AIRPORT

SCHEDULE C: CIVIL WORKS APRON TAXILANE

SECTION B4200

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
B4200	**ASPHALT BASE AND SURFACING**				
42.01	**Asphalt base 85 mm thick:**				
	(a) Base constructed with new asphalt with A-P1 Modified bitumen, 26.5 mm NMPS design level II and placing technique - paver	m^2	40		
42.02	**Asphalt surfacing:**				
	(f) Stone Mastic Asphalt, 14mm NMPS design level II and placing technique - paver	m^2	19 200		
	(i) 50 mm thick, using A-P1 Modified bitumen	litre	16 320		
42.04	**Tack coat of 30% stable-grade emulsion**				
42.08	**100 mm cores in asphalt paving**	number	100		
B42.11	**Asphalt layer constructed for rehabilitation purposes in accordance with the provisions ofsubsubclause 4213(f)(ii) or 4213(f)(iii):**				
	(a) Base constructed with new asphalt with A-P1 Modified bitumen, 26.5 mm NMPS design level II and placing technique - paver				
	(i) Stone skeletal continuously graded:				
	(2) In layers exceeding 50 mm average thickness but constructedin multiple layers not exceeding 85 mm in thickness	t	6 720		
42.14	**Extra over item 42.04 for applying tack coat inrestricted areas**	litre	3 000		
42.15	**Application of prime coat and/or tack coat tothe edges of a layer**	litre	1 500		
B42.26	**Establishment of Asphalt pavers on site**	L/Sum	1		
B4200	**TOTAL CARRIED FORWARD TO SUMMARY**				

REHABILITATION OF RUNWAY 01/19 AND REHABILITATION OF THE AIRSIDE APRON TAXI LANE AT CAPE TOWN INTERNATIONAL AIRPORT

SCHEDULE C: CIVIL WORKS APRON TAXILANE

SECTION 4800

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
4800	**TREATMENT OF AN EXISTING SURFACEEXHIBITING CERTAIN DEFECTS**				
48.01	**Treatment with diluted bituminous emulsion(fog spray) of service roads** (a) 30% bitumen emulsion	litre	4 000		
4800	**TOTAL CARRIED FORWARD TO SUMMARY**				

REHABILITATION OF RUNWAY 01/19 AND REHABILITATION OF THE AIRSIDE APRON TAXI LANE AT CAPE TOWN INTERNATIONAL AIRPORT

SCHEDULE C: CIVIL WORKS APRON TAXILANE

SECTION B5700

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
B5700	**ROAD MARKING**				
57.01	**Road marking paint:**				
	(a) White lines (broken or unbroken):				
	(i) 100 mm wide	km			Rate only
	(ii) 150 mm wide (service road crossings)	km	0.900		
	(iii) 200 mm wide	km			Rate only
	(iv) 300 mm wide (Holding lines)	km	0.225		
	(b) Yellow lines (broken or unbroken):				
	(i) 100 mm wide (Boundary of lettering)	km	3.400		
	(ii) 150 mm wide (TWY marking)	km	3.000		
	(iii) 200 mm wide	km			Rate only
	(c) Red lines (broken or unbroken):				
	(i) 100 mm wide	km			Rate only
	(d) White lettering and symbols (arrows)	m²	300		
	(e) Yellow Lettering & Black background symbols (parking bay marking)	m²	5 300		
57.06	**Setting out and pre-marking the lines (excluding traffic island markings, letteringand symbols)**	km	7.525		
57.08	**Removal of existing, temporary or permanentroad markings by:**				
	(a) Water-blasting	m²	100		
	(b) Overpainting as temporary measure	m²	100		
B5700	**TOTAL CARRIED FORWARD TO SUMMARY**				

REHABILITATION OF RUNWAY 01/19 AND REHABILITATION OF THE AIRSIDE APRON TAXI LANE AT CAPE TOWN INTERNATIONAL AIRPORT

SCHEDULE C: CIVIL WORKS APRON TAXILANE

SECTION B5900

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
B5900	**FINISHING THE ROAD AND ROAD RESERVEAND TREATING OLD ROADS**				
B59.01	**Finishing and cleaning of the works**				
	(d) Taxilane at the end of each shift	No.	210.0		
B5900	**TOTAL CARRIED FORWARD TO SUMMARY**				

REHABILITATION OF RUNWAY 01/19 AND REHABILITATION OF THE AIRSIDE APRON TAXI LANE AT CAPE TOWN INTERNATIONAL AIRPORT
SCHEDULE D: ELECTRICAL WORK

SECTION B1200

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
B1200	**GENERAL REQUIREMENTS AND PROVISIONS**				
B12.10	**Appointment of Electrical Engineer**				
	(a) Direct payment by Contractor	PC Sum	1	R1 250 000.00	R1 250 000.00
	(b)Contractor's charges in respect of sub item B12.10(a)	%	R1 250 000.00		
B12.11	**Provision for electrical installations**	Prov Sum	1	R24 420 636.76	R24 420 636.76
TOTAL CARRIED FORWARD TO SUMMARY					

REHABILITATION OF RUNWAY 01/19 AND REHABILITATION OF THE AIRSIDE APRON TAXI LANE AT CAPE TOWN INTERNATIONAL AIRPORT

SUMMARY OF SCHEDULE OF QUANTITIES

SCHEDULE A : GENERAL

B1200	GENERAL REQUIREMENTS & PROVISIONS	R
B1300	CONTRACTOR'S ESTABLISHMENT ON SITE AND GENERAL OBLIGATIONS	R
B1400	HOUSING, OFFICES AND LABORA- TORIES FOR THE ENGINEER'S SITE PERSONNEL	R
B1800	DAYWORKS	R
B8100	TESTING MATERIALS AND WORKMANSHIP	R
TOTAL SCHEDULE A: GENERAL		**R**

SCHEDULE B: CIVIL WORKS RUNWAY 01/19

B1500	ACCOMMODATION OF TRAFFIC	R
B1700	CLEARING AND GRUBBING	R
B3800	BREAKING UP EXISTING PAVEMENT LAYERS	R
B4200	ASPHALT BASE AND SURFACING	R
B5700	ROAD MARKINGS	R
B5900	FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS	R
TOTAL SCHEDULE B: CIVIL WORKS RUNWAY 01/19		**R**

SCHEDULE C: CIVIL WORKS APRON TAXILANE

B1500	ACCOMMODATION OF TRAFFIC	R
B1700	CLEARING AND GRUBBING	R
B3800	BREAKING UP EXISTING PAVEMENT LAYERS	R
3900	PATCHING AND REPAIRING EDGE BREAKS	R
4100	PRIME COAT	R
B4200	ASPHALT BASE AND SURFACING	R
B4800	TREATMENT OF AN EXISTING SURFACE EXHIBITING CERTAIN DEFECTS	R
B5700	ROAD MARKINGS	R
B5900	FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS	R
TOTAL SCHEDULE C: CIVIL WORKS APRON TAXILANE		**R**

SCHEDULE D : ELECTRICAL WORK

B1200	GENERAL REQUIREMENTS & PROVISIONS	R
TOTAL SCHEDULE D: ELECTRICAL WORK		**R**

CALCULATION OF CONTRACT SUM

TOTAL SCHEDULE A: GENERAL	R .....
TOTAL SCHEDULE B: CIVIL WORKS RUNWAY 01/19	R .....
TOTAL SCHEDULE C: CIVIL WORKS APRON TAXILANE	R .....
TOTAL SCHEDULE D: ELECTRICAL WORK	R .....
TOTAL OF SCHEDULES	**R** .....
CONTINGENCIES (15% OF TOTAL OF SCHEDULES)	R .....
CONTRACT SKILLS DEVELOPMENT GOAL (0.25% OF TOTAL OF SCHEDULES)	R .....
SUBTOTAL	**R** .....
15% VALUE ADDED TAX ON SUBTOTAL	R .....
ALL INCLUSIVE CONTRACT SUM	**R** _____

SIGNED BY
TENDERER:.....

TENDERER NAME:.....

AIRPORTS COMPANY SOUTH AFRICA

CAPE TOWN INTERNATIONAL AIRPORT

TENDER NO.: CTIA7333/2023/RFP

THE REHABILITATION OF THE RUNWAY 01/19 (RWY 01/19) AND THE REHABILITATION OF THE AIRSIDE APRON TAXILANE AT CAPE TOWN INTERNATIONAL AIRPORT

C3. Scope of Work

C3. SCOPE OF WORK

This section of the Contract Document is to be read in conjunction with:

1. COLTO (as amended)
2. COTO
3. ICAO
4. SANS
5. Drawings issued for Construction
6. Other instructions/documentation issued by the Employer / Employer's Agent

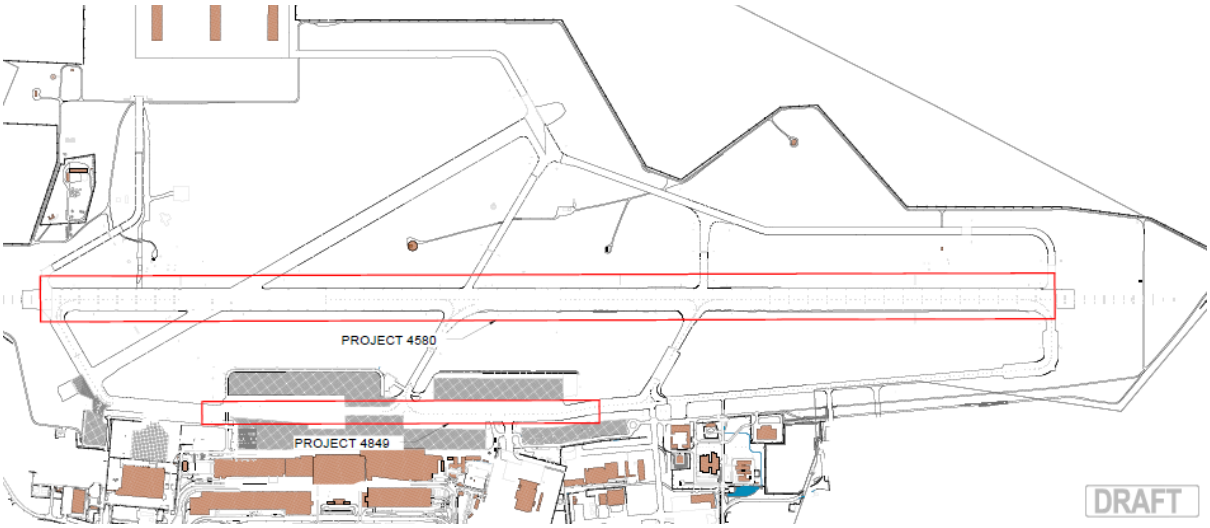
C3.1 DESCRIPTION OF THE WORKS

C3.1.1 EMPLOYER'S OBJECTIVES

The objective of the Employer is to appoint an experienced Contractor for the execution of the Rehabilitation of the Runway 01/19 (RWY 01/19) and the rehabilitation of the Airside Apron Taxilane at the Cape Town International Airport. These upgrades are aimed at improving the overall operation of the Apron Taxilane, in order to protect and extend the life of the runway and taxilane as well as reduce the risk to airside operations.

C3.1.2 OVERVIEW OF THE WORKS

The description of the project contained in the scope of work is merely an outline of the contract works and shall not limit the work to be carried out by the contractor under this contract. The project section consists of two work zones located airside at Cape Town International airport within the City of Cape Town Metropolitan Municipality.



C3.1.3 EXTENT OF WORKS

(a) General

The Works included in this contract will mainly consist of the following:

- Establishment;
- Resurfacing of Runway 01/19 (RWY 01/19);
- Rehabilitation of Alpha Taxilane;
- Associated electrical works, and
- Clearing and establishment of hard stands.

A description of the characteristics of the site such as the existing road features, traffic volumes, climatic conditions and so forth is contained in Part C4.

(b) Establishment

Establishment includes, but not limited to:

- The establishment on site, including the provision of facilities for the Employer's Agent, including a material testing laboratory facility (commercial laboratory).
- Completion of safety training including but not limited to Airside Inductions, AVOP and Security Permits as indicated in the Manual for Working Airside — Volume 5.
- The supply of plant, labour, tools, equipment and materials necessary to complete the work.
- Topographical survey and setting out of the Works.
- Completion of relevant OHS and labour requirements applications and files all in compliance with the Manual for Working Airside — Volume 5
- Compliance with the ACSA Environmental Specifications
- Compile and submit a quality management plan for approval by the Employer's Agent.
- Undertaking of asphalt mix designs and trials in compliance with specifications.
- Cleaning of the construction area after each work shift to the satisfaction of AM staff.
- Programming the construction of the new facilities and co-ordinating the activities of the Electrical Subcontractor.

(c) Runway 01/19 (RWY 01/19)

a) Mill and fill with 25mm UTFC 60wide on runway
b) Mill and fill with 40mm asphalt 60m wide 110m long
c) Removal and replacement of the light bases and secondary cables
d) Reinstate painted markings

- Mill out localised areas of base failures to a depth of 100mm to stockpile. Compact the floor of excavations and backfill with an unmodified continuously graded stone skeletal asphalt base;
- Mill out localised areas of surface failures to a depth of 40mm to stockpile. Compact the floor of excavations and backfill with an unmodified continuously graded sand skeletal asphalt wearing course;
- Blowing out and crack sealing of degree 4 and 5 longitudinal and transverse cracks using a cold modified crack sealant;
- Re-gravelling of existing gravel shoulders and gravel entrances using gravel shoulder wearing course material stabilized with cement; and
- Resurface existing surfaced entrances using a 40mm thick A-R2 modified continuously graded sand skeletal asphalt wearing course.

(d) Alpha Taxilane

The Apron Taxilane forms part of a critical route for aircrafts arriving / departing the aerodrome at CTIA (see figure 1 below). The apron taxilane serves as the main access route between the aprons and the runways. Whereas the construction of the original/existing apron taxilane is estimated to have been done over 50 years ago, some minor rehabilitation works was undertaken to the Taxilane over the years, primarily to remove and replace the overstressed asphalt. The Apron Taxilane has exhibited some signs of distress and deterioration, mainly along the wheel tracks of heavy wide body aircraft and the distress has become worse over the past months. Based on a visual assessment and intrusive testing, the evidence suggests possible distress failures of the existing granular and asphalt layers.

The CTIA western side taxiways consist of a taxiway centre line lighting system, the light fixtures have been inserted in the surface of the taxiways and is designed and fitted as to withstand the weight of aircraft using the route without damage either to the aircraft or to the lights themselves. The current rutting along the wheel track of the aircraft runs over approximately sleeves which supplying power to the taxiway centre line lights. The rutting proves to be a challenge for during pushback start operations and at times forces the pilot to use more than the standard thrust to gain momentum for taxiing

(e) Electrical works

Work to be undertaken by Contractor:

- Appoint an electrical Engineer to oversee the installation, certification and commissioning of the electrical works.
- Accurate produce a survey detailing the positions of existing light fittings and runway and taxiway conduits.

Work envisaged to be done by Electrical Subcontractor.

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- The removal of existing 8"/12" shallow bases and installation of new 8"/12" shallow bases after the completion of the asphalt layer works.
- The removal of existing touchdown zone, flush mounted edge and taxiway lead on / off lights and re-installation existing lights or new inset lights after completion of the asphalt layer works.
- The removal of existing runway centre line inset lights and installation of new LED inset lights after completion of the asphalt layer works.
- The removal of existing taxilane centre line inset lights and installation of new LED inset lights after completion of the asphalt layer works.
- The installation of new cables as required.
- Testing and commissioning of completed installation and any other works as specified by Electrical Engineer.

Care should be taken not to damage runway elevated edge lights, any damage to elevated edge lights will be repaired by the electrical subcontractor at contractor's cost.

Note: The Electrical Specification included under PART C: PROJECT ELECTRICAL SPECIFICATIONS is provisional and must be validated and updated during the Mobilization Period by the Contractor's appointed Electrical Engineer.

(f) Clearing and establishment of hardstands

All construction materials will be sourced from commercial sources except where existing pavement materials are to be reused in the establishment of hardstands as indicated by drawings or Engineer. The contractor will be required to rehabilitate the existing campsite prior to construction by removing any existing surplus construction materials, RAP, concrete and waste to an approved dumpsite. On completion of the project the contractor shall scarifying the hardstand areas and re-top soiling thereof.

The contractor shall be responsible for maintaining the site, except as otherwise specified, from the date of handing over of the site until the date of issue of the certificate of completion of the works.

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PROPOSED CONSTRUCTION STRATEGY

All works on runway and taxilane are scheduled as night works. The drawings and quantities in the bill of quantities are based on a specific construction strategy as indicated on phasing drawings in Volume 4. The tenderer is obliged to tender on this strategy. Contractor may submit an alternative tender based on another construction strategy provided that all constraints described in the document and client specifications has been accounted for in the alternative strategy and provided furthermore that his main tender is based on the original strategy. Full details of the alternative must be offered strictly in accordance with Clause **C.2.12.2** of the standard conditions of tender and as amplified in the tender data, inclusive of a detailed description of the alternative strategy, revised bill of quantities and programme. The employer will take all alternative construction strategies into account in his tender adjudication.

CONSTRUCTION CONSTRAINTS

Besides the items mentioned elsewhere in the description of the works, the following items need to be considered and taken into account when the construction programme is developed:

- The time required for various designs to be carried out shall be taken into account prior to certain aspects of construction works commencing;
- These designs require inputs from the Contractor in the form of appropriate quantities of samples of commercial source materials intended for use in the various laboratory designs.

The minimum time required to carry out various designs are indicated in table below, which the contractor shall take into account in planning his works and he shall also indicate these on his tender and construction programme;

Airport induction training and permits	45 days
Undertake the required asphalt designs in terms Section B4200	6 weeks prior to commencement of any asphalt work for Level I mixes 8 weeks prior to commencement of any asphalt work for Level II mixes **Note: Asphalt designs phase to be concluded during the two-month Mobilization Period.**
Inclement weather	No asphalt overlay works shall be permitted during periods when rain is forecast or falling.
Restricted Working Times	Refer to Section C3.5.2: Manual of Procedure for Working Airside – Cape Town International Airport
Weather related embargos	01 June – 15 September

MISCELLANEOUS MATTERS

(a) Health and safety requirements

The requirements with regard to the Occupational Health and Safety Act (Act 85 of 1993) and the Construction Regulations are contained in clause B1231 and Section C3.5.1 of the project specifications and will be strictly enforced.

The employer will appoint an agent in terms of clause 5(5) of the Construction Regulations to assume as far as reasonably practicable the responsibilities as are imposed by the said regulations upon an employer.

(b) Manual of Procedure for Working Airside

The requirements with regard to the procedures required to operate on airside are contained in Section C3.5.2 of the project specifications and will be strictly enforced.

(c) Environmental requirements

The contractor shall take particular note of the environmental requirements contained in Section C3.5.3 of the project specifications. Should the contractor fail to comply in all respects the Employer's Agent will not hesitate to apply the penalty provided for in Section C3.5.3.

The employer will have an environmental consultant appointed to conduct regular audits and to report on his findings at the monthly site meeting.

(d) Contract Participation Goals (CPG) & CIDB B.U.I.L.D Program Goals

The CPG & CIDB B.U.I.L.D Program goals requirements with regard to training and development of subcontractors are contained in Section C3.5.4 & C3.5.5 of the project specifications and will be applicable to this contract. The employer considers the development of emerging subcontractors to be a major objective of this contract and will therefore expect the contractor's senior management to become actively involved in order to achieve meaningful results.

(e) Quality and process control

In addition to the quality specifications, standard of workmanship and process control requirements already contained in the standard and project specifications, it will be a definite requirement that the contractor shall employ suitably experienced and knowledgeable personnel, shall make use of plant in sound working order, and use durable materials so as to ensure an end product of consistent and outstanding quality.

LABORATORY TESTING

The Employer will not require an onsite laboratory for acceptance control testing. Acceptance Control testing will be done through a commercial laboratory which will be arranged by the Employers Agent.

The Contractor shall be responsible for his own process control testing in terms of the specifications and the results must be submitted to the Employer's Agent.

A mutually agreed independent laboratory shall be used to settle any dispute arising out of any statistically significant difference between process control and acceptance control test results. Should the acceptance control testing be found to be at fault, the contractor may recover the cost of testing from the Employer through item 81.02.

C3.2 ENGINEERING

C3.2.1 DESIGN SERVICES

a) The Employer is responsible for the design of the permanent Works as reflected in these Contract Documents unless otherwise stated.

b) The Contractor is responsible for the design of the temporary Works and their compatibility with the permanent Works.

c) The contractor shall also be responsible for the design of all propriety products required for this contract subject to the design and performance criteria specified. The following propriety products are required to be provided:

(i) Electrical Design of runway and taxiway lighting
(ii) Ultrathin Friction Courses (UTFC)

d) The Contractor shall supply all details necessary to assist the Employer's Agent in the compilation of the as-built drawings.

C3.2.2 DRAWINGS

The work shall be carried out in accordance with the following drawings, which are included in Volume 4: Drawings for Road Works and form part of the contract documents:

DRG NO.	DESCRIPTION
	General Plans
14029-000	Cover Page
14029-001	Index and Locality Drawing
14029-020	Site Facilities and Benchmark List
	Phasing and routing plans – Gate 6
14029-012	Routing Plan for Work Areas : Key Plan
14029-013	Routing Plan for Work Area 1
14029-014	Routing Plan for Work Area 2
14029-015	Routing Plan for Work Area 3
14029-016	Routing Plan for Work Area 4
14029-017	Routing Plan for Work Area 5
14029-018	Routing Plan for Work Area 6
	Phasing and routing plans – Gate 3
14029-022	Routing Plan for Work Areas : Key Plan
14029-023	Routing Plan for Work Area 1
14029-024	Routing Plan for Work Area 2
14029-025	Routing Plan for Work Area 3
14029-026	Routing Plan for Work Area 4

14029-027	Routing Plan for Work Area 5
14029-028	Routing Plan for Work Area 6
	Runway 01/19 (RWY 01/19)
14029-003	Airside Work Areas and Typical Cross-Sections
14029-004	Combined Existing Services Plan
14029-005	RWY 01/19 Paint Marking Details
14029-006	Runway longitudinal section
14029-010	Typical Details: Signs, Closed RWY Markers and Barrier
	Rehabilitation of Alpha Taxilane
TCE-1151-DD-CIV-RD-001	Apron taxilane layout
TCE-1151-DD-CIV-RD-002	Taxiway Long section
TCE-1151-DD-CIV-RD-003	Taxiway Cross section
TCE-1151-DD-CIV-RD-004	Taxiway Cross section
TCE-1151-DD-CIV-RD-005	Taxiway Cross section
TCE-1151-DD-CIV-RD-006	Taxiway Cross section
TCE-1151-DD-CIV-RD-007	Taxiway Cross section
TCE-1151-DD-CIV-RD-008	Taxiway Cross section
TCE-1151-DD-CIV-RD-009	Taxiway Cross section
TCE-1151-DD-CIV-RD-010	Taxilane Paint Markings

Standard drawings are contained in Volume 4 Roadworks Drawings along with the above list of drawings. The reduced drawings that form part of the tender documents shall be used for tender purposes only.

The Contractor shall not use the drawings for any purpose other than the execution of the works.

The contractor will be supplied with 1 unreduced paper prints and 2 reduced paper prints of each of the drawings required for construction. These copies are issued free of charge and the contractor will be issued with electronic copies should the contractor wish to make additional copies at his own cost.

The Engineer may issue additional drawings as necessary to the Contractor from time to time during the progress of the works. The Contractor shall timeously notify the Engineer of the priority in which drawings and details are required.

The contractor shall ensure that accurate as-built records are kept of all infrastructure installed or relocated during the contract. The position of lights, junction boxes, cables ducts shall be given on a CAD drawing.

C3.3 PROCUREMENT

C3.3.1 PREFERENTIAL PROCUREMENT PROCEDURES

C3.3.2 SUBCONTRACTING

The Employer shall stipulate in the tender data that the contractor shall provide a minimum Contract Participation Goal (CPG) of **13%** of the total project value and develop targeted enterprises in the two agreed developmental areas.

The contractor shall appoint an Enterprise Development Co-ordinator who shall:

a. develop a project specific Enterprise Development plan to improve the targeted enterprise's performance in the identified developmental areas and shall allocate resources to monitor progress in relation to improved performance; and
b. shall, submit to the employer's representative a monthly enterprise development report (Performa – ED105P) which documents all mentoring activities that have taken place during that month and the progress made in improving the targeted enterprise's performance in the agreed developmental areas, countersigned by the targeted enterprise.

Competence Criteria for an Enterprise Development Co-ordinator

The enterprise development co-ordinator shall have the following competencies:

1. Minimum experience of 5 years in the construction industry at Managerial level as a Site Agent, Contracts Manager, Site Manager, Construction Manager, Business Development Manager or Enterprise Development Manager.
2. Minimum experience of 2 years in training and development in Building or Construction; and
3. National Diploma or B Degree in the Built Environment or Business Management.

C3.4 CONSTRUCTION

PART A: SPECIFICATIONS

The following specifications, as listed below, are relevant and shall apply to this contract:

(a) Standard Specifications

Where reference is made to the standard specifications in this contract, it shall mean the **COLTO Standard Specifications for Road and Bridge Works for State Road Authorities 1998**, prepared by the Committee of Land Transport Officials complete with any corrections and amendments applicable at the time of tendering.

The Standard Specifications provide, in certain clauses, for a choice to be specified in the Construction Specifications between alternative materials or methods of construction and for additional requirements to be specified to suit a particular contract. Details of such alternatives or additional requirements applicable to this Contract are contained in this part of the Specifications. It also contains some additional specifications required for this particular contract.

(b) Applicable National and International Standards

The Works must comply with certain National and International Standards. These include:

- ICAO
- SANS (SABS)

Where required, compliance with these and other National and International have been specified in the Standard and Project Specifications.

(c) Project Specifications

Amendments to, omissions from or additions to the standard specifications, as defined above, that may be required in connection with this specific project are bound in Part B: Project Specifications referring to the Standard Specifications.

In addition, the following project specifications shall also apply to this contract:

(a) Specifications for health and safety bound in Section C3.5.1: Occupational Health and Safety Specifications
(b) Specifications & procedures for working airside bound in Section C3.5.2: Manual of Procedure for Working Airside - Cape Town International Airport
(c) Specifications for environmental management bound in Section C3.5.3: ACSA Construction Environmental Management Plan
(d) Specifications for subcontractor development bound in Section C3.5.4: Requirements of Government's Programme for Broad-Base Black Empowerment
(e) Specifications for CIDB B.U.I.L.D Program bound in Section C3.5.5: Requirements of the CIDB B.U.I.L.D Program

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PART B: PROJECT SPECIFICATIONS REFERRING TO THE STANDARD SPECIFICATIONS

Amendments to the standard specifications are included in this Part B: Project Specifications referring to the Standard Specifications.

(i) The project specifications form an integral part of the contract documents and supplement the standard specifications.

(ii) In the event of any discrepancy between the project specifications and a part of the standard specifications, the bill of quantities, or the drawings with regard to the scope or quality of the works, the project specifications shall take precedence.

(iii) The standard specifications, which form part of this contract, have been written to cover all phases of work normally required for road contracts, and they may therefore cover items not applicable to this particular contract.

In certain clauses the standard specifications allow a choice to be specified in the project specifications between alternative materials or methods of construction and for additional requirements to be specified to suit a particular contract. Details of such alternatives or additional requirements applicable to this contract are contained in this part of the project specifications. It also contains some additional specifications required for this particular contract.

The number of each clause and each payment item in Annex A - Particular (Project) Specifications consists of the prefix B followed by a number corresponding to the number of the relevant clause or payment item in the Standard Specifications. The number of a new clause or a new payment item, which does not form part of a clause or a payment item in the standard specifications and is included here, is also prefixed by B followed by a new number. The new numbers follow on the last clause or item number used in the relevant section of the standard specifications.

SECTION 1100: DEFINITIONS AND TERMS

B1107 CARRIAGEWAY AND FREEWAY

The carriageway or freeway shall also mean the asphalt surface areas of the runways, taxiways and the concrete aprons.

B1115 GENERAL CONDITIONS OF CONTRACT

Replace clause 1115 with the following:

"The General Conditions of Contract for Construction Works (3rd Edition) 2015 (GCC 2015) published by the South African Institute of Civil Engineering, together with the special conditions of contract forming part of the contract.

All general conditions of contract references in the COLTO Standard Specifications for Road and Bridge Works are to the COLTO General Conditions of Contract for Road and Bridge Works for State Road Authorities. Consequently, all references in the COLTO Standard Specifications have to be amended accordingly to reflect the appropriate general conditions of contract relevant for the contract. The COLTO Standard Specifications have been scrutinized and the clauses, which refer to the COLTO General Conditions of Contract, identified. Each COLTO clause reference is tabulated in table 1115/1 below (context of reference is also given) together with the relevant equivalent clause in the SAICE General Conditions of Contract for Construction Works applicable for this contract.

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Whereas every effort has been made to include all of the affected clauses in the table, there may be some omissions. In every case, however, the SAICE General Conditions of Contract for Construction Works, as amended by the special conditions of contract in the contract data, shall apply and the Contractor shall be responsible for interpretation of the equivalent clause.

Table 1115/1

REFERENCES IN COLTO STANDARD SPECIFICATIONS TO THE COLTO GENERAL CONDITIONS OF CONTRACT AND RELEVANT SAICE GENERAL CONDITIONS OF CONTRACT FOR CONSTRUCTION WORKS 2015

COLTO Standard Specification		COLTO General Conditions of Contract 1998 (GCC)		SAICE General Conditions of Contract for Construction Works: 3rd Edition 2015	
Clause No	**Page No**	**Clause No**	**Description or Reference**	**Clause No**	**Description or Reference**
1115	1100-2		Definition of GCC		Definition of SAICE
1202	1200-2	15	Construction programme	5.6	Programme
1115	1100-2		Definition of GCC		Definition of SAICE
1202	1200-2	15	Construction programme	5.6	Programme
1206	1200-3	14	Setting out of works and beacons		Omitted
1209(e)	1200-5	52(2)	Valuation of material brought onto site	6.10.2	Valuation of material brought onto site
1210	1200-5	54	Certificate of practical completion	5.14	Completion
1212(l)	1200-7	49(2)	CPA on alternative designs	6.8.2	CPA on alternative designs
1215	1200-9	45	Extension of time for completion due to abnormal rainfall.	5.12	Extension of time for completion due to abnormal rainfall.
1217	1200-10	35	Care of the works	8.2	Care of the works
1303(iii)	1300-1	49	Price adjustment Item 13.01 (a)	6.8	Price adjustment Item 13.01 (a)
1303(iii)	1300-2	49	Price adjustment Item 13.01 (b)	6.8	Price adjustment Item 13.01 (b)
1303(iii) 1303(iii)	1300-1 1300-2	53 53	Variations exceeding 20% Variations exceeding 20%	6.11	Variations exceeding 15% Variations exceeding 15%
1303	1300-2	12	Payment Item 13.01 (c)	5.2	Commencement of the Works
1303	1300-2	45	Payment Item 13.01 (c)	5.12	Payment Item 13.01 (c)
1403(c)(ii)	1400-4	40(1)	Variation for rented accommodation	6.4	Variation for rented accommodation
1505	1500-3	40(1)	Variation for temporary drainage	6.4	Variation for temporary drainage
Item 15.08	1500-8	48	Payment of Provisional Sum	6.6	Payment of Provisional Sum
Item 15.09	1500/8	48	Payment of Provisional Sum	6.6	Payment of Provisional Sum
Item 15.11	1500-8	48	Payment of Provisional Sum	6.6	Payment of Provisional Sum
Note (2)	3100-4	40	Payment for prospecting for materials	6.5.2	Payment for prospecting for materials
3204(b)(iii)	3200-2	40	Payment for oversize material	6.5.2	Payment for oversize material
3303(b)	3300-2	2	Employer's Agent's decisions, with reference to materials classification	3.2	Employer's Agent's decisions, with reference to materials classification
5803(c)	5800-3	40	Variation, for landscaping	6.4	Variation, for landscaping
5805(d)	5800-4	40	Variation, for grassing	6.4	Variation, for grassing
Item 58.10	5800-10	48	Payment for Extra Work	6.4	Payment for Extra Work
8103(c)	8100-1	40	Variation, for testing material	6.4	Variation, for testing material

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REFERENCES IN COLTO STANDARD SPECIFICATIONS TO THE COLTO GENERAL CONDITIONS OF CONTRACT AND RELEVANT SAICE GENERAL CONDITIONS OF CONTRACT FOR CONSTRUCTION WORKS 2015					
COLTO Standard Specification		**COLTO General Conditions of Contract 1998 (GCC)**		**SAICE General Conditions of Contract for Construction Works: 3rd Edition 2015**	
Clause No	**Page No**	**Clause No**	**Description or Reference**	**Clause No**	**Description or Reference**
Item 81.03	8100-26	22	Clearance of site on completion, with reference to core drilling	5.15	Clearance of site on completion, with reference to core drilling

B1136 ROAD PRISM

The road prism shall also mean the prism of the runways, taxiways and aprons.

- Add the following new clauses:

"**B1156 OTHER DEFINITIONS**

The COLTO Standard Specification for Roads and Bridges has been written for all Contractors, Employers and Employer's Agents. Similarly, the works and the site are not defined and the general nature of the entities and elements that collectively constitute construction under a contract are characterized by the use of lower-case letters throughout.

These project specifications continue to use lowercase spellings in order to avoid the appearance of the upper case and lower-case words to describe or prescribe the same elements of work required on this project. However, for the purposes of this contract the following definitions shall apply:

(**a) Contractor**: The Contractor and the Contractor is the same persona defined under clause 1.1.1.9 of the general conditions of contract, but who will only be formally identified by the completed form of Acceptance C1.1.2 in this document and which will be bound into the final contract document.

(b) Employer: The Employer and Employer is the same persona, and is defined in C1.2.3 Contract Specific Data, and clause 1.1.1.15 of the general conditions of contract.

(c) Employer's Agent: The Employer's Agent and engineer is the same persona, and is defined in the C1.2.3 Contract Specific Data, and clause 1.1.1.16 of the general conditions of contract.

(d) Schedule of quantities: The terms "Schedule of Quantities", (used throughout the standard specifications) and "Bill of Quantities", (used in all other documents forming part of this contract), are synonymous.

(e) Specifications: All specifications forming part of the contract whether they appear in the standard specifications, the project specifications or on the drawings, or any other specifications referred to in the said specifications, or be they written instructions given to the Contractor.

(f) Standard specifications: The standard specifications for road and bridge works prescribed by the Employer and forming part of the contract.

(g) Project specifications: Any specifications appearing under this heading and forming part of the contract, and containing any amendments to, omissions from or additions to the standard specifications that may be required in connection with a specific project."

B1157 PROCESS CONTROL

Process controls is the responsibility of the contractor and refers to all testing requirements to be executed during the Works to ensure that the completed permanent works comply with the specifications and drawings prior to proceeding with the following task or activity.

B1158 ACCEPTANCE CONTROL

Acceptance control is the responsibility of the Employer's Agent and refers to all testing requirements to be executed during the Works to determine the acceptability or otherwise of the materials and workmanship of the Works as executed by the Contractor.

It is the responsibility of the contractor to ensure that completed work is presented in writing to the Employer's Agent timeously for acceptance in order to ensure that necessary sampling and testing can be performed as required.

B1159 AGGREGATE SIZE

Where reference is made in this specification or the standard specifications to aggregate size, nominal aggregate size or maximum aggregate size, the aggregate size as listed shall be replaced with the new corresponding aggregate size as indicated in the following table:

Aggregate size	New aggregate size
26,5	28
19	20
13,2	14
9,5	10
6,7	7
4,75	5
2,36	2
1,18	1

B1160 COMPACTION

The standard for compaction efforts shall change from Modified AASHTO Density as per TMH1 Test Method to Maximum Dry Density (MDD) as per SANS 3001. Where reference is made to compaction or of Modified AASHTO Density in the tender documentation or the standard specifications or wherever there is conflict between the tender documentation and the standard specifications, the SANS 3001 specification and terminology shall govern.

B1161 SANS BITUMEN SPECIFICATIONS

Where reference is made in this specification or the standard specifications to the SABS / SANS bitumen specifications, the following new SANS specification shall apply:

- SANS 4001-BT1:2016 - Penetration Grade Bitumen's
- SANS 4001-BT2:2012 - Cutback Bitumen
- SANS 4001-BT3:2014 - Anionic Bitumen Road Emulsion
- SANS 4001-BT4:2014 - Cationic Bitumen Road Emulsion
- SANS 4001-BT5:2014 - Inverted Bitumen Emulsion

On this contract where a SANS specification exists, all products shall conform to the specification and shall bear the inspection seal or brand mark of the SABS (South African Bureau of Standards)."

B1162 ASPHALT REPAIRS

All asphalt repairs shall be at least 5m long and 1m wide.

B1163 AIRPORT ROADS

Airport roads are defined by a network of public and non-public roads within the airport boundary providing access to the various airport buildings or areas.

B1164 AIR TRAFFIC

Means all aircraft in flight or operating on the manoeuvring areas of an aerodrome.

B1165 CONTROL TOWER

Means an air traffic control unit established to provide an air traffic control service.

B1166 INSTRUMENT LANDING SYSTEM CATEGORY I (ILS CAT I)

Means an approach and landing aid designed to identify an approach path for exact alignment and descent of an aircraft making a landing with a runway visual range of 800 m and a decision height of 60 m.

B1167 INSTRUMENT LANDING SYSTEM CATEGORY II (ILS CAT II)

Means an approach and landing aid designed to identify an approach path for exact alignment and descent of an aircraft making a landing with a runway visual range of 400 m and a decision height of 30 m.

B1168 INTERNATIONAL CIVIL AVIATION ORGANISATION (ICAO)

Means a specialised agency of the United Nations with a membership of 183 Contracting States as of August 1994.

B1169 LANDING AREA

Means that part of a movement area intended for aircraft landing or taking off.

B1170 THRESHOLD

The threshold is the beginning of that portion of the runway used for the take-off and landing of aircraft and thresholds may temporally be displaced. The clearway is the area beyond thresholds.

B1171 PARTY, PARTIES AND THIRD PARTY
'Party' and 'Parties' means the Client and the Consultant and 'Third Party' means any other person or entity as the contract requires."

B1202 SERVICES

Add the following after the second paragraph:

""The owners of services affected under this Contract are all under the control of the Airports Company South Africa whose representative must be contacted regarding the location of all services in the construction area. Inspections shall be undertaken by means of the authority's service detectors and such inspections shall be attended by the Contractor and the Engineer's Representative. No payment shall be made to the Contractor for attending these inspections."

The following existing surface and subsurface services and infrastructure are shown on the drawings:

a) Existing Telkom line
b) Existing ATNS fibre optic cable
c) Existing stormwater drains

Protection and or relocation of certain services will be required. The engineer will issue instructions after location and exposure of these services.

Add the following after the second paragraph:

"The Contractor shall also be liable for any loss or consequential loss suffered by the owner of a service which is damaged by the Contractor's operations, e.g. loss of the ILS or Runway lighting due to a power failure."

Add the following after the second paragraph:
This work is planned to be executed in close proximity of approach and edge lights and must be executed without interfering with the operation of these lights. The Contractor shall ensure that the position of the cables are known to himself and his personnel and shall take all reasonable care to avoid damage to the cables, lights or transformers. Protective covers and markers shall be used as required to protect the lights from being damaged or covered by products (e.g. bituminous) whilst the work is carried out. No additional payment will be made to protect the lights.

Should existing services be damaged, the Contractor shall give adequate notice to all concerned and leave enough time after completing a particular work shift to allow for the reinstatement of the cables before opening the runway to air traffic.

B1204 PROGRAMME OF WORK

(a) General requirements

Delete the first paragraph and replace with the following:

"The Contractor shall submit his programme to the Employer's Agent for approval within the time stated in the contract data. The programme shall be in provided in MS Project 2007 (.mpp format) and shall clearly show:

(i) The proposed rate of progress in order to complete the works within the required period as tendered, showing the various activities, their durations and proposed resourcing levels (major plant and labour) for each element of the works. Sufficient

detail shall be provided to enable the Employer's Agent to be able to gauge construction progress. All activities, including establishment on site, trimming and finishing and the completion of all minor ancillary works are to be included in the programme.

(ii) A work breakdown structure that identifies all major work activities, scheduled start and end dates for each activity, the linkage of activities and any dependencies (time or resource related) between them.

(iii) The sequence of activities clearly identifying floats and critical path activities.

(iv) Key dates in respect of work to be carried out, information required or due delivery,

(v) The anticipated value of work to be done during each month,

(vi) The allowance for normal inclement weather, as indicated in table B1215 shall be clearly indicated and shown on the project calendar, and

(vii) Other information specifically required by the Employer's Agent in order for him to ascertain the suitability of the proposed programme.

In the event that the Contractor wishes to submit a programme in a format other than MS Project 2007, the Contractor shall provide and maintain two licenced copies of the appropriate software to the Employer's Agent for the duration of the contract. The costs of complying with this requirement will be deemed to be covered under the rates for general obligations.

When drawing up his programme, the Contractor shall, inter alia, take into consideration and make allowance for:

- Mobilization Period during which the following must be included:
  - Undertake ACSA training courses (PARTAC, Safety & Security Induction & AVOP Training)
  - Submission of the Initial Programme of Works;
  - Submission of Construction Method Statements;
  - Submission of the Construction Health and Safety Plan;
  - Permitting of all Contractor's staff and vehicles;
  - Submission of Construction Works Plan;
  - Submission of all compulsory documentation to ACSA in terms of the Specifications to operate on airside;
  - Application of the Construction Works Permit to the Department of Labour;
  - Appointment of the Electrical Engineer;
  - Electrical Engineer's validation of the scope of work, specifications and products;
  - Application and approval by the Employer of the Change Request for the confirmed electrical works; and
  - Procurement of the electrical products as instructed by the Electrical Engineer and approved by ACSA.

<u>Construction Period:</u>

- All special non-working days, shut-down periods and breaks defined in the contract data.
- Contractor to consult with Air Traffic Control at 13h00 daily to obtain flight delay schedule.

- Project Team (Engineer, Contractor and Employer) schedule preplanning meeting at least 1 hour prior to commencement of all construction shifts.
- The following site access and site evacuation timelines per shift as specified under Section C3.5.2:
  - Runway Closure - 00h00
  - Runway Emergency Access Period – 00h00 to 00h15 (No access for Contractor to work)
  - Runway Access to Contractor – 00h15 to 04h55
  - Runway Safety Inspection by ACSA – 05h20 to 05h30
  - Runway Open for Operational use – 05h30
- Allowance for **2 shifts** to illustrate (Dry-run) the access and evacuation procedures for the runway and taxi lane with and without a displaced threshold during which no works will be undertaken. The 1st shift will be implemented at the commencement of the Contraction Period and the 2nd shift will be implemented prior to the works carried out Phase 1B.
- Expected weather conditions and their effects and restrictions.
- Known physical conditions and artificial obstructions.
- The design, submission and review of temporary works.
- The preparation and approval of method statements.
- The time required for training.
- The accommodation and safeguarding of public traffic.
- Dealing with, altering and installing services.
- The importation of material from commercial sources.
- Inspection, testing and specialised testing of construction equipment.
- Restrictions with regard to trafficking of repaired and treated sections of the road surface, before the application of the final surfacing.
- Temporary stockpiling and the re-use of excavated and milled materials.
- All other actions and restrictions required in terms of this contract.
- Numerous designs require inputs from the Contractor in the form of appropriate quantities of samples of commercial source materials intended for use in the various laboratory designs. The minimum time required to carry out various designs are indicated below, which the Contractor shall take into account in planning his works and he shall also indicate these on his tender and construction programme as follows;
  - Supply of samples of commercial source pavement material for use in the pavement structure at **least 6 weeks before commencement of the pavement layer works. Note refer to Section 4202 (b) (vii) Design Requirements for separate asphalt and UTFC design timelines which all excluding non-working periods;**
  - Supply of proposed asphalt designs and current Marshall data **at least 8 weeks prior to commencement of any asphalt work;**
- No asphalt overlay works shall be permitted when rain is forecast as reported by the local weather station at Cape Town International Airport or during rainy period or within 24 hours following rain on site.

- Traffic accommodation and works on Runway 01/19, Taxilanes and Taxiways shall be restricted to the requirements of ACSA's MANUAL OF PROCEDURES FOR WORKING AIRSIDE

The following details shall be submitted together with the programme:

- The number of working hours per day, working days per week, assumed holiday or shut down periods on which the programme is based.
- The overall labour and major plant resource levels on which the programme is based.
- Sequence of work area closure to air traffic.
- The detailed traffic and construction equipment accommodation proposals on which the programme is based.

The Contractor shall base his initial programme of work on the scope of the work as described in the project specification and the schedule of quantities. This programme shall be reviewed on a regular basis by the Contractor in accordance with changing circumstances, delays and amendments to the work ordered by the Employer's Agent as a result of further examinations made by him.

The Contractor should also take into consideration that other Contractors will work in the vicinity of this contract. See Clause C4.5.1(h). The Contractor shall inform the Engineer of any co-ordination meetings in this regard.

Minor revisions to the approved programme may be introduced from time to time by mutual agreement between the Contractor, the Employer's representative and the Engineer. Should the Engineer believe that a major revision of the programme is required, the Contractor will be notified in writing and a revised programme shall be submitted within two weeks of receipt of such a notification.

It should be noted that it is in the Contractor's best interest to provide a comprehensive programme giving as much information as possible about the times allowed for the various activities as well as resource or other limitations affecting the programme, since the approved programme may be used to evaluate any claims in terms of the general conditions of contract for extensions of time.

Monthly Meeting Programme:

The Contractor shall submit to the Engineer, before each monthly site meeting (or whenever instructed) copies of the following:

(i) The Contract programme with progress charts and programme graphs updated to reflect the actual progress to date.
(ii) A summary of progress on site over the week preceding the site meeting. The report shall be in the form of a detailed narrative to the Contract programme.
(iii) (Details of activities running late, indicating what steps have been or will be taken to ensure that the work is completed within the specified time.
(iv) A report on all labour, plant and materials on site.
(v) An Incident and or Accident Report that is fully detailed.
(vi) CIDB B.U.I.L.D Program progress report.
(vii) CPG Progress report.
(viii) Health & Safety compliance report.
(ix) Environmental compliance report.

Weekly Meeting (Fortnightly Rolling) Programme:

This programme will be presented at the weekly meetings and will show the work programmed over the next fortnight. It will be updated weekly. This programme will show the activities planned for each shift in a specific area and will be subject to correlation with flight-schedules by the Airport Manager. The programme will show actual, projected and previous work.

Daily Meeting Programme:

This programme will show the work planned for the day's shift, the supervisors responsible for the various activities, the equipment to be used, material deliveries expected, etc.

Add the following sub-clause:

"(c) Safety and Contingency Plan

Within 14 days of award of the contract the Contractor shall draw up and submit a detailed Construction Method Statement to ACSA for approval. Once approved, the Construction Method Statement will form part of the Procedure Manual for Working Airside (Section 3.5.2). The method statement shall include:

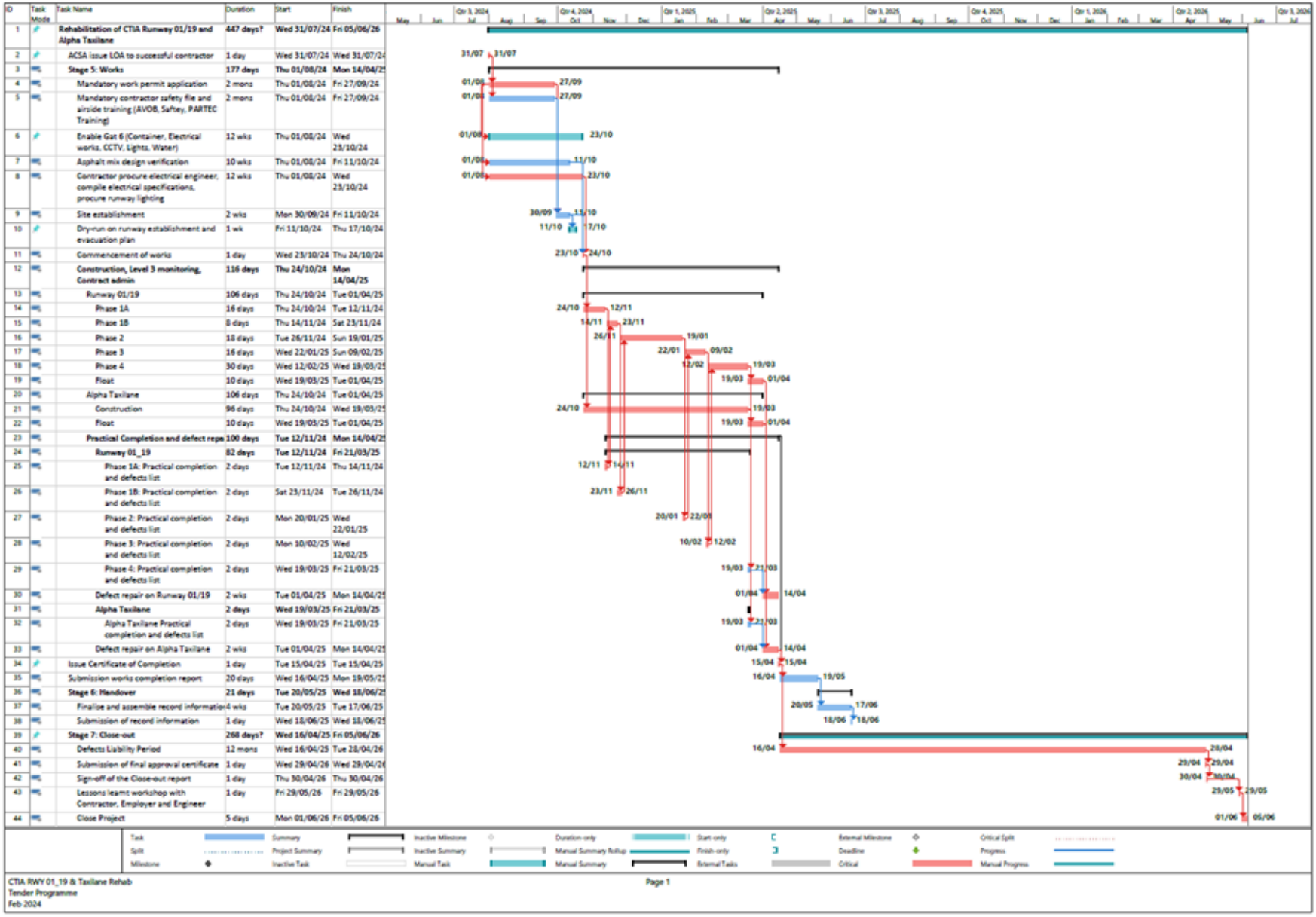
i) All measures to be implemented to comply with the requirements of the OHS Act (Section C3.5.1), Environmental requirements (Section C3.5.2) and the Procedure Manual for Working Airside (Section C3.5.3).
ii) A contingency plan to deal with shifts interrupted by inclement weather, construction equipment breakdowns or emergency closures of the work areas.
iii) Special measures, such as back-up plant, to be implemented in normal shifts to comply with the specifications.

No work on the airside will be allowed until the Employer has approved the Contractor's Construction Methodology Statement.
The cost of complying with the ACSA approved method statement is deemed to be covered by the tendered rates for the Contractor's general obligations.

The scope of work requires the closure of taxiways and runways. The closure of runways and taxiways and the period of such closures shall be arranged with the air and surface traffic control authorities. Minimum notification periods are included in Volume 5.

AIRPORTS COMPANY SOUTH AFRICA
TENDER NO. CTIA7333/2023/RFP

REHABILITATION OF RUNWAY 01/19 AND REHABILITATION OF THE AIRSIDE APRON TAXI LANE AT CAPE TOWN INTERNATIONAL AIRPORT



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B1205 WORKMANSHIP AND QUALITY CONTROL

Delete the second to fifth paragraph and replace with the following:

"The Contractor shall submit a proposed Quality Management Plan in accordance with ISO 9002 for this contract. Confirmation of the Quality Management Plan shall be submitted to the Engineer, for his approval, within two weeks of the commencement date and prior to the commencement of construction activities. Once accepted by the Engineer the Contractor shall not deviate from it unless written notification of proposed changes have similarly been submitted and approved. The system shall record the lines and levels of responsibility and indicate the method and frequency by which testing procedures will be conducted.

The Contractor shall also appoint a Quality Manager who shall ensure that the member's of the Contractor's staff comply with the requirements of the Quality Management Plan.

Payment for work done will not be made until the results of the Contractor's process control testing have been submitted and the Engineer has approved the work. The Engineer shall conduct such tests as he may deem necessary to verify the process control test results and shall retain all rights as determined in the General Conditions of Contract related to bad workmanship or unacceptable materials. This shall also be applicable to accepted alternative (mix) designs and related specifications."

Insert the following new sub clauses:

"**External testing house"**

An external testing house will be appointed by the Engineer to undertake verification quality control testing of construction materials and workmanship by means of laboratory testing at an external testing facility. All sampling and testing by the external testing house will be done on the instruction of the Engineer. Materials will be sampled on site or at commercial supply sources or at the Contractor's asphalt plant and will be tested the following day. Results will be reported to the Engineer for interpretation and possible action. The external testing house will invoice the Contractor (verified by the Engineer) for the cost of material sampling and testing and for reporting the test results to the Engineer.

The Contractor will be required to accommodate and support the sampling procedures of the external testing house during the course of the contract. Representatives of the Engineer and the testing house will be allowed to inspect any stockpile, storage facility or processing activity for the purpose of acceptance control."

B1206 THE SETTING-OUT OF THE WORK AND PROTECTION OF BEACONS

Add the following to this clause:

"In order to comply with Clause 1206 of the Specification the Contractor shall contract or employ a professional land surveyor and supporting team who will check

the reference and level beacons. Agreement shall be reached with the Engineer on the values of the beacons to be used. It is the Contractor's responsibility to maintain and protect all reference beacons."

Replace the requirements of the second to the third last paragraph with the following:

"There are a limited number of official reference and level beacons on the airport. The Contractor shall place additional reference beacons on all sides of the work areas for accurate setting out and levelling purposes. These beacons shall be placed in concrete, marked and certified by a professional land surveyor. Beacons shall be check-levelled during construction to confirm the accuracy when instructed by Engineer.

Prior to the commencement of construction, the Contractor shall measure the existing levels on the existing taxiways and runways. These levels shall be provided to the Engineer to confirm the final level design drawings, where after the information shall used by the Contractor for settling out.

The Engineer requires 12 working days to confirm the final levels and to prepare drawings. Level measurements shall be done with site establishment.

All existing paint markings shall be referenced prior to any milling or paving activities for setting our after the completion of the overlay. Setting out of the final paint marking positions must be done as specified on the drawings. These shall be checked and agreed with the Resident Engineer in writing before final application."

In the last paragraph, the first part of the sentence shall be changed as follows:

"The setting out of level beacons and level control pegs, the measurement of the existing levels and the setting out of the final levels for construction purposed shall not be measured and paid for directly, and …"

B1207 NOTICES, SIGNS AND ADVERTISEMENTS

Delete the final paragraph and replace with the following:

"All signboards erected in accordance with the drawings or as approved advertisements for the Contractor's establishment, shall be removed at the same time as the Contractor's disestablishment. The completion certificate shall not be issued and payment under subitem 13.01(a) for the final instalment of 15% of the tendered lump sum shall not be made unless all the contract signboards, advertisements, notices and temporary signs have been removed."

B1209 PAYMENT

(b) Rates to be inclusive

Add the following:

"VAT shall be excluded from the rates and added as a lump sum to the total value of work measured for payment."

(c) The meanings of certain phrases in payment clauses

(i) Procuring and furnishing (material)

Add the following:

"Payment for procuring and furnishing material from commercial sources shall include for all transport costs, irrespective of distance hauled."

Add the following new subclauses:

"(g) Work in confined areas

All work in restricted areas shall be allowed for in the tendered rates in the Bill of Quantities. No additional payment or claim will be entertained for restricted work."

(h) Rates to remain unchanged when scope of work changes

Dependent on the rates and prices offered in the bill of quantities in the pricing data, the Employer intends to increase or reduce the scope of work to match the budget allowed for this project. To this end the Contractor has been provided the opportunity to price separately for unit rates of work and the establishment of major plant. The value of such increase or reduction in the scope of works shall not give cause for the Contractor to vary the offered rates and prices, which shall remain final and binding for the duration of the contract, provided that:

(i) Notification of the change to the scope of work is given in writing within 28 days of the tender closing date, and
(ii) The value of the increase or reduction in the scope of work does not alter the tendered sum by more than 20%."

(i) Trade names

Where materials are specified under trade names, tenders must be based on these materials. Equivalent materials may be submitted as alternative tender offers in the tender and the Employer's Agent may, after receipt of tenders, approve the use of equivalent materials.

(j) Payment certificates

With reference to clause 6.10.1 of the general conditions of contract, the Contractor shall, at his own expense, submit to the Employer's Agent one set of A4-sized paper copies of the monthly statement for payment."

B1215 EXTENSION OF TIME RESULTING FROM ABNORMAL RAINFALL

Delete the entire clause and replace with the following"

Change the existing heading of Clause 1215 to read as above and wherever the expression 'abnormal rainfall' is encountered replace it with 'inclement weather' and

make the following changes to Method (ii) (Critical-path method) which will apply to this Contract:

Add the following as a new paragraph:

"a) Extension of time resulting from abnormal rainfall or other forms of inclement weather shall be calculated according to the requirements of Method (ii) (Critical-path method). The value of "n" working days per calendar month as specified in this clause shall be as given in Table B1215/1 below. If no abnormal rainfall or other inclement weather periods occur during a specific calendar month (or months), the n-values as specified shall not be taken as accumulating over the contract period. If the "n"-days allowed for in the programme of work are not taken up by standing time due to abnormal rainfall or inclement weather conditions, they will fall away and will not be considered in extension of time claims that may arise later during the contract period.

Table B1215/1

TABLE B1215/1: ANTICIPATED DAYS LOST DUE TO ABNORMAL CLIMATIC CONDITIONS ("n" working days)												
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
n_{rain}	2	2	3	3	5	6	6	5	4	2	2	1
$n_{inclement}$	0	0	0	1	1	3	4	3	1	1	0	0
n_{total}	**2**	**2**	**3**	**4**	**6**	**9**	**10**	**8**	**5**	**3**	**2**	**1**

The above days include the Christmas/New Year break, which it is expected that the Contractor will take during December and January.

The value 'n' is the average number of days on which it is expected that there will be inclement weather in Cape Town.

The Engineer's Representative will certify a shift loss due to abnormal rain or adverse weather conditions based on the following criteria:

i) No work was possible during the relevant shift on any item which is on the critical path according to the latest approved construction programme, given that sufficient temporary drainage of work areas was provided, or if

ii) Less than 50% of the work force and plant planned for that specific shift could work.

Actual extensions of time due to inclement weather shall be agreed between the Engineer's and Contractor's representatives on the site. The agreed shifts or parts thereof shall be recorded at the bi-weekly site meetings and adjustments made to the contract period on a bi-weekly basis by extending the contract period according to the number of shifts lost less the allowance 'n'. At the end of the contract, the Engineer shall prepare a variation order to formalise the payment of the accumulated delays in excess of the allowance due to inclement weather.

b) Extension of time resulting from delays during shifts caused by operations of the Airport shall be allowed for in the Contractor's programme. The number of

working days to be allowed for in the Contractor's programme is 6 days for the full contract period. The criteria listed in (i) and (ii) above will also apply to this extension of time.

Time lost during shifts shall be agreed between the Engineer's and Contractor's representative on site. The agreed shifts or parts thereof shall be recorded at the bi-weekly site meetings and adjustment made to the contract period on a bi-weekly basis by extending the contract period according to the number of shifts lost less the allowance. At the end of the contract, the Engineer shall prepare a variation order to formalise the payment of the accumulated delays due to Airports operations. Losses for the first half-hour of delay are deemed to be covered in the rates tendered for items of work."

B1219 WATER

Add the following to the first paragraph:

"Water for construction purposes will be available near the site camp (Drawing No. 14029-001). The Contractor will include in his rates for any connections, couplings or a standpipe and will provide a water meter to measure the water used for construction purposes. Water will be purchased from ACSA at R15,00 per kilolitre. The Contractor shall allow in his rates for annual municipal increases. ACSA will invoice the Contractor on a monthly basis for use of water."

B1225 HAUL ROADS

Add the following:

"The usage and selection of haulage roads on the Employer's (ACSA) premises and on the site will be coordinated on a daily basis between the Contractor, the Engineer's Representative and the Employer's representative."

Add the following new clauses:

"B1230 PROJECT CRITERIA AND REQUIREMENTS AT OPERATIONAL AIRPORTS

Note the special Safety Regulations in Sections C3.5.1 & C3.5.2 will strictly apply to this Contract. In the case of conflict with the following clauses Sections C3.5.1 & C3.5.2 will supersede the clause.

Where work has to be executed on or in the vicinity of an operational airport, such work shall be subject to various special conditions and regulations as listed below in order to guarantee and safeguard the operation of the airport at all times.

The following criteria should be borne in mind when the programme is compiled:

(a) Airport management and air traffic control responsibilities

The Airport Manager (AM) and the Air Traffic Controller (ATC) are ultimately responsible for the safe and efficient operation of the airport.

The AM or designated representative will in his official capacity have authority to give the Contractor verbal or written orders on matters concerning the operation, security or safety of the airport and the Contractor shall, after having informed the Engineer of the orders, carry out the instructions as if issued by the Engineer.

The ATC is responsible for the safe movement of all aircraft traffic, both in the air and whilst on the ground. The ATC shall at all times have absolute authority regarding the movement of any construction personnel, vehicles or equipment, where such movement takes place within the obstruction free areas of existing facilities or may affect the safe movement of the air traffic, and his instructions shall be implicitly obeyed. The ATC's decision regarding the acceptability and programming of the Contractor's activities within the above-mentioned areas shall be taken into account and may result in reprogramming of work were considered necessary.

All liaison with the AM or ATC shall be arranged through the Engineer and the Contractor's Traffic Safety Officer.

(b) Radio communication on the airport.

Refer to Section C3.5.2.

Four handsets must be provided to the Engineer for this purpose and must be handed over in a working condition to the Employer at the completion of the Contract. The Contractor's will identify two suitable employees to undergo a radio operator's basic course at ACSA before commencement of the works. The Contractor shall be responsible for any maintenance costs, damages, or loss of these sets.

(c) Airport security

Refer to Section C3.5.2.

(d) Movement on the airport

Refer to Section C3.5.2.

The crossing of any operational facility on the airport will require special control as ordered by the ATC or the airport manager and will be limited to pre-determined points as indicated on the drawings or instructed by the Engineer. The required controls may include any of the following:

(i) Unrestricted crossings used by the Contractor should be linked with a pre-warnings system that notifies the Contractor that the facility will be required for airport use within a certain period after notification.
(ii) Flagmen at crossing points, allowing movements across the facility whenever aircraft traffic permits.
(iii) Radio controlled crossing points, where movements across the facility may only take place after receiving clearance from the ATC.

(e) Additional requirements regarding construction activities

(i) Identification numbers

Refer to Section C3.5.2.

All construction vehicles and self-propelled equipment to be utilised within the airport security area shall be fitted with a boldly displayed identification number (minimum dimension 600 mm, line thickness 75 mm) on a white background on either side of the vehicle or equipment. A record of all identification numbers and related vehicles shall be available at all times for perusal by the authorities or the Engineer. The cost for providing and using these identification numbers must be included under Pay Item 13.01.

(ii) Crossing points

Refer to Section C3.5.2.

The surface of existing facilities at crossing points shall be absolutely clean whenever aircraft uses them. This will require the full-time presence of a cleaning team at such crossings to remove all debris, stones or other material from the surfaces. The Contractor shall be responsible for any damage to aircraft or other equipment as a result of failure to comply with this requirement.

(iii) Barricades, lights and markings

Refer to Section C3.5.2.

The Contractor shall provide, erect, maintain, move and finally remove temporary barriers, fences and markings all as prescribed by the airport authorities or as shown on the drawings. The work shall include the placing of temporary barriers where runways or taxiways have been closed as well as lights at these points to facilitate night-time interpretation of the situation. It may also include the painting of markings and the final removal thereof.

(iv) Dust and pollution

Refer to Section C3.5.2.

The Contractor shall control dust in all working areas, at borrow pits and on haul roads to the satisfaction of the airport authorities. No pollution from machines, batching plants, mixers, workshops or other sources (such as the breaking up of existing work) will be tolerated. Fires may only be lit after the Contractor has obtained written permission from the airport authorities who will also supervise the fires.

The Contractor shall keep the entire site of the works, including his own camp site, in a neat and clean condition to the satisfaction of the airport authorities.

(f) Traffic safety officer

Refer to Section C3.5.2.

A traffic safety officer shall be appointed by the Contractor. This person shall be a senior member of the site management team who has been duly authorised to perform his duties on his own initiative and to exercise control over others. He must also complete a communications training course successfully at the Airport Control Centre after which a

license will be issued to him. He shall be on site full-time during the execution of the works and general site safety shall at all times be his first priority. The safety officer shall liaise directly with the Engineer, airport control and air traffic control regarding matters related to safety.

In addition to the tasks specified in the Airside Manual the traffic safety officer will also be required to perform the following duties and this list shall not be deemed to be complete:

(1) Responsible for keeping the traffic requirements up to specification 24 hours a day, 7 days a week.
(2) Inspect and report to the Engineer on the state of all required signs and marks (and all traffic accommodation facilities) as often as the Engineer may require, but in any event not less than twice a day.
(3) Responsible for exercising control over the safe movement of personnel vehicles and plant on site according to the instructions of air traffic control.
(4) Attend to the training and performance of flagmen and all other personnel involved in the control of traffic.
(5) Responsible for compliance with prescribed measures at aircraft crossings.
(6) Responsible for compliance to air traffic controller's instructions.
(7) Responsible for daily final inspection of taxiways prior to re-opening thereof.

(g) Provision of Permits

Refer to Section C3.5.2.

The Contractor shall note that it is a condition of the contract that he applies for and obtains the required permits for all persons, equipment and vehicles to be utilized during the construction of the planned works.

The onus shall be on the tenderer to verify these costs prior to completing his tender, but the following are typical costs which could apply as updated October 2023:

Permits Vehicles Permits Temporary

Description	*Cost*
Airside	
1 Day	R53
2 Day	R108
3 Day	R160
3 Days – 1 months	R352
1 Month – 3 months	R352
4 Months – 6 months	R705

Permits Vehicles Permits

(Clear radiobuttons)

1 – 3 months	R 321
3 – 6 months	R 643
6 months – 1 year	R 1 362
Add On Charge	R 4 786

Permanent

(Clear radiobuttons)

6 months – 1 year	R 1 429
Change Registration	R 53
Edit Vehicle Permit	R 53
Transponder	R 785
Vehicle permit and Transponder	R 2 241

For a vehicle permit more than 1 day needs to go for inspection before applying for a vehicle which is done by ACSA SAFETY

Personal Permits

Description	*Cost*
1 Day – 5 days	R53
5 days – 2 years	R270
Additional Icon, eg tools, cell phone ,camera ,Avop and Ipad/Table	R88 -each

Personal require vetting and need to complete General Security Awareness Part 109 on application for permits more than 5days to 2 years.

Airport Training Courses

AIT (Airside Induction Training)
Initial – R 570.00 Excl. VAT
Refresher – R 416.00 Excl. VAT

AVOP (Airside Vehicle Operator Permit)- Required for driving on Airside.
Initial – R 596.00 Excl. VAT
Refresher – R 416.00 Excl. VAT

General Security Awareness Training – R741 (Excl. Vat)

(h) Emergency Equipment

Requirements for Equipment

Where applicable, minimum requirements for equipment are specified in the Standard and Project specifications.

The Contractor shall indicate in his Milling and Paving Method Statement how he will manage an emergency where a plant item breaks down during a milling and paving operation, or any other operation being undertaken within the 50 meter restriction zone (from edge of runway), to ensure timeous opening of the runway. The equipment shall as a minimum include:

(1) A low bed with winch that has sufficient capacity to remove a 30 ton roller.
(2) Equipment (porta-pack) capable of releasing the hydraulics on a milling machine and undertaking the removal thereof from the runway.

The Contractor shall before the start of the milling and paving operations, successfully demonstrate to the Engineer how he will remove any substantial item of plant (i.e. milling machine, roller or paver) from the runway or graded strip when it is in a broken down state. This operation must be completed within 15 minutes from the request for removal. The equipment required for this operation shall always be available on the CTIA airside for use in an emergency situation during a working shift where work is being carried out on the runway or within a distance of 50m from the runway edge. Work on the runway and in the clearance-zone will not be allowed if these requirements are not complied with.

The Contractor will be able to recover the cost of providing emergency removal plant in the Bill of Quantities under item B12.06.

B1232 CONTRACTOR'S ESCORTS

The Contractor shall nominate two suitable staff members, to be approved by ACSA, to undergo the required ACSA training to take on the duties and responsibilities of escorts. The following conditions will apply:

1. The nominated person/s (Contractor's escort) need to have passed the applicable training and examination as specified by Airport Management (including induction course, radio communications, etc.).
2. The Contractor's escort shall have a vehicle suitably equipped for driving airside. Equipment shall include amongst others a suitable communication devise as specified by ATC required to communicate with Air traffic Control and Airport Management, signage and lights.
3. The Contractor's escort shall at all times be in radio contact with Air Traffic Control and the Engineer's safety controller and physically with the construction team. He will not be allowed to leave the site until such time that he has been relieved of his duties by a replacement escort and if approved by Air traffic Control.

The Contractor will be able to recover the cost of carrying out the duties and responsibilities of the Contractor's escort in the Bill of Quantities under payment item B12.05. The cost of lights and radio's must be included under Pay Item 13.01."

B1233 MEASUREMENT AND PAYMENT

Item		**Unit**
B12.01	**Standing time**……..	hour (hr)

Where unforeseen delays attributable to the airport authorities occur and the Contractor suffers lost night-shift time over and above the allowance made in Clause B1215 b), the Contractor will be compensated with paid extensions of time to the contract for the durations lost.

Payment will be made only at the pro rata-ed rate tendered for time related item 13.01 (c), if it is demonstrated that the activities in the shift met the criteria in clause B1215. Such extensions of time will be recorded in bi-weekly meetings. Item B12.01 is for direct plant and labour costs incurred during such delays. Rates under this item shall include for any additional direct plant, operator and labour costs incurred by the Contractor during such delays. All supervision and overhead costs will be deemed to be part of the Contractor's General Obligations and no additional payment will be paid under this item for foremen or managers.

The unit of measurement is each hour or portion thereof of a particular operation that is delayed in excess of 30 minutes for each night shift. Losses for the first half-hour of delay are deemed to be covered in the rates tendered for items of work. The measurement will be taken from the time an instruction is received from the ATC to delay the commencement of or suspend the operation to the time the operation is commenced ore resumend on a particular shift.

The tendered rate shall include full compensation for all losses incurred by the Contractor.

Item **Unit**

B12.02 Control of dust and pollution…….....Lump sum

The tendered lump sum shall include full compensation for all precautions taken, methods used and costs incurred by the Contractor in order to control dust and pollution to a level that is acceptable to the airport authorities. Precautions may include the regular watering of f and borrow pits, the enforcement of speed limits, the installation of pollution prevention systems at batching plants or other construction equipment, and the regular cleaning of the works, including the Contractor's campsite, of all construction waste or other litter. The payment for the tendered lump sum shall be made pro rata during the contract period.

Item **Unit**

B12.03 Safety Induction Course, AVOB, PARTAC and Permits…….....Lump sum

The tendered lump sum shall represent full compensation for all costs incurred for the attendance of the safety induction course for all the Contractor's personnel and for all costs associated with the provision of all necessary permits as required by ACSA for the completion of the project.

No additional payment except that tendered in this item will be granted for permits, safety courses, radio license courses or for any vehicle license courses or permits associated with the due completion of this project and includes for any costs incurred for these during the maintenance period.

Payment of the lump sum tendered will be made in two instalments.

(1) The first instalment, 70% of the lump sum, will be made in the first payment certificate after the Contractor has made a substantial start with construction in accordance with the approved programme.
(2) The second instalment, 30% of the lump sum, will be paid when the value of the work reaches one half of the tendered amount, excluding contingencies and price adjustments.

Item **Unit**

B12.04 **Traffic Safety Officer**…….…….…..…. Lump Sum

The tendered rate shall include full compensation for providing a traffic safety officer and all requirements and obligations to perform the requirements required by the traffic safety officer as defined in terms of B1230(f).

The tendered rate shall be paid monthly, pro rata portions of the Lump Sum. The Engineer has the right to reduce payment (pro rata per shift) if the traffic officer has neglected his duties in the opinion of the Engineer."

Item **Unit**

B12.05 **Escort services for all project vehicles**…….…….……. Person months

The tendered sum shall include full compensation for training requirements and AVOP compliance, providing all transport, safety equipment not otherwise specifically covered, labour and ancillaries required to perform an escort service for all construction vehicles from the security gate to the area where work is taking place.

Payment of the sum tendered will be made for the escort services required by ACSA to be provided by the Contractor for the months of portions of a month and calculated based on an assumed 30.5 calendar days per month.

Item **Unit**

B12.06 **Emergency Removal Equipment**…….…….…….…. Lump Sum

The tendered lump sum shall include full compensation for complying with all the requirements of Clause B1230 (h). The tendered rate shall include for full compensation to provide fully operational emergency removal equipment on the airside during all operations as described in Clause B1230 (h). The payment for the tendered lump sum shall be made pro rata during the contract period."

Item **Unit**

B12.07 **Supply of radios**…….…….…. Provisional Sum

Expenditure under this item shall be made in accordance with the general conditions of contract.

The provisional sum is allowed to cover the cost of radios as specified by ACSA for use during construction. Measurement and payment shall be based on invoices submitted to the Engineer and the radios shall be handed back to ACSA at the end of the contract.

Item **Unit**

B12.08 **Detection of Services**……..……..……Provisional Sum

This provisional sum will be paid for by means of day works approved by the Engineer.

Item **Unit**

B12.09 **Topographical survey requested by Engineer**……..… Provisional Sum

Expenditure under this item shall be made in accordance with the general conditions of contract.

The provisional sum is allowed to cover the cost of Topographical survey by Engineer during construction. Measurement and payment shall be based on invoices submitted to the Engineer

Item **Unit**

B12.10 **Appointment of Electrical Engineer**

(a) Direct payment by Contractor ..…….. Prime cost
(b) Contractor's charges in respect of sub item B12.10(a) above ..…….. Percentage (%)

The Contractor shall pay the appointed independent professional registered Electrical Engineer (in accordance with the requirements under Section C4, Annexure B) and a minimum of 15 years verifiable relevant experience, approved by the Employer, monthly for the amount as certified by the Engineer. The appointed independent Electrical Engineer shall undertake the following:

- Inspect the existing electrical infrastructure impacted by the works;
- Validate the scope of work;
- Validate electrical specifications and update as required;
- Advise and propose the latest products available in terms of the defined scope and ACSA's standards;
- Compile a detailed Bill of Quantities and cost proposal for the validated electrical scope for approval and inclusion by the Employer in the works;
- Facilitate and manage the procurement process of the electrical products;
- Inspect, supervise, approve, measure, test and commissioning all electrical works on behalf of the Contractor.

Expenditure under this item shall be made in accordance with Clause 6.6 (GCC 2015) of the General Conditions of Contract. The Prime Cost sum allowed shall include for the actual cost incurred from invoices.

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Item **Unit**

B12.11 Provision for electrical installations and works…….. Provisional Sum

Expenditure under this item shall be made in accordance with the general conditions of contract.

The provisional sum is allowed to cover the cost for the procurement, installation and commissioning of the electrical works as approved by the Employer and instructed by the appointed Electrical Engineer. Measurement and payment shall be based on monthly measurements based on the Electricals Engineer's approved scope of works as determined by him as part of his duties and approved by the Engineer.

"Item **Unit**

B12.12 Provisional Sum for the Employer's approved security services at Gate 6

(a) Direct payment by Contractor to the approved Security Service Provider for Security Supervisors…….. Provisional Sum

(b) Contractor's charges in respect of sub item B12.12(a)……. Percentage (%)

(c) Direct payment by Contractor to the approved Security Service Provider for Security Guards…….. Provisional Sum

(d) Contractor's charges in respect of sub item B12.12(c) above …….. Percentage (%)

The Contractor shall pay the approved Security Service Provider monthly under subitems (a) and (c) for the amount as certified by the Engineer.

The charge or mark-up tendered under subitems (b) and (d) or allowed for is a percentage of the amount actually paid under the provisional sum item. The percentage shall cover all the Contractors' sourcing, handling, profit, and payment of the service provider in providing the services. The Contractor shall forfeit his mark-up when the service provider is not paid in time."

Item **Unit**

B12.13 Enablement of Gate 6 during the Mobilization Period

(a) Provisional Sum for the works required for the enablement of Gate 6 as described in the payment clause…….. Provisional Sum

(b) Contractor's charges in respect of sub item B12.13(a)…….. Percentage (%)

Allowance has been made under this pay item for the enablement of Gate 6 during the mobilization period as early works which will run parallel with the application of the Construction Works Permit. Various ACSA appointed subcontractors will be involved during the execution of this portion of the works and the Contractor shall pay the subcontractors directly for the amount as certified by the Engineer.

The enablement works shall include the following:

- Procurement (within 7 days of award) and delivery to site of an 6m x 3m office container as specified in the drawings (note lead-time of 4 weeks);
- Construction of a reinforced concrete footing for the office container as specified on the drawings. The footing shall be completed and fit for purpose 3 days prior to the delivery of the office container to site;
- Coordinating with the following ACSA Stakeholders and their subcontractors for installations required at Gate 6:
    - ACSA Electrical Department – Electrical connections, external lighting, electrical equipment
    - ACSA ICT – Fiber optics, electronic access control, CCTV, internal IT connections
    - ACSA Security – CCTV, X-Ray machines, Walk-Through Metal Detector, Access Card Reader, panic alarms
    - ACSA Maintenance – Installation of a 450m HDPE 32mm Class 12.5 PE 100 (SANS 4427) water line with HDPE Class 16 fittings and connections
- Regrade and shape the entrance using reclaimed asphalt material on airside (Dayworks applicable).

The charge or mark-up tendered under subitem (b) or allowed for is a percentage of the amount actually paid under the provisional sum item. The percentage shall cover all the Contractors' coordination, sourcing, handling, profit, and payment of the service provider in providing the services. The Contractor shall forfeit his mark-up when the service provider is not paid in time."

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SECTION 1300: CONTRACTOR'S ESTABLISHMENT ON SITE AND GENERAL OBLIGATIONS

B1302 GENERAL REQUIREMENTS

(c) Legal and contractual requirements and responsibilities to the public

Add the following as a second paragraph

"There has been recent legislation promulgated by Government that imposes mutual obligations on the Employer and Contractor in the performance of their duties to society and to the built and natural environment. To assist the Contractor in understanding and assessing his obligations, and thus to make allowances for the cost of compliance with this legislation, the following additional specifications are included in the project specifications:

(a) Specifications for health and safety bound in Section C3.5.1: Occupational Health and Safety Specifications. Separate pay items for implementation of the Health and Safety Specifications are included in these provisions. However, non-compliance with these provisions may lead to the imposition of penalties.
(b) Specifications & procedures for working airside bound in Section C3.5.2: Manual of Procedure for Working Airside - Cape Town International Airport
(c) Specifications for environmental management bound in Section C3.5.3: ACSA Construction Environmental Management Plan. Separate pay items for implementation of the Environmental Specifications are included in these provisions. However, non-compliance with these provisions may lead to the imposition of penalties.
(d) Specifications for subcontractor development bound in Section C3.5.4: Requirements of Government's Programme for Broad-Base Black Empowerment
(e) Specifications for CIDB B.U.I.L.D Program bound in Section C3.5.5: Requirements of the CIDB B.U.I.L.D Program. Separate pay items for implementation of the CIDB B.U.I.L.D Program are included in these provisions. However, non-compliance with these provisions may lead to the imposition of penalties."

B1303 MEASUREMENT AND PAYMENT

Item **Unit**

B13.01 The contractor's general obligations

Delete subitem (c) and replace with the following:

"(c) Time related obligations:

(i) Mobilisation period ……month

(ii) Execution of the works ……month"

Add the following pay subitems:

"(d) Suspension Cost

(i) De-establishment ..... Number

(ii) Re-establishment ..... Number

(iii) Suspension period ..... month"

Add the following paragraphs:

"The rates tendered under subitem 13.01(d) shall represent full compensation for Cost for Suspension of Work as per the Condition of Contract.

Payment of subitems 13.01(d)(i) and 13.01(d)(ii) shall be made for the number of de-establishments and re-establishments of all Personnel and Goods (Contractor's Equipment, Materials, Plant and Temporary Works) as instructed by the Engineer.

Payment of subitem 13.01(d)(iii) shall be made monthly, pro rata for parts of a month, from the date on which the Contractor has suspended progress of all of the Works in terms of Conditions of Contract and commenced with de-establishment of the site, until permission or instruction to proceed in terms of Conditions of Contract is given."

Add the following payment items:

"**Item** **Unit**

B13.02 Preparation and submission of as-built drawings, manuals and operating instructions……..…….Lump Sum

The Lump Sum tendered shall cover the costs of the Preparation and submission of as-built drawings, manuals and operating instructions in accordance with the conditions of contract. Only items of work ordered by the Employer's Agent for which there is no applicable measurement and payment item in the schedule of quantities will be measured and paid for under this item.

Item **Unit**

B13.03 Contract Sign boards ……..number(No.)

The unit of measurement shall be the number of contract signboards provided in accordance with the drawings and erected at the locations as instructed by the Employer's Agent.

The tendered rate shall include full compensation for procuring and furnishing all materials, and for the manufacturing of the contract signboards complete as specified on the drawings. It shall also include for the delivery and erection of the signs complete as specified at the locations instructed by the Employer's Agent, and for their removal on completion of the contract."

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SECTION 1400: HOUSING, OFFICES AND LABORATORIES FOR THE EMPLOYER'S AGENT'S SITE PERSONNEL

B1402 OFFICES AND LABORATORIES

(a) General

Add the following after the fifth paragraph of this subclause:

A security gate shall be provided at the site camp entrance. The gate shall be guarded at all times by an acceptable watchman provided by the contractor. A security gate shall be provided in the fence which shall be guarded at all times by an acceptable watchman provided by the contractor.

The Employer's Agent's establishment may be incorporated within the contractor's establishment provided that the preceding requirements are met to the satisfaction of the Employer's Agent.

No separate payment shall be made for the provision and erecting of the security gate. The cost in respect of the provision of a watchman at all times by the contractor shall be deemed to be included in the contractor's tendered rate for item B13.01(c)."

(b) Offices

Add the following at the end of the first paragraph:

"The Employer's Agent's supervisory site staff offices shall comprise of 3 individual offices, and a large space suitable for use as conference room/mess area.

Separate male/female ablution facilities need to be provided for the exclusive use of the Employer's Agent's personnel at both the offices and laboratory.

All offices shall be provided with burglar bars on all windows and security locks on all doors. The provision of the above-mentioned security measures shall be deemed to be included in the rates tendered for the items concerned."

Add the following subclauses:

"(xix) Electric kettle
(xx) Floodlights complete with poles and 500 Watt minimum globes
(xxi) Water dispenser
(xxii) White Board (1.5m x 1.2m)
(xxiii) Steel drawing rack
(xxiv) Table (1.0 m^2))
(xxv) ACSA approved lime coloured reflective safety jackets (with lettering)
(xxvi) Rechargeable 500 000 candlelight halogen lamps
(xxviii) Two-way hand held radio VHF/AM Dittel FSG5 complete with charger, carrying bag with strap and adapter cable
(xxix) Vehicle mounted flashing lights
(xxx) Construction' sticker for vehicles with 100 mm high lettering

A complete telephone service including broadband internet with wireless router and internet connection with minimum line speed of 10Mbps shall be provided. The prime cost sum shall also include for the cost of the internet facility and all telephone calls made in connection with contract administration."

(d) Car ports

Replace the last sentence with the following:

"The carports shall be provided with at least 80% shade netting."

B1403 HOUSING

(c) Rented accommodation

Add the following:

"The Employer's Agent may arrange for the obtaining of rented accommodation for his supervisory personnel on site. Payment of such rent shall be made under the provisional sum in sub-item 14.07(a) and shall be expended on a monthly basis by the contractor as ordered by the Employer's Agent."

B1404 SERVICES

(b) Water electricity and gas

Add the following

"The supply of electricity and water to the offices and laboratories of the Employer's Agent's supervisory staff shall be maintained 24 hours per day. The power supply shall be regulated by a suitable voltage regulator in order to maintain a constant current and voltage level at all times to prevent damage to the office and laboratory equipment and related machinery during power surges. Payment for the voltage regulator shall be deemed to be included in the rates tendered for the supply of power. In the event of damage to the office and laboratory equipment and related machinery because of a faulty voltage regulator, the contractor shall be liable for payment of all repair or replacement costs of such damaged items."

The following new subclause shall be added to clause 1404 of the Specifications:

(e) First Aid

"The Contractor shall provide a first aid kit at the site offices. No separate payment will be made and the Contractor shall allow for this in his tendered rates."

B1406 MEASUREMENT AND PAYMENT

- *Add the following new subclause:*

"General

The total cost of all requirements specified under Section 1400 in both the standard as well as project specifications shall be deemed to be covered in full by the tendered rates and amounts provided for in the schedule of quantities."

Add the following:

"The tendered rates under this section of the bill of quantities shall also include full compensation for the dismantling and removal from site of all offices, laboratories and other facilities provided for the Employer's Agent's supervisory staff at the completion of the contract."

Item	**Unit**

B14.03 Office and laboratory fittings, installations and equipment

(a) Items measured by number

Add the following sub-subitems:

"(xix) Electric kettle ..... Number (No)
(xx) Floodlights complete with poles and 500 Watt minimum globes ..... Number (No)
(xxi) Water dispenser ..... Number (No)
(xxii) White Board (1.5m x 1.2m) ..... Number (No)
(xxiii) Steel drawing rack ..... Number (No)
(xxiv) Table (1.0 m2) ..... Number (No)
(xxv) ACSA approved lime coloured reflective safety jackets (with lettering) ..... Number (No)
(xxvi) Rechargeable 500 000 candlelight halogen lamps ..... Number (No)
(xxviii) Two-way hand held radio VHF/AM Dittel FSG5 complete with charger, carrying bag with strap and adapter cable ..... Number (No)
(xxix) Vehicle mounted flashing lights ..... Number (No)
(xxx) Construction' sticker for vehicles with 100 mm high lettering ..... Number (No)

The tendered rate for sub-subitem B14.03(a)(xx) shall include for the operation of the lights from sunset to sunrise for the full duration of the contract."

(b) Prime cost items and items measured and paid for in a lump sum

Add the following sub-subitems:

(ix) The provision of a complete voice and data communication service with broadband data and local area network facilities, including the cost of telephone calls and data in connection with contract administration and telephone line rental…… ..... Prime Cost sum (PC sum)

(x) Handling costs and profit in respect of

sub-subitem B14.03 (b)(ix) above ..... Percentage (%)

The tendered percentage is a percentage of the amounts actually spent under sub-subitem B14.03(b)(ix), which shall include full compensation for the handling costs and profit."

Amend the description of Item 14.10 to read as follows:

Item		Unit
"**B14.10**	**Provision of combination colour printer/copier/scanner/facsimile machine**……..	…month"

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SECTION B1500: ACCOMMODATION OF TRAFFIC

B1502 GENERAL REQUIREMENTS

Add the following to Clause 1502:

(j) Night work

All plant used on site shall be equipped with suitable lights including flashing amber lights to enable the work to be properly performed and controlled at night. Night work will only commence if, according to the Engineer, the Contractor provides all equipment, personnel and stand-by reserves to execute the work at night as if in normal daytime hours.

Upon request by the Engineer or his representative, the Contractor shall make available a mobile flood light tower for use by the Engineer's staff.

Payment shall be made under item B15.15 for provision of the lighting for the whole working site in work areas as specified above.

The Contractor shall provide for artificial light to ensure the proper execution of the work in terms of the contract. The artificial lighting shall be subject to the Engineer's approval and shall consist of at least the following:

(i) At least 3 floodlight towers per work area shall be provided when works are performed during the night shift. A work area is defined as an area of radius 15m in which night work is being done. The Contractor shall provide adequate lighting at night as specified for every work area. The light in a work area shall be a minimum of 75 lux.
(ii) The power systems shall comply with the Machinery and Occupational Safety Act No 6 of 1983 as amended, and the Standard Regulation for Wiring of Premises of the South African Institute of Electrical Engineers.

No additional payment will be made to the Contractor over and above payment for the Contractor's general obligations for providing and maintaining all extra personnel and equipment for executing night work."

B1503 TEMPORARY TRAFFIC CONTROL FACILITIES

(e) Warning devices

Add the following:

"It is a requirement of this contract that all construction vehicles and plant used on the works will be equipped with rotating amber flashing lights and warning boards as specified in the standard specifications. Construction vehicles travelling outside the limits of construction areas shall however, not operate the warning lights.

The warning lights shall have a base diameter of at least 170mm and the amber bulb cover a height of a least 150mm high. It shall be a requirement that the contractor also provides

the Employer's Agent's site personnel with warning lights for their vehicles (a maximum of two lights are required) without any payment applicable.

B1517 MEASUREMENT AND PAYMENT

Add the following payment items:

"The Contractor's obligation under this Section 1500 shall not be measured or paid for directly (except as hereinafter provided for) and compensation for the work involved to comply with these obligations shall be deemed to be covered by the rates and amounts tendered for the various items of work included under this contract.

Item **Unit**

B15.14 Safety Barriers

(a) Manufacturing and supply of aircraft barriers as per drawing 14029-010……..Number (No)

(b) Moveable barricade (red and white alternating) HDPE plastic barrier as per drawing 14029-010 either side ……..……..……...Number (No)

(c) Placing, repositioning and final removal of vehicle and aircraft barriers upon completion of shifts…….……..……Lump Sum

(d) Runway Closure Marker as per drawing 14029-010……..…...Number (No)

The unit of measurement for the manufacturing of the barriers shall be the number of units manufactured and supplied, including a flashing amber light placed on a movable pedestal 1,2 m high x 1.92 m wide. Barriers to be ballasted with water or sand, taped with reflective tape on either side.

Runway Closure Marker shall be Certified to latest revision of FAA AC 150/5345-55.

The Contractor shall be responsible for maintaining the barriers, runway marker and lights. Upon completion the Contractor shall deliver the barriers, runway marker and lights back to the Client. Placing and removal of barriers and runway marker will be measured once only for payment for each barrier. No additional payment will be made for the intermediate moving and placing of barriers during the contract.

Item **Unit**

B15.15 Provision of lighting on site for works areas……..……Lump Sum

The tendered sum shall include compensation for providing and maintaining lighting as specified and shall include for all units, required for all the operations being done during the same working period.

Payment shall be made monthly, pro rata to the contract time elapsed but shall not finally exceed the tendered sum, except when extension of time for completion is granted in

terms of the general conditions of contract, when additional payment will be made pro rata to the initial contract period of the main portion of the works.

Payment for the moving and operation of the lighting equipment and other incidentals necessary for lighting the site shall be included in the tendered rates.

Item **Unit**

B15.16 Provision of lighting on site of work areas as requested by the Engineer …….. hour(hr)

The tendered rate shall include full compensation for providing, moving and maintaining a mobile floodlight unit for use by the Engineer.

Item **Unit**

B15.17 Penalty to be deducted for non-compliance with requirements:

(a) Accommodation of traffic as set out in B1230 and B1500:

(i) Fixed penalty per occurrence……Number (No)
(ii) Time related penalty……..hour (hr)

(b) Failing to meet runway or taxiway opening requirements:

(i) Fixed penalty per occurrence……Number (No)
(ii) Time related penalty……..minute (min)

"In sub-item B15.17 (a)(i) a fixed penalty of R50 000,00 per occurrence shall be deducted for each and every occurrence of non-compliance with any of the requirements of sections 1500 of the standard specifications, Section C3.5.1 & C3.5.2 and section B1230 of the particular specifications.

In addition, in sub-item B15.17 (a)(ii), a time related penalty of R50 000,00 per hour over and above the fixed penalty in sub-item B15.17(a)(i) shall be deducted for non-compliance to rectify any defects in the accommodation of traffic within a reasonable time after an instruction of this effect has been given by the Engineer. The Engineer's instruction shall state the time in hours for re-instatement of the defects. Should the Contractor fail to adhere to the instruction, the time related penalty will be applied from the time the instruction was given.

In sub-item B15.17 (b), a time related penalty of R200 000,00 per day and R25 000.00 per minute shall be deducted for late completion per completed shift as specified in Section C3.5.2 (Restricted working areas)."

Item	**Unit**
B15.18 Allowance to illustrate access and evacuation plans…….……	Shift

The unit of measure shall be a shift which shall translate to the period between 00h15 and 04h55 during which no construction works shall be undertaken. The tendered amount shall include full compensation for all costs, per shifts, associated with moving all of the equipment to be used per construction shift to the runway and taxi lane, and to evacuate all of the construction equipment from the runway and taxi lane to the allocated hardstand areas or storage areas on airside.

Payment shall be made only once the operation is approved by the Engineer. No additional payments shall be applicable to this operation and all time-related and associated costs shall be deemed included under the Contractor's allowances under Section B1300."

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SECTION B1600: OVERHAUL

B1601 SCOPE

Add the following to Clause 1601:

"No overhaul will be paid to the Contractor for transporting any materials whatsoever, whether obtained from commercial sources, designated borrow areas or any other source of material. No overhaul will be paid for any spoil material to stockpiled areas selected by the Employer or spoil sites when so directed by the Engineer. The cost of transporting all such materials must be included in the relevant payment items for work involved, notwithstanding anything to the contrary in any other payment item.

The designated temporary stockpile site for the RA material is located at the site camp and a second temporary site camp is located north of the Air Force Base, at Gate No 6 (refer to the drawings)."

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SECTION B1700: CLEARING AND GRUBBING

B1701 SCOPE

Add the following as a final paragraph:

"Clearing and grubbing for the construction of site offices shall not be measured separately and shall be deemed to be included in the rates tendered for item B13.01. Removal of excess existing bituminous material, RAP material and/or concrete for the construction of site offices shall be paid under B17.07

After the stockpiled material has been removed, the site shall be reinstated and the surface shall be lightly scarified to promote vegetation growth."

B1702 DESCRIPTION OF WORK

c) Conservation of topsoil

Add to the end of the 1st paragraph:

"The depth of topsoil removed shall be reliant on the terrain, suitability of material and topsoil requirements of the work. Generally, the Contractor will not be required to remove topsoil to more than an average depth of 400mm unless approved by the engineer before commencing with topsoil removal from any particular area."

B1703 EXECUTION OF WORK

Add the following to Clause 1703:

f) Removal of materials from stockpile

"Material obtained from milling or excavations shall be temporary stored at the contractors site camp. No additional payment will be made for stockpiling materials as it shall be deemed to be included in the rates tendered for under section B3800 and B4200. The contractor shall clear all materials from stockpiles within 72 hours or as directed by Engineer. Removal of material from stockpile shall be paid under B17.09.

All materials shall be removed to Contermanskloof Refuse Site or similar approved spoil sites".

B1704 MEASUREMENT AND PAYMENT

Add the following payment item:

"Item **Unit**

B17.05 Cleaning out of hydraulic structures:

(e) Pipes, box culverts and side drains or grid inlets ……..…….. cubic metre (m^3)

Add the following payment item:

"Item **Unit**

B17.06 Removal of topsoil and unsuitable material and temporary stockpilling thereof in:

(a) Topsoil in windrows alongside the work area……..... cubic metre (m^3)
(b) Topsoil on Temporary stockpiles after loading material into trucks……. cubic metre (m^3)
(c) Unsuitable material in temporary stockpiles……. ..... cubic metre (m^3)

"The unit of measurement shall be the cubic metre of material to be removed to stockpile site.

The tendered rates shall include full compensation for breaking up and removal of material, transportation from site to an approved spoil or stockpile site. No overhaul shall be payable."

Add the following payment item:

"Item **Unit**

B17.08 Clearing, excavating and removal of existing material from site camp:

(a) Bituminous material from existing stockpiles……. ..... cubic metre (m^3)
(b) RAP material from existing stockpiles……. ..... cubic metre (m^3)
(c) Concrete……. ..... cubic metre (m^3)

"The unit of measurement shall be the cubic metre of existing bituminous material, RAP material and/or concrete including channels and edging authorised by the engineer to be removed from site the camp.

The tendered rates shall include full compensation for breaking up, loading, off-loading and removal of existing bituminous material, RAP material and/or concrete including channels and edging transportation from site to an approved spoil or stockpile site. No overhaul shall be payable."

Add the following payment item:

"Item **Unit**

B17.09 Clearing, excavating and removal of stockpiled materials:

(a) Bituminous material……. ..... cubic metre (m^3)
(b) RAP material……..... cubic metre (m^3)
(c) All other materials……. ..... cubic metre (m^3)

The unit of measurement shall be the cubic metre of stockpiled material transported and spoiled at the approved spoil site. The tendered rate shall include full compensation for breaking down, loading, transporting, off-loading to an approved spoil site. No overhaul shall be payable."

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SECTION B1800: DAY WORK

Add the following section to Series 1000: General of the standard specifications:

"SECTION B1800: DAY WORK

CONTENTS

B1801SCOPE

This section covers the listing of daywork items in accordance with the general conditions of contract clause 6.5, for the use in determining payment for work which cannot be quantified in specific units in the bill of quantities, or work ordered by the Employer's Agent in writing during the construction period which was not foreseen at tender stage and for which no applicable rate exists in the bill of quantities.

B1802 GENERAL REQUIREMENTS

Work will be classified as daywork only if the Employer's Agent considers no other rate in the schedule of quantities appropriate for payment purposes.

Only work ordered in writing by the Employer's Agent to be executed as daywork shall be measured and paid for at the rates tendered in the schedule of quantities. Some or all of the items priced under daywork in the Bill of Quantities may possibly not be required for this Contract.

The Contractor shall keep and submit records of the work performed in accordance with the requirements of 6.5.4 (GCC 2015) of the General and/or Special Conditions of Contract. Any long period of idling at any one time which in the opinion of the Engineer or his representative is beyond that required for normal operating conditions will not be paid for as working time. Non-working hours for any reason shall not be measured for payment.

B1803 LABOUR

The tendered rates for labour to be included as daywork charges shall include the salaries and wages of gangers or charge hands working with their gangs but shall exclude the costs of the time of the foremen or supervisors which will be deemed to have been included in the sums tendered for the relevant items in Section 1300 of the schedule of quantities.

Prior to the commencement of any work by the personnel described under item B18.01 the Contractor must obtain written consent from the Employer's Agent regarding their classification in terms of "unskilled", semi-skilled" and "skilled" personnel.

Personnel will be classified using the following as a guide:

- Unskilled labour shall be labour using hand tools/labour only
- Semi-skilled labour shall be capable of using power tools such as drills and operating pedestrian rollers
- Skilled labour shall be capable of constructing formwork or laying bricks etc
- A ganger shall be capable of supervising a team of at least 6 labourers

Gross remuneration, as specified in subclause 6.5.1.2.1 (GCC 2015) of the general and/or special conditions of contract, will be deemed to include the following:

(a) Basic salary/wage

(b) Overhead charges such as fringe benefits not reflected in basic salary and wages which may include:

- normal annual bonus
- Employer's contribution to medical aid
- group life assurance premiums
- Employer's contribution to pension/provident fund
- all other costs as per letter of appointment

and costs payable due to statutory requirements, which may include:
- Workmen's Compensation Fund contribution
- Unemployment Insurance Fund contributions
- District Council levies or the equivalent thereof

The rates tendered for labour shall include for the actual cost of salaries and wages, all overhead charges, profit, liabilities, obligations, risks and incidentals for all workmen to execute work by dayworks.

B1804 MATERIALS

The nett cost price of materials (exclusive of VAT) actually delivered to the site to be included as daywork charges shall include the costs of delivery to the usual points at which materials are received on the site.

Before ordering any material, the Contractor shall submit quotations to the Engineer for his approval, and shall submit such receipts or vouchers to the Engineer as may be necessary for proving the amount claimed.

The percentage tendered as an on-cost on the net cost price of materials shall include for all handling, overheads, profit, liabilities, obligations, risks, incidentals and other on-costs for the supply, delivery and distribution of material for daywork to the individual site(s) where daywork is in progress.

B1805 PLANT

The full inclusive hourly cost of operational plant which is available on site or which has been removed without written authorization of the Engineer, to be included as daywork charges will be taken to be the tendered rate which, in the opinion of the Contractor, will be applicable in all respects to the situation and terms of the contract.

The hourly rate tendered or agreed shall constitute the daywork rate for the plant and will be deemed to include all costs for plant operators, consumable stores, fuel, maintenance, depreciation, ground-engaging tools and all other incidentals necessary to operate the plant for the purposes for which it was designed.

Failure on the part of the Contractor to state in the schedule of quantities the plant on which his tender is based, shall be considered as a firm agreement on the part of the Contractor that he waives all rights to distinguish between the different types and capacities of plant falling within the description and/or category given, and the Engineer shall have the right to call upon the Contractor to supply any such plant to the site and perform the work as directed by him at the particular tendered rate.

Sixty percent (60 %) of the hourly rate tendered or agreed will be paid in respect of plant which is being employed for daywork, but standing idle on the specific instructions of the Engineer, as full compensation for idle costs of daywork plant.

For plant not on site, the costs of establishing items of plant on the site for daywork on specific instruction of the Engineer will be negotiated with the Contractor at the time that such daywork is contemplated.

B1806 MEASUREMENT AND PAYMENT

Item	**Unit**
B18.01 Vehicles, plant and equipment:	
(a) Light delivery vehicle (LDV)	hour (h)
(b) 8 - 10 tonne tipper truck	hour (h)
(c) 16 tonne pneumatic roller	hour (h)
(d) 10 - 12 tonne vibratory roller	hour (h)
(e) Plate compactor	hour (h)
(f) Tractor loader backhoe (TLB)	hour (h)
(g) Water truck (9 000 litres)	hour (h)
(h) Air compressor complete with all tools, drills, jackhammers etc. (10 m³/min)	hour (h)

The unit of measurement shall be the hour actually worked by each item of plant (vehicle, machine or equipment) on the designated work on instruction by the Engineer.

The Contractor and the Engineer will agree on the method of recording the working hours prior to the commencement of work. Any long period of idling at any one time which in the opinion of the Engineer or his representative is beyond that required for normal operating conditions will not be paid for as working time. Non-working hours for any reason shall not be measured for payment.

The tendered rates include full compensation for furnishing and using the plant, including the cost of plant operators, consumable stores, fuel, ground-engaging tools, maintenance and for all other incidentals necessary to execute the authorised daywork as specified.

Where there is ambiguity between the power developed at the flywheel and mass of machine, the power shall govern the measurement category.

Item **Unit**

B18.02 Labour

(a) Labourer ..... hour (h)

(b) Chargehand or supervisor ..... hour (h)

(c) Surveyor, including survey assistants, equipment and transport) ..... hour (h)

(d) Ganger ..... hour (h)

(e) Flagmen ..... hour (h)

The unit of measurement shall be the hour of time worked by the particular employee on the designated work on instruction by the Engineer.

The daywork rates submitted for labour in the schedule of quantities shall be the cost of labour for each skill level and shall apply only to the number of workers approved in writing by the Engineer.

The Contractor and the Engineer will agree on the method of recording the working hours prior to the commencement of the work. Non-working hours for any reason shall not be measured for payment.

The tendered rates shall include full compensation for all costs for salaries and wages, use and maintenance of tools and equipment, sick pay, leave pay, holidays with pay and financial charges of any description incurred by the Contractor and his subContractors as well as for all insurance, accommodation, travelling, travelling time, supervision, overheads, profit, obligations, risks and any other emoluments and incidentals necessary for labour to execute work as daywork.

Item **Unit**

B18.03 Material

(a) Procurement of materials ..... Prime cost sum

(b) Contractor's handling costs, profit and all other charges in respect of sub item B18.03 (a) ..... Percentage (%)

Expenditure under this item shall be made in accordance with clause 6.6 (GCC 2015) of the General Conditions of Contract. The prime cost sum allowed shall include for the actual cost incurred for materials used in authorised daywork. The actual costs for materials shall not be subject to contract price adjustment.

The tendered percentage is a percentage of the amount actually spent under subitem B18.02(a) and shall include full compensation for the handling costs of the Contractor, profit, overheads and incidentals in connection with materials used for daywork on the instructions of the Engineer.

Payment for expenditure under this item will be made in full as and when the money is expended subject to written proof by the Contractor of payment of invoiced amounts.

Item	**Unit**
B18.04 Transport	
(a) LDV (1 ton)	kilometre (km)
(b) Flatbed truck (5 to 8 ton capacity)	kilometre (km)
(c) Tipper truck (5 m³)	kilometre (km)
(d) Minibus (20 seater) for use during site inspections /meetings	kilometre (km)

The unit of measurement shall be the kilometre distance that the vehicle travelled for transporting personnel and/or plant/equipment. All travelling shall be approved by the Engineer.

The tendered rate shall include full compensation for the cost of the vehicle including fuel, maintenance, depreciation and running costs.

The above-mentioned tendered rates shall be full compensation for the various items as specified and no further profit shall be paid."

AIRPORTS COMPANY SOUTH AFRICA
TENDER NO. CTIA7333/2023/RFP

REHABILITATION OF RUNWAY 01/19 AND REHABILITATION OF THE AIRSIDE APRON TAXI LANE AT CAPE TOWN INTERNATIONAL AIRPORT

SECTION B3800: BREAKING UP EXISTING PAVEMENT LAYERS

B3804 PLANT AND EQUIPMENT

a) Milling equipment

Add the following:

"No payment shall be made for providing the milling machine on site, moving it within the site, and removal from site".

B3805 CONSTRUCTION

b) Milling

(vi) General

Add the following:

"The floor of the milled excavation shall, before the application of the tack coat, be cleaned of all loose material by brooming, blowing with compressed air or vacuuming or any other method that will produce an exposed surface that is closely-knit, firm and stable, free of nests of segregated materials, laminations or corrugations.

Milled excavations shall not be left open to traffic. The longitudinal slope of the temporary ramp shall not exceed 1.0 per cent, measured with reference to the existing runway surface or previous overlay course. The maximum transverse slope of the temporary ramp shall not exceed 2 per cent."

Milled material shall be disposed of by transporting to the perimeter road via the indicated access.

B3807 MEASUREMENT AND PAYMENT

b) Overhaul

Replace the paragraph with:

"No overhaul will be paid to the Contractor for transporting any milled materials whatsoever, to stockpile areas selected by the Employer and or spoiled off site when so directed by the Engineer. The cost of transporting all such materials must be included in the relevant payment items for work involved.

Amend payment item 38.02 as follows:

Item		**Unit**
B38.02	**Milling out existing bituminous material with an average milling depth**:	

(a) Not exceeding 30 mm
(i) At runway UTFC surfacing (25mm thickness)…… cubic metre (m³)

(b) Exceeding 30 mm but not exceeding 60 mm
(i) At Runway Threshold surfacing ……cubic metre (m³)
(i) At Taxilane …….. cubic metre (m³)

(c) Exceeding 60 mm
(i) At surfacing patches …… cubic metre (m³)
(ii) At base patch repairs …….. cubic metre (m³)
(iii) Taxilane Rehabilitation ……... cubic metre (m³)

(d) Varying depth from 0 mm to 120 mm for keys
(i) At surfacing patches …… cubic metre (m³)
(ii) At base patch repairs ……... cubic metre (m³)"

Add the following payment items:

"Item **Unit**

B38.16 Removal of rubber deposits from runways

(a) Removal of rubber deposits by water blasting……Provisional Sum
(b) Handling cost and profit in respect of subitem B38.16(a)……Percentage (%)

The provisional sum under subitem B38.16(a) allows for the removal of rubber deposit from the runway by a selected subcontractor from ACSA.

The Contractor shall be responsible for arranging the removal of rubber with the selected subcontractor and no claims for any delays would be entertained.

The tendered percentage is a percentage of the amount actually spent under subitem B37.16(a) which shall include full compensation for all additional cost associated with the managing of the selected subcontractor. The cost shall include overhead charges, profit, liabilities, obligation etc."

AIRPORTS COMPANY SOUTH AFRICA
TENDER NO. CTIA7333/2023/RFP

REHABILITATION OF RUNWAY 01/19 AND REHABILITATION OF THE AIRSIDE APRON TAXI LANE AT CAPE TOWN INTERNATIONAL AIRPORT

SERIES 4000: ASPHALT PAVEMENTS AND SEALS

SECTION B4200: ASPHALT BASE AND SURFACING

B4201 SCOPE

Replace the first subclause (a) with the following:

"a) All work in connection with the construction of asphalt base and surfacing layers in accordance with current good practice. It includes the design of the specified mix type, procuring and furnishing of aggregate, active fillers and bituminous binder, mixing at a central mixing plant, transport, placement and compaction of the following products for construction as defined in Sabita Manual 35 / TRH8: Design and Use of Asphalt in Road Pavements, (February 2020), Sabita Manual 17: The design and use of porous asphalt mixes (January 2011) and Sabita Manual 19: Guidelines for the Design, Manufacture and Construction of Bitumen-Rubber Asphalt Surfacings (September 2019):

(i) Sand skeletal mixes: Where the loads on the layer are carried by a continuous matrix of the finer aggregate fraction. Mix types include:
- Fine continuously graded asphalt mixes;
- Medium continuously graded asphalt mixes.

(ii) Stone skeletal mixes: Where the loads on the layer are carried by a continuous matrix of coarse aggregate fraction. Mix types include:
- Coarse continuously graded asphalt mixes incorporating A-P1 modified binder;
- Gap, or open graded asphalt mixes incorporating bitumen-rubber;
- Stone Mastic Asphalt (SMA) A-P1 modified binder."

B4202 MATERIALS

a) Bituminous binders

(i) Conventional binders

Add the following:

"The binders to be used shall be as follows:
(a) Continuously graded base: 30/50 penetration grade bitumen".

(ii) Non-homogeneous (heterogeneous) modified binders

Replace the last sentence with the following:

"The modified binder to be used on this project shall be A-R2.

The bitumen-rubber binder shall be manufactured according to the guidelines contained in "Technical Guideline: The use of Modified Bituminous Binders in Road Construction (TG1 – Jan 2019): Asphalt Academy and comply with the following specifications".

(1) Base bitumen

Replace the paragraph with the following:

"The bituminous binder used in the production of bitumen-rubber shall comply with the requirements of SANS 4001-BT1-2016 for penetration grade bitumen (50/70 or 70/100 penetration-grade bitumen). These grades may be blended to provide a product with particular viscosity or penetration".

(2) *Rubber*

Delete "Table 4202/1" *in the last sentence and replace with* "Table B4202/1".

TABLE B4202/1: REQUIREMENTS FOR RUBBER CRUMBS

Property	Requirement	Test Method
Sieve analysis (% mass)		
Passing screen		
1,0	100	MB-14
0,600	40 - 70	
0,075	0 - 5	
Fibre length (mm)	6 max	
Bulk density (kg/m^3)	300 - 400	MB-16

(3) *Extender oil*

Delete "Table 4202/2" *in the first sentence and replace with* "Table B4202/2"

TABLE B4202/2: REQUIREMENTS FOR EXTENDER OIL

Property	Limits
Flash Point	180°C (min)
Percentage by mass of saturated hydrocarbons	25% (max)
Percentage by mass of aromatic unsaturated hydrocarbons	55% (min)

(4) *Bitumen rubber blend*

Delete "Table 4202/3" *in the second paragraph and replace with* "Table B4202/3"

TABLE B4202/3: BITUMEN-RUBBER BLEND REQUIREMENTS

Component	Percentage by mass
Percentage penetration grade bitumen by mass (min)	76
Percentage extender oil by mass (max)	3
Percentage crumb rubber crumb	18 - 24
Blending/reaction temperature (°C)	170 - 210
Reaction time (minutes)	45
Typical shelf life at mixing temperature (hours)	6

Notes:

1. No addition of petroleum hydrocarbon distillates (such as kerosene) as a diluent or cutter will be allowed in the bitumen-rubber binder for use in hot mix asphalt;
2. The reaction time for the product is highly influenced by the composition of the base bitumen and the particle size of the rubber crumbs, and it may remain acceptable for up to 6 hours. This will however have to be confirmed with the binder supplier's time/temperature digestion curves;
3. **No payment shall be applicable for any variation in compositional blend.**

Delete "Table 4202/4" *in the second last paragraph and replace with* "Table B4202/4 and Table B4202/13":

TABLE B4202/4: PROPERTIES OF BITUMEN-RUBBER FOR USE IN ASPHALT

Property		Unit	Test Method	Class A-R2
Softening Point [1]		°C	MB-17	65 - 80
Dynamic Viscosity @ 170°C		dPa.s	MB-13	10 - 40
Compression recovery	5 minutes	%	MB–11	> 70
	1 hour			> 70
	24 hours			n/a
Resilience @ 25°C		%	MB–10	10 - 40
Flow		mm	MB–12	0 - 40

[1] *The prescribed test method is based on not using stirrers although it has been reported that the use of stirrers has shown no difference in test results. For referencing purposes no stirrers should be used.*

TABLE B4202/13: TEMPERATURE/TIME LIMITS FOR BITUMEN RUBBER

Binder Class	Short Term Handling		Storage		Spraying/Asphalt mixing/Application		
	Max Temp (°C)	Max holding time	Max temp (°C)	Max holding time (days)	Max temp (°C)	Min temp (°C)	Max holding time (hrs)
A-R1	170	24 hrs	150	10[1]	210	190[2]	Refer to time/ viscosity curve
A-R2	160	>7 days	150	14[1]	185	170[2]	

[1] *If the recommended time period has been exceeded, the binder should be resampled and tested to ensure that the properties of the binder have not degraded.*
[2] *Minimum temperatures for asphalt manufacturing are viscosity dependent.*

(iii) Homogeneous modified binders

Replace the last sentence with:

"The modified binder to be used on this project shall be:
(a) Continuously graded wearing course, asphalt base and SMA: A-P1, and

(b) Tack coat: 70% emulsion consisting of at least 3,5 parts SBR modifier and maximum 96,5 parts penetration grade bitumen

The homogeneous modified binder shall be manufactured according to the guidelines contained in "Technical Guideline: The use of Modified Bituminous Binders in Road Construction (TG1 – Jan 2019): Asphalt Academy". The base bitumen shall conform to SANS 4001-BT1:2016, or a blend of SANS 4001-BT1:2016 grades. The type as well as percentage of modifier is not prescribed, however the Contractor shall indicate in the Pricing Schedule what polymer he shall be using. The properties of the homogeneous modified binder shall comply with the relevant requirements for binder class A-P1 as listed in table B4202/12."

TABLE B4202/12: PROPERTIES OF POLYMER-MODIFIED BINDER FOR HOT-MIX ASPHALT

Property	Unit	Test Method	Class		
Before ageing			**A-E1**	**A-E2**	**A-P1**
Softening point [2]	°C	MB-17	55-65	65-85	63-73
Elastic recovery @ 15°C	%	MB-4	> 50	> 60	30 - 50
Dynamic viscosity @ 165°C	Pa.s	MB–18	≤ 0,6	≤0,6	≤ 0,55
Storage stability @ 180°C [1]	°C	MB-6	≤ 5	≤ 5	≤ 5
Flash point	°C	ASTM D92	≥ 230	≥ 230	≥ 230
After ageing (RTFOT)					
Mass change	%	MB-3	≤ 1,0	≤ 1,0	≤ 1,0
Softening point (min)	°C	MB–17	53	63	61
Elastic recovery @ 15°C	%	MB-4	> 40	> 50	

[1] *Certain base bitumens, when used in the production of modified binders, are prone to cause segregation of the modified binder. The Storage Stability test result should be interpreted as an indicator of the compatibility of the base bitumen and the modifier used. In cases where compliance limits are not met, proposals of site agitation procedures of the binder to prevent segregation shall be submitted to the client for consideration. In all cases, whenever there is any reason to believe that the composition of the base bitumen has changed, the test shall be repeated to ensure compliance or to determine the need for measures to prevent segregation.*

[2] *The prescribed test method is based on not using stirrers although it has been reported that the use of stirrers has shown no difference in test results. For referencing purposes no stirrers should be used.*

TABLE B4202/14: TEMPERATURE/TIME LIMITS FOR POLYMER MODIFIED BINDERS

Binder Class	Short Term Handling/ Transportation	Storage [1]	Spraying/Asphalt Mixing/Application

	Max Temp (°C)	Max Holding Time (hrs)	Max Temp (°C)	Max Holding Time [2] (hrs)	Max Temp (°C)	Min Temp (°C)	Max Holding Time (hrs)
A-E1 (SBR)	180	24	160	240	190	175	8
A-E1 (SBS)	180	24	160	240	180	160	12
A-E2 [3]	180	24	160	240	180	170	12
A-P1	180	24	150	240	170	150	24

[1] *When storing product for 48 – 240 hours, it is recommended that the tank has agitation circulation.*
[2] *If the recommended maximum holding time has been exceeded, the binder should be resampled and tested to ensure compliance with the specification.*
[3] *A-E2 temperature to be confirmed by practitioners and historical data.*

b) Aggregates

Add the following paragraph to the introductory description:

"Asphalt mixes shall be manufactured using different individual single size coarse aggregates fractions and crushed fine aggregates complying with the latest version of SANS 1083 and appropriately blended to conform to the target grading as determined by the selected design methodology. The use of natural sands shall only be permitted if approved by the engineer and shall be limited to a maximum of 7% for continuously graded mixes. All aggregate in excess of 5mm shall consist of individual nominal single sized aggregate. Once the target grading has been fixed for each individual fraction, the allowable tolerances shall not exceed that specified in SANS 1083. The Contractor shall note that commercial suppliers may not be able to consistently supply all the required single size aggregate, in which instance additional on-site screening may be required, for which no additional payment shall be made. The use of run of crusher type materials shall not be permitted.

No quarzitic sandstone or quartzite shall be allowed for use in asphalt base or surfacing.

Aggregate materials for asphalt aggregate testing are divided into three sizes, and are defined as follows:
- Coarse aggregates – materials retained on the 5 mm sieve;
- Fine aggregates – materials passing the 5 mm sieve but retained on 0.075 mm sieve;
- Filler – materials passing the 0.075 mm sieve.

Notwithstanding the above definitions, aggregate definitions for describing coarse and fine aggregate fractions in mix designs for the Bailey design method are defined differently in the relevant mix design sections herein."

(i) <u>Resistance to crushing</u>

Replace the content of the section with the following:

"Aggregate shall consist of hard material derived from the crushing of solid rock or boulders. Coarse and fine aggregate shall meet the requirements listed in Table B4202/15. All aggregates shall be handled and stockpiled in a manner that will prevent contamination, segregation or degradation."

TABLE B4202/15: AGGREGATE DURABILITY

Property	Test	Standard	Product	Criteria
Hardness/ Toughness	10 % FACT (kN)	SANS 3001-AG10	Sand skeletal mixes Stone skeletal mixes	≥ 160 ≥ 210
	Agg. Crushing value (ACV)	SANS 3001-AG10	Sand skeletal mixes Stone skeletal mixes	≤ 25 ≤ 21
Soundness	Magnesium sulphate soundness (%)	SANS 5839 SANS 3001-AG12	All	12 – 20
Durability	Methylene blue adsorption indicator	SANS 6243	All	≤ 5[1]
Cleanliness	Clay lumps and friable Particles (%)	ASTM C142–97	Coarse and fine aggregate	≤ 1.0

(x) additional testing and analysis as determined by the engineer is needed if Methylene blue adsorption indicator > 5.

(xi) Shape of the aggregate

Replace the content of the section with the following:

"Coarse and fine aggregate shall meet the requirements listed in Table B4202/16.

At least 50 % of all sand skeletal mix particles shall have three fractured faces. At least 95 % of all stone skeletal mix particles shall have 3 fractured faces for the plus 5 mm fractions.

TABLE B4202/16: AGGREGATE SHAPE

Property	Test	Standard	Product (aggregate)	Criteria
Particle shape and texture	Flakiness index	SANS 3001- AG4	20 mm and 14 mm 10 mm and 7,1 mm UTFC	≤ 25 ≤ 30 ≤ 18

(xii) Polishing

Replace the first paragraph with the following:

"The polished stone value for coarse aggregate, when determined in accordance with SANS 3001-AG11, shall not be less than 50.

(xiii) Absorption

Replace the content of the section with the following:

"Coarse and fine aggregate shall meet the requirements listed in Table B4202/17.

TABLE B4202/17: AGGREGATE ABSORPTION

Property	Unit	Standard	Product (aggregate)	Criteria
Water absorption	% by mass	SANS 3001- AG20	Coarse aggregate (>5mm)	≤ 1.0
		SANS 3001-AG21	Fine aggregate (< 5mm)	≤ 1.5
Binder absorption	% by mass	SANS 3001-AS11	Coarse and fine aggregate	≤ 0.5

(xiv) Sand Equivalent

Delete the paragraph and replace with the following:

"The total fines fraction used in all asphalt mixes shall have a sand equivalent of at least 50, when tested in accordance with SANS 3001-AG5. No natural sand may be used in asphalt mixes, other than for continuously graded mixes, without the written permission of the Engineer. The natural sand shall comply with the requirements of SABS 1083 and Section 4202(b) of the Standard Specifications and shall have a minimum sand equivalent value of 50 when tested in accordance with SANS 3001-AG5".

(vii) Design requirements

Delete the paragraph and replace with the following:

The Contractor shall, by conducting the necessary tests, satisfy himself that he will be able to produce a mixture using the methodology and design requirements specified hereinafter, using the aggregate he proposes to supply, within the grading control points and / or aggregate ratios specified.

The asphalt design shall be reported on the latest version of the D3 Design form (Asphalt Mix Design). No asphalt layers shall be constructed unless the specified, or other appropriate and accepted, mix design process has been carried out by the Contractor and submitted to the Engineer.

In all instances the mix properties shall conform to the latest requirements as listed in the relevant Sabita publications for the mix type, class and design level specified. The mix design input parameters as indicated in TABLE B4202/18 are relevant to this works contract.

TABLE B4202/18: MIX DESIGN PARAMETERS

Property	**Mix design detail**				
Location	Runway	Threshold	Taxi-lane	Taxi-lane	Runway
Layer	Base Patch	Wearing Course	SMA	Asphalt Base	UTFC
Skeletal type	Stone	Sand	Sand	Stone	Stone
grading spec	Continuous	Continuous	Continuous	Continuous	Open Graded
Layer thickness	120mm	40 - 65mm	50mm	85mm	25mm
NMPS	26.5mm	14mm	14mm	26.5mm	14mm
CUW (%)[1]	95 - 105	60 - 80	60 - 80	95 - 105	N/A
Binder	35 / 50	AP-1	AP-1	AP-1	A-R2
Design Level	I B	II	II	II	N/A

[1] *Chosen Unit Weight (CUW) as per Sabita Manual 35 Appendix A (Overview of the Bailey Method).*

Before any asphalt is placed on the runway, the Engineer shall review and accept the mix design. In the case of performance-based specifications, the Engineer reserves the right to have any proposed asphalt mix design independently verified. Prior to commencing with any asphalt mix designs, the Contractor shall submit a mix design programme for each mix, for acceptance by the Engineer, detailing all checks and hold points relating to the design where applicable of the specified product. Holding points at which the engineers approval are required is as follows:

- Proposed trial aggregate blends including the three Bailey blend ratios (CA, FA_c, and FA_f) relevant to the control points;
- Mix volumetric parameters test results (VIM, VMA, and VFB);
- Mix empirical performance test results (TSR, ITS, Dynamic creep, Permeability);
- Mix performance-related tests (Workability, durability, Fatigue, permanent deformation).

The Contractor shall ensure that he commences the specified design processes for the specific mix type and design level timeously to ensure that there are no delays to his construction program. The maximum time that shall be allowed for in the construction program for the mix design process and approval are as follows (non-working days excluded):

(i) Level IA and IB: 6 weeks;
(ii) Level II & UTFC: 12 weeks.

(viii) Grading

Replace the first sentence of the first paragraph with the following:

"The grading of the combined aggregate including any filler added in an approved working mix as described in subclause 4202(c) shall comply with the ratios relevant to grading control points and limits where applicable. Relevant grading control points are provided in Sabita Manual 35 Appendix A.

Coarse aggregate grading:
The coarse aggregate component of any asphalt mix shall comprise of nominal single aggregate sizes conforming to the specific aggregate grading class and

appropriately blended in the mixing plant. The blend shall be relevant to the mix type and layer thickness specified.

The coarse aggregate components of any asphalt mix shall comply with the grading limits in Table B4202/20 for the relevant grading class and NMPS as listed. The grading class applicable to the relevant mix type shall be as follows:

- Grading class 1:
    - (Coarse) continuously graded: stone skeletal
    - Ultra-thin friction courses (UTFC)
- Grading class 2:
    - (Medium / Fine) continuously graded: sand skeletal

TABLE B4202/20: GRADING LIMITS FOR NOMINAL SINGLE SIZE COARSE AGGREGATE

	Nominal maximum particle size (NMPS) (mm)							
	20		14		10		7	
Grading class	1	2	1	2	1	2	1	2
Sieve size (mm)	Percentage passing sieve size by mass							
28	100	100						
20	85 - 100	85 - 100	100	100				
14	0 - 20	0 - 35	85 - 100	85 - 100	100	100		
10	0 - 5	0 - 5	0 - 20	0 - 35	85 - 100	85 - 100	100	100
7			0 - 5	0 - 5	0 - 20	0 - 35	85 - 100	85 - 100
5					0 - 5	0 - 5	0 - 20	0 - 35
2							0 - 5	0 - 10

Fine aggregate grading:
Grading limits for the fine aggregate components of an asphalt mixture should comply with Table B4202/21.

TABLE B4202/21: FINE AGGREGATE GRADING LIMITS FOR RELEVANT MIX TYPE

Aggregate class	Percentage passing by mass		Stockpile Tolerance
	Class 1	Class 2	
Sieve Size (mm)	Stone skeletal	Sand skeletal	5%
7	100	85 – 100	5%
5	90 – 100	70 – 90	5%
2	65 – 90	45 – 70	5%
1	45 – 70	28 – 50	5%
0.600	30 – 50	19 – 34	5%
0.300	18 – 30	12 – 25	4%
0.150	10 – 21	7 – 18	3%
0.075	5 - 15	5 - 15	2%

Combined aggregate grading:

The combined grading selected shall be relevant to the mix type and design level specified and shall be determined by means of the specified mix design methodology prescribed in the latest version of Sabita Manual 35 or Manual 17 and shall be appropriately optimized to ensure conformance to all the specified mix properties as relevant.

Sand skeleton asphalt, such as the continuous mix, is to be designed in accordance with the method listed in Sabita Manual 35: Design of Hot Mix Asphalt, the grading shall fall within the control points listed in Table B4202/22 for the specified nominal maximum particle size (NMPS) of aggregate as prescribed. Notwithstanding these control point limits, during the design process, the grading of the mix shall be optimized by appropriate means, such as the "Bailey" Method as contained in Appendix A of Sabita Manual 35 to ensure that the specified volumetric and performance properties of the final mix, as specified, are optimized in all respects.

TABLE B4202/22: AGGREGATE GRADING CONTROL POINTS (SABITA MANUAL 35)

	Nominal maximum particle size (NMPS) (mm)							
	28		20		14		10	
Sieve size (mm)	Percentage passing sieve size by mass							
	min	max	min	max	min	max	min	max
37.5	100							
28	85	100	100					
20		85	85	100	100			
14				85	85	100	100	
10						85	85	100
7								85
5								
2	19	45	23	49	28	58	32	67
0.075	4	7	4	8	4	10	4	10

The grading control points shown in Table B4202/23 shall be considered as a guideline only and not a specification grading envelope.

The target grading and nominal mix proportions shall apply to the UTFC asphalt mix for tender purposes shall be within the limits stated in Table B4202/9.

In addition to the specified grading limits, the percentage by mass of aggregate smaller than 0,005mm, when determined in accordance with SANS 3001: Method GR3, shall be less than 1,0% of the combined aggregates excluding the active filler added in the approved mix. The engineer may request a reconsideration of blends to achieve any grading within the relevant envelope in order to improve certain mix properties.

Delete the second paragraph commencing with "The target grading…" .

(x) Rolled-in chippings

Add the following sentence:

"Rolled-in-chips on continuously graded asphalt shall not be applied."

Add the following new sub-item:

"(xi) Moisture content

The moisture content of aggregates, sampled from the cold feed belt, shall not exceed the following limits at the time that it is introduced into the mix:

- Coarse aggregate 2%
- Fine aggregate ..... 4%"

c) Fillers

Add the following sentence after the second last sentence of the first paragraph:

"The filler-binder ratio shall not exceed 1.5 for surfacing mixes and 1.6 for thick asphalt bases."

Add the following after the last paragraph:

"For tender purposes the active filler shall be hydrated lime"

d) Fibres

Add the following sentence:

"A fibre stabiliser in pellitised of loose form, consisting of either cellulose or mineral fibre, shall be used. The allowable tolerance in fibre dosage shall be ±10% of the specified fibre content. The Contractor shall prove that the fibre he intends using has the proven ability to prevent any drain down of the bitumen in the mix during transportation and placing without compromising the in-place mix properties."

h) General

Add the following after the second paragraph:

"Sufficient aggregate for a minimum of 3 days production shall be separately stockpiled and tested for conformance and uniformity prior to use. The test results shall be presented to the engineer"

B4203 COMPOSITION OF ASPHALT BASE AND SURFACING MIXTURES

In the first paragraph, second line, after "which are given in tables 4202/6 to" *replace "4202/10" with*:

"4202/7"

In the first paragraph, third last line, after "or active filler content" *add*:

"or aggregate content"

Replace the fourth paragraph with the following:

"The nominal mix proportions (by mass) of the various asphalt mixes are set out in tables 4202/6 to 4202/7."

Replace the fifth paragraph with the following:

"The design of the asphalt mixes shall be in accordance with Sabita Manual 35 / TRH8: Design and Use of Asphalt in Road Pavements, (February 2020), Sabita Manual 17: The design and use of porous asphalt mixes (January 2011) and Sabita Manual 19: Guidelines for the Design, Manufacture and Construction of Bitumen-Rubber Asphalt Surfacing (September 2019), and appropriate research results. The mix properties and requirements shall be as specified in the project specifications.

The relevant asphalt mixes for the base and surfacing layers shall comply with the requirements in table B4203/1. Based on the results of the design process for base and surfacing asphalt mixes, the testing requirements in Tables B4203/1 may be amended by the Engineer to the values achieved in the design process. The amendment will be done to ensure that the important engineering properties of the approved mix will be consistently achieved during the production of the asphalt mix for the contract.

The optimum binder content for the UTFC will be selected from the range determined by the criteria stipulated in Sabita Manual 17: The design and use of porous asphalt mixes (January 2011), where the design binder content is specified as the average of the higher of the minimum binder contents (durability and abrasion resistance) and the lower of the maximum binder contents (void content and binder run-off). In terms of the binder durability, the combination of active fillers and mix additives consisting of Road lime and/ or Polyamine or equivalent will be evaluated during the UTFC design process and assessed using ASTM D3625 (boiling test extended for 2 hours) and reported upon. The details of the design process shall be submitted to and discussed with the Engineer.

The UTFC's functional requirement is to provide minimum friction characteristics in compliance with ICAO recommendations for commercial airport runways. The UTFC surfacing should after construction, comply with the follow specifications:

(i) a minimum texture depth of 1,0mm for each and every sand patch test conducted immediately after construction.
(ii) an average grip-number of 0,64 when tested with a Grip Tester Trailer at 95 km/h with 1mm water film thickness.

The above tests will conducted as part of the trial section for the UTFC and will form part of the final approval process.

Provision has been made under B4215 and the Pricing Schedule for the costs associated with producing, for each mix, and or, binder type specified, a single laboratory mix design followed by plant mix verification confirming conformance to the particular design method and product properties specified. Any changes to individual components, or properties of a mix, even after initial acceptance has been given, shall require that a new mix design

process be undertaken, with any extension of time and cost implications for re-design and trial section at the cost of the Contractor."

Replace Table 4202/6 with:

TABLE B4202/6: NOMINAL MIX PROPORTIONS OF STONE SKELETAL MIXES

MIX TYPE	Continuous graded base and surfacing: standard or homogenous modified bitumen			Stone Mastic Asphalt (SMA)		Continuous graded and semi-open graded surfacing: Bitumen- rubber:	
Nominal maximum particle size (mm)	20	14	10	14	10	20	14
Aggregate (%)	94.0	93.5	93.0	92.5	92.0	92.0	91.5
Bitumen**	5.0	5.5	6.0	6.5	7.0	7.5	8.0
Active filler*	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Cellulose fibre	n/a	n/a	n/a	0.5	0.5	n/a	n/a

* Active filler for tender purposes to be hydrated lime.
** type and grade according to Contract.

Replace Table 4202/7 with:

TABLE B4202/7 NOMINAL MIX PROPORTIONS OF SAND SKELETAL MIXES

MIX TYPE	Continuous graded base and surfacing: standard or homogenous modified bitumen			Stone Mastic Asphalt (SMA)	
Nominal maximum particle size (mm)	20	14	10	14	10
Aggregate (%)	94.0	93.5	93.0	92.5	92.0
Bitumen**	5.0	5.5	6.0	6.5	7.0
Active filler*	1.0	1.0	1.0	1.0	1.0

* Active filler for tender purposes to be hydrated lime.
** type and grade according to Contract.

Replace Table 4202/9 with:

TABLE B4202/9: GRADING LIMITS FOR COMBINED AGGREGATE FOR CONVENTIONAL NON-HOMOGENEOUS MODIFIED BITUMINOUS BINDERS FOR UTFC SURFACING

Sieve size (mm)	Percentage passing sieve size by mass
	14 mm Nominal Max Aggregate Size
20	100
14	74 – 100
10	53 – 83
5	17 – 34
2	9 – 21
0,600	6 – 13
0,075	3 – 6
Nominal mix proportions by mass:	
Aggregate %	92,7
Cellulose fibre %	0,3
Lime Active Filler & Polyamine mix %	1,5
Binder content %	5,5

Note: The difference between the percentage passing 5 mm and the percentage passing 2 mm sieves is less than 4% and the percentage passing 2 mm sieve is below 20%.

Replace Table 4203/1 with:

TABLE B4203/1: MIX DESIGN REQUIREMENTS

Volumetric and Performance requirements	Design Levels			
	II	II	I B	UTFC
Binder type	A-P1	A-P1	35/50	A-R2
Layer	Surfacing / SMA	Asphalt Base	Base Patch	Overlay
Skeletal type	Sand	Stone	Stone	Stone
NMPS	14mm	26.5mm	26.5mm	14mm
VIM (%)	3 - 5	3 - 5	3 - 5	>14
VMA[3]	See Table B4202/19	See Table B4202/19	See Table B4202/19	>22
VFB (%)	65- 75	65- 75	65- 75	n/a
Marshall Stability (kN)	8 min.	8 min.	8 min.	n/a
Marshall Flow (mm)	2 - 6	2 - 6	2 - 6	n/a
Workability (% voids @ N_{design} = 45)	≤ 7	≤ 7	≤ 7	n/a
Filler / Binder Ratio[4]	≤ 1.5	≤ 1.5	≤ 1.6	≤ 1.5
Durability TSR	0.8	0.8	0.8	n/a
Binder film thickness (microns), min	≥5.5	≥5.5	≥8	≥10
ITS Stiffness (@ 25°C)	900 - 1650 kPa	900 - 1650 kPa	900 - 1650 kPa	n/a

Creep modulus[1] (@ 40°C)	≥10 MPa	≥10 MPa	≥10 MPa.	n/a
Air Permeability	≤ 1 X 10^{-8} cm^2	≤ 1 X 10^{-8} cm^2	≤ 1 X 10^{-8} cm^2	n/a
Modified Lottman (%)	≥ 80	≥ 80	≥ 80	≥ 80
Schellenberg Drainage @ 70°C	n/a	n/a	n/a	≤ 0.25
Cantabro Abrasion	n/a	n/a	n/a	≤ 10
Cantabro Abrasion after ageing with Modified Lottman	n/a	n/a	n/a	≤ 15
Dynamic Modulus[2] (AASHTO T378)	≥ 3.5 GPa @ 20 °C & 10 Hz	n/a	n/a	n/a
Fatigue Life (με to 10^6) (AASHTO T 321)	≥ 170	n/a	n/a	n/a
Permanent Deformation (HWTT no. of passes) (AASHTO T 324)	≥ 16,000 to 6mm rut ≥ 10,000 to stripping point	≥ 16,000 to 6mm rut ≥ 10,000 to stripping point	≥ 16,000 to 6mm rut ≥ 10,000 to stripping point	≥ 16,000 to 6mm rut ≥ 10,000 to stripping point

[1] *Low dynamic creep values for stone-skeleton mixes and mixes manufactured with polymer modified or bitumen-rubber binders may be approved by the engineer provided the mix exhibits good resistance to rutting .*
[2] *Interpose dynamic modulus with the relevant fatigue isotherms to assess the fatigue life.*
[3] *To accommodate these relatively high binder contents for bitumen rubber mixes, the VMA requirements may be higher than asphalt with conventional binders.*
[4] *The maximum filler-binder ratio may be increased from 1.5 to 1.6 for thick asphalt bases.*

TABLE B4202/19: VMA DESIGN REQUIREMENTS FOR VARYING BINDER CONTENT

NMPS (mm)	Minimum VMA[1] for design voids		
	3%	4%	5%
28	11	12	13
20	12	13	14
14	13	14	15
10	14	15	16

[1] *for continuously graded mixes only.*

B4204 PLANT AND EQUIPMENT

(a) General

Add the following:

"Where milling is required to replace asphalt on the runway or taxiway, the Contractor shall ensure that sufficient asphalt is available in hot bins at the asphalt plant before milling commences as a precautionary measure should any problem arise at the asphalt plant regarding the approved mix.

Plant and vehicles used at the laying site shall be free from oil, fuel and hydraulic fluid leaks. Any items of plant or vehicle showing signs of these leaks shall immediately be removed from the site.

During the construction on operational runways and taxiways, the Contractor shall at all times have a second mixing plant on standby, suitable to produce the required asphalt mix at immediate notice in case of an emergency situation (power failure etc.)"

(b) Mixing plant

(i) Conventional Binders

Replace the second paragraph with:

"The mixing plant shall be fully automatically controlled. Special care shall be taken to ensure a continuous free flow of active filler and modifier. The mixing process will immediately be stopped if manual intervention is required to enhance the flow of aggregate, filler or modifier. The mixing process will not be allowed to continue until the Engineer has been satisfied that the mixing plant can be controlled fully and automatically. If the process cannot be rectified in time to complete the days work, the mixing and paving will be allowed to continue but the asphalt layer produced by the mixing plant will be rejected and will have to be replaced with a new approved mix."

Add the following at the end of the third paragraph:
"Batch plants shall be provided with efficient means of sampling the aggregate in each hot bin and filler storage bin.

All mixers shall be provided with a sampling point for hot bitumen between the storage tanks and the mixer.

All plant used by the Contractor for the preparation of asphalt mixtures shall be open to inspection by the Engineer at all times. Calibration at all feeders shall be done in the presence of a representative of the Engineer."

Add the following at the end of the fifth paragraph:
"A separate cold feed bin shall be allocated for each aggregate size"

Add the following at the end of the sixth paragraph:
"If material recovered from the dust collecting equipment is to be fed into the mixer it shall first be weighed by means of a suitable weighing device. No material finer than 0,005 mm may be fed back into the mixer."

Add to the seventh paragraph:
…or the latest revision or replacement act.

(c) Spreading equipment
(i) Paver

Replace the last paragraph with the following:
"The paving of the asphalt base shall be controlled by the use of wires or similar approved methods to achieve the specified levels and thickness.
Averaging beams (levelling beams) are to be used for the asphalt surfacing. They shall be at least 9m long and shall be assembled from rigid sections having multiple spring-load feet.

Add the following paragraph:
After milling damaged asphalt, the inlay shall be constructed by replacing the damaged asphalt surfacing. The surface level of the base shall be controlled such that the inlay thickness will not be more than 80 mm per layer, nor less than 30 mm. The final asphalt layer shall be constructed to the level of the original riding surface, smoothly joining with the adjacent surfacing layer after compaction."

Add the following paragraph:
"UTFC:
The paver must be a spray-paver able to do the tack coat application and UTFC paving as part of the same process to the satisfaction of the Engineer. The tack coat must be applied by the paver immediately in front of asphalt mix."

(d) Rollers

Replace the next sentence in the first paragraph with the following:
"Approved tandem-axled steel-wheel rollers with a minimum roller width of 1,5 m and a minimum length of 2,0 m must be used for initial rolling. The roller drum must be smooth without any indentations or marks that may lead to pick-up of the asphalt carpet. A 25-ton pneumatic roller must be used for the final rolling and finishing. The use of the pneumatic roller shall be assessed in the trial section."

Add the following paragraph:
"UTFC:
Pneumatic tyred rollers shall not be used in the compaction. The method of compaction shall avoid damage to aggregate or drawing of binder to the surface. The Contractor shall propose the rolling equipment for the paving operation and demonstrate the proposed rolling methodology. Vibrating rolling should not be used or minimised to ensure maximum surface texture depth. Rolling procedure approved during trial section will be used for paving production."

(e) Binder distributors

Add the following:
"If required and on requested by the Contractor, the Engineer may allow the use of hand spraying equipment for applying the bituminous tack coat in restricted areas. The average spreading rates and distribution will be determined in order to evaluate the continuation of this procedure for the remainder of the contract. Hand spraying equipment will be allowed on the shoulders where electrical conduits should be installed."

UTFC:
Add the following: "Tack coat will be applied by the spray-paver."

(f) Vehicles

Replace the second paragraph with the following:

"To minimize temperature loss all vehicles used for transporting asphalt to the site shall be fitted with thermal asphalt covers (canvas covers not acceptable) irrespective of the prevailing climatic conditions or distance of transport."

Add the following subclause:

"**(h) Transfer of mix to paver**

Asphalt shall be transferred from the haul trucks to the paver by means of a materials storage and transfer vehicle and no material shall be transferred directly from the haul vehicle into the paver.

The material storage and transfer vehicle must be able to store and transfer hot-mixed asphalt material from a truck to a paver to ensure continuous paving. It must contain an anti-segregation auger which remixes materials just before they are delivered to the asphalt paver."

B4205 GENERAL LIMITATIONS AND REQUIREMENTS AND THE STOCKPILING OF MIXED MATERIAL

b) Moisture

Amend the last paragraph as follows:

Insert "and/or primed base" *after* "surfacing" *in the third line of the first sentence.*

Replace the last sentence with "In such case the base shall be allowed to dry out to meet the above moisture content requirement prior to placing the surface layer."

c) Surface Requirements

(iii) Tack Coat

Add the following paragraph:

"Hand spraying shall only be permitted on areas approved by the engineer. The binder distributor shall be capable to apply the binder evenly over the full area. The equipment shall comply with clause 4103. Tack coat shall be applied to all transverse and longitudinal joints by hand utilizing a paint brush."

B4206 PRODUCING AND TRANSPORTING THE MIXTURE

b) Production of the mixture

(ii) Using drum-type mixer plants

Add the following:

"Pre-blending of aggregate fractions shall not be permitted and the Contractor shall ensure that sufficient cold-feed bins are installed to accommodate each individual aggregate fraction, including the filler."

c) Transporting the mixture

Delete the second sentence in this paragraph.

Add the following sub-clause:

"**f) Approval of asphalt mixture**

Before any asphalt is placed, the Engineer shall approve the mix design. The approval process shall be as follows:

The Contractor shall prepare and submit a laboratory design mix with test results at four different bitumen contents. The design mix shall be submitted on the prescribed form D3 of TMH 10: "Instruction for the Completion of As-Built Materials Data Sheets" with all the necessary test results completed. In addition, the proposed asphalt mixture shall be subjected to gyratory testing. All the expenses in preparing and submitting the laboratory design mix shall be to the Contractor's cost.

Samples of all aggregate and bitumen shall be submitted with the laboratory design mix to enable the engineer to carry out check design testing as necessary. The above design and aggregate shall be submitted to the engineer at least six weeks before it is intended to commence with any asphalt production.

After approval is obtained for the laboratory design mix, a plant mix at varying binder contents of approximately 5 to 10 tons each shall be produced. The purpose of the plant mix is for the Contractor to prove that the laboratory design mix can be produced successfully. The engineer shall conduct the necessary testing on the plant mix. The plant mix shall not be placed on the road. During the production of the plant mix, the engineer shall be afforded the opportunity to inspect the asphalt plant.

Mass production of asphalt shall only commence after approval of the trial section and acceptance of all test results, which should be given within a maximum of ten working days.

The Engineer may instruct the Contractor at any time to halt his paving process and to review the whole or part of the above process should a change of aggregate properties occur, the specified asphalt requirements not being met and/or a consistent asphalt mixture not be produced."

f) Approval of asphalt mixture

Add the following:
"Special precautions shall be taken by the Contractor to ensure that segregation of the large aggregate in asphalt bases does not occur. Visual inspection of the base mix will be carried out by the Engineer and his staff. Segregated mixes will under no circumstances be accepted by the Engineer. Effective steps must be taken by the Contractor to prevent segregation. Trucks with segregated asphalt mixes will be rejected by the Engineer."

"Special precautions shall be taken by the Contractor to ensure that the temperature of the total mass of asphalt does not decrease by more than 15°C from point of

dispatch to the point where it is to be paved as measured behind the paver. The use of thermal blankets on transport trucks is obligatory."

B4207 SPREADING THE MIXTURE

Add the following to sub-clause (a):
"The following paving restrictions will strictly apply:

- No paver stops will be allowed for reversing supply trucks.
- Continuous paving operation is a requirement. Paver speed to be regulated to prevent supply related stops. Paving operations may only start if sufficient asphalt supply trucks are available to ensure a continuous paving operation.
- Levelling skid-beams (9 m length at least with free wire between ends) or wire guide system to be used on both sides – no joint matchers except if agreed or instructed by the Engineer.
- Automatic auger feed control, which can keep the asphalt mount in-front of the screed constant, are required.
- No pneumatic rolling as breakdown rolling on the final surfacing layer.
- Handwork shall not be allowed.
- No fat spots or loose stones.
- No water ponding.

In the case of non-appliance herewith the Engineer's personnel will stop the paving operations and sections done in non-compliance can be rejected after assessment by the Engineer."

B4208 JOINTS

Add the following to this clause:

"Where the difference in level between the new work and the existing surface exceeds 25mm, joints shall be treated as follows:

Transverse steps at the end of a day's work shall be tapered off at a slope of 1 vertical to 20 horizontal (1:20) to tie in with the existing surface. The tapered section shall be removed before surfacing is recommenced and a joint formed in accordance with clause 4208 of the specification.

Longitudinal joints exposed to traffic shall be provided with a taper of compacted asphalt material over the full length of the exposed joint. The width of the taper shall be at least 5 times the difference in level between the old and new work.

UTFC:
"Longitudinal joints shall not be cut back. Before a new layer is placed next to an existing one, the edge of the existing layer shall be heated to ensure adequate longitudinal bonding".

No saw-cutting will be allowed on the newly placed UTFC longitudinal joints. All UTFC transverse joints to be cut and treated similar to the specifications.

Whenever the paver stops for more than 5 minutes on the UTFC layer and/or the uncompacted material already laid cools down to below compaction temperature (110°C

for wearing course), a joint shall be constructed as specified and all cooled uncompacted materials removed from the pavement.

The cost of all the key ramp joint construction activities will be measured and paid including all transverse and "end-of-working section" joints and cut back joints in night work sections.

B4210 COMPACTION

Add the following after the 4th paragraph:

"An appropriate rolling temperature range will be determined by the Contractor and will be submitted to the Engineer for approval during the trial sections. This range will be applied as specification during the contract."

Add the following after the 6th paragraph:

"The sequence of rollers used in compaction is at the discretion of the Contractor provided that each completed asphalt layer of each shift shall have a minimum field density, as measured on recovered core, of greater that or equal to 94% of the theoretical maximum density (according to SANS 3001 - AS11).

Notwithstanding the above, the minimum density for asphalt surfacing on any single core shall not be less than 97% of the theoretical maximum density minus the numerical value of the percentage design voids (Marshall or modified Marshall) in the approved production of the mix. This requirement includes all asphalt densities that will be measured adjacent any hot or cold joint in the pavement.

In addition hereto the compaction immediately adjacent to joints shall be done to ensure densities or not less than 1% of those specified (above) in the rest of the layers (including all hot and cold joints). Joint densities measured across the joint shall not have densities of less than 2% of the minimum specified layer density. A Calibrated thin layer Nuclear Gauge testing (to be calibrated versus asphalt cores densities), will be used to access and approve joint densities before covering thereof with consecutive layers."

B4211 LAYING OF TRIAL SECTION

Add the following:
"The trials will include both asphalt base, asphalt wearing course and UTFC mixes. The Contractor shall remove and replace the trial section at his own cost if all requirements are not met. The object of the trial section is to demonstrate that the Contractor can achieve the specifications. It is not to calibrate any equipment, etc. The Contractor must do the calibration of the equipment and mix design at his own cost. Also note the requirements of Clause B4203 with regard to trial sections.

UTFC:
The following shall be determined from the trial sections:

- Optimum screen settings.
- Permeability of the layer.
- Optimum rolling techniques to ensure optimum compaction without crushing the aggregate.
- Mix properties and fine tuning of laboratory- designed mixes to cater for sift factors.

- A precise recording of the process between laboratory and plant to be used for quality control."

B4213 CONSTRUCTION TOLERANCES AND FINISH REQUIREMENTS

(a) Construction tolerances

(i) Level and grade

Replace the entire clause as follows:

"The level tolerances referred to in clauses 8205 and 8305 shall be as follows:
H_{90} ……± 10mm
H_{max} ……± 15mm

Deviation from the specified longitudinal and transverse grade at the areas where the runway will be re-profiled, due to the deviations from the specified levels shall not exceed the values given below:

Length of variation in grade (m)	Maximum variation from specified grade (%)
3	0.167
5	0.164
10	0.158
20	0.112
30	0.091"

(iii) Thickness

Add as follows:

"The thickness tolerances referred to in clauses 8205 and 8305 for the UTFC layer shall be as follows:

D_{90} UTFC surfacing = 4 mm
D_{max} UTFC surfacing = 6 mm
D_{ave} UTFC surfacing = 2 mm

Thickness shall be determined cores drilled from the completed layer."

(iv) Cross section

Replace the entire clause as follows:

"When tested with a 3 m straight edge laid in any direction on the runway (excluding areas on the crown of the runway), the surface shall not deviate from the bottom of the straight-edge by more that 5 mm on the runway for the continuously graded mix including asphalt patches and 3mm for the UTFC."

(v) Surface regularity

Replace the heading: "Freeways" under sub-clauses (1) to (3) with "Runways and taxiways.

The specifications for "Other asphalt layers" shall apply to the UTFC surface. Change the maximum value (Item 3) from 4 mm to 3 mm for "Other asphalt".

Insert the following before the first paragraph:
Riding quality will be measured in terms of International Roughness Index (IRI) in mm/m, on either side of the centreline for each paving strip within 12 m from the centreline. Measurements will be done using the walking profilometer (or similar approved) at 220-300 mm intervals. The Engineer will indicate the exact position of the wheel tracks to be tested. The profiles measured will be evaluated for any running 100 m section in accordance with the parameters of Table B4214/1.

This may result in either:

- partial payments (value attained between those values indicated in Column A and B) or
- bonus payments (for values attained better/lower than the values indicated in Column C)
- or layer rejection (for values worse/higher than the values indicated in Column A).

Results between the values indicated in Column A and B shall be evaluated on a sliding scale between 80% and 100% payment for either of the values falling between those values indicated in Columns A and B (lowest payment percentage shall apply) and at 105% (maximum 2,5% bonus per criteria) for sections with values better than (lower than) those of Column C. Values attained between those indicated in Column B and C shall receive 100% payment. Should one value result in partial payment no bonus will be applicable and the partial payment factor will have preference.

TABLE B4214/1: RIDING QULAITY PAYMENT MULTIPLIERS

Parameters (per running 100m)	Max values (Final surfacing layer)		
	Column A	Column B	Column C
	Min. Value (80% Payment)	100% Payment	Add up to 2,5% Payment per criteria exceeded
Ave IRI	1.60	1.40	<1.20
90th Percentile Highest IRI	3.00	2.50	<2.00

Note: The Engineer may apply these criteria to shorter sections to prevent the rejection of relatively good sections appearing within an overall bad section. The Engineer may at his discretion relax these acceptance criteria in areas where the Contractor has complied with the requirements of B4207 and other applicable workmanship specifications stated in the standard Specifications.

Any acceptance of asphalt quality control will not be deemed to include for this clause until such testing has been complete and finalised with the Engineer.

Acceptance at partial payment, based on obtained riding quality for values in the Columns A to B range, is at the discretion of the Engineer (based on adherence to B4207 and all other applicable COLTO workmanship specifications). In areas where the Engineer can certify adherence to the criteria of B or C above, in the absence of available IRI test results, he may do so with permission of both the Employer and Contractor.

The rolling straight edge test in the Standard Specifications will still be applicable on the transverse construction / stop joints of all paved sections. The maximum irregularity measure with the wheels of the standard apparatus removed (only outer wheels at 3m spacing in place) shall be + or – 3 mm. Joints that do not satisfy these criteria shall be milled and reconstructed over a minimum "10 m in length "section."

The Contractor shall arrange for the IRI testing of all sections by a Laboratory approved by the Engineer, before the end of the Contract or when instructed within 21 days of such instruction. Costs for such testing of all relevant sections shall be deemed to be included in the rates of these wearing course layers; additional IRI testing as instructed by the Engineer shall be paid under the Laboratory Provisional Sum.

The Contractor is to supply surveyed levels of each layer (including the milled interface and the original surface) to the engineer at the centreline as well as at 4 m, 8 m, 12 m, 16 m, 20 m, 25 m and 29 m both sides of the centreline at 10 m intervals. These co-ordinated positions shall then be used for all subsequent surveyed layers.

Any corrective work required shall be made by the removal, through milling of the total asphalt layer width placed during a single pass of the paver over the 100m section in question, followed by reinstatement. The Contractor shall submit his method statement for any corrective work to the engineer for approval, prior to commencing with any corrective work. Corrective work shall be done at the Contractor's expense and shall be completed prior to determining pavement thickness. After completion of the corrective work, the 100m sections shall be re-evaluated according to the abovementioned procedure."

(g) Gradings

Replace Table 4213/1 with:

TABLE B4213/1: AGGREGATE GRADING TOLERANCES

Size of aggregate passing Sieve size (mm)	Permissible deviation from target grading (%)
28	± 5
20	± 5
14	± 5
10	± 5
7	± 5
5	± 4

Size of aggregate passing Sieve size (mm)	Permissible deviation from target grading (%)
2	± 4
1	± 4
0,600	± 4
0,300	± 3
0,150	± 2
0,075	± 1*

* When statistical methods are applied the permissible deviation for the 0,075 fraction is ± 2%.

(d) Binder content

Delete the words "clause 8206 or clause 8305" in the third line and Substitute with "clause 8305".

(f) Construction tolerance for overlays

Delete "except those of sub clause 4213(a)(iii) which relate to thickness "from this sub clause.

Add the following sub-clause:

"(f) Air-void tolerance
The actual air voids may not deviate by more than 1 percentage point from the air voids in the approved working mix, based on a Marshall compaction of the approved working mix.

(g) Segregation
Segregation of the mix will be visually assessed. The Engineer will indicate segregated areas to be removed and replaced. If required, the decision can be confirmed by measuring the voids in a core. The cost for the replacement of materials and the permeability test will be for the Contractor, irrespective of the result of the test."

B4214 QUALITY OF MATERIAL AND WORKMANSHIP

Add the following:

"Quality Control Scheme 1 given in Section 8200 will apply to the asphalt paved on this contract."

b) Coring of asphalt layers

Add the following:

"A suitable coring machine capable of cutting 100 mm and 150 mm cores from the completed asphalt layers shall be available on a daily basis when asphalt paving is taking place. Cores shall only be drilled, when the surfacing temperature is 20°C or less. Core holes shall be filled with hot mix asphalt and compacted, all within 24 hours of the core being drilled. Coring shall be carried out within 48 hours after the paving

has been completed and supplied to the Engineer. Core holes must immediately after coring be filled with hot asphalt and compacted. The test results of cores shall be submitted to the Engineer within 24 hours after coring."

c) Routine inspection and tests

Add the following paragraphs:

"The Contractor shall keep accurate records of:

(i) The position where every truckload of asphalt and UTFC is paved (chainage, lane, time and date).
(ii) The temperatures of the asphalt in the trucks both at the mixing plant and at the paving equipment immediately prior to discharging the load.
(iii) The truck and load number from which control samples are taken. All samples taken shall be appropriately numbered.

Test results and measurements will be assessed in accordance with the provisions of section 8200."

Add the following sub-clause:

d) Special tests

n-Heptane-Xylene Equivalent (Spot test) (AASHTO-T102)

If the Engineer suspects that bitumen or asphalt has been overheated, he may order that the bitumen, or the bitumen recovered from the asphalt, be subjected to the Spot Test. Recovery of binder for use in the Spot Test shall be carried out according to an approved method.

Any bitumen having an n-Heptane-Xylene equivalent in excess of 36, or in excess of the manufacturers test result on the dispatched stock, shall be considered to have been overheated and shall be deemed to be rejected unless proven otherwise."

B4215 MEASUREMENT AND PAYMENT

Amend the following payment items:

Item	**Unit**
B42.04 Tack coat	
a) 30% stable-grade emulsion	Litre (ℓ)
b) Stable grade modified with 3% SBR	Litre (ℓ)

Item	**Unit**
B42.07 Trial sections	
a) 25mm UTFC (A-R2, 14mm - UTFC spray paver)	square metre (m²)
b) Removal of the trial section under B42.07(a)	square metre (m²)

c) 40mm Surfacing (A-P1, 14mm, Sand skeletal mix) ……square metre (m²)
d) Removal of the trial section under B42.07(c)……..…….…. square metre (m²)

The unit of measurement for B42.21(a) and (c) shall be the square metre of UTFC and asphalt placed in an approved trial section constructed for each mix type specified. The tendered rate shall include for all costs associated with constructing the trial in order for the Engineer to assess the in-place properties of the layer prior to commencing with permanent works. Any additional trial sections required as a result of the final product not meeting all the specified requirements shall not be subject to additional payment.

The unit of measurement for B42.21(b) and (d) shall be the square metre of trial section removed to an approved site and the area reinstated as required."

Amend the following payment item:

Item		**Unit**
B42.08	**Cores in asphalt paving**	
(i)	100mm ……	number (no)
(ii)	150mm ……	number (no)

Amend the 1st sentence by adding the following after the word "drilled….":

"irrespective of depth of core."

Item		**Unit**
B42.11	**Asphalt constructed for rehabilitation purposes in accordance with the provisions of sub-sub-clause 4213(f)(ii) and 4213(f)(iii)**	
	(a) Base constructed with new asphalt:	
	(i) Stone skeletal mix - continuously graded as defined (A-P1 modified binder, design level II, NMPS 26.5 mm and placing technique - paver	ton (t)
	(b) Surfacing or overlay constructed with new asphalt:	
	(i) Sand skeletal mix - continuously graded as defined (40 mm layer thickness, A-P1 modified binder, design level II, NMPS 14 mm and placing technique - paver	ton (t)

Insert the following paragraphs after the 1st paragraph:

"The unit of measurement for subitem (a) shall be the ton of asphalt base placed in compacted layer thickness not exceeding 50mm and measured according to certified weighbridge tickets issued in respect of the mixture used.

The unit of measure for subitem (b) shall be the ton of asphalt overlay placed to the nominal thickness specified if placed in terms of 4213(f)(iii) and placed to the specified level if placed in terms of 4213(f)(ii) and measured according to certified weighbridge tickets issued in respect of the mixture used.

No payment shall be made for excess width and wastage of asphalt, and the mass of such excess or wasted material shall be deducted from the recorded delivery for payment purposes. For layers constructed in terms of clause 4213(f)(iii) no payment shall be made for asphalt in excess of the mean spread rate(s), which shall be determined as follows:

$S = \frac{1000}{AXB}$ m^2/ton where,

S = Mean spread rate in m^2/ton

A = Average bulk relative density achieved on the road in ton/m^3

B = (specified asphalt thickness in mm) + 5mm"

Add the following to the 3rd paragraph:

"The tendered rate shall also include full compensation for joint forming, temporary ramping of construction joints between paving operations when new work is opened to traffic (including ramping material), breaking up and disposal of temporary ramps and waste material, weighing the material on the specified weighbridge and cleaning the surface."

Add the following payment items:

"Item		**Unit**
B42.21	**Extra over all asphalt items for the use of net bitumen supplied by a refinery outside the Western Cape Province:**	

(a) 35/50 penetration grade net bitumen (% bitumen contained in product)…….. tonne (t)

The unit of measurement under this payment item shall be the tons of net bitumen contained within the asphalt mixture calculated as a % by mass of the asphalt mixture which was supplied from any area outside of the borders of the Western Cape Province.

The tendered rate under this pay item shall include all additional costs for supplying the specified grade of net bitumen for its intended use on site."

"Item		**Unit**
B42.22	**Asphalt mix designs**	

(a) Stone skeletal mixes:

(i) UTFC surfacing (A-R2 modified binder, NMPS 14mm)……Lump Sum (L Sum)
(ii) Continuously graded base (35/50 penetration binder, design level I B, NMPS 26.5mm)……..Lump Sum (L Sum)
(iii) Continuously graded base (A-P1 modified binder, design level II, NMPS 26.5mm)……..Lump Sum (L Sum)

(b) Sand skeletal mixes:

(i) Continuously graded surfacing (A-P1 modified binder, design level II, NMPS 14mm)……Lump Sum (L Sum)
(ii) SMA asphalt surfacing (A-P1 modified binder, design level II, NMPS 14mm)……Lump Sum (L Sum)

The unit of measurement shall be the Lump Sum for the design of each asphalt mix type specified. The design methodology, and or level of design, shall be as stated in the Contract Documentation. The rate tendered shall include for all costs associated with producing a laboratory as well as a plant mixed design, verified and accepted by the Engineer after completion of the trial section."

Item **Unit**

B42.24 Provision of asphalt cold mix in plastic bags.....ton(t)

The unit of measurement is the ton of material provided on site in bags. This material is for emergency use in milled out areas. The tendered rate shall include for the procuring, furnishing and storing on site of the material as instructed by the Engineer and properly covered against cold or wet weather to the approval of the Engineer.

Item **Unit**

B42.25 Establishment of UTFC pavers on site……Lump sum

The tendered lump sum shall include full compensation for the provision of at least two UTFC pavers on the site (one as back-up) for the duration of the contract as required in the specifications, moving on site and the subsequent removal thereof.

This work shall be paid for by way of a lump sum, 75% of which will become payable when all the equipment is on site and the first trial section has been completed. The remaining 25% will become payable after all the UTFC paving work has been completed and the equipment has been removed from the site.

Payment will not distinguish between the number of pavers provided on the site simultaneously or the number of times a paver is brought onto and/or removed from the site or as a replacement for defective plant. All paver movements required on site shall be included in the rate for this item.

Item **Unit**

B42.26 Establishment of asphalt pavers on site……Lump sum

The tendered lump sum shall include full compensation for the provision of at least two asphalt pavers on the site (one as back-up) for the duration of the contract as required in the specifications, moving on site and the subsequent removal thereof.

This work shall be paid for by way of a lump sum, 75% of which will become payable when all the equipment is on site and the first trial section has been completed. The remaining 25% will become payable after all the asphalt paving work has been completed and the equipment has been removed from the site.

Payment will not distinguish between the number of pavers provided on the site simultaneously or the number of times a paver is brought onto and/or removed from the site or as a replacement for defective plant. All paver movements required on site shall be included in the rate for this item.

Item **Unit**

B42.27 Ultra-thin asphalt surfacing (14 mm aggregate) course

(a) Construction of Ultrathin Friction Courses (UTFC) (25mm layer thickness, A-R2 modified binder, NMPS 14mm and placing technique – UTFC spray paver):.....square metre (m²)

The unit of measurement shall be the square metre of UTFC constructed to the required thickness. The tendered rate shall include full compensation for procuring, furnishing, heating, mixing, placing and compaction of all materials as well as control testing, protecting and maintaining the work as specified.

Item **Unit**

B42.28 Provision of Performance Guarantees in respect of UTFC …….. lump sum

The tendered rate shall include the provision of a Maintenance Manual / Procedure for the UTFC and two bank guarantees in respect of the UTFC, each of which shall be for an amount equal to 5% of the total value of payment item B42.27 as included in the schedule of quantities. The terms and conditions applicable to the release of the guarantees shall be as described under clause B9015. The first guarantee shall be valid for two years, and the second guarantee for three years, after the issuing of the Completion Certificate.

The tendered amounts shall become payable once the contractor has submitted, and the Employer has accepted the performance guarantees."

Add the following supplementary specifications:

"B4216 SUPPLEMENTARY SPECIFICATIONS

COLTO SERIES 9000: UTFC

SECTION B9000: ULTRA-THIN FRICTION COURSE (UTFC)

B9001 SCOPE

This section covers the specifications and work related to the construction of an Ultra Thin Friction Course (UTFC) surfacing in terms of performance criteria, and the provision of an extended warranty in the form of two guarantees, and includes, inter alia, field measurements, acceptance criteria, remedial work.

B9002 GENERAL

This specification supplements Section 4200: Asphalt Base and Surfacing of the COLTO Standard Specifications for Road and Bridge Works for State Road Authorities (1998 edition). In the event that any part of it is at variance with the Standard Specifications, these specifications shall apply.

The ultra-thin frictional course (UTFC) surfacing shall be Agrément certified as "Fit-for-Purpose" and will be required to provide the following functional performance properties:

(a) Improved functional properties such as skid-resistance and water drainage
(b) A levelling action and ride-quality improvement similar to those of a thin asphalt
(c) Reduced traffic noise
(d) No chip-loss or loose stone
(e) A hard-wearing riding surface
(f) Quick curing, able to be opened to traffic almost immediately
(g) Environmentally-friendly work, with no tack being carried off the section
(h) Improved exclusion of water from the substrate
(i) Improved adhesion to the lower layer

In support of any tender submitted, either as proposed in these contract documents or as an alternative, the tenderer shall comply with the following additional requirements:

1. Quality Assurance: UTFC
2. Performance Report: UTFC
3. Design Constraints for the proposed UTFC Products

B9003 EXTENDED WARRANTY REQUIREMENTS

The UTFC surfacing shall be constructed in terms of an extended warranty. The extended warranty, in the form of financial guarantees and in the format as prescribed by the Employer, shall be limited to the performance of the UTFC surfacing, including the tack coat, only. With the exception of de-bonding between the UTFC and the substrate, the contractor shall not be held liable for any failures of the UTFC that might occur as a result of failure within the underlying layers. During the Extended Warranty Period, the contractor shall also not be held liable for any damage to the UTFC surfacing resulting from "outside" sources, including, but not limited to:

(a) Traffic accidents
(b) Spillage of fuel, oils, hazardous materials, etc.
(c) Materials falling off vehicles
(d) Travelling of construction/tracked plant (other than his own) after completion of the Works.

Prior to the issuing of the Completion Certificate, the contractor shall provide two guarantees, each valued at 5% of the cost of the UTFC (as per final constructed quantities measured under Payment Item B42.27 of the schedule of quantities) for the performance of the UTFC surfacing layer. The guarantees shall be issued by a bank or other institution approved by the Employer and shall become effective on issue of the Completion Certificate. They shall remain valid until released in terms of Table B9003/1 and of Clause B9015 hereof.

The programme for the release of the guarantees shall be as follows:

TABLE B9003/1: PROGRAMME OF RELEASE OF GUARANTEES

Time	Activity
Completion of Works and issue of the Completion Certificate	Provision of two guarantees (5% & 5%) Payment of 50% of retention
Acceptable performance of Works one year after issuing of the Completion Certificate	Payment of balance of retention to be released upon issuing of Final Approval Certificate
Acceptable performance of UTFC two years after issuing of the Completion Certificate	Release of 1st guarantee (5%)
Acceptable performance of UTFC three years after issuing of the Completion Certificate	Release of 2nd guarantee (5%)

B9011 QUALITY OF MATERIALS AND WORKMANSHIP

The contractor shall be required to submit his detailed Quality Assurance Plan to the engineer for approval within ten (10) days of the date of the Letter of Acceptance. Once it has been approved, the contractor shall not deviate from it without prior written agreement with the engineer.

The onus rests with the contractor to produce work pertaining to the UTFC which conforms in quality to the Quality Assurance Plan, to the specifications and requirements herein.

The engineer shall, however, conduct such tests as he may deem applicable and shall retain all rights as determined in the GCC related to bad workmanship and to unacceptable materials. This shall also be applicable to the accepted UTFC surfacing (or design) and related specifications.

B9012 FUNCTIONAL PERFORMANCE ASSESSMENTS

The monitoring of the functional performance of the UTFC surfacing shall be by the visual assessment of functional performance parameters immediately after completion (prior to the issue of the Completion Certificate), and then by the visual assessments of the relevant parameters at the ends of years 1, 2 and 3 after the issuing of the Completion Certificate.

The Employer may, at his sole discretion, omit the assessment programme for the end of year 2 if, in his opinion, there is no evidence of any non-conformance to the specified criteria. The functional performance parameters to be assessed are listed in Table B9012/1 for visually assessed parameters.

TABLE B9012/1: FUNCTIONAL PERFORMANCE PARAMETERS FOR UTFC SURFACING

Visually-assessed parameters
1. Deformation (shoving)
2. Surface failure (de-bonding)
3. Surface cracking
4. Surface ravelling (aggregate loss)
5. Bleeding

B9013 VISUALLY-ASSESSED PROPERTIES

a) Definition

The detailed description and definition for the visually-assessed parameters shall be as specified in the latest revision of TMH9: "Pavement Management Systems: Standard Visual Assessment Manual for Flexible Pavements", issued by the Committee of Transport Officials (COTO).

b) Assessment methodology

The visual assessments of the pavement surfacing during the Extended Warranty Period shall be undertaken by means of a Visual-Assessment Panel comprising the following representatives:

- Employer - 2 representatives
- Contractor - 2 representatives
- Consulting Engineer or suitably qualified external assessor - 2 representatives

c) Assessment specification

The visual-assessment panel will quantify each occurrence of the visually-assessed parameters by rating the degree of distress according to the TMH 9 definitions and the extent as the linear length (in metres) affected in the direction of travel. Visual assessments must be done in accordance with the specification presented in Table B9013/1.

TABLE B9013/1: SPECIFICATION FOR VISUAL ASSESSMENT

Item	Specification
Frequency of Assessment	Immediately after completion, and then in years 1, 2 and 3 after the issuing of the Completion Certificate
Position of assessment	Each lane and shoulder (>2.0m) shall be individually assessed.
Segment lengths	Production length per shift
Degree	As defined in TMH 9.
Extent	The actual length affected

d) Data processing and reports

For each of the visually-assessed parameters the Combined Index Value will be calculated for every segment of each lane. The Combined Index Value (CIV) for each visually-assessed parameter will be processed as follows:

$$Combined\ \ Index\, Value\,(CIV) \quad = \quad \sum_{Degree=1}^{5} Degree \times \frac{\left(Length_{Degree}\right)}{10}$$

$$= \quad \left(1 \times \frac{Length_1}{10}\right) + \left(2 \times \frac{Length_2}{10}\right) + \left(3 \times \frac{Length_3}{10}\right) + \left(4 \times \frac{Length_4}{10}\right) + \left(5 \times \frac{Length_5}{10}\right)$$

Where $Length_1$ = Total linear length (in metres) of degree 1 distress over the production segment length, etc.

The processed results shall be used to produce results in the format specified in Table B9013/2.

TABLE B9013/2: SPECIFICATION FOR OUTPUT OF VISUAL ASSESSMENTS

Item	Specification
Unit	Combined Index Value (CIV)
Segment lengths	Production length per shift
Segment width	Constructed width
Statistical summary	Produce Combined Index Value (CIV) for each lane

Reporting, which shall be the responsibility of the Contractor, shall consist of the following:

- Completion and copying of report forms.
- Compiling of report on findings as well as remedial measures required.

The abovementioned requirements shall be completed and delivered in triplicate to the office of the Employer within one calendar month of the inspection date.

e) Acceptance criteria

The visually-assessed parameters as well as the calculated Combined Index Value shall meet the Acceptance Criteria listed in Tables B9013/3 for the applicable year of survey.

TABLE B9013/3: ACCEPTANCE CRITERIA FOR VISUALLY-ASSESSED DISTRESS ON UTFC SURFACING

Type of Distress	Time [1] (Years)	Maximum Allowable	
		Degree[2]	CIV[3]
Deformation (shoving) of asphalt	1	1	0.0
	2	2	0.2
	3	2	0.3
Surface failure (de-bonding)	1	1	0.0
	2	2	0.1
	3	2	0.2
Surface cracking	1	1	1.0
	2	2	2.0
	3	2	3.0
Surface ravelling	1	1	0.0
	2	2	1.0
	3	3	3.0
Bleeding	1	1	0.0
	2	2	1.0
	3	2	3.0

Notes:
1. Time in years after the issuing of the Completion Certificate.

2. The degree of a visually-assessed parameter as specified in TMH 9 "Pavement Management System: Standard Visual Assessment Manual for Flexible Pavements", issued by the Committee of Transport Officials (COTO).
3. Combined Index Value (CIV) per segment length of lane or shoulder (>2.0m).

B9015 EVALUATION FOR ACCEPTANCE BY ENGINEER

The following procedures shall be followed by the engineer to determine the acceptance of the UTFC surfacing or to determine whether remedial work is required on it. These procedures shall be followed as appropriate after each of the assessments.

a) Assessment on completion of the works

An assessment shall be done on completion of the Works and the contractor shall repair all defects before a Completion Certificate will be issued. The Completion Certificate shall also only be issued after the contractor has provided the performance guarantees for the UTFC layer for the three-year Extended Warranty Period, as detailed in Clauses B9001 and B9003.

The first 50% of the Retention Money will be released subject to the further requirements of the Contract.

b) Assessment one year after issuing of the Completion Certificate, i.e. at the end of the Defects Liability Period

Should all parameters meet the full Acceptance Criteria, the engineer shall issue a report to the Employer and notify the contractor accordingly. The balance of the Retention Money will be released subject to the further requirements of Contract.

Should the full Acceptance Criteria not be met, the engineer shall advise the contractor of such defects as may be evident and may, in consultation with the Employer, either:

(i) Instruct the contractor to undertake immediate remedial work.

(ii) Grant a concession to allow the remedial work to be held in abeyance until further notices are issued by the engineer.

(iii) Notwithstanding the concessions that may be granted under (ii) above, the contractor may elect to attend to and defects immediately.

c) Assessment at the end of year two (2) after the issuing of the Completion Certificate

Should all parameters meet the full Acceptance Criteria two years after the issuing of the Completion Certificate, the Engineer shall issue a report to the Employer and notify the contractor accordingly and the first of the two extended Warranty Guarantees shall be released to the contractor.

The engineer shall advise the contractor of such defects as may be evident and may, in consultation with the Employer, either:

(i) Instruct the contractor to undertake immediate remedial work in accordance with Clauses B9016, B9017 and B9018.

(ii) Grant a concession to allow the remedial work to be held in abeyance until further notices are issued by the engineer. In the event of such a concession being granted, the first of the two extended Warranty Guarantees shall not be released to the contractor.

(iii) Notwithstanding the concessions that may be granted under (ii) above, the contractor may elect to attend to any defects immediately, in accordance with Clauses B9016, B9017 and B9018. Upon satisfactory completion of such remedial work and acceptance by the engineer and the Employer, the first of the two extended Warranty Guarantees shall be released to the contractor.

d) Assessment at the end of year three (3) after the issuing of the Completion Certificate

Should all parameters meet the full Acceptance Criteria three years after the issuing of the Completion Certificate, the engineer shall issue a report to the Employer and notify the contractor accordingly and the second of the two extended Warranty Guarantees shall be released to the contractor. The Contract shall then be complete and the contractor shall then have no further liability for the performance of the works, except for unfulfilled obligations as provided for under the General Conditions of Contract.

Should the full Acceptance Criteria not be met, the engineer shall advise the contractor of such defects as may be evident and may, in consultation with the Employer, either:

(i) Instruct the contractor to undertake remedial work in accordance with Clauses B9016, B9017 and B9018.

(ii) Establish a fair valuation of the costs or damages that may be incurred due to the defective work and request payment of such amounts from the contractor. Once such payments have been received the second of the two extended Warranty Guarantees shall be released to the Contractor.

(iii) The contractor may elect to undertake all outstanding remedial work, which shall be undertaken in accordance with Clauses B9016, B9017 and B9018. Upon satisfactory completion of such remedial work and acceptance by the engineer and the Employer, the second of the two extended Warranty Guarantees shall be released to the contractor

Once the conditions stated under either (i), (ii) or (iii) above have been met, the Contract shall be complete and the contractor shall then have no further liability for the performance of the Works, except for unfulfilled obligations as provided for under the General Conditions of Contract.

e) Assessment at any time during the Extended Warranty Period

The Employer or the engineer shall be entitled to carry out an assessment of the work at any time during the Extended Warranty Period. Should any parameter/s fall into

the remedial-work-required category, the Employer or his agent shall inform the contractor who shall immediately propose a solution to rectify the problem/s and obtain the Employer's or his agent's approval and rectify the problem/s in accordance with Clauses B9016, B9017 and B9018.

B9016 PROCEDURES TO BE ADOPTED IN THE EVENT OF FAILURE

Where distress has occurred in excess of the permissible or maximum specified limits relating to the performance of the pavement surfacing, the contractor shall, at his own cost and in terms of the Contract, rectify all segments in which such defect/s occur which exceed the permissible or maximum criteria listed in Table B9013/3 hereof.

The engineer's approval shall be obtained prior to the contractor's carrying out any remedial work. Notwithstanding the approval by the engineer of the remedial work, the contractor shall remain fully liable for the performance of his proposed remedial action/s measured in terms of the specified performance parameters.

In the event of the contractor's failing to undertake the required steps to rectify/reinstate any defects to conform with the specified requirements, the Employer reserves the right to withhold payment of any monies which are payable to the contractor or which may become payable to him under the Contract.

B9017 NOTIFICATION OF REMEDIAL WORK

The Employer or his agent shall notify the contractor in writing of any remedial work or repairs required to the surfacing in terms of this section of the specifications. Such notification shall take place at any time during the Extended Warranty Period, but at least after years 2 and 3. A programme of work must be submitted for approval to the Employer or his agent within fourteen (14) days of the date of such notification.

The contractor shall commence with the remedial work within fourteen (14) days from the date on which the site is handed to him by an order in writing from the engineer.

B9018 REMEDIAL WORK

All remedial work or repairs to the surfacing shall comply with the following requirements:

(a) The contractor shall, at his own cost, supply, erect and maintain the necessary temporary traffic-control signs in accordance with the requirements in Section 1500 of the Project Specifications and the drawings.

(b) The contractor shall, also at his own cost, repair/reinstate such items as road studs, road marking, etc., should these be damaged or influenced by the required remedial work.

(c) The various types of remedial work contained in Table B9018/1, depending on the degree of distress, shall be undertaken by the contractor, at his own cost, to reinstate/rectify specified defects in the pavement surfacing during the Extended Warranty Period.

(d) The contractor shall only be allowed occupation of the site for routine and/or programmed maintenance activities during the Extended Warranty Period after the end of year 2.

Final acceptance shall only be given upon completion of all remedial works to the satisfaction of the Employer and the Engineer.

TABLE B9018/1: REMEDIAL WORK FOR UTFC SURFACING

Type of Distress	Acceptance Criteria	Minimum Remedial Measures
Deformation (shoving) of asphalt	Requirements in Table B9013/3 not met	Mill out full depth of defective surfacing and repave surfacing
Surface Failure	Requirements in Table B9013/3 not met	Mill out full depth of defective surfacing and repave surfacing
Surface Cracking	Requirements in Table B9013/3 not met	Crack seal or mill out full depth of defective surfacing and repave surfacing
Surface Ravelling	Requirements in Table B9013/3 not met	Repair with UTFC surfacing or mill out full depth of defective surfacing and repave surfacing
Bleeding	Requirements in Table B9013/3 not met	Mill out full depth of defective surfacing and repave surfacing

AIRPORTS COMPANY SOUTH AFRICA
TENDER NO. CTIA7333/2023/RFP

REHABILITATION OF RUNWAY 01/19 AND REHABILITATION OF THE AIRSIDE APRON TAXI LANE AT CAPE TOWN INTERNATIONAL AIRPORT

SERIES 5000: ANCILLARY ROADWORKS

SECTION B5700: ROAD MARKINGS

B5701 Scope

Replace "South African Road Traffic Signs Manual" in the second paragraph with:
"SADC Road Traffic Signs Manual"

B5702 MATERIALS

Insert the following before subclause (a) Paint:

"The selection of the appropriate road marking paint and materials for permanent road markings to ensure conformance with the requirements of this specification rests with the Contractor. Such paint and material shall have technical characteristics (brightness, luminance, skid resistance, durability) equal to or greater than road marking paint and materials specified in subclauses 5702(a), (b) and B5702(c)."

Replace sub-subclause B5702(a)(i) with the following:

"(i) Road marking paint

Road marking paint shall be Type 2 as specified in SANS 731-2. Only paint, manufactured in a SANS approved and accredited facility shall be accepted. The no-pick-up time of road-marking paint shall comply with the Class 2 requirement in accordance with SANS 731-2.

The paint shall be delivered at the site in sealed containers marked in accordance with SANS 731-2.

The viscosity of the paint shall be such that it can be applied without being thinned down."

Add the following sub-item:

B5704 MECHANICAL EQUIPMENT FOR PAINTING

Add the following sentence at the end of the first paragraph:

"The road-marking machine shall be fitted with a device to guide the operator to the centre of the line to be painted. This device shall be used at all times of operation."

B5705 SURFACE PREPARATION

Add the following at the end of the second paragraph:

"The onus is on the Contractor to ensure that the surface on which the road markings are to be applied is sufficiently clean and dry to ensure that the quality of the road markings will not be adversely affected."

B5706 SETTING OUT THE ROAD MARKINGS

Insert the following before the first paragraph:

"Where road markings are to be replaced after any construction activity, it is essential that all existing road marking be accurately surveyed and referenced before commencement of such construction activities which will obliterate the existing road markings."

B5707 APPLYING THE PAINT

Add the following:

"Where the runway or taxiway is to be re-opened to traffic after shifts, the Contractor will be required to apply all necessary paint markings at completion of each such shift within a designated area. The paint shall be non-reflectorised and applied strictly in accordance with the manufacturer's instructions. The paint shall be normal road marking paint complying with SABS 731-2. Water-based paints will be used for all temporary and permanent paint markings. At the start of the project, the Contractor will supply samples of the paint he intends to use and apply trial sections to the satisfaction of the Engineer."

B5714 MEASUREMENT AND PAYMENT

Add the following sub-item to 57.01:

"**Item** **Unit**

h) White solid (threshold, TDZ and aiming marks).....square meter (m^2)"

Add the following new pay items:

B57.10 Setting out and pre-marking for temporary road-marking paint.....kilometre (km)

The unit of measurement for the Setting out and Pre-marking of Temporary Road-marking paint shall be a kilometre of line as for Item 57.06. The tendered rate shall include for the same compensation requirements."

Item **Unit**

B57.11 Temporary Road-marking paint at half the normal application rate

(a) White lines (broken or unbroken)
(i) 900 mm wide .....kilometre (km)

(b) White lettering and symbols.....square meter (m^2)

(c) White solid (threshold, TDZ and aiming marks).....square meter (m^2)"

The unit of measurement for the white lines in the application of Temporary Road-marking paint shall be a kilometre of each specified width of line as for Item 57.01.

The unit of measurement for the white lettering and symbols in the application of Temporary Road-marking paint shall be the square metre as for Item 57.01.

The tendered rate shall include for the same compensation requirements, but the paint shall be applied at half the normal application rate specified in Clause 5707."

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SECTION B5900: FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS

B5904 MEASUREMENT AND PAYMENT

Add the following new sub pay items under B59.01:

(c) Runway after each shift.....Number (No.)
(d) Taxi-lane after each shift.....Number (No.)

Add the following after the last paragraph:

The unit of measurement for sub-items (c) and (d) shall be number measured for as each shift of work undertaken.

The tendered rate shall include full compensation for the clearing, trimming, disposing of material, tidying and all other works to be done for finishing off the runway and taxi-lane as specified."

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SECTION 8100: TESTING MATERIALS AND WORKMANSHIP

B8102 TESTING METHODS

Insert the following:

"(g) South African National Standards, series SANS 3001 published by the South African Bureau of Standards" and renumber the following subsections accordingly.

B8108 DETERMINING THE TOTAL APPROXIMATE DRY BULK RELATIVE DENSITY AND THE APPARENT RELATIVE DENSITY

(a) Total approximate dry bulk relative density

- Amend the second paragraph to read:

  "The sample is divided up into + 4,75mm and – 4,75mm fractions

  (iii) Method
- Amend the second paragraph under (2) -4,75mm fraction to read:

  "Soak the sample for 24 hours +- 4 hours."

  (iv) Calculations
- Replace the fifth paragraph under (2) -4,75mm fraction from:

  "Dry bulk relative density – fines (25 ˚C)" with "Dry bulk relative density (25 ˚C)"

- Amend "Calculate the dry bulk relative density of the total sample less the -0,075mm fraction from the following formula" to read:

  "Calculate the dry bulk relative density of the total sample, from the following formula:"

B8117MEASUREMENT AND PAYMENT

Add the following payment items:

"Item **Unit**

B81.04 Payment of independent site laboratory for acceptance control testing

a) Direct payment by Contractor ……..……..……Prov Sum
b) Contractor's charges in respect of sub item B81.04(a) above……..…. Percentage (%)

The Contractor shall pay the appointed site laboratory monthly for the amount as certified by the Engineer.

The charge or mark-up tendered or allowed for is a percentage of the amount actually paid under the prime cost item. The percentage shall cover all the Contractors' sourcing,

handling, profit, and payment of the service provider in providing the services. The Contractor shall forfeit his mark-up when the service provider is not paid in time."

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SECTION 8200: QUALITY CONTROL (SCHEME 1)

B 8201 SCOPE

Add the following paragraph:

"Quality Control Scheme 1, Judgement Plan B as specified in section 8200 shall apply to this contract.".

B8204 GENERAL REQUIREMENTS

(d) Outliers

Method 2 shall apply to this contract using the critical values for the different value of n from the following added tables for the different product properties.

Table B8204(d)/4

Critical C-values for the outlier test for asphalt layers ($C_{0,99}$(N) – sigma values)										
N	**Density**	**Sieve Size, mm**							**Bitumen**	**VIMS**
		26,5	**19,0**	**13,2**	**4,75**	**2,36**	**0,300**	**0,075**		
3	2,9	5,6	6,7	7,6	7,8	7,2	6,2	2,3	0,4	2,1
4	3,2	6,1	7,3	8,6	8,5	7,9	6,8	2,5	0,4	2,3
5	3,3	6,4	7,7	9,0	9,0	8,4	7,2	2,6	0,5	2,4
6	3,5	6,7	8,0	9,4	9,4	8,7	7,5	2,7	0,5	2,5
7	3,6	6,9	8,3	9,7	9,7	9,0	7,7	2,8	0,5	2,6
8	3,7	7,1	8,5	9,9	9,9	9,2	7,9	2,9	0,5	2,7
9	3,7	7,2	8,8	10,1	10,1	9,4	8,1	3,0	0,5	2,7
≥10	3,8	7,3	8,7	10,2	10,2	9,4	8,1	3,0	0,5	2,8

Table B8204(d)/5

Critical C-values for the outlier test for surfacing aggregate ($C_{0,99}$(N) – sigma values)									
N	**Sieve Size, mm (TMH1/SANS 3001)**								
	26,5/28	**19,0/20**	**13,2/14**	**9,5/10**	**6,7/7,1**	**4,75/5**	**2,36/2**	**0,425**	**0,075**
3	2,1	2,0	2,0	1,8	2,4	1,8	2,3	1,8	0,9
4	2,3	2,2	2,2	2,0	3,2	2,0	2,5	2,0	1,0
5	2,4	2,3	2,3	2,1	4,0	2,1	2,6	2,1	1,1
6	2,5	2,4	2,4	2,2	4,6	2,2	2,7	2,2	1,1
7	2,6	2,5	2,5	2,2	5,6	2,2	2,8	2,2	1,2
8	2,7	2,6	2,5	2,3	6,4	2,3	2,9	2,3	1,2
9	2,7	2,6	2,5	2,3	7,2	2,3	2,9	2,3	1,2
≥10	2,7	2,6	2,5	2,3	8,0	2,3	3,0	2,3	1,2

*Imperial sieve size (26.5mm,19mm,13,2mm,4,75mm and 2,36mm) may be used since the outcome of the test will not be affected and they comply with SANS 3310-1 and SANS 3310-2.

B8206 JUDGEMENT PLAN B

- Replace table 8206/1 with the following table in controlling the characteristic properties in accordance with this judgement scheme.

Table B8206/1

Structure	**Characteristics, Properties**
Gravel pavement layers	Relative compaction
Crushed stone base or subbase	Relative compaction
Asphalt base and surfacing	Relative compaction Binder content of mix Voids in mix (VIM) Grading
Chemically stabilised layers	Relative compaction
	Stabiliser agent content by UCS determinations Unconfined Compressive Strength
Concrete	Compressive Strength

(a) Taking samples and testing the properties

- Add the following to the first paragraph of this clause:

"A valid concrete compressive strength test result, the sample size (n), is the average of 3 test specimens (concrete cubes) from a single batch of concrete tested at the same age."

(d) Determining the judgement limits

(iii) Values of constants

- Replace table 8206/3 with the following table:

Table 8206/3

VALUES OF CONSTANTS n, L_S, L'_S AND Ø					
Material	**Properties**	**Minimum Sample Size n**	**L_S (Lower Specification limit)**	**L'_S (Upper Specification limit)**	**Ø**
Asphalt base or surfacing	Relative compaction Binder content Voids in mix (VIM)	6	See note 1		15

	Gradings		See table 4213/1	20 sieves 26,5-13,2 10 sieves 13,2-0,075

Notes (Table 8206/3)

Replace note 1(a) with the following:

"(a) Density Ls=93% of theoretical relative maximum density for all base and wearing course layers (Rice's density, see also clause B4210)."

To note 1(b) add "Non-homogeneous modified binders" *to the first sentence and delete the third to fifth paragraphs from the sentence* "For gap graded mixes, slurry seals and non-homogeneous modified binders"

Change this specification to read:
Binder variations to be 0.2% (by mass) for all mixes.

Replace note 1(c) with the following
"Voids Ls = specified values – 1 percentage points
L's = specified values + 1 percentage points"

B8208 CONDITIONAL ACCEPTANCE

(a) General

- Amend the first paragraph to read:

"Any lot which does not comply with the requirements for acceptance judgement plan B may be conditionally accepted should the value of the sample mean lie within the rejection limits given in clause 8211."

(c) Criteria for conditional acceptance

- Replace the last paragraph with the following:

"The rejection limits for this contract shall be determined in accordance with statistical criteria as provided for in clause 8211: Determination of Rejection Limits in accordance with statistical criteria."

B8209 PROCESS CONTROL BY THE CONTRACTOR

- Add the following to the first paragraph:

"As part of the Contractor's quality control system, the Contractor shall carry out the minimum number of testing as stated in Table 8209/1 and submit the results to the Engineer when completing the Engineer's form: Request for Approval of Work. The stated requirements may be replaced by alternative proven and approved requirements in the event of a manufacturing plant being accredited in terms of SABS 0157."

Table 8209/1

PROCESS CONTROL			
SECTION	**ITEM**	**PROPERTIES TO CONTROL**	**TESTING FREQUENCY (Min no per lot)**
4200	Asphalt base, surfacing -aggregate	-Strength, durability, shape, Atterberg limits, deleterious mat.	-1 per 2000 m³ in stockpile
		-Aggregate grading	-1 per 400 m³ in stockpile
		-Grading and binder	-1 per 100 t (min. 6 per day)
	-mix	-Marshall	-2 per day
		-Batching temperature	-1 per batch
		-Binder storage temp.	-1 per day

B8210 ROUTINE TESTS AND INSPECTION BY THE ENGINEER

- Amend the last sentence of the first paragraph to read:

"The testing frequencies and sample lot sizes for quality control testing shall be in accordance with Table 8210/1"

Table 8210/1

ROUTINE TESTS AND INSPECTIONS BY THE ENGINEER		
PAVEMENT LAYER	**PROPERTIES TO BE TESTED**	**SAMPLE PER LOT SIZE**
Asphalt base and surfacing	Relative compaction Binder content Grading VIM MTRD (Rice Density) BRD Stability and flow	>6 depending on lot size
UTFC (additional testing over and above testing for asphalt)	Cantabro test Schellenberg Drainage @ 70°C	1 depending on lot size

*A minimum of 4 tests per lot can be allowed for unforeseen circumstances but shall be determined at the Engineer's discretion.

**Confined area (lots) due to their size and nature are normally subjected to lesser testing than that which is prescribed, which can be allowed for as long as the quality of the material tested can be established for acceptance control purposes.

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PART C: PROJECT ELECTRICAL SPECIFICATIONS

Refer to the draft Electrical Specifications included in Section C4, Annexure A.

Note that these specifications will be updated and finalised by the Contractor's appointed Professional Electrical Engineer during the Mobilization Period of the Contract.

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C3.5 ACSA SPECIFICATIONS

The Specifications herein are Specifications prepared by the employer applicable to this contract.

Five Specifications are included as follows:

C3.5.1 Occupation Health and Safety Specifications
C3.5.2 Manual of Procedure for Working Airside – Cape Town International Airport
C3.5.3 ACSA Construction Environmental Management Plan
C3.5.4 Requirements of Government's Programme for Broad-based Black Employment
C3.5.5 Requirements for the CIDB Build Programme

C3.5.1 OCCUPATIONAL HEALTH AND SAFETY SPECIFICATIONS

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1. DEFINITIONS

The definitions as listed in the OHS Act and Construction Regulations 84 of 7 February 2014 shall apply. Therefore, all references to the old Construction Regulations will change to the new Construction Regulations.

Client: means any person for whom construction work is being performed.
Principal Contractor: means an employer appointed by the client to perform construction work
Contractor: means an employer who performs construction work;
Construction work: means any work in connection with,

- the construction, erection, alteration, renovation, repair, demolition or dismantling of or addition to a building or any similar structure; or
- the construction, erection, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer or water reticulation system; or the moving of earth, clearing of land, the making of excavation, piling, or any similar civil engineering structure or type of work;

Construction Work Permit means a document issued in terms of regulation 3;

Competent person: means a person who,

a) has in respect of the work or task to be performed the required knowledge, training and experience and, where applicable, qualifications, specific to that work or task: Provided that where appropriate qualifications and training are registered in terms of the provisions of the National Qualification Framework Act, 2000 (Act No.67 of 2000), those qualifications and that training must be regarded as the required qualifications and training; and
b) is familiar with the Act and with the applicable regulations made under the Act;

Designer: means

(a) competent person who

i.) prepares a design;
ii.) checks and approves a design; or
iii.) arranges for any person at work under his or her control to prepare a design
iv.) including an employee of that person where he/she is the employer or
v.) designs temporary work, including its components,

(b) an architect or engineer contributing to, or having overall responsibility for a design;

(c) a building services engineer designing details for fixed plant;

(d) a surveyor specifying articles or drawing up specifications;

(e) A Contractor carrying out design work as part of a design and building project; or

(f) an interior designer, shop-fitter or landscape architect;

Fall prevention equipment: means equipment used to prevent persons from falling from a fall risk position, including personal equipment, a body harness, lanyards, lifelines or physical equipment such as guardrails, screens, barricades, anchorages or similar equipment;

Fall arrest equipment: means equipment used to arrest a person in a fall, including personal equipment such as body harness, lanyards, deceleration devices, lifelines or similar equipment.

Hazard: means a source of or exposure to danger

Hazard identification: means the identification and documenting of existing or expected hazards to the
health and safety of persons, which are normally associated with the type of construction work being executed or to be executed

Risk assessment: means the process contemplated in paragraph10 of the specifications.

Excavation work: means the making of any man-made cavity, trench, pit or depression formed by cutting, digging or scooping;

Ergonomics: means the application of scientific information concerning humans to the design of objects, systems and the environment for human use in order to optimize human well-being and overall system performance;

2. CONSTRUCTION WORK PERMIT
(Construction Regulation 3)

A client who intends to have construction work carried out, must at least 30 days before that work is to be carried out apply to the provincial director in writing for a construction work permit to perform construction work on projects that will –
1. exceed 365 days and will involve more than 3600 person days of construction work; or
2. the tender value limit is grade 7, 8 or 9 of the Construction Industry Development Board (CIDB) grading.

Grade 7 = R60 000 000
Grade 8 = R 200 000 000
Grade 9 = No limit

A client may appoint a Construction Health and Safety Agent or Construction Health and Safety Manager to apply for this permit from the Provincial Director and construction work may not commence until the permit has been issued by the Provincial Director.

A copy of this permit will be required to be kept in the principal contractor's safety file, and the site specific number issued by the Provincial Director must be displayed at the site entrance.

A client may appoint a Construction Health and Safety Agent, or Construction Health and Safety Manager based on the scope and risk profile of construction work to represent him/her on matters of health and safety. Provided that, where the question arises as to whether a Construction Health Safety Agent or a Construction Health and Safety Manager is necessary, the decision of an inspector is decisive
The following minimum documentation will be required during the permit application process:

- *Principal Contractor's Health and Safety Plan CR 5(1)(m)*
- *Baseline Risk Assessment CR 5(1)(a)*
- *Appointed Principal Contractor's Letter for Good Standing as per CR 5(1)(j)*
- *Issue Register signed by Designer CR 5 (1)(c)*
- *Issue Register signed by Principal Contractor*
- *Declaration signed by Designer CR 5(1)(d) and CV*

- *Principal Contractor made adequate provision for the cost of health and safety measures (Bill of Quantities) CR 5(1)(g)*
- *Proof of Principal Contractor's competency and resources to carry out the construction work safely CR 5(1)(h)*
- *Appointment Letter for Construction Manager, CV, Certificates and List of projects*
- *Appointment Letter of Safety Officer & Safety Officer's Registration for SACPCMP*
- *Principal Contractor's Appointment Letter CR 5(1)(k), Company Profile and CIDB grading*

After approval of the Construction Work Permit any changes made to the appointed persons on the annexure 1 must be submitted to Department of Labour for approval before the appointed persons are allowed to commence with their tasks.

PLEASE NOTE THAT THE CONSTRUCTION MANAGER (8(1)) NAMED ON THE CONSTRUCTION WORK PERMIT MUST BE THE SAME PERSON THAT ACTS AS THE CONSTRUCTION MANAGER ON SITE. IF THIS WILL NOT BE THE CASE FOR SOME REASON THEN THE SAFETY AGENT MUST BE NOTIFIED OF THE CHANGE BY THE PRINCIPAL CONTRACTOR AT LEAST 7 DAYS BEFORE THE CHANGE IS MADE SO THAT THE SAFETY AGENT CAN AMEND THE CONSTRUCTION WORK PERMIT APPLICATION AND ADVISE THE DEPARTMENT OF EMPLOYMENT AND LABOUR ACCORDINGLY.

3. DUTIES OF THE PRINCIPAL CONTRACTOR AND CONTRACTOR
(Construction Regulation 7)

The Principal Contractor must:

(a) Provide and demonstrate to the client a suitable, sufficiently documented and coherent site specific health and safety plan, based on the client's documented health and safety specifications. The plan must be applied from the date of commencement of and for the duration of the construction work and which must be reviewed and updated by the Principal Contractor as work progresses;

(b) Open and keep on site a health and safety file, which must include all documentation required in terms of the Act and this specification, which must be made available on request to an inspector, the client, the client's agent or Contractor; and

(c) On appointing any other Contractor, in order to ensure compliance with the provisions of the Act—

i.) Provide contractors who are tendering to perform construction work for the Principal Contractor, with the relevant sections of the health and safety specifications pertaining to the construction work which has to be performed;
ii.) Ensure that potential contractors submitting tenders have made sufficient provision for health and safety measures during the construction process;
iii.) Ensure that no contractor is appointed to perform construction work unless the Principal Contractor is reasonably satisfied that the contractor that he/she intends to appoint, has the necessary competencies and resources to perform the construction work safely;
iv.) Ensure prior to work commencing on the site that every contractor is registered and in good standing with the compensation fund or with a licensed compensation insurer as contemplated in the Compensation for Occupational Injuries and Diseases Act, 1993;
v.) Appoint each contractor in writing for the part of the project on the construction site;

vi.) Take reasonable steps to ensure that each contractor's health and safety plan is implemented and maintained on the construction site;

vii.) Ensure that the periodic site audits and document verification are conducted at intervals mutually agreed upon between the Contractor and Principal Contractor, but at least once every 30 days;

viii.) Stop any contractor from executing construction work which is not in accordance with the client's health and safety specifications and the Principal Contractor's health and safety plan or which poses a threat to the health and safety of persons;

ix.) Where changes are brought about to the design and construction, make available sufficient health and safety information and appropriate resources to the contractor to execute the work safely; and

x.) Discuss and negotiate with the contractor the contents of the health and safety plan and must thereafter finally approve that plan for implementation;

(d) Ensure that a copy of his or her health and safety plan, as well as the contractor's health and safety plan is available on request to an employee, an Inspector, a Contractor, the Client or the Client's Agent;

(e) Hand over a consolidated health and safety file to the client upon completion of the construction work and must, in addition to the documentation include a record of all drawings, designs, materials used and other similar information concerning the completed structure;

(f) In addition to the documentation required in the health and safety file, include and make available a comprehensive and updated list of all the Contractors on site accountable to the Principal Contractor, the agreements between the parties and the type of work being done; and

(g) Ensure that all his or her employees have a valid medical certificate of fitness specific to the construction work to be performed and issued by an occupational health practitioner in the form of Annexure 3.

The Principal Contractor must take reasonable steps to ensure co-operation between all contractors appointed by the Principal Contractor to enable each of those contractors to comply with this specification.

No contractor may allow or permit any employee or visitor to enter the site, unless that employee or visitor has undergone health and safety induction training pertaining to the hazards prevalent on the site at the time of entry and must ensure all have the necessary personal protective equipment.

The Contractor must prior to performing any construction work:

(a) Provide and demonstrate to the Principal Contractor a suitable and sufficiently documented health and safety plan, based on the relevant sections of the client's health and safety specification. The aforementioned plan must be applied from the date of commencement of and for the duration of the construction work and which must be reviewed and updated by the contractor as work progresses;

(b) Open and keep on site a health and safety file, which must include all documentation required in terms of the Act and this specification, and which must be made available on request to an Inspector, the Client, the Client's Agent or the Principal Contractor;

(c) Before appointing another contractor to perform construction work, be reasonably satisfied that the contractor that he/she intends to appoint has the necessary competencies and resources to perform the construction work safely;

(d) Co-operate with the Principal Contractor as far as is necessary ensuring all comply with the provisions of the Act; and

(e) As far as is reasonably practicable, promptly provide the contractor with any information which might affect the health and safety of any person at work carrying out construction work on the site, any person who might be affected by the work of such a person at work, or which might justify a review of the health and safety plan.

Where the contractor appoints another contractor to perform construction work, the duties determined in **section 5** of this document applies to the contractor as if he/she were the Principal Contractor.

A Contractor must at all times keep records of the health and safety induction training and such records must be made available on request to an inspector, the client, the client's agent or the principal contractor.

A Contractor must ensure that all his or her employees have a valid medical certificate of fitness specific to the construction work to be performed and issued by an occupational health practitioner in the form of Annexure 3.

4. MANAGEMENT AND SUPERVISION OF CONSTRUCTION WORK

(Construction Regulation 8)

The Principal Contractor must in writing appoint one full-time competent person as the Construction Manager with the duty of managing all the construction work on a single site, including the duty of ensuring Occupational Health and Safety compliance, and in the absence of the Construction Manager an alternate must be appointed by the Principal Contractor.

The Principal Contractor must upon having considered the size of the project, in writing appoint one or more assistant Construction Managers for different sections thereof: Provided that the designation of any such person does not relieve the Construction Manager of any personal accountability for failing in his or her management duties in terms of this regulation.

No Construction Manager appointed under paragraph 6 above may manage any construction work on or in any construction site other than the site in respect of which he/she has been appointed.

A Contractor must, after consultation with the client and having considered the size of the project, the degree of danger likely to be encountered or the accumulation of hazards or risks on the site, appoint a full-time or part-time construction health and safety officer in writing to assist in the control of all health and safety related aspects on the site.

No Contractor may appoint a Construction Health and Safety Officer to assist in the control of health and safety related aspects on the site unless he/she is reasonably satisfied that the construction health and safety officer that he/she intends to appoint has necessary competencies and resources to assist the Principal Contractor.

Please note that, by legislation, the safety officer must be professionally registered with the SACPCMP. Proof of registration with the SACPCMP must be provided.

The requirement for this site is that a full time Safety Officer be appointed by the Principal Contractor.

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A Construction Manager must in writing appoint Construction Supervisors responsible for construction activities and ensuring Occupational Health and Safety compliance on the construction site.

A Contractor must, upon having considered the size of the project, in writing appoint one or more competent employees for different sections thereof to assist the Construction Supervisor contemplated in **paragraph 6** above, and every such employee has, to the extent clearly defined by the Principal Contractor in the letter of appointment, the same duties as the Construction Supervisor: Provided that the designation of any such employee does not relieve the Construction Supervisor of any personal accountability for failing in his or her supervisory duties in terms of this section in the specification.

No Construction Supervisor appointed under paragraph 6 above may supervise any construction work on or in any construction site other than the site in respect of which he/she has been appointed: Provided that if a sufficient number of competent employees have been appropriately designated on all the relevant construction sites, the appointed Construction Supervisor may supervise more than one site.

5. REGISTRATION WITH THE WORKMEN'S COMPENSATION OR LICENSED INSURER

The Principal Contractor(s) must ensure that ACSA is provided with a valid letter of good standing, including a registration number with the Compensation for Occupational Injury and Diseases Fund or an alternative scheme approved in writing by the Commissioner to the COID Fund, at least 10 days prior commencement of construction work. It must remain the Principal Contractor's responsibility to furnish ACSA with a valid letter of good standing or keep a copy available for perusal by a Client, Client Representatives or any other person authorised thereto.

6. MANDATARY AGREEMENT

A duly signed mandatary form also referred to as 'OHS Act section 37.2' must be obtained from ACSA Safety Department. It must be completed thoroughly, initialed on all pages, signed accordingly and returned to ACSA by the Principal Contractor at least 10 days prior to commencement of construction work. The Principal Contractor must ensure that all its contractors have completed a similar document and a proof of such signed documents is submitted to ACSA for reference purposes.

7. ASSIGNED PERSON IN TERMS OF OCCUPATIONAL HEALTH & SAFETY ACT OF 1993 & APPLICABLE REGULATIONS

A written letter of appointment must be forwarded to ACSA duly signed by responsible persons at least 3 days prior commencement of construction work for the following duties: **(Further appointments could become necessary as the project progresses and as per the requirements of OHS Act 85/1993)**

(a) Person assigned duties in terms of the 16.2 appointees of the Act
(b) Construction Manager CR8(1)
(c) Assistant Construction Manager CR8(2) - *where applicable*
(d) Full-time Construction Safety Officer CR8(5)
(e) Construction Supervisor CR8(7))
(f) Assistant Construction Supervisor CR8(8) - *where applicable*
(g) Risk Assessor CR9(1)
(h) Fall Protection Developer/Planner CR10(1) - *where applicable*
(i) Temporary Works Designer CR11(1) - *where applicable*
(j) Temporary Works Supervisor CR11(2) - *where applicable*
(k) Excavation Supervisor CR13(1)(a) - *where applicable*

(l) Demolition Work Supervisor and Controller CR14(1) - *where applicable*
(m) Scaffolding Supervisor CR16(1) - *where applicable*
(n) Scaffolding Team leader CR16(1) - *where applicable*
(o) Scaffolding Inspector CR16(1) - *where applicable*
(p) Scaffolding Erector CR16(1) - *where applicable*
(q) Suspended Platforms Supervisor CR17(1) - *where applicable*
(r) Rope Access Supervisor CR18(1)(a) - *where applicable*
(s) Rope Access Fall Protection Plan Developed (R18(2)(b) - *where applicable*
(t) Material Hoist Inspector CR19(8)(a) - *where applicable*
(u) Bulk Mixing Plant Supervisor CR20(1) - *where applicable*
(v) Explosive Actuated Fastening Devise Operator CR21(2)(b) - *where applicable*
(w) Explosive Actuated Fastening Device Controller CR21(2)(g)(i) - *where applicable*
(x) Construction Vehicles and Mobile Plant Operator CR23(1)(d)(i) - *where applicable*
(y) Temporary Electrical Installations Controller CR24(c) - *where applicable*
(z) Portable Electrical Equipment Supervisor CR24(d) - *where applicable*
(aa) Fire Equipment Inspector CR29(h) - *where applicable*
(bb) First Aider GSR3(4)
(cc) Stacking Supervisor (CR28(a)) (GSR2(a)
(dd) Competent Person in Confined Space Entry GSR5(1) - *where applicable*
(ee) Gas Cutting/Welding Supervisor (GSR9(a) - *where applicable*
(ff) Ladder Supervisor and Inspector (GSR13(a) - *where applicable*
(gg) Lifting Machine Inspector (DMR18(7) - *where applicable*
(hh) Lifting Tackle Inspector (DMR18(10) (e) - *where applicable*
(ii) Lifting Machine Supervisor (DMR18(11) - *where applicable*
(jj) Supervisor of Machinery (GMR1) - *where applicable*
(kk) Safety Representatives (OHS Act Sec.17 - *where applicable*
(ll) Hazardous Chemical Substances Controller/Coordinator HCSR10 - *where applicable*
(mm) Incident Investigator (GAR9(2)
(nn) Blasting Supervisor (Supervision of Explosives Workplace ER12) - *where applicable*

8. HEALTH AND SAFETY DOCUMENTATION

The Principal Contractor must provide and demonstrate to ACSA a suitable, sufficiently documented and coherent site specific health and safety plan, based on ACSA's documented health and safety specifications. The health and safety plan must include but not limited to the following during tendering process, before commencement of construction work and during construction:

Principal Contractor's Health & Safety Policy
The Principal Contractor must provide a health & safety policy signed by the Chief Executive Officer (CEO) which outlines Principal Contractor's commitment towards health and safety

Health and Safety Organogram
The Principal Contractor must provide a health & safety organogram which outlines related appointments in terms of the OHS Act and applicable Regulations. Contact numbers should also be provided for easy reference.

9. RISK ASSESSMENT FOR CONSTRUCTION WORK

(Construction Regulation 9)

Every Contractor performing Construction work shall, before the commencement of any construction work and during such work, have a Risk Assessment performed by a competent person, appointed in writing, and the Risk Assessment shall form part of the OH&S Plan.
Each activity must define individual tasks associated with that identified activity. These and all associated hazards must be identified and listed in the risk assessment. This ensures that critical tasks and associated hazards are not missed.

The Risk Assessment must include:

- The identification of the risks and hazards to which persons may be exposed to
- The analysis and evaluation of the risks and hazards identified
- A documented plan and applicable safe work procedures (SWP) to mitigate, reduce or control the risks and hazards that have been identified
- A monitoring plan and
- A review plan

A Contractor must ensure that:

- As far as is reasonably practicable ergonomic related hazards are analysed, evaluated and addressed.
- All employees under his/her control are informed, instructed and trained by a competent person regarding any hazards
- A Principal Contractor must ensure all Contractors are informed regarding any hazard as stipulated in the risk assessment before any work commences.
- Consult with health and safety committee on monitoring and review risk assessment on site.
- Ensure a copy of risk assessments is available for inspection.
- Review relevant risk assessments where changes are affected to the design or construction that result in a change to the risk profile or when an incident occurred.

N.B. A risk assessment will be performed for all unplanned work and submitted to ACSA for approval prior to work commencing.

10. ADMINISTRATIVE CONTROLS AND THE OCCUPATIONAL HEALTH & SAFETY FILE

(Construction Regulation 7)

The Occupational Health and Safety File

The Principal Contractor will keep an Occupational Health and Safety File on site containing the following documents (where applicable) as a minimum:

- Accident/Incident Register. (Annexure 1 of the General Admin Regulations)
- Health and safety Representatives Inspections Register.
- Construction Vehicles & Mobile Plant Inspection.
- Daily Inspection of Vehicles.
- Plant and other Equipment by the Operator/Driver/User.
- Demolition Inspection Register.
- Electrical Installations, Equipment & Appliances. (including Portable Electrical Tools)
- Excavations Inspection.
- Explosive Powered Tool Inspection/Maintenance/Issue/Returns Register. (incl. cartridges & nails)
- Fall Protection Inspection Register.

- First Aid Box Contents.
- Fire Equipment Inspection & Maintenance.
- False work Inspections.
- Hazardous Chemical Substances Record.
- Ladder Inspections.
- Lifting Equipment Register.
- Machinery Safety Inspection Register. (incl. machine guards, lock-outs etc.)
- Scaffolding Inspections.
- Stacking & Storage Inspection.
- Inspection of Structures.
- Inspection of Pressure Equipment.
- Welding Equipment Inspections.
- All other applicable records.
- An equipment inventory register, detailing all major items of equipment such as Construction Vehicles and Mobile Plant etc.

If any work is to be performed on Airside, the contractor must provide ACSA with an Airside Safety Plan.

On completion of the project or on completion of the contractors work each contractor must surrender the completed OHS file to the Principal Contractor for consolidation into one "Master File". **A Principal Contractor must** hand over a consolidated health and safety file to ACSA upon completion of the construction work and must, in addition to the documentation referred to in **paragraph 5** of this document include a record of all drawings, designs, materials used and other similar information concerning the completed structure. (These records will then be archived by ACSA for future reference purposes)

11. HEALTH AND SAFETY REPRESENTATIVES

The Principal Contractor must ensure that Health and Safety Representative(s) is/are elected and delegated in writing and necessary training has been provided by a competent person where there are more than 20 employees at the work place. A proof of training certificate must be provided to ACSA.
Health and Safety Representatives must conduct monthly inspections by completing a checklist developed by the Principal Contractor. Safety defects noted must be recorded and reported to the supervisor for remedial action. Health and Safety Representative Inspection findings must be made available to ACSA for reference for audits purposes.

Health and Safety Representatives and their reports must form part of the safety committee which must meet on a monthly basis.

The Principal Contractor must hold health and safety committee meetings on site. Minutes of such meetings and action taken by management must be kept on file and made available to ACSA for reference purposes. Members of the committee must receive proper training and a proof of such training must be made available.

The Committee must consider, at least, the Following Agenda:

- Opening & Welcome
- Present/ Apologies/ Absent

- Minutes of previous Meeting
- Matters Arising from the previous Minutes
- OH&S Reps Reports
- Incident Reports & Investigations
- Incident /Injury Statistics
- Other Matters
- Endorsement of Registers and other statutory documents by a representative of the Principal Contractor
- Close/Next Meeting

The Principal Contractor must ensure that ACSA Safety Department is invited to such meetings. These meetings do not substitute for Principal Contractor's Site meetings.

12. HEALTH & SAFETY TRAINING

Environmental Health and Safety Induction
The Principal Contractor must conduct an induction training session prior commencement of construction work. An attendance register must be kept in the Principal Contractor's health and safety file.
For any construction work to be conducted on the Airside, Airside Induction training (AIT) must be attended by all persons entering who are to enter Airside and a course fee determined by ACSA must be paid by the Principal Contractor. A security permit to access airside must be issued on production of proof of attendance.

Induction Conducted by the Principal Contractor and Competent Person
A manual /copy of such training must be provided to ACSA for reference purposes. As determined by the risk assessment. The Principal Contractor must ensure that all employees under his/her control are trained by a competent person and a proof of such training is kept on file for reference.

Toolbox Talks
The Principal Contractor must ensure that employees attend a formal Toolbox Talk to be held at least once a week. Toolbox Talks must cover a wide variety of topics related to health and safety. An attendance register must be completed by employees who attended such talks. The register must indicate the topic covered presenter, date and signatures of employees attended. Records for Toolbox Talks must be kept in a health and safety file and be made available to ACSA for perusal.

First Aid Training
The Principal Contractor must appoint competent First Aider(s) in writing where more than 10 employees are employed. A letter of appointment must be kept on file for reference made available to ACSA Safety. Duly designated First Aider(s) must have attended training at an accredited institution prior commencement of construction work and a proof of certificate be submitted to ACSA for reference.
The Principal Contractor must ensure that the first aid box(s) is/are controlled by qualified First Aider(s) and kept fully stocked with necessary first aid contents related to the hazards and risks identified. A first aid box(s) must be accessible and location of such box(s) is clearly displayed on site.

13. FIRE PREVENTION AND PROTECTION

The Principal Contractor must ensure that adequate fire equipment is provided in strategic places (that is, where there is a mobile distribution board, flammable liquids, pressure equipment, confined spaces,

hot work). The Principal Contractor must ensure that such equipment is inspected by a competent person on a monthly basis and such inspections are recorded on a register. The Principal Contractor must ensure that all fire equipment is serviceable and person(s) have been properly trained on how to use the equipment. A proof of such training must be provided prior commencement of construction work.

14. FIRE PRECAUTIONS ON CONSTRUCTION SITES

(Construction Regulation 29)

The Principal Contractor must ensure that:

(a) all appropriate measures are taken to avoid the risk of fire;
(b) sufficient and suitable storage is provided for flammable liquids, solids and gases;
(c) smoking is prohibited and notices in this regard are prominently displayed in all places containing readily combustible or flammable materials;
(d) in confined spaces and other places in which flammable gases, vapours or dust can cause danger—
(i) only suitably protected electrical installations and equipment, including portable lights, are used;
(ii) there are no flames or similar means of ignition;
(iii) there are conspicuous notices prohibiting smoking;
(iv) oily rags, waste and other substances liable to ignite are without delay removed to a safe place; and
(v) adequate ventilation is provided;
(e) combustible materials do not accumulate on the construction site;
(f) welding, flame cutting and other hot work are done only after appropriate precautions have been taken to reduce the risk of fire;
(g) suitable and sufficient fire-extinguishing equipment is placed at strategic locations or as may be recommended by the Fire Chief or local authority concerned, and that such equipment is maintained in a good working order;
(h) the fire equipment contemplated in paragraph (g) is inspected by a competent person, who has been appointed in writing for that purpose, in the manner indicated by the manufacturer thereof;
(i) a sufficient number of workers are trained in the use of fire- extinguishing equipment;
(j) where appropriate, suitable visual signs are provided to clearly indicate the escape routes in the case of a fire;
(k) the means of escape is kept clear at all times;
(l) there is an effective evacuation plan providing for all—
(i) persons to be evacuated speedily without panic;
(ii) persons to be accounted for; and
(iii) plant and processes to be shut down; and
(m) a siren is installed and sounded in the event of a fire.

15. EMERGENCY PREPAREDNESS

The Principal Contractor must provide ACSA with an emergency plan and procedure which will include, but not limited to emergencies such as fire, bomb threat, civil unrest, medical treatment, environmental incidents, accidents to employees and other persons other than their employees.
Emergency procedure must be communicated to employees and a proof of such training must be kept on file for reference. A list of emergency contact numbers must be conspicuously displayed on site for ease reference. An evacuation plan must be displayed in strategic places.

In case of medical and/or fire emergency contact ACSA Fire & Rescue Services:
(021) 937 1211 or 1249

The Principal Contractor must provide ACSA Safety with a full record of any incidents which may occur on site.

16. INCIDENTS/ACCIDENTS REPORTING AND INVESTIGATION

The Principal Contractor must ensure that all incidents/accidents (this includes near miss, first aid cases and section 24 cases) are reported by employees immediately to the Construction Manager for further investigation and remedial action. The Principal Contractor must ensure that all OHS Act section 24 incidents/accidents are reported to the Department of Labour immediately and preliminary investigation is conducted by a competent person within seven days. If construction work will be finished within 3 days after occurrence, an investigation must be conducted before such construction work is completed. Proof of such investigation must be submitted to ACSA immediately or within 24 hours after investigation.

17. PERSONAL PROTECTIVE CLOTHING/EQUIPMENT

The Principal Contractor must ensure that personal protective equipment or clothing needs analysis is conducted and incorporated into the risk assessment. Records must be provided by the Principal Contractor prior to the commencement of construction work. The Principal Contractor must ensure that SABS approved personal protective equipment or clothing is provided to personnel. The Principal Contractor must ensure that no personnel are allowed to work on site without necessary personal protective equipment or clothing. The Principal Contractor must ensure that PPE or Clothing is kept in good working order and clearly stipulate procedures to be followed when PPE or Clothing is lost or stolen, worn or damaged. ACSA will remove any person from the construction site who is working without necessary personal protective equipment and/or clothing. Worn or tattered personal protective clothing will not be permitted on airport premises

18. FALL PROTECTION (WORKING IN ELEVATED POSITIONS)

(Construction Regulation 10)

A pre-emptive Risk Assessment will be required for any work to be carried out above two metres from the ground or any floor level and will be classified as "Work in Elevated Positions".
As far as is practicable, any person working in an elevated position will work from a platform, ladder or other device that is at least as safe as if he/she is working at ground level and whilst working in this position be wearing and using a full body harness that will be worn to prevent the person falling from the platform, ladder or other device utilised.

This safety harness will be, as far as is possible, secured to a point away from the edge over which the person might fall and the double lanyard must be of such a length that the person will not be able to move over the edge.
In addition, any platform, slab, deck or surface forming an edge over which a person may fall must be fitted with guard rails at two different heights as prescribed in SABS 085' Code of Practice for the Design, Erection, Use and Inspection of Access Scaffolding.

Workers working in elevated positions must be trained to do this safely and without risk. Proof of training must be maintained on the contractors site safety file. Medical certificates of fitness for all employees

working in elevated positions must be available on site. This must be issued by an Occupational Health Practitioner.

Where work on roofs are carried out, the Risk Assessment must take into account the possibility of persons falling through fragile material, skylights, soffits and openings in the roof, steel support work trusses and purlins so designed as to support the roof structure.

The Risk Assessments shall place specific emphasis on the placing and handling of roofing materials such as Inverted Box Rib Sheeting (IBR sheeting) or similar materials, (including contingency safety measures), which when exposed to windy conditions represents a serious safety hazard.

19. FALL PROTECTION PLAN
(Construction Regulation 10)

A Contractor must

a) designate a competent person to be responsible for the preparation of a fall protection plan;
b) ensure that the fall protection plan contemplated above is implemented, amended where and when necessary and maintained as required; and
c) take steps to ensure continued adherence to the fall protection plan.

The Fall Protection Plan must include

a) a risk assessment of all work carried out from a fall risk position and the procedures and methods used to address all the risks identified per location;
b) the processes for the evaluation of the employees' medical fitness necessary to work at a fall risk position and the records thereof;
c) a programme for the training of employees working from a fall risk position and the records thereof;
d) the procedure addressing the inspection, testing and maintenance of all fall protection equipment; and
e) a rescue plan detailing the necessary procedure, personnel and suitable equipment required to affect a rescue of a person in the event of a fall incident to ensure that the rescue procedure is implemented immediately following the incident.

A Contractor must ensure that:

a) **The Construction Manager** appointed under **Construction Regulation 8(1)** is in possession of the most recently updated version of the fall protection plan.
b) all unprotected openings in floors, edges, slabs, hatchways and stairways are adequately guarded, fenced or barricaded or that similar means are used to safeguard any person from falling through such openings;
c) no person is required to work in a fall risk position, unless such work is performed safely as contemplated in above;
d) fall prevention and fall arrest equipment are
   (i) approved as suitable and of sufficient strength for the purpose for which they are being used, having regard to the work being carried out and the load, including any person, they are intended to bear; and
   (ii) securely attached to a structure or plant, and the structure or plant and the means of attachment thereto are suitable and of sufficient strength and stability for the purpose of safely supporting the equipment and any person who could fall; and

e) fall arrest equipment is used only where it is not reasonably practicable to use fall prevention equipment.

Where roof work is being performed on a construction site, the Contractor must ensure that, in addition to the requirements set out above, it is indicated in the fall protection plan that:

(a) the roof work has been properly planned;
(b) the roof erectors are competent to carry out the work;
(c) no employee is permitted to work on roofs during inclement weather conditions or if any conditions are hazardous to the health and safety of the employee;
(d) all covers to openings and fragile material are of sufficient strength to withstand any imposed loads;
(e) suitable and sufficient platforms, coverings or other similar means of support have been provided to be used in such a way that the weight of any person passing across or working on or from fragile material is supported; and
(f) suitable and sufficient guard-rails, barriers and toe-boards or other similar means of protection prevent, as far as is reasonably practicable, the fall of any person, material or equipment.

20. PRINCIPAL CONTRACTOR / CONTRACTOR - COMPETENCY ASSESSMENT
(Construction Regulation 7)

The Principal Contractor must be reasonably satisfied that the sub-contractors he intends to appoint also have the necessary competencies and resources to safely conduct the work they will be appointed for. This must be established at tender stage and before appointments are made.
In order to ensure this, the Principal Contractor must demonstrate to the Client that it has a necessary competencies and resources in place to perform the works safely.

21. ROPE ACCESS
(Construction Regulation 18)

(1) A contractor must –

a) Appoint a competent person in writing as a rope access supervisor with the duty of supervising all rope access work on site, including the duty of ensuring occupational, health and safety compliance in relation to rope access work: Provided that the appointment does not relieve the construction manager of any personal accountability for failing in his management duties in terms of the Construction Regulation 2014;

b) Ensure that all rope access work on the construction site is carried out under the supervision of a competent person; and
c) Ensure that all rope access operators are competent and licensed to carry out their work.

(2) No contractor may use or allow the use of rope access work unless –

a) the design, selection and use of the equipment and anchors comply with the safety standards incorporated for this purpose into the Construction Regulations under Section 44 of the OHS Act.
b) he or she is in possession of a site-specific fall protection plan developed by a competent person applicable to the specific work and environment prior to the commencement of work, including records of maintenance and inspections of all equipment used for the work.

(3) A contractor must ensure that adequate measures are in place to allow rescue procedures to commence immediately in the event of a fall incident taking place.

22. STRUCTURES
(Construction Regulation 11)

The Contractor will ensure that in terms of Construction Regulation 11 the following is adhered to:

- That the structure on/in which works are to be performed has been inspected by a certified structural engineer declaring the structure to be safe for construction/demolition/renovations work processes.
- Steps are taken to ensure that no structure becomes unstable or poses a threat of collapse due to demolition and construction work being performed on it, or in the vicinity of it.
- No structure is overloaded to the extent where it becomes unsafe; if uncertainty arises then the structural engineer is to be consulted.
- He/she has received from the designer the following information:
- Information on known or anticipated hazards relating to the construction/demolition work and the relevant information required for the safe execution of the construction/demolition work.
- A geo-scientific report (where applicable).
- The loading the structure is designed to bear.
- The methods and sequence of the construction/demolition process.
- All drawings pertaining to the design are on site and available for inspection.

The structural engineer shall carry out inspections at appropriate and sufficient intervals of the construction work involving the design of the relevant structure to ensure compliance with the design and record the results of these inspections in writing.

23. TEMPORARY WORK
(Construction Regulation 12)

Temporary work must be carried out under the supervision of a competent person designated in writing. Temporary works structures must be so designed, erected, supported, braced and maintained such that it will be able to support any vertical or lateral loads that may be applied.

No load is to be imposed onto the structure that the structure is not designed to carry.

Temporary works must be erected in accordance with the structural design drawings for that temporary works and, if there is any uncertainty, the designer must be consulted before proceeding with the erection/use of the temporary works.

All design drawings pertaining to the temporary works must be kept available on site.

All equipment used in the erection of temporary works must be checked by a competent person before use.
The foundation or base upon which temporary works is erected must be able to bear the weight and keep the structure stable.

Employees erecting temporary works must be trained in the safe work procedures for the erection, moving and dismantling of temporary works.

Safe access/egress (and emergency escape) must be provided for workers.

A competent person must inspect temporary works structures that have been erected before, during and after pouring of concrete or the placing of any other load and thereafter daily until the temporary works is stripped.
The results of all inspections must be recorded in a register kept on site.

The temporary works must be left in place until the concrete has reached sufficient strength to bear its own weight plus any additional weight that may be imposed upon it and not until the designated competent person has authorised its stripping in writing.

Any damaged temporary works must be repaired/rectified immediately Deck panels must be secured against displacement.

The contractor must ensure that no employee is exposed, or required to work on slippery and dangerous surfaces.
Person's health must be protected when use is made of solvents, oils or other similar substances.

Ensuring that the OEL (Occupational Exposure Limit) for any substances that they may be exposed to does not exceed the legal limits and that the necessary PPE is used.

24. EXCAVATIONS
(Construction Regulation 13)

The Principal Contractor must ensure excavation work is conducted under supervision of a competent person who has been appointed in writing. A letter of appointment must be provided to ACSA Safety prior commencement of work. A risk assessment outlining safe work procedures to be adhered to if excavation is more than 1.0m deep must be provided to ACSA prior commencement of work. The Principal Contractor must ensure that no person works in an excavation which is not adequately braced or shored.2

The Principal Contractor must ensure that every excavation including bracing and shoring are inspected daily prior each shift starts and such records are kept on site for reference.

The Principal Contractor must ensure that all precautionary measure as stipulated for confined spaces as stated in the General Safety Regulation of OHS Act 85/1993 are complied with when entering any excavation. The Principal Contractor must ensure that warning signs are conspicuously displayed where excavation work involves the use of explosives and a method statement developed by a competent person is provided to ACSA prior commencement.

The Principal Contractor must ensure that safe and convenient means of access is provided to every excavation when required. Such access must not be further than 6m from the point where any worker within the excavation is working.

The Principal Contractor must communicate, train and enforce safe work procedures pertaining to excavation work to his/her employees.

25. DEMOLITION WORK
(Construction Regulation 13)

The Principal Contractor must ensure that a detailed structural engineering survey is conducted by a competent person and a method statement on the procedure to be followed is provided to ACSA Safety. The Principal Contractor must ensure that demolition work is conducted under the supervision of a competent person appointed in writing.

The Principal Contractor must ensure that safety precautionary measures stipulated in Asbestos Regulations is adhered to if demolition work involves asbestos material and that asbestos work is conducted under the supervision of a registered Asbestos Principal Contractor.

26. SCAFFOLDING
(Construction Regulation 16)

Access Scaffolding must be erected, used and maintained safely in accordance with Construction Regulation 16 and SA Bureau of Standards Code of Practice, SANS 10085/1 entitled, "The Design, Erection, and Use & Inspection of Access Scaffolding.

Detailed consideration must be given to all scaffolding to ensure that it is properly planned to meet the working requirements, designed to carry the necessary loadings and maintained in a sound condition. It must also be ensured that there is sufficient material available to erect the scaffolding properly.

Scaffolding may only be erected, altered or dismantled by a person who has the appropriate training and experience in this type of work or under the supervision of such a person.

Specific attention must be given to the appointment of Scaffolding Inspectors and Scaffolding Erectors who shall not be the same person. The continuous inspection of scaffolding structures must be recorded on the applicable Scaffold register.

Tagging/Signs reflecting the status of the scaffold must always be used and fixed to the structure at all times. (Safe to use / Scaffold not Safe).

On completion of the erection, the Supplier will inspect the structure and will ensure it is in sound working order and complies with all statutory regulations. The Supplier will then issue a Handover Certificate, Drawings, design and specifications shall be signed by a registered professional engineer.

An inspection of the completed scaffold shall also be inspected by the registered professional engineer for approval prior to use. Should any additional load i.e. a hoist or advertising banners be added to the scaffold at a later stage, the professional engineer must approve the modification.

27. SUSPENDED PLATFORMS
(Construction Regulation 17)

The Contractor to design, erect, use and maintain suspended platforms in accordance with the requirements of Construction Regulation 17.

28. EXPLOSIVE ACTUATED FASTENING DEVICES
(Construction Regulation 21)

Every Explosive Powered Tools (EPT) must be:

- Provided with a guard around the muzzle to confine flying fragments or particles

- A firing mechanism that will prevent the EPT from firing unless it is pushed against the surface and at a right angle (where the EPT is fitted with an intermediate piston between the charge and the nail this requirement is waived)
- The Contractor or user must ensure that:
- Only the correct type of cartridge is used (product specific)
- The EPT is cleaned and inspected daily before use by an appointed competent person who maintains a register with the findings of his inspection and the details of cleaning, service and repairs
- The safety devices are in good working order before the EPT is used
- When the EPT is not being used, it is to be stored in an unloaded condition together with the cartridges in a safe/secure place inaccessible to unauthorised persons
- A warning notice is displayed at the point where the EPT is in use
- The issue and return of cartridges must be controlled by maintaining the issue/returns register signed by both issuer and user and empty cartridge cases must be returned with unspent cartridges.
- Users/operators of the EPT have received the necessary training and have been authorised as being competent to use/operate the EPT
- Users/operators must wear the prescribed PPE whilst using/operating the tool

29. CRANES
(Construction Regulation 22)

A Crane permit must be obtained from ACSA and submitted before erection of crane.
A contractor must, in addition to compliance with the Driven Machinery Regulations, 1988 ensure that where tower cranes are used—

a. they are designed and erected under the supervision of a competent person;
b. a relevant risk assessment and method statement are developed and applied;
c. the effects of wind forces on the crane are taken into consideration and that a wind speed device is fitted that provides the operator with an audible warning when the wind speed exceeds the design engineer's specification;
d. the bases for the tower cranes and tracks for rail-mounted tower cranes are firm, level and secured;
e. the tower crane operators are competent to carry out the work safely; and
f. the tower crane operators have a medical certificate of fitness to work in such an environment, issued by an occupational health practitioner in the form of Annexure 3.

30. LIFTING EQUIPMENT, TACKLE, MATERIAL HOIST AND CRANES

The Principal Contractor must ensure that all lifting equipment and tackle are inspected before use and a monthly register is completed by a competent person. Proof of such inspections must be recorded and kept on file for reference. The Principal Contractor must ensure that a safe working load is conspicuously displayed on lifting equipment and tackle and service certificate is provided prior commencement of work. The Principal Contractor must ensure operators are properly trained on how to operate the above-mentioned equipment and a proof of competency is provided prior commencement of work.

The Principal Contractor must provide information on procedures to be followed in the case of:

a. Malfunctioning of equipment; and
b. Discovery of a suspected defect in the equipment

The Principal Contractor must ensure that safety measures stipulated in Driven Machinery Regulation and Construction Regulation regarding above equipment are adhered to at all times.

31. CONSTRUCTION VEHICLES & MOBILE PLANT

(Construction Regulation 13)

Construction Vehicles and Mobile Plant may be inspected by ACSA prior to being allowed on a project site and suppliers of hired vehicles, plant and equipment will be required to comply with this specification as well as the OHS Act and Regulations.

Construction Vehicles and Mobile Plant (CV & MP) to be:

- of acceptable design and construction
- maintained in good working order
- used in accordance with their design and intention for which they were designed
- Operated/driven by trained, licensed competent and authorised operators/drivers. No unauthorised persons to be allowed to drive or operate CV & MP
- Operators and drivers of CV & MP must be in possession of a valid medical certificate declaring the operator/driver physically and psychologically fit to operate or drive CV & MP.
- fitted with adequate signalling devices to make movement safe including reversing
- excavations and other openings must be provided with sufficient barriers to prevent CV & MP from falling into same
- Provided with roll-over protection, appropriate seat fitted which shall be used during CV & MP operations.
- inspected daily before start-up by the driver/operator/user and the findings recorded in a register/log book
- CV & MP to be fitted with two head and two taillights whilst operating under poor visibility conditions, in addition they shall be equipped with 'hazard warning' lights, which must be used whenever the CV & MP is on site.
- No loose tools, material etc. is allowed in the driver/operators compartment/cabin nor in the compartment in which any other persons are transported
- CV & MP used for transporting persons must have seats firmly secured and sufficient for the number of persons being transported
- Operators to be issued with Personal Protective Equipment as required and identified by the Risk Assessments
- Only licensed and road worthy vehicles will be allowed on the public roads

No person may ride on a CV & MP except in a safe place provided by the manufacturer for this purpose.

The construction site must be organized to facilitate the movement of CV & MP so that pedestrians and other vehicles are not endangered. Traffic routes are to be suitable, sufficient in number and adequately demarcated

CV & MP left unattended after hours adjacent to roads and areas where there is traffic movement must be fitted with lights reflectors or barricades to prevent moving traffic entering the contact with the parked CV & MP.

In addition, CV & MP left unattended after hours must be parked with all buckets, booms etc. fully lowered, the emergency brakes engaged and, where necessary, the wheels chocked, the transmission in neutral and the motor switched off and the ignition key removed and stored safely.

Workers employed adjacent to, or on public roads must wear reflective safety fests.
All CV & MP inspection records must be kept in the OH&S File.

32. ELECTRICAL INSTALLATIONS AND MACHINERY ON CONSTRUCTION SITES
(Construction Regulation 24)

The Principal Contractor must, in addition to compliance with the Electrical Installation Regulations, 2009, and the Electrical Machinery Regulations, 1988, promulgated by Government Notice No. R. 1593 of 12 August 1988, ensure that—

a) before construction commences and during the progress thereof, adequate steps are taken to ascertain the presence of and guard against danger to workers from any electrical cable or apparatus which is under, over or on the site;
b) all parts of electrical installations and machinery are of adequate strength to withstand the working conditions on construction sites;
c) the control of all temporary electrical installations on the construction site is designated to a competent person who has been appointed in writing for that purpose;
d) all temporary electrical installations used by the contractor are inspected at least once a week by a competent person and the inspection findings are recorded in a register kept on the construction site; and
e) all electrical machinery is inspected by the authorized operator or user on a daily basis using a relevant checklist prior to use and the inspection findings are recorded in a register kept on the construction site.

The Principal Contractor must ensure that prior notice is given to ACSA Electrical Department of any work involving electrical installation. A lock-out certificate must be issued to the relevant Principal Contractor. The Principal Contractor must ensure that a lock-out procedure is adhered to by his/her employees whenever required. The Principal Contractor must ensure that safety measures stipulated in the Electrical Installation Regulations, Machinery Regulations, General Machinery Regulations and Construction Regulations are adhered to at all times.

33. USE AND TEMPORARY STORAGE OF FLAMMABLE LIQUIDS ON CONSTRUCTION SITES
(Construction Regulation 25)

The Principal Contractor to ensure that:

- No person is required or permitted to work in a place where there is the danger of fire or an explosion due to flammable vapours being present.
- No flammable substance is used or applied e.g. in spray painting, unless in a room or cabinet or other enclosure specially designed and constructed for that purpose, unless due to imposed controls that the ventilation provided is sufficient to ensure that the Lower Explosive Limit and Lower Fire Limit are not exceeded. Furthermore, that the risk assessments are reviewed to ensure that all the related hazards have been addressed and that adequate P.P.E. is provided.

- The workplace is effectively ventilated. Where this cannot be achieved:
- Employees must wear suitable respiratory equipment
- No smoking or other sources of ignition is allowed into the area
- The area is conspicuously demarcated as "flammable materials"
- Flammables stored on a construction site are stored in a well-ventilated, reasonably fire-resistant container approved by the local Fire Department, cage or room that is kept locked with access control measures in place and sufficient firefighting equipment installed and fire prevention methods practised e.g. proper housekeeping
- Flammables stored in a permanent flammables store are stored so that no fire or explosion is caused i.e.: stored in a locked well-ventilated reasonably fire resistant container, cage or room conspicuously demarcated as "Flammable Store -No Smoking or Naked Lights"
- Adequate and suitable firefighting equipment installed around the flammables store and marked with the prescribed signs
- All electrical switches and fittings to be of a flameproof design, or where necessary, intrinsically safe.
- Any work done with tools in a flammables store or work areas to be of a non-sparking nature
- No Class A combustibles such as paper, cardboard, wood, plastic, straw etc. to be stored together with Flammables
- The flammable store to be designed and constructed so that in the event of spillage of liquids in the store, it will contain the full quantity + 10% of the amount liquid stored.
- Where the use of Bulk Storage facilities is contemplated, the contractor must ensure compliance to the local Authority bylaws.
- A sign indicating the capacity of the store to be displayed on the door
- Containers (including empty containers) to be kept closed to prevent fumes/vapours from escaping and accumulating in low lying areas
- Metal containers to be bonded to earth whilst decanting to prevent build-up of static electricity
- Welding and other flammable gases to be stored and segregated as to type of gas and empty and full cylinders
- All permanently installed storage facilities to comply with SANS 10089.

34. HOUSEKEEPING AND GENERAL SAFEGUARDING ON CONSTRUCTION SITES
(Construction Regulation 27)

The Principal Contractor must ensure that suitable housekeeping is continuously implemented on each construction site, including—

a. the proper storage of materials and equipment;
b. the removal of scrap, waste and debris at appropriate intervals;
c. ensuring that materials required for use, are not placed on the site so as to obstruct means of access to and egress from workplaces and passageways;
d. ensuring that materials which are no longer required for use, do not accumulate on and are removed from the site at appropriate intervals;
e. ensuring that construction sites in built-up areas adjacent to a public way are suitably and sufficiently fenced off and provided with controlled access points to prevent the entry of unauthorized persons; and

f. ensuring that a catch platform or net is erected above an entrance or passageway or above a place where persons work or pass under, or fencing off the danger area if work is being performed above such entrance, passageway, or place so as to ensure that all persons are kept safe in the case of danger or possibility of persons being struck by falling objects.

The Principal Contractor must ensure that safety precautionary measures stipulated in Environmental Regulations for Workplaces and Construction Regulations and Construction Environmental Specification are adhered to at all times.

35. STACKING AND STORAGE ON CONSTRUCTION SITES
(Construction Regulation 28)

The Principal Contractor must ensure contractor must ensure that:

a. a competent person is appointed in writing with the duty of supervising all stacking and storage on a construction site;
b. adequate storage areas are provided;
c. there are demarcated storage areas; and
d. storage areas are kept neat and under control a competent person is appointed in writing with a duty of supervising all stacking and storage on a construction work or site. A proof of such appointment must be provided prior commencement of construction work. The Principal Contractor must ensure that stacking is conducted under supervision and good housekeeping is maintained at all times.

36. CONSTRUCTION EMPLOYEES' FACILITIES
(Construction Regulation 30)

A Contractor must provide at or within reasonable access of every construction site, the following clean, hygienic and maintained facilities:

a. Shower facilities after consultation with the employees or employees' representatives, or at least one shower facility for every 15 persons;
b. at least one sanitary facility for each sex and for every 30 workers;
c. changing facilities for each sex; and
d. sheltered eating areas.

A Contractor must provide reasonable and suitable living accommodation for the workers at construction sites who are far removed from their homes and where adequate transportation between the site and their homes, or other suitable living accommodation, is not available.

37. LADDERS

The Principal Contractor must ensure that all ladders are numbered, inspected before use and monthly inspections are recorded in a register. The Principal Contractor must ensure that a competent person who carries the above inspections is appointed in writing.

38. PRESSURE EQUIPMENT

The Principal Contractor must ensure that pressure equipment is identified, numbered and entered in a register. Furthermore, he/she must ensure that inspections are carried out and certificates of testing are available and kept on file as per the Regulations.

39. EMPLOYEES EXPOSED TO EXCESSIVE NOISE

The Principal Contractor must ensure that all employees exposed to excessive noise, equal or above 85 dB(A), have undergone a baseline audiometric test prior commencement of construction work and SABS approved ear protection is provided and worn at all times.

40. PUBLIC SAFETY AND SECURITY

The Principal Contractor must ensure that notices and signs are conspicuously displayed at the entrance and along the perimeter fence indicating "No Unauthorized Entry", "Visitors to report to office", "helmet and safety shoes" etc.

Health and safety signage must be well maintained throughout the project. This must entail cleaning, inspection and replacement of missing or damaged signage.

Furthermore, the Principal Contractor must ensure that:

a) Nets, canopies, fans etc. are provided to protect the public passing or entering the site
b) A security guard is provided where necessary and provided with a way of communication and an access control measures or register is in place
c) All visitors to a construction site undergo health and safety induction pertaining to the hazards prevalent on the site.

41. NIGHT WORK

The Principal Contractor must ensure that necessary arrangements have been made with ACSA before conducting any night work and that there is adequate lighting for any work to be conducted and failure to do so will result in work being stopped.

42. HOT WORK

The Principal Contractor must ensure that ACSA Fire & Rescue Department is notified of any hot work to be conducted during construction work. A hot work permit accompanied with a gas free certificate must be issued to the relevant Principal Contractor by ACSA Fire & Rescue Department when satisfied that the area is safe and that the Principal Contractor understands the procedure. The Principal Contractor must ensure that a hot work procedure is adhered to at all time by his/her employees.

43. HIRED PLANT AND MACHINERY

The Principal Contractor must ensure that any hired plant and/or machinery brought to site is inspected by a competent person before use and records confirming that it is safe for use are provided prior usage of such equipment. Such plant or machinery complies at all times with the requirements of the Occupational Health & Safety Act.

The Principal Contractor must ensure that hired operators receive induction prior commencement of work and that said hired operators have proof of competency.

The Principal Contractor must provide information on procedures to be followed in the case of:

(a) Malfunctioning of equipment; and
(b) Discovery of a suspected defect in the equipment

44. ROAD CONSTRUCTION WORK

The Principal Contractor must ensure that construction work conducted on the public road all necessary caution signage, cones, flag man etc. are provided as stipulated in the Road Traffic Ordinance is adhered to. The caution signage to be conspicuously displayed to warn the drivers of any construction work ahead must be provided at least at 75 m away from the cones; flag man; actual construction work etc.

45. EDGE PROTECTION AND PENETRATION

The Principal Contractor must ensure that all exposed edges and floor openings are guarded and demarcated at all times until permanent protection has been erected. Guardrails used for edge protection must be 500mm and 900mm apart (double railing) above the platform/ floor surface.
The Principal Contractors fall protection plan must include the procedure to be followed regarding the management of edge protection and penetration.

46. BATCH PLANTS

Should a batch plant be used, it must conform to the requirements as set out on Construction Regulation (February 2014) of OHS Act 85/93. These must include but not limited to appointment of a competent person to operate and supervise batch plant operations.

47. CONFINED SPACE ENTRY

The Principal Contractor must ensure that all necessary health and safety provisions prescribed in the General Safety Regulations are complied with when entering confined spaces.

48. LIQUOR, DRUGS, DANGEROUS WEAPONS, FIREARMS

The Principal Contractor must ensure that no person is allowed on site that appears to be under the influence of intoxicating liquor or drugs.

The Principal Contractor must encourage his/her workforce to disclose the medication that poses a health and safety threat towards his/her fellow employees. No person must be allowed to enter the site and work if the side effects of such medication do constitute a threat to the health or safety of the person concerned or others at such workplace.

No dangerous weapons or firearms allowed on the construction site.

49. INTERNAL/EXTERNAL AUDITS

The Principal Contractor must conduct monthly safety, health and environment audits and such records must be kept on site. The Principal Contractor must ensure that corrective measures are taken to ensure compliance.

ACSA must conduct monthly audits and defects noted must be reported to the relevant Principal Contractor for remedial action. Inspections must be conducted by ACSA and non-conformances noted must be recorded and provided to the relevant Principal Contractor for remedial action. ACSA must stop any Principal Contractor from executing any construction work which is not in accordance with the health and safety plan.

The Principal Contractor must ensure that all necessary documents stipulated in this document are kept on the health and safety file and made available when requested.

50. PROJECT CLOSE OUT

The Health and Safety files for the Principal Contractors and all Contractors require closure and handover to the Client at the completion of the project in the form of a consolidated safety file. The following list is an example of what should be included but is not exhaustive. The Safety Agent or the Client may require further information at the time of completion and the Principal Contractor is to ensure that all instructions are responded to. Documentation would include all health and safety related records from the start of the project. All records to be in hard copy or electronic format and submitted to the Safety Agent for approval in adequately formatted lists and folders. Layout should be logical and in the same order as in the site files.

Consolidated Health and Safety close out file requirements include:

- Health and safety specification (most recent version)
- Principal Contractor's health and safety plan/s
- Site safety organograms
- Legal appointments
- Notification to Department of Labour of commencement of work / Construction Work Permit
- Workman's Compensation Letters of Good Standing for the project
- Full safety files for all contractors as well as their close out reports
- List of all contractors who worked on site
- Letters of safety plan approval of contractors by the Principal Contractor
- Mandatory agreements (section 37.2 agreements)
- Incident and accident records / Occupational Disease records
- Contractor Nonconformance records
- Safety agent's audit reports
- Safety Officer reports
- Method Statements
- Risk assessments
- Safe work procedures
- Medical surveillance certificates of fitness. Medical records are to be kept according to the Occupational Health and Safety Act, as amended.
- All temporary works drawings (suspended beams/scaffolds, etc.)
- Copies of test results, policies, and procedures for environmental monitoring (silica, noise, dusts, etc.)
- Detailed registers of all material used
- Copies of all Checklists completed

The consolidated Health and Safety Files for the Project are to be handed over by the Principal Contractor to the Client upon Project Completion in either hard copy or electronic format.

51. PENALTIES

Penalties will be imposed by ACSA on Principal Contractors who are found to be infringing these specifications, legislation and safety plans.

The Principal Contractor will be advised in writing of the nature of the infringement and the amount therefor. The Principal Contractor must determine how to recover the fine from the relevant employee and/or sub-contractor. The Principal Contractor must also take the necessary steps (e.g. training) to prevent a recurrence of the infringement and must advise ACSA accordingly. The Principal Contractor is also advised that the imposition of penalties does not replace any legal proceedings.

Penalties will be between R200 and R20 000, depending upon the severity of the infringement. The decision on how much to impose will be made by the ACSA SHE Representative and will be final. In addition to the penalties, the Principal Contractor must be required to make good any damage caused as a result of the infringement at his/her own expense.

The preliminary list below outlines typical infringements against which ACSA may raise penalties; however, this list must not be construed as final:

- Failure to keep a copy of OHSACT on site.
- Failure to maintain an up-to-date letter of good standing with the Compensation Commissioner / FEM.
- Working on site without attending Safety Induction Training.
- Failure to conduct Safety Induction for personnel and visitors on site.
- Failure to issue and wear Personal Protective Clothing and Equipment.
- Failure to fully stock first aid box in accordance to the risks identified.
- Failure to disclose or report first aid cases and /or minor/major/fatalities as prescribed by the OHSACT.
- Failure to adhere to written safe work procedure as stipulated in the Hazard Identification and Risk Assessment and safety plan.
- Failure to maintain records and registers as per the OHS Act of 1993 and its regulations.
- Failure to conduct audits and inspections as required by legislation.
- Keeping un-serviced fire equipment on site.
- Failure to make use of ablution facilities.
- Failure to remove personnel on site who appears to be under the influence of intoxicating liquor or drugs.
- Failure to close out previously raised non-conformances.
- Failure to make and update legislative appointments.
- Failure to adhere to the OHS Act of 1993 and its regulations.

52. MEASUREMENT AND PAYMENT

Item **Unit**

C10.01 Health and Safety Plan……..Lump Sum

The unit of measurement for item C10.01 shall be the lump sum. The lump sum shall include full compensation for assessing the risks associated with the Works, reviewing and taking cognisance of the Employer's health and safety specifications and/or requirements, preparing the Contractor's health and safety plan and for the submission of a copy of the plan to the Engineer.

C10.02 Implementation of health and safety plan ……..month

The unit of measurement for item C10.02 shall be the month, or part thereof for the duration of the approved contract period. Part of a month shall be calculated to two decimal places. The contract rate shall include full compensation for implementing the health and safety plan, including the provision of a dedicated, full time health and safety officer, carrying out all the required site health and safety training and briefings, staff medical evaluations, monitoring and administrating the health and safety plan and for supplying all transport, personal protection safety items, other health and safety

equipment, safety notices and any other health and safety related items that are required on site. The contact rate shall also include the provision of a monthly health and safety compliance report to the Engineer.

53. SUPPLEMENTARY SPECIFICATIONS

ANNEXURE A: BASELINE RISK ASSESSMENT & ISSUE REGISTER

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ANNEXURE A

BASELINE RISK ASSESSMENT & ISSUE REGISTER

C3.5.2 MANUAL OF PROCEDURE FOR WORKING AIRSIDE – CAPE TOWN INTERNATIONAL AIRPORT

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1. GENERAL

This document (Volume 5) is a Procedure Manual for the Contractor's establishment and working airside to guarantee and safeguard the continuous operation of the airport at all times. This document is complimentary to the Tender Document (Volume 3) and should be used for easy reference working airside. Information provided in this document will affect the Contractor's programme.

The Contractor shall not commence with any establishment or construction work on the airside unless the Contractor:

- Is fully conversant with the contents of this document and it has been signed and implemented by the parties.
- His staff moving on the airside outside demarcated work areas is escorted by a person duly authorised by ACSA to assist and guide the Contractor.
- Comply with the regulations of the Occupational Health and Safety Act and Regulations 85 of 1993 Full Version.

The Contractor shall be subject to various procedures as listed below to guarantee and safeguard the operation of the airport at all times.

This document forms part of the contract documentation as listed in the Tender Data. This Volume must be read in conjunction with Volumes 3 and 4.

2. DEFINITIONS

ACSA	Airports Company South Africa
ATC	Air Traffic Control
ATNS	Air Traffic and Navigation Services who undertake the ATC services at George Airport
AIRPORT/AERODROME	An area of land including buildings intended to be used partly or wholly for the arrival, departure and movement of aircraft, air passengers and airfreight

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AIRPORT MANAGER (AM)	The Airport Manager or any official of the airport authority acting on his behalf
AIRSIDE	The movement area on the airport, adjacent terrain and building or portions thereof, access to which is controlled, but excluding leased areas
APPROVED ISSUING AUTHORITY	An organisation approved by the airport manager to issue airport security and airside vehicle permits
APRON	f the Airport Movement Area used for: ▪ The purpose of enabling passengers to board, or disembark from aircraft; ▪ Loading cargo onto, or unloading cargo from aircraft and ▪ Refuelling, parking aircraft or carrying out maintenance on aircraft
AUTHORITY TO DRIVE AIRSIDE	Authority issued by the Airport Operator to a driver for the purpose of driving in certain areas on the Airside ▪ *Authority to Drive Airside Category 1* – An Authority issued by the Airport Operator to a driver for the purpose of driving only on the Airside Road in the vicinity of the Terminal or Apron Areas; ▪ *Authority to Drive Airside Category 2* – An Authority issued by the Airport Operator to a driver for the purpose of driving on the Airside Roads and Aprons (this may include crossing specific taxiways where a taxiway crossing is marked, and when the driver has received specific training to cover this occurrence) and ▪ *Authority to Drive Airside Category 3* – An Authority issued by the Airport Operator, following a satisfactory attendance and written test, to a driver for the purpose of driving on all aircraft movement areas at the airport.

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AUTHORITY FOR USE AIRSIDE	Is an authority to be affixed to a Vehicle or motorised item of Construction Equipment approved to access the Airside.
ER	Engineer's Representative for the Consulting Engineer.
ESCORT	Means the supervision of a vehicle or item of construction equipment on the airside whereby the supervising person takes responsibility for and provides guidance and may take immediate action to prevent an unsafe act by the vehicle or item of construction equipment being escorted.
ESCORT OFFICER	Means a person authorised by the Airport Operator to perform the act of escorting another vehicle on the airside of the airport.
F&R	Fire and Rescue.
GA	George Airport
ILS	Instrument Landing System. Instrumentation installed along the runway strip to assist pilots during poor weather conditions.
LANDSIDE	The area of the airport to which the public has unrestricted access.
MOVEMENT AREA	That part of an aerodrome to be used for the take-off, landing and taxing of aircraft consisting of the manoeuvring area and the apron(s).
MANOEUVRING AREA	That part of an aerodrome to be used for take-off, landing and taxiing of aircraft – excluding aprons.
MARKINGS	Symbols, lines, words and figures displayed on the surface of a movement area, or special visual features added to vehicles.
NOTAM	A notice distributed by means of telecommunication containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely

	knowledge of which is essential to personnel concerned with flight operations.
PERIMETER ROAD	A road within the airside to facilitate movement of vehicles to various areas while remaining clear of the manoeuvring areas.
RET	Rapid Exit Taxiway. A Taxiway designed to facilitate the rapid exit of aircraft from the runway.
RESTRICTED AREA	Any part of an airport, designated by notices posted by the airport manager. Access to this designated area is allowed only for persons in possession of an authorised identification card valid for the specific restricted area.
RUNWAY (RWY)	A defined surfaced rectangular area at an airport prepared for the landing and take-off of aircraft.
RUNWAY TURNPAD	A defined area on a land aerodrome adjacent to a runway for the purpose of completing a 180-degree turn on the runway
BLASTPAD	A specially prepared surface placed adjacent to the ends of the runways to eliminate the erosive effect on pavement surfaces by high jet engine efflux forces produced by the airplanes at the beginning of their takeoff rolls
RUNWAY END SAFETY AREA (RESA)	An area symmetrical about the extended runway centre line and adjacent to the end of the strip primarily intended to reduce the risk of damage to an aeroplane undershooting or overrunning the runway
RUNWAY STRIP	The area adjacent to the runway extending to 150 m on either side from the centre line of the runway
TAXIWAY (TWY)	A defined path for the taxiing of aircraft, including aircraft stand taxi lane, apron taxiway and rapid exit taxiway.

CLEARWAY (CWY):	A defined rectangular area on the ground, selected or prepared as a suitable area over which an aeroplane may make a portion of its initial climb to a specific height
VEHICLE	Any self-propelled ground surface vehicle or mobile equipment (including specialised aircraft servicing vehicles and ramp equipment).

3. CONTRACTOR'S CAMPSITE

An area has been made available for the Contractor's Campsite as indicated on the drawings. It will remain the contractors responsibility to maintain safety clearances from the Taxilane and the apron slab when planning the layout of the camp. It will remain the contractors responsibility to maintain a security clearance of 3 m form the perimeter fence. The contractor has to ensure that his camp is properly fenced off, screened and secured. Municipal services is available in the vicinity of the main gate and it will be the contractors responsibility to arrange for the necessary installation, metering and COC's together with any administrative costs for providing the said connections. Tariffs will be as per municipal rates at the time of the tender submission.

The Contractor is responsible for all arrangements for obtaining all necessary approvals, establishment and subsequent removal and reinstatement of his construction camp.

The contractor should allow provide for chemical toilet facilities.

The height of any fixed structure (silo's, cranes, etc) for the duration of the contract shall be forwarded to the Engineer prior to erection thereof. The Engineer will verify that these structures do comply with airspace safety regulations/ obstacle limittaions and will notify the Contractor accordingly.

The Contractor shall not be allowed to store/deliver materials or occupy any other area, other than the site establishment area demarcated as such.

Under no circumstances will construction traffic, deliveries, etc be allowed through and via the normal airport traffic routes or perimeter roads. Construction traffic that has to travel on the airside must be strictly controlled and channelled via approved routes inside the airport boundary.

The Contractor shall provide 24-hour security at the site camp at his own cost and shall provide sufficient lighting in compliance with the OHS regulations. The Contractor must also allow for full compensation for providing one security guard to control the access at one of the access gates to the site as indicated on the drawings.

4. PROGRAMMING OF THE WORKS

The Manager: Airside must approve the programme of the works. The programme of the works must be compiled to ensure minimum disruption to airside operations. The Contractor must take the following restrictions into account when compiling his programme of works:

(a)Work next to runways and taxiways

Special arrangements need to be made for any construction work on the runway and taxiways. Work is not permitted in this area without approval from the Manager: Airside.

(b)Restricted Working Times

The construction programme must be based on the restricted working times as shown in Table 1.

Table 1: RESTRICTED WORKING TIMES

Work Areas	Working Times Available
All non-restricted working areas	24 hours (site camp & stockpile sites)
All restricted working areas	00h00 to 05h00 (runway & taxi lane)
Note : # Sunday work will only be permitted if permission is obtained from the Engineer	

(c)Written Notice

Work will require the temporary closure of runways and/or taxiways. The closure of the runway and taxiways and the periods of such closure shall be by arrangement with air and surface traffic control. At least fourteen day's written notice shall be given by the Contractor to the Engineer to enable closure arrangements to be negotiated with the ATNS. Refer to Section 9.3.

(d) End of Shift

On the areas where restrictions apply, all works shall be completed at least 30 minutes before the end of the working time. The termination of the shift must allow for sufficient time to do cleaning work and the compulsory inspection before the opening at the due time, to ensure the safe movement of aircraft after opening. The holding lines, relevant runway markings, stop bar lights and runway edge lights where air traffic movement takes place shall be operational after each shift.

5. STOCKPILE AND SPOIL SITE

Inside the boundaries of the airfield, the Contractor shall only stockpile or spoil approved construction material at designated approved areas, which will be provided by the AM. Alternatively the Contractor shall make arrangements for his own spoil sites outside the airport boundaries. The stockpiles will not exceed in height the surrounding vegetation/trees and will not be within 3,0 m of any boundary fence.

Waste matter such as plastics, paper, etc that originates from the Contractor shall be taken to spoil outside the airport boundaries.

6. RESTRICTED ACCESS TO THE SITE OF THE WORKS

(a)Restricted Areas

The Contractor will have restricted access to the works at any given time because simultaneous closure of the runway and taxiways during normal operational hours will not be permitted.

The temporary hazard drawings summarise hazard requirements for the TWY and RWY strips. After every re-opening of the TWY and RWY, the surface of the work area shall comply with these requirements (See Appendix C).

Although the entire site will be handed to the Contractor at the start of the contract, the airport manager and the air traffic controller have the right to decide at short notice where on the site the Contractor may work. Runways remains operational and access on the runway is limited to night work and subject to approval by the AM.

Under Low visibility conditions (instructed by the ATC), for all work areas in restricted conditions, no work shall be allowed next to the RWY or in restricted access areas.

(b)Access Point and Routes

The designated access point for plant and personnel will be indicated to the Contractor. The Contractor will provide 24 hour security at this Gate. The security stall at this Gate will be in radio contract with Fire & Rescue at all times to enable the provision of escort services.

Fire & Rescue will provide staff at strategic points to observe the progress of vehicles along the access routes and to redirect vehicles where necessary.

Construction material must be delivered via the access gate to the site camp under escort.

(c) Communication

Both the Engineer's and the Contractor's Safety Managers will be in possession of radios which can communicate directly with Fire & Rescue. These radios will be used, inter alia, to communicate emergencies, as well as to arrange for opening and closing inspections.

The Contractors' staff will be in contact with one another by means of a radio system of their own.

Only approved competent staff to communicate with ATNS via radio.

ATNS will be required to authorize the use of any radio frequencies on the airside.

(d) Escorts

Fire & Rescue are the primary providers of escort services. Where Fire & Rescue are unable to provide the required level of escort services, Surface Maintenance may be required to provide additional assistance. The contractor may appoint a competent person to provide escorts.

Contractor's escort will collect all contract related delivery/service vehicles at the access gate and proceed to the site camps only. Pro-forma visitor forms will be issued to the Contractor and should be completed for each vehicle escorted onto airside. There will be no cost for the procedure, but abuse by any staff will lead to the cancellation of Contractor's escort. All staff entering onto airside will be in possession of a valid identity document.

Pedestrians to be collected by Contractor's escort and transported to site camp. A log sheet of all pedestrians and vehicles escorted onto the construction areas/site camp will be completed on a daily basis and submitted to the ACSA permit office for record purposes. One escort will be allowed to escort a maximum of ten staff members/pedestrians.

7. BARRICADES

The Contractor shall erect, maintain, move and finally remove temporary barriers, fences, signs and markings, all as prescribed by the airport authorities or as shown on the drawings. Barricades, markers and signs have to be placed under escort or while being in radio contact with the ATC, prior to entering a work area for construction purposes. No danger tape to be used on the airfield.

Movement outside the areas demarcated for construction shall not be permitted, unless special arrangements have been made and approved by the AM.

8. ON SITE STORAGE OF PLANT AND EQUIPMENT

Temporary stockpiling and storage of equipment on the site shall be done as far away as possible from operational areas within the approved demarcated areas for construction work. The Contractor shall submit a proposal for approval by the Engineer's Representative.

9. TEMPORARY TRAFFIC-CONTROL FACILITIES

TRAFFIC SIGNS

The Contractor shall supply, erect and maintain all necessary temporary road signs in accordance with South African Road Traffic Signs Manual, Volume 2, Chapter 13 (latest edition).

All temporary road signs, devices, sequences, layouts and spacing shall also comply with the requirements set out in the Road Traffic Act, 1989 (Act 29 of 1989) and its Regulations, the requirements of the relevant authority and the South African Road Traffic Signs Manual, Volume 2, Chapter 13.

The Contractor shall indemnify the Employer against all proceedings, claims, actions, damages and costs which may arise from or be related to the absence or improper functioning or placement of road-traffic signs, barricades, traffic-control facilities, channelisation devices and warning devices.

TAXIWAY CLOSING DURING CONSTRUCTION PERIOD

Approval from the Manager: Airside is required before closing a taxiway for construction purposes. Barricades and steady red lights shall be provided to indicate that a taxiway is closed as indicated in the specification and drawings.

The Contractor shall locate barriers at areas approved by the Manager: Airside. These barriers shall be weighted down by means of sandbags at both ends. The barrier consists of a triangular framework covered with plate sheeting (covered with high intensity grade retro-reflective material) (also see Work Program Drawing in Volume 4).

RUNWAY AND TAXIWAY CLOSURE

The Contractor shall liaise through the AM to gain access to the runways and taxiways, who in turn shall liaise with the Manager: Airside for access. The procedure is as follows:

Any runway and taxiway closure requires at least fourteen (14) days lead- time, except for emergency repairs. As far as is practicable, working areas should be cordoned off from the active parts of the movement area by the placing of physical barriers. This is to both warn pilots and preclude work vehicles inadvertently straying onto the movement area. All barriers must be adequately lit at night. The taxiway lights leading to working areas must be permanently switched off. Guidance on the markings for denoting restricted use areas is contained in ICAO Annex 14 Chapter 7.

A request form for closures of runways and taxiways is attached as Appendix B. This must be completed and e-mailed by the Engineers Representative to the ACSA representative designated by the AM. The Manager: Airside will either by e-mail or fax confirmed time and conditions for closures.

SCHEDULED MAINTENANCE

The ACSA Manager: Maintenance and Engineering will contact the Manager: Airside and Manager: Safety to agree on a planned maintenance schedule. The ACSA Manager: Airside will come to an agreement with ATC regarding the planned maintenance schedule. Once the maintenance schedule has been agreed upon the ACSA Manager will ensure that the necessary NOTAM have been communicated to all the Airlines. Scheduled maintenance at ACSA operated airports will be carried out after normal operational hours wherever possible. At CTIA scheduled maintenance is carried out between the hours of 20h00 and 05h30 local time.

UNSCHEDULED MAINTENANCE

The ACSA Manager: Maintenance and Engineering will contact the ACSA Manager: Airside and Manager: Safety to agree upon a suitable time for work to be carried out. In the event of the maintenance being of a non-essential nature, 7-days notification must be given by the

appropriate maintenance department in order for the ACSA Manager: Engineering or Projects to make the necessary arrangements.

In the event of the work being of an essential nature, the ACSA Manager: Maintenance and Engineering will contact the ACSA Manager: Airside and Manager: Safety to discuss the scope and extent of the work required. Once the closure has been agreed the ACSA Manager: Airside will contact the appropriate ACSA General Manager or Airport Manager to inform them of the closure. The ACSA Manager: Airside will then communicate closure notice via a NOTAM and signals or telephone calls to the affected airlines, aircraft operators or owners and ground handling agents.

NON-SCHEDULED RUNWAY CLOSURE FOR SAFETY REASONS

If a runway needs to be closed due to bird scare activities, animal removal, collection of FOD, following the identification of damage to the runway, the Officer in charge of the ACSA Safety Department and/or Fire and Rescue Services Department and/or Airside Inspection Unit will contact the ATC to advise them of the necessity for a temporary runway closure. After advising the ATC, they must then advise the ACSA Manager: Airside and Manager: Safety.

RUNWAY AND TAXIWAY RE-OPENING

After completion of work the Contractor will clean up the area on a daily basis before the handover. A combination of hand brooming and mechanical brooming will be used and a flat truck will be available to remove any swept up debris.

Existing runway markings will be reinstated before the end of each shift, unless otherwise agreed with the Engineer.

Upon receipt of notification of completion of the above, the ACSA Fire and Rescue Services will conduct a runway/taxiway inspection and advise ATC that the runway/taxiway is now available for use. The Engineer's Representative will give Fire & Rescue progress reports from 2 hours before RWY opening, every 30 minutes. If there is any reason why the runway cannot be opened on time at the specified time the Engineer's Representative will inform ACSA Project Manager as soon as he becomes aware of this situation. The ACSA Project Manager will then initiate the emergency procedures and mobilise the necessary ACSA personnel.

Fire & Rescue will inspect the no-work areas from 1 hour before RWY opening and maintain a vehicle to monitor and ensure no further activity in these areas. Construction activities must be completed 30 minutes before RWY opening. Plant and personnel will be clear of the runway

25 minutes before RWY opening (escort if required). On completion of a shift the Contractor will ensure that the work area is clean and free of all FOD material. Painting should be completed 20 minutes before RWY opening. The Engineer's Representative Officer and Fire & Rescue will conduct final inspection of the work area 20 minutes before the designated opening time. The sweeper truck will not leave the runway until Fire & Rescue has declared the runway open. Once the construction area has been inspected and found satisfactory by Fire & Rescue, Fire & Rescue and Engineer's Representative will sign off the relevant runway handover forms. ATNS will be notified by Fire & Rescue and the area will be opened for use by the specified time.

TRAFFIC SAFETY OFFICER

The Contractor's Safety Officer shall be made available to discuss safety and traffic accommodation matters whenever required by the engineer." The Safety Officer is responsible for the following:

(a) Record on neat and dimensioned sketches and submit to the engineer the position and sign reference number, where applicable, of each sign, barricade, delineator, cone, amber flicker light, guardrail and permanent or temporary painted surface marking feature. The position of each shall be adequately referenced to identifiable permanent features located along the site of the works.
These records shall also show the date and time at which the recorded traffic accommodation features are certified correct by the traffic safety officer, before being submitted to the engineer.

The records shall be amended whenever changes are made in the field and the revised detailed sketches shall be submitted to the engineer. This shall include the recording of the position of lookouts, flagmen and stop/go control men and their associated traffic accommodation equipment wherever they are used.

(b) Personally inspect the position and condition of each traffic accommodation feature on the whole site at regular intervals, to record all irregularities discovered and the remedial action taken, and to sign off as correct and submit to the engineer such record sheets the next day. The Safety Officer shall keep a duplicate book for this specific purpose and a record of photographs on a daily basis.
The Safety Officer shall also submit to the engineer before the start of works, a record of all matters pertinent to site safety and traffic accommodation throughout the site of works.

He shall also record the daily labour returns of lookouts, flagmen, stop/go and traffic signal control men employed.

The Safety Officer shall be equipped with a radio and cellular telephone and shall have a vehicle and labourers at his disposal at all times and he shall be directly answerable to the site agent. The traffic safety vehicle shall be a truck with a minimum capacity of 5 tons and shall be equipped with a high visibility rear panel in accordance with the requirements of Chapter 13 of Volume 2 of the South African Road Traffic Signs Manual. The Safety Controller shall have a direct line of communication at all times with the AM police and ATNS responsible for the area within the limits of the contract.

(c) Ensure that all obstructions related to the Contractors activities be removed before sunrise where applicable and instructed by the engineer and that the runway and taxiways are safe for traffic.

(d) The Safety Officer shall, also be responsible for removal of broken down vehicles/equipment, resources, etc off the runway and taxiways and implementing actions requested by the AM with regard to the work to be carried out, be responsible for the erection and maintenance of all traffic signs, etc necessary for the accommodation of traffic.

(e) The Engineer is entitled to call a false alarm at any given time and the cost will have to be born by the Contractor.

10. SPECIAL PROCEDURES FOR CONSTRUCTION AND NIGHT WORK

The Employer reserves the right to order that either all or part of the work be undertaken at night, and that those areas of the runways and taxiways used for taxiing be closed or opened to air traffic to suit the ATC.

Any work undertaken within 50 m from the RWY edge and 50 m from the TWY centreline shall be undertaken when the RWY and TWY is closed. The Engineer's Representative (ER) shall be approached at least 14 days before a NOTAM is required to close specific TWY's or RWY's. Any

late submission of the request may result in delays and the cost shall be borne by the Contractor.

Before the commencement of any substantial work on the movement area, a liaison group comprising of representatives from the Airport Operations Department, Safety Department, Air Traffic Control, Airport Maintenance Department and Contractors' agents shall be established. The group will meet as often as considered necessary to review progress and consider the need for any change in working practices to meet operational requirements.

The Contractor's attention is drawn to the fact that his Subcontractors shall also comply with the specified safety regulations for entering airside and that he shall remain responsible for their compliance with the safety regulations. The Weather Bureau shall be consulted by the Contractor during the day prior to any work at night on the runways or taxiways in order to ensure that no delays due to inclement weather occur for re-opening the runway the next morning.

A method statement for every closure shall be submitted to the AM through the engineer before any work will commence. Careful briefing of all personnel working is one of the most important aspects to ensure high safety standards.

The Contractor shall provide artificial light after sunset to ensure the proper execution of the work in terms of the contract and shall be subject to the AM's approval and the power system shall comply with the Machinery and Occupational Safety Act No 6 of 1983 as amended, and the Standard Regulations for Wiring of Premises of the South African Institute of Electrical Principal agents.

At the end of the night work, the construction area shall be made safe to a distance of 50 m from the RWY edge and 50 m from TWY centreline. This area shall be cleared of all personnel, plant and obstructions and shall have no loose material on the surface before re-opening. The work shall be programmed such that enough time is allowed for cleaning and inspection of the area prior to its re-opening.

Late opening of elements due to the negligence of the Contractor will be subject to penalties as indicated in Volume 3 of the contract.

BEFORE WORK COMMENCES, AGREEMENTS MUST BE ESTABLISHED ON

- *The authorised routes* - these should preferably be marked with Contractor's signs. At critical points controls should be established. Where there is real risk of conflict between aircraft and vehicles, control points should be manned. At less critical points, controls may be affected by lights or warning signs.
- *The communication facilities to be used* - where direct control of vehicles is required, each vehicle should either have R/T or be escorted by a suitably equipped vehicle. In some circumstances it may be sufficient to have direct communications with control points by R/T or by direct telephone lines to air traffic control.
- *The permitted heights of vehicles and equipment* and the limitations to be placed on operating heights of crane jibs and any limitation to be placed on the use of electrical equipment, which might cause interference with navigational facilities or aircraft communications.
- *Where contractors work on or traverse movement areas*, these areas shall be thoroughly inspected before they are opened again for aircraft use, with particular attention being paid to the presence of debris and general cleanliness of the surface. Where aircraft are constantly using areas open to contractors, inspection will be carried out by ACSA at frequent intervals to ensure that the Contractor carried out any necessary cleaning.
- *Adequate markings are required for crane jibs* when increased visibility is considered desirable. If work is of a prolonged duration a constant watch should be maintained to ensure that the marking and lighting of obstacles and unserviceable areas do not degrade below acceptable limits. This also applies to marking and lighting arrangements to indicate a displaced threshold.
- *The possible interference of cranes and other equipment on Instrument Landing Systems (ILS) and radar* need to be considered in conjunction with those responsible for electronic landing aids. Necessary steps to reduce any limitation to the minimum will be taken. Construction equipment may have adverse affect on obstacle clearance allowances and the appropriate authorities shall be consulted when working arrangements are being planned. The Obstacle Limitation Surfaces according to ICAO Annex 14 will apply.
- The ACSA Projects Department will confer with the Manager: Airside and Manager: Safety as to the feasibility of the project being carried out with minimal disruption to the normal operations.

- The Manager: Airside and Manager: Safety will check through the logistics of the proposed project plan/schedule of works and make any advisory comments.
- Notification of the work to be carried out and details of the possible disruption to normal operations will be sent to the Airlines, Handling Agents and other airside Operators through faxes, NOTAMS, SITA and AFTN by the Manager: Airside prior to commencement of work.
- Construction sites are to be roped, demarcated or hoarded off from the operational area. Note No Danger tape
- Occupational Health and Safety Legislation is to be adhered to by all.
- All workers on the site will all be in possession of a valid ACSA Security Permit and where applicable, a cell phone permit and camera permit.
- All delivery and construction vehicles must be issued with a valid ACSA Vehicle Permit and all drivers to be in possession of an Airside Vehicle Operator Permit (AVOP)
- Appropriate personal protective equipment to be issued and worn by all workers on site. Refer PPE procedure
- Clearing of debris from the site to be carried out in line with safe working practices to avoid any Foreign Object Damage (FOD).
- Final site inspections must be carried out by ACSA to ensure that any parking stand signage and markings are compliant with recommendations of the Airports Council International (ACI)/International Air Traffic Association (IATA), as contained in their handbook's first edition of 2000 or later.
- On completion of work all Airlines, Handling Agents and other airside users will be informed by the Manager: Airside where operational restrictions have been lifted.

BRIEFING BEFORE PROJECT COMMENCES

It is essential that time be set aside prior to commencing with the project, that everyone is briefed on the work activities including individual workmen. Special care must be taken on longer projects that all shifts are included and new employees or replacements are briefed before they commence work on the site. Reference must be made to the responsibility placed on the individual by the Occupational Health and Safety Act. Under certain circumstances it may be possible to issue written work instructions beforehand, but an oral brief should be held

as well to give the opportunity to staff to ask questions. The following list details some of the points that should be included in the brief:

- Task(s) being carried out;
- Works Area and how it is to be marked by day and night
- Whether anyone is permitted to move outside the site boundaries and if so, when and under what conditions
- The permitted working hours and any other restrictions
- The identification methods of warning the working party
- What to do when aircraft approach
- How to warn the working party if a person sees impending danger
- Who to ask in case of experiencing a particular difficulty
- Communications procedures and contacts
- The action to be taken in the event of an accident
- Controlled crossings and other approved routes
- Vehicle lights and markings applicable
- Use of high visibility clothing
- Warning not to leave equipment outside the designated working area
- The importance not to generate any Foreign Object Debri (FOD)
- Under no circumstances is food or rubbish to be left on site as this may attract birds and
- The dangers of engine ingestion and exhaust blast.

MARKING OF A SITE BY DAY

The Contractor undertaking the work is responsible to ensure that all marking equipment for use such as cones, barriers, fences, etc are approved and available in sufficient quantity.

Airfield Operations will provide the details of the approved pattern of fencing or marking. The limits of each site must be marked either with reflective cones or with Lind-pet (low level) barriers firmly fixed to the ground at a spacing of no more than 3 metres or closer if specified by Airfield Operations.

Where specified, such as for extended projects, a Contractor's fence must be erected as specified in the drawings, Operational Safety Instructions (OSI) and Operational Works Memo's. All holes, unconsolidated ground such as trenches are to be marked by cones even though they may be inside an approved working area. Before work commences a member of the ACSA Safety Department will inspect the site to check that it is marked out correctly and to a sufficient high standard. For all stand closures, a series of cones and glims must be positioned across the back of the stand.

MARKING OF A SITE BY NIGHT OR LOW VISIBILITY

ACSA Safety will specify to the Contractor undertaking the work the type of night lighting and marking equipment to be used. All working areas must be lit during hours of darkness, commencing 30 minutes after sunset until 30 minutes before sunrise or in conditions of low visibility.

Work sites are to be lit by obstruction lights at a maximum spacing of 3 metres. The obstruction lights are to be of a pattern approved by ACSA Airfield Operations. Whenever possible, temporary stop bars are to be installed or permanent stop bars lit to ensure a particular block in which work is taking place is properly isolated. This does not obviate the need for a lookout if specified and if work is taking place.

Work sites that are required to be marked will be inspected by the ACSA Safety Department each night too ensures they are lit to the correct standard.

WORKS UNDER ON/OFF CONDITIONS

ON/OFF Work can be described as work that takes place on or within the obstruction limits of a taxiway and when an aircraft approaches both men and equipment endangering their safety as well as that of the aircraft and its occupants.

In this case, the men and equipment must clear the area to a safe distance away to allow the aircraft to pass. Once the aircraft is clear, the men and equipment can re-enter the area and continue their work. The conditions for work under ON/OFF work are as follows:

This type of work is only permitted if the visibility is above specified minima as laid down by ACSA Airfield Operations.

- The work must be of such a nature that it can be abandoned and when left it will not be a hazard to passing aircraft

- If equipment/plant is used, it must be mobile so that it can be withdrawn quickly
- All those in the working party must wear high visibility clothing
- R/T Communications with ATNS are to be maintained at all times and a lookout nominated
- All members of the working party must be properly briefed, understand the safety measures and be suitably trained/qualified in the use of R/T communications and procedures; and

If work is carried out at night, red stop bars which surround the pavement block are to be switched on whenever possible to give the party additional protection. The above also apply to urgent electrical repairs.

11. EXISTING SERVICES

Before construction commences on any portion of the site, the Contractor shall arrange with the airport authorities for the area to be examined and thoroughly traversed by the authorities or approved specialist contractors with service detectors to locate existing services. The Contractor and the engineer or his representative will attend such inspections.

The contact details of the person to be contacted for locating of electrical services on the airside are provided in the contact list to be provided at award.

12. ELECTRICAL EQUIPMENT LIMITATIONS

INTERFERENCE WITH NAVIGATIONAL FACILITIES

Where cranes are used, the potential for interference with navigational facilities exists. Fire & Rescue will be notified whenever a crane is to be used, for example, to remove broken down plant.

INTERFERENCE WITH AIRCRAFT COMMUNICATIONS

The Contractor will seek approval from ATNS via Fire & Rescue for the radio frequencies to be used on the project. Should any vehicles or radios be found to cause interference with aircraft communications, the relevant vehicle shall be removed from the site or the radio switched off until the fault can be traced and repaired.

13. HOT WORK PERMIT

The following activities have been identified as hot work:

- Heating paver screeds using gas burners

- Heating bituminous products in spray tankers using gas burners
- Any other work involving open flames

A hot work permit with a validity period of two weeks will be applied for and will list the above activities. Fire & Rescue will be asked to extend the validity of this permit every two weeks.

A copy of the permit will be carried by everyone on the site who is likely to engage in hot work, as well as the Safety Officer. A copy will also be kept in the Site Safety File.

14. RADIO COMMUNICATION ON THE AIRPORT

The Contractor shall establish an acceptable radio communication system on the airport. Such a system must be approved by the ATC to ensure that no interference with normal aeronautical communication occurs. A special radio frequency will be provided by ACSA for the contract.

Radio communication between the AM and the Contractor will be effected by means of two-way radio units. These units are to be supplied by the Contractor. The number of units permitted shall be determined by the AM, depending on the need for direct contact with the Contractor. The Contractor's personnel shall complete a radio operator's basic course before they use the two-way radio units. The duration of the radio course is 5 working days. The contact person for confirmation regarding cost and course dates is listed in the contact list. The Contractor shall be responsible for any maintenance costs, damage or loss of these units.

Alternatively the AM can on request supply all escorts with communication equipment and their instructions shall be adhered to. No access shall be given on the airside without the escort, and all personnel and equipment shall remain behind the escort when elements are entered. All delay to the works due to the incidental non-availability of such escort will be for the Contractor's account.

All permanent staff will apply for ACSA permits. The Contractor will provide within one week of award of contract a list of staff (including identity numbers) who will receive airside induction training. A meeting will then be scheduled to inform the Contractor of the permit requirements and issuing of permits. Staff with serious criminal records will be rejected. Special induction training sessions will be scheduled for the contract to ensure timeous issue of permits to permanent staff members.

15. RESPONSIBILITY OF AIRPORT MANAGER AND AIR TRAFFIC CONTROL

AIRPORT OPERATIONS AND AIR TRAFFIC CONTROL

The AM and the Air Traffic Controller (ATC) are ultimately responsible for the safe and efficient operation of the airport.

The AM will in his/her official capacity have authority to give the Contractor verbal or written orders on matters concerning the operation, security or safety of the airport and the Contractor shall inform the engineer of the orders and carry out the instructions as if issued by the engineer.

The ATC is responsible for the safe movement of all aircraft, both in the air and on the ground. The ATC shall at all times have absolute authority regarding the movement of any construction personnel, vehicles or equipment, where such movement take place within the obstruction free areas of existing facilities, or where it affects the safe movement of the air traffic, and his/her instructions shall be implicitly obeyed. The ATC's decision regarding the acceptability and programming of the Contractor's activities within the above mentioned areas shall be taken into account.

All liaison with the AM or ATC shall be arranged through the engineer. The engineer will establish detailed lines of communication.

NOTAM

The Manager: Airfield will arrange for approval and issue of a NOTAM. He will report back to the party who requested for the NOTAM, who in turn shall liaise with Fire and Rescue for an escort and ensure that the Contractor has completed the safety induction course.

PERMITS

The AM will issue the necessary application forms to those who apply to the airport management for an Airside Vehicle Permit and/or an Airport Security Permit and will decide, on receipt of the completed forms, whether or not to issue the permits. Where necessary the application may include cellphone and cameras.

The AM may at any time withdraw or suspend the Airside Vehicle Permit or any Airport Security Permit.

All permanent staff will apply for ACSA permits. The Contractor will provide within one week of award of contract a list of staff (including identity numbers) who will receive airside induction

training. A meeting will then be scheduled to inform the Contractor of the permit requirements and issuing of permits. Staff with serious criminal records will be rejected. Special induction training sessions will be scheduled for the contract to ensure timeous issue of permits to permanent staff members.

16. AIRPORT SECURITY

The Contractor shall ensure that the security of the airport is maintained wherever it may be affected by his operations. He shall be responsible for the observance of all security regulations and related requirements, both by his employees, subcontractors and their employees, as well as by his suppliers.

Entry into the security area, whether for personnel, vehicles or self-propelled construction equipment shall be subject to the issue of access permits. All personnel or vehicle permits shall be displayed at all times while such person or vehicle is within the security area. Permits may be issued to grant access to a designated area only and it shall be the Contractor's responsibility to exercise the necessary control on site in order to prevent trespassing by personnel or vehicles in this regard.

No photographs shall be taken on the airport without authorisation by AM and the possession of unauthorised cameras and cell phones on the site is expressly forbidden. The possession of any firearms, explosives or other weapons on the site is also expressly forbidden. Smoking or fires are prohibited in certain areas on the airport, and forbidden on the airside, and fires required for any purpose may only be lit after written approval has been obtained from the airport authorities who will also supervise such fires. Smoking is only allowed at properly demarcated areas and marked with SMOKING ZONE signs.

Sketches, drawings, diagrams, information, etc regarding the works may not be made, recorded or reproduced other than that specifically required by and for the purpose of the contract, and no sketches, drawings, diagrams, information, etc may be published in magazines, journals or elsewhere unless authorised in writing by the Employer.

This document contains information related to the defence of the Republic of South Africa and should be treated as secret. Amongst others, the provisions of section 118 of the Defence Act, Act 44 of 1957, as amended, as well as the provisions of the Official Secrets Act, Act No 16 of 1956, as amended, are applicable.

The failure of the Contractor to comply with these or other security regulations and requirements, shall be sufficient reason to cancel the Contractor's access permits and/or terminate all construction activities until such shortcomings or breaches of security have been rectified, and the Contractor shall have no right to claim for any resulting delays, standing time or losses whatsoever. Any costs incurred by ACSA in rectifying and controlling the breach will be for the Contractor's account.

In order to reduce the risk of theft and FOD creation on the airside all recovered material including lights, electrical cabling will be securely stored in containers in the site camp. No additional payment will be made for the provision of these containers and the Contractor shall include this in his establishment cost. ACSA will carry out periodic audits to confirm compliance in this regard.

17. MOVEMENT WITHIN THE AIRPORT (AIRSIDE)

GENERAL

The Contractor shall control all movement of his personnel, vehicles and equipment according to the stipulations laid down by the ATC, or specified in the documents or indicated on the drawings. In order to achieve proper control over all movements on site, certain areas, routes or corridors shall be clearly demarcated by the erection of temporary barriers, cones, construction fences or security fences, as indicated on the drawings or instructed by the AM. Such fences, barriers or cones shall be erected or placed prior to the commencement of any construction activities in any particular area, and shall be moved to new positions as the requirements change during construction of the works.

Movements and operations within the above mentioned demarcated areas shall not normally be subjected to any restrictions from the ATC. Any access, haul or construction routes shall however, be fixed after consultation with the AM.

The Contractor must allow in his construction program for any time required to arrange for permission for employees to enter the airside area to execute the contract. Access to the working areas shall be only through ACSA established gates.

The cost of permits for the Contractor's personnel and vehicles will be borne by the Contractor. It is the Contractor's responsibility to arrange for timely application for permits, including attending the required induction or other training courses. The cost of these courses or any subsequent delay will be for the Contractor and is not refundable.

AIRSIDE ACCESS

The Contractor's employees will not be allowed to enter the airside area without permission. A Security Permit to enter the airside area will ONLY be issued to persons who have undergone the compulsory prescribed Safety (1) and Security (2) Induction course. All the Contractor's labourers and subcontractors shall attend a compulsory safety course. Contact details for more information concerning this course are given in the Contact List. The Contractor shall provide escort services as indicated in Volume 3.

Stakeholders who wish to conduct their own training may do so provided the necessary accreditation is obtained from the Aerospace Industry Education Training Board (AIETB).

There are various accredited training bodies that can provide training, of which Aviation Academy for Southern Africa (AAFSA) is one. Contact details are provided in the Contact List.

All workers entering the airside area must wear lime coloured safety reflective waistcoat type jackets. Waistcoat jackets are more visible during night and low visibility/fog than the vest type,. Refer to PPE procedure. The Contractor's employees may be exposed to excessive aircraft noise and the required measurements shall be taken to comply within the Health and Safety regulations. The Contractor shall warn their employees regarding aircraft jet blast.

Access for construction works to the airside area must be limited to the minimum. Special permits for temporary workers to enter the airside area are required. Permits will not be issued to persons of suspect background. Non South Africans must hold valid work permits to qualify for Security Permits. Full particulars on application will be required. Any worker, who is granted a permit to enter the airside area, must wear such permit while on site and must also be in possession of his/her identification document (ID). The Contractor's workforce will be checked from time to time to ensure compliance with the above. Any personnel found without a permit and an ID will be arrested and charged. The Contractor will be held liable for the behaviour of his personnel.

The ACSA permit/security policy must be adhered to at all times. The policy document can be obtained from the Permit Office (see Contact List). Abuse of the system will lead to termination of the issue of any further permits and permits are not transferable.

The Contractor must confirm with ACSA and control the process of obtaining the necessary permits for his workforce that may have to work on the airside. He must further manage the

process during construction and his tender must allow and include for possible loss of time for workers to move through security check points, etc.

All cost of obtaining permits will be for the Contractor's account. When a permit is no longer required for the workforce the Contractor shall return the permit to the Permit Office.

ACSA will provide its own security during the construction period. The security will comprise of security equipment, checkpoints, metal detectors, X-ray machines, etc.

The Contractor may provide security guards in the campsite. A maximum of one security person will be allowed to sleep on the premises. The Contractor may also apply to the AM in writing, requesting to accommodate an additional security person. ACSA security must vet and clear all security guards permitted to sleep over on the premises and security guards who have not been vetted and cleared will not be permitted to sleep on site. Should the Contractor opt to use an alternative security company, the security company must also be cleared with ACSA security.

AIRSIDE MOVEMENT

The Contractor shall submit a plan to the Manager: Airside for routes to be used for travelling between the various construction areas, spoil site and campsite. The Contractor will not be permitted to travel on any other routes.

AIRSIDE VEHICLE CONTROL SYSTEM

Responsibilities of the Contractor

Contractors wishing to operate vehicles on the airside without the AM's escort shall make the necessary applications in the manner set out below for each vehicle and driver. As a condition of approval of an application for an Airside Vehicle Permit, the company shall ensure that all vehicles and drivers are covered by the Contract Works, Public Liability and SASRIA Special Risks Insurances.

When a vehicle is no longer required for airside use, the Contractor must, upon removing it from airside use, remove and return the Airside Vehicle Permit to the airport manager.

The Contractor shall immediately report to the AM all notifiable accidents and shall ensure that arrangements are in place for the rapid removal and/or repair of its vehicles should they become immobilised on movement areas.

Airside vehicle permit

Applicants are to demonstrate an operational need for the vehicle to enter the airside, and include the following details of the vehicle:

- Name and address of the owner
- Make and model
- Type of work to be undertaken
- Proposed areas of operation
- Certificate of provincial vehicle registration (or reasons why the vehicle is not registered)
- Any special features

Vehicles are to display the current Authority for Use Airside Permit on the right hand side of the windscreen or in a holder. All vehicles (including delivery vehicles, etc.) shall display appropriate identity signage as follows:

Lettering shall be 25 mm wide and 200 mm high, black or dark blue. Signage shall be applied to both sides and on the roof of the vehicle. The company's prefix shall be clearly visible, as well as the vehicle's registration or fleet number. All vehicles registration shall be recorded in the ACSA logbook.

A medium sized amber strobe light shall also be fitted on the roof or other high part of the vehicle or construction plant.

Vehicles shall be registered, or if not registered, shall meet the mechanical and road-worthiness requirements of the relevant provincial authority. In the case of specialist vehicles and equipment, the recognised industry standards shall be met.

An appropriate radio equipped vehicle (eg. from Safety/Fire and Rescue or Contractors approved Escort) shall at all times escort vehicles wishing to operate on the manoeuvring areas of airports.

Authority to drive airside

The authority to drive airside is coupled to the Airside Vehicle Operators Permit (AVOP).

The Contractor certifies by applying for an AVOP that the proposed driver:

- has an operational need to drive on the airside

- holds a current provincial driver's license and, where appropriate, is endorsed with an official license to cover the specific type/s of vehicle/equipment to be operated and is able to operate the vehicle/s concerned in a competent and safe manner
- Has undergone a medical examination.
- is proficient with the terminology used to describe the airside and is familiar with the airport layout relevant to his/her driving duties
- is conversant with the contents of this Procedure Manual.

Except as otherwise specifically authorised, no person shall drive a vehicle on airside unless the vehicle has a current Airside Vehicle Permit and his Security Permit, which is valid for that area of the airport under construction. It is an explicit condition that the Contractor maintains a control system, at the defined security gates, for the access to vehicles and people from outside using these gates during the work periods. This control shall include giving directions and provide contractors escorts to and from the specific work area.

Airside Vehicle Operators Permit - AVOP

An AVOP permit is only required for the Contractor's supervisor who has the responsibility to lead the workforce onto the airside work place. As a first step, drivers of any vehicles or items of construction equipment must hold an authority to drive airside (Airside Vehicle Operators Permit) - AVOP, endorsed by the ACSA Airport Authority. Such Driver's Authority is not transferable between individuals or between airports and must be carried on the person for the duration of the works on the Airside. The above permit is issued to the driver or operator of equipment subject to completion of theoretical and practical examination and satisfying the competency assessments. Drivers and Operators are also subject to medical examination, and shall be in possession of a valid driver's license and Public drivers permit where necessary.

All vehicles and items of construction equipment shall display the permit authorising entrance to the airside clearly in the windscreen of the vehicle or item of construction equipment.

As a driver on the Airside of the airport, it is the driver's responsibility to ensure that he/she remains up to date with the latest amendment to the Airport Airfield Regulations.

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Rules for driving airside

A driver wishing to operate vehicle(s) on airside areas of the Airport shall:

- wear a valid Airport Security Permit at all times when in a restricted area
- only operate a vehicle displaying a current Airside Vehicle Permit
- produce the Airport Security Permit and Airside Vehicle Permit on demand by the AM
- comply with any instruction given by the Manager: Airside at all times
- only operate a vehicle within the area of operation as approved by the Manager: Airside
- an escort must be arranged by the Manager: Airside should the driver operate beyond the approved areas.

All drivers shall:

- give way to manoeuvring aircraft or an aircraft on tow (operation of the red anti-collision beacons may indicate that aircraft engines have started or that push-back or towing of the aircraft is about to commence or is underway)
- obey speed limits. Unless otherwise indicated, speed limits are:

-	on an Airside Road:	30 km/h
-	on perimeter service roads:	30 km/h
-	on an Aircraft Parking Stand:	5 – 8 km/h
-	Elsewhere on apron or movement area:	15 km/h

- obey all other road signs and markings installed around the airport (markings are not always accompanied by associated road signs)
- follow the service roads (apron service roads are delineated by white staggered lines) provided for vehicular movement (as indicated by the AM after award of tender)
- make sure that loose material, equipment and spoil material carried on a vehicle is covered adequately to prevent spillage and where spillage does occur, to clean it immediately.
- when operating a vehicle at night, or in periods of poor visibility while moving on the movement area, ensure headlights are dipped and tail lights are displayed as for normal night driving

- park vehicles and equipment in areas specified by the AM (note that Areas marked for steps and are vacant may be utilised by vehicles associated with the servicing of aircraft in the period ½-hour before to ½-hour after arrival or departure of aircraft)
- when operating vehicles in excess of 4,3 m in height, obtain the necessary clearance, either by radio or by telephone from Apron Control to use the alternative routes as indicated by ATC
- when operating vehicles in excess of 4,3 m in height when crossing a taxiway, runway, apron, etc. outside the delineated service roads or any service vehicle behind the white safety lines at the back of aircraft stands, do so only when:
  (i) there is no aircraft on the facility
  (ii) no aircraft is about to move from the aircraft stands
- take extreme care when overtaking any other vehicle on airside service roads.

Drivers shall <u>not:</u>

- operate construction vehicles/plant equipment without having had an adequate rest period since the previous shift
- drive on taxiways or runways unless in radio communication with Air Traffic Control or under escort by an Airport Authority vehicle
- operate a vehicle while under the influence of drugs or alcohol
- operate a vehicle while taking medication that can cause drowsiness
- operate a vehicle closer than 50 metres to an aircraft
- drive a vehicle between passengers moving to and from an aircraft.

The Airport Manager reserves the right to:

- withdraw any airport security permit
- withdraw any airside vehicle permit, if it is considered necessary
- tow away vehicles when parked incorrectly.

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REHABILITATION OF RUNWAY 01/19 AND REHABILITATION OF THE AIRSIDE APRON TAXI LANE AT CAPE TOWN INTERNATIONAL AIRPORT

ACCIDENT AND INCIDENTS

Scope

This procedure details the reporting steps to be taken by all ACSA personnel as specified below, on all ACSA owned or managed airports including sites occupied by stakeholders and contractors. These steps shall be followed in the event of an accident or incident within the parameters as per the definition.

Objective

To effectively inform all ACSA relevant management and personnel of all incidents or accidents, which have the potential or could result into injury, illness, disease, death, aircraft disaster, damage to property, equipment, vehicles, major aircraft obstruction, normal operational obstruction and business interruption.

Definitions

As per ACSA Safety Definitions Document Z002 004.

Procedure general

(a) Should an accident/incident be reported, or come to the attention of any individual, the accident/incident shall immediately be reported to the Help Desk and the Fire Department.

(b) Upon receipt of the above, the one party shall contact the other (Help Desk to Fire Department or vice versa) irrespective of whether they are aware of the accident/incident or not.

(c) On receipt of the above information, by either the Help Desk or the Fire Department they shall immediately inform the Managers: Airside, Security, Safety and Duty Manager (if during a weekend).

(d) Under no circumstances may any information be relayed to any person outside of ACSA or member of the media without prior arrangement and approval of the Regional General Manager.

(e) Distinction shall be made between the following types of accidents:

- Incidents of a minor nature, which do not have an effect on the operational efficiency of the vehicles, aircraft, building or airport property, involved and reported within 24 hours of occurrence.
- Accidents, which cause damage to property affecting the operational efficiency of vehicles or infrastructure or causing injury, illness or disease to persons travelling or visiting the airport and reported immediately to the AM and the SAPS. Where possible neither the driver, the passenger nor the vehicles should leave the accident site before the arrival of the police.

The Manager receiving the information shall upon receipt, use his/her discretion by immediately taking the necessary steps to restore the situation and it necessary report the situation to the Regional General Manager.

Responsibilities

The overall responsibility for adherence to this procedures lies with the relevant ACSA Regional General Manager. However, in the absence of the relevant ACSA Regional General Manage and on a shift basis this procedure shall rest with the most senior person on duty at the Help Desk and the Fire Department. Due to the necessity of compliance with this procedure it is not possible to nominate one responsible person.

Verification

This procedure will be verified in accordance with Safety Verification Procedure Z002 002.

Non-conformance

Any deviation from this procedure will be identified and registered with immediate corrective measures taken on the spot to limit negative effects in accordance with ACSA Safety Non- Conformance Procedure Z002 001.

Reference

ACSA Safety Non-Conformance:	Procedure Z002 001
ACSA Safety Verification:	Procedure Z002 002
ACSA Safety Change Control:	Procedure Z002 003
ACSA Safety Definitions:	Document Z002 004

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Subordinate Documents

Working Instructions attached to this procedure.

Working Instructions attached to ACSA.

Safety Non-Conformance:	Procedure Z002 001
Safety Verification:	Procedure Z002 002
Safety Change Control:	Procedure Z002 003

Change Control

This procedure may only be changed with the authorisation of ACSA's General Manager: Airport Services and in accordance with ACSA Safety Change Control Procedure Z002 003.

ADDITIONAL REQUIREMENTS REGARDING CONSTRUCTION ACTIVITIES

Existing surfaces

The surfaces of existing facilities at and adjacent to places where the Contractor is working shall be absolutely clean whenever they are used by aircraft. This will require the presence of a cleaning team to remove all debris, stones or other material from the surfaces. The Contractor shall be responsible for any damage to aircraft or other equipment as a result of failure to comply with this requirement. The Contractor must provide designated Foreign Object Debris Bins within the confines of the working area.

Barricades and markings

The Contractor shall erect, maintain, move and finally remove temporary barriers, signs, fences and markings required by the employer, all as prescribed by the airport authorities or as shown on the drawings.

Barricades, markers and signs shall be placed under the direct supervision of the F&R or ER's Safety Controller whilst being in radio contact with ATC, prior to entering a work area for construction purposes. No movement of the Contractor will be permitted outside demarcated areas for construction, and these must be treated as NO-GO-AREAS. (Also see Par 20.1.6).

Illuminated Runway closure marker

Construction on the Runway will not be allowed unless the closure maker is in position and operational.

Unforeseen delays due to action by airport authorities

The Contractor shall note that, at any time during the contract period, the arrival or departure of any aircraft may be delayed or brought forward, and the Contractor may be required to adapt the programme of his work accordingly.

18. ENVIRONMENTAL CONSIDERATIONS

The Environmental considerations that the Contractor must adhere to are specified in Clause C3.3 (Volume 3).

19. THE SAFETY PLAN

The following fundamental safety procedures must be taken into account with which to ensure that work in the Movement Area is properly conducted and are to be followed by those responsible for organising and briefing working parties.

(a) The following very important information must be made available to all staff required to conduct works on the Movement Area:

i. Know whom to contact and by what means should a problem arise.

ii. Know what action you will have to take in the event of an accident.

iii. Manoeuvring Area Entry Points, Entry and Exit points to the Manoeuvring Area must be via an inter-stand clear way.

iv. Always inform Airfield Operations and the ACSA Safety Department when work in an area has been completed.

(b) Operational Areas

i. Always ensure that Airfield Operational Clearance has been obtained before commencing with the work required to be conducted. ACSA Airfield Operations and ATC must approve operational Clearance for ALL work taking place on the Movement Area, including all designated Grass Areas within the Airport Boundary. Routine or planned work is normally discussed with Airfield Maintenance Planning prior to the start date. This process can be managed daily and/or weekly by means of the Works Meetings held.

ii. When work involves a complicated layout or difficult phasing, Airfield Operational Planning will issue a separate "Works Memo" accompanied by the necessary drawings and detailed requirements to be included as part of the Works Programme:

(c) Where work is extensive and affects large numbers of aircraft and major traffic diversions, an Operational Safety Instruction (OSI) will normally be issued as well as referred to the Works Programme.

(d) Where necessary, work will also be notified by NOTAM's or AIP Supplements.

i. Urgent work and certain specified work, including routine inspections, replacement of light fittings, repair of pit covers on the runways, and maintenance of navigation aids and communications equipment at existing sites are subject to prior approval from Airfield Operations and Planning, and must be cleared by ATC.

Notwithstanding the permission granted to commence works, no vehicles or equipment shall be permitted within the Cleared and Graded Area when a runway is in use for landing or take-off. Any vehicle engaged in routine maintenance in terms of ON/OFF conditions shall withdraw to the limits of the Cleared and Graded Area whilst an aircraft is either landing or taking off.

ii. Examples of safety checklists incorporating the various items to be considered in the safety plan are attached in Appendix B, and include:

- RWY/TWY Closure And Opening Checklist
- Daily works Checklist
- Additional Daily Works Checklist.

(e) The Safety Plan will be executed in four phases during the night work construction periods.

PHASE 1: KICK-OFF MEETING TO BE CHAIRED BY THE ER 1 HOUR BEFORE THE TAXIWAY/RUNWAY IS CLOSED

The primary function of the kick-off meeting is to determine if all measures are in place to allow a normal shift's work to be completed in time and as indicated in the Contractor's Method Statement. The following representatives of parties involved with the project will attend the meeting:

- The Engineer's Representative (ER) and ER's Safety Controller

- Site Agent (for each contractor on the project including subcontractors)
- Site Safety Officer/Escort services
- Representative of the AM safety or delegate
- F&R Shift Controller

The following agenda will be discussed and minutes taken by the ER or his representative or the ER's Safety Controller:

- Confirm emergency procedures (by means of detailed explanation by the Contractor)
- Current weather condition and wind direction (feedback by ER's Safety Controller)
- Expected weather conditions, wind direction and Air Traffic Movements for the night (feedback by RE's Safety Controller)
- Plant and personnel (List to be compiled by Contractor's safety official)
- Check hard copy of NOTAM requirements and confirm with ATC (ER's Safety Controller)
- Check available work time and confirm required quantities
- Check latest status and departure time of aircraft (F&R)
- Confirm construction plan, work areas and routes to be followed by Air Traffic and Construction Vehicles, compare with NOTAM (ER's Safety Controller to submit route diagram)
- Confirm availability of Traffic Signs, Barricades and Delineators and the responsibilities for moving the signs in place (ER's Safety Controller to submit traffic diagram)
- Confirm Method Statement by the Contractor
- Confirm operational requirements:

-	Plan transverse and longitudinal joints	-	Contractor
-	Temporary paint markings	-	Contractor
-	Moving temporary taxiway lights	-	Electrical Contractor
-	Closure of taxiways	-	ER's Safety Controller
-	Spoil and stockpile sites as per the drawings	-	Contractor

-	Affected electrical services	-	Electrical Contractor
-	Open excavations along the facilities	-	All Contractors

- Confirm the availability of a qualified Motor Mechanic on site
- Confirm there are sufficient critical spares available for critical plant

PHASE 2: TAXIWAY/RUNWAY CLOSURE CHECKLIST TO BE COMPLETED BEFORE ACCESS TO FACILITIES

The ER's Safety Controller will report on the following matters:

- Taxiway/Runway Closure Markers, Barricades and Delineators placed in position
- Plant and vehicles provided with Amber Flash Lights and Reflective Tape as required
- Personnel have Lime Reflective Jackets and necessary valid permits (eg. AVOP, etc)
- Security measures at the gate are in place
- Radio Communications of both F&R Escorts and ER's Safety Controller in place

PHASE 3: OPERATIONAL MATTERS DURING CONSTRUCTION

The ER's safety controller will inform the Contractor to adhere to the following timetable during the shift to ensure that the Taxiway/Runway can be opened to Air Traffic in due time:

- ER's Safety Controller must confirm with the Contractor 2 hours before taxiway/runway opening time the official completion time (Refer to items 20.1.1, 20.1.7).
- Construction activities will be completed 30 minutes before taxiway/runway opening time. ATC will be informed on completion of the construction activities.
- No longitudinal steps will be allowed.
- Temporary paint markings for live taxiways and runways will be completed 20 minutes before opening. ATC will be informed on completion of the paint markings.
- Plant will vacate the runway 25 minutes before opening, to designated storage areas.
- The ER's safety Controller must be finished with inspection of work completed 20 minutes before opening after which the vehicle barricades shall be removed.
- The taxiway/runway opening checklist will be completed and handed over to officials of Fire and Rescue completed 10 minutes before opening.

- The runway closure markers are to be removed on instruction of the officials of Fire and Rescue 10 minutes before taxiway/runway opening time.

The Contractor will be required to include the above timetable in his proposed Construction Method Statement to be approved by the Engineer and the AM. This will include a methodology for cleaning the work area and the haul routes. A cleaning team and equipment will be on standby till one hour after opening should additional cleaning be required on instruction of Fire and Rescue.

The Construction and phasing plan indicate the order of construction to prevent conflict between aircraft movements and construction vehicle routes. Haul routes will follow perimeter road, apron and taxiways. Delineators will indicate the haul route between the work area and the gate or spoil and stockpile areas. Vehicles will not be allowed to move neither onto the grass verges nor close to the Navaids.

Barricades will be placed at the entrance to taxiways affected by night work such that aircraft approaching a closed taxiway will have an alternative route to follow. Each work area will be totally isolated by means of barricades and Markers, except for a single access for construction vehicles. Work areas will be demarcated at least 50 m away from any "live" Taxiway centreline and 80 m away from the Runway centreline.

Vehicles will be fitted with reflective tape, 2 strips, attached horizontally, each 150 mm wide and with 150 mm gap along the two longer sides of the equipment. Rotating amber lights will be fitted to the equipment. Construction teams will be identified by colour codes.

All lights on vehicles, plant or other obstacles, the work area and used for demarcation will be inspected regularly by the ER's Safety Controller. Any malfunctioning light need to be replaced within 30 minutes.

As part of the ER's personnel, the Safety Controller will have the following duties on site:

- Confirm with ATC on a continuous basis the scheduled route for aircraft and vehicles
- Inspect and confirm Markers, Barricades and Delineators at the start and during routine inspections on shift;
- Check safety procedures and markings by the Contractor;
- Keep in contact with Escorts and give instructions if required by ER

- Keep track of ATC instructions to aircraft and their movements and notify if errors have been picked up
- Keep track of vehicle movements and give assistance where required; must be informed of visitors and subcontractors coming to the work area, and be informed of who the escorts are
- Liaise with Airport Security on permits and security at the gate, and do regular spot-checks for visibility of permits on the Contractor's employees.

PHASE 4: RUNWAY OR TAXIWAY OPENING CHECKLIST TO BE COMPLETED 10 MINUTES BEFORE OPENING OR AS REQUIRED BY FIRE AND RESCUE IN CASE OF AN EMERGENCY OPENING OF THE RUNWAY OR TAXIWAY

The work shall be programmed such that enough time is allowed for cleaning and inspection of the runway/taxiway prior to opening of the element. Late opening of elements due to negligence of the Contractor will be subject to penalties. (See 20.1.3)

The work areas and haul routes will be inspected by the ER's Safety Controller 20 minutes before opening after which the following Taxiway/Runway Opening Checklist will be completed:

- Excavation backfilled where required in RWY and TWY or TWY Strip
- Ramps complete and in place as required
- Haul routes clean
- Work area clean
- Plant and delineators moved to the designated areas
- Personnel ready to move Barricades and Markers to designated areas on instruction by Fire and Rescue.

The checklist will be signed by the Contractor's Safety Official, ER's Safety Controller and officials of Fire and Rescue, 20 minutes before opening. The checklist must be completed by the ER's Safety Controller.

20. THE CONTINGENCY PLAN

The following actions will be taken if required:

LATE COMPLETION ON A SHIFT

Asphalt work, Earth works, Layer works and Electrical work

- ATC will be contacted by the ER's Safety Controller via F&R 2 hours before official completion and again 1 hour before completion and the status communicated.
- Should estimated completion be later than the designated completion time, the Engineer will advise on immediate termination of work and making safe of the work area.
- The Taxiway/Runway Opening checklist will be done.
- Handover to Fire and Rescue team will follow.

Paint markings

The paint contractor will be contacted 3 hours in advance of his services being required and his attendance confirmed every hour. Yellow and white paint and hand equipment shall be available on site for possible emergency use.

Confirmed late completion

This shall be identified 2 hours before opening and again 1 hour before opening and confirmed by the ER's Safety Controller and communicated through F&R to ATC and the Help Desk. The expected completion time shall be made known 30 minutes before opening time or earlier and adhered to.

The ER's Safety Controller will go through the opening checklist before signing the handover form.

Sudden rain

Where a sudden downpour occurs, work will be stopped and the balance of the work period re-planned in order to open the runway to air traffic at the appointed time. Should rain delay critical asphalt work which could delay opening of the runway or taxiway, paving will be stopped and a temporary ramp installed.

Emergency flight /fog/low visibility

Should the Contractor be required to vacate the runway due to the AM's need to use the ILS, this will be treated as an emergency measure. Works will be stopped immediately. A temporary full width ramp shall be installed in the case of asphalt works and earthworks

excavations backfilled in the case of earthworks as per strip hazard requirements. The Contractor shall evacuate the runway within 45 minutes of being notified of the emergency.

Aircraft or vehicles violate no-go areas

The ER's Safety Controller will notify ATC via F&R per radio and if possible, physically stop the violation. (Refer to Par 15.1).

Non-attendance of radio or communications support

The ER's Safety Controller will notify the controller at the Fire Station and the Contractor will be notified to stop all work and vacate the work area if there is no attendance in 30 minutes. A temporary ramp will be installed and the Runway/Taxiway opening procedures will be followed.

This rule will also apply for telephone and cell phone communication failure between the ER's Safety Controller and F&R.

Inoperative plant on the taxiway/runway

Safety Controller will notify ATC per radio. ATC will be contacted 2 hours before official (as per NOTAM) completion time and works will be stopped. ATC will be contacted again 1 hour before completion and the status communicated.

The Contractor shall ensure that any plant inoperative on the RWY or within the ILS restriction distance (Zone III) can be removed immediately. The Contractor's method statement shall clearly indicate how inoperative plant in these areas, will be removed.

21. REPORTING OF ACCIDENTS/INCIDENTS

Contractors shall report to the AM any accident involving vehicle or plant under their control where the accident has involved injury or damage to another vehicle, aircraft or airport property; or where there is injury to driver(s) or passenger(s) in the vehicle. The prescribed accident report shall be used for this purpose. Refer to paragraph 15.

22. PENALTY FOR NON-COMPLIANCE TO THE AIRSIDE RULES AND SAFETY SYSTEM

The Contractor's attention is drawn to the penalty system introduced by the AM to enhance airside safety. The contractor shall be conversant with the content of the GA Airside Safety

Penalty System document, which is available from the Department Head: Aviation Safety or go the website, www.acsa.co.za.

Under no circumstances will the Contractor be allowed to make use of any baggage trolley or other airport equipment. Should the Contractor or his Subcontractors be seen to make use of any trolleys or other airport equipment, an immediate spot fine of **R3 000,00** per occurrence will apply and such monies will automatically be deducted off any payment certificates due to the Contractor.

Similarly the contractors and subcontractors are limited to their actual site establishment areas and places of work and under no circumstances will materials, equipment, tools, cooking or any other disturbances be allowed in public areas and delivery of materials via operational environment in which their work will be performed. A spot fine in the form of a R1 000,00 penalty per occurrence will be deducted off any payment certificate due to the Contractor should the above not be adhered to.

The Contractor's employees are to be clearly identifiable and must be discouraged to visit the public areas of the airport.

Failure or refusal on the part of the Contractor to take the necessary steps to ensure the safety and convenience of the public accommodation of traffic, resources such as plant and personnel in accordance with these specifications or as required by AM or ordered by the engineer, shall be sufficient cause for the engineer to impose penalties.

Fixed and non-fixed penalties shall be deducted for each and every occurrence of non-compliance with any of the requirements of the standard specifications. In addition time-related penalties over and above the fixed penalties shall be deducted for non-compliance as specified.

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23. CONTACT LIST

Attached is a list of the telephone numbers of persons who can be contacted concerning site related issues.

	Function/purpose ***Example below***	**Name**	**Contact number**
1	Emergency number		
2	Manager: Projects		
3	Project Engineer		
4	Senior Safety Compliance Officer		
5	Manager Airfield Services		
6	Safety Induction courses		
7	Radio Communication course		
8	Spoil sites		
9	Campsite		
10	Locating existing services: • Electrical services • Wet services (Bulk)		
11	Existing ATNS services		
12	Surface Maintenance		
13	Access Permits		
14	Engineer		

Amendments

Date	**Item Changed**	**Source**

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24 DECLARATION

I/we herewith declare on (date) .....that I/we:

(name) ..... (signature) .....

(name) ..... (signature) .....

(name) ..... (signature) .....

(name) ..... (signature) .....

(name) ..... (signature) .....

(name) ..... (signature) .....

is/are fully conversant with the content of this document and will be responsible on behalf of

……..……..

(name of Contractor)

to implement and maintain these procedures during the period working airside for completion of Contract No. _____

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APPENDIX A: WORK AREAS AND STRIP HAZARD REQUIREMENTS FOR TAXIWAYS AND RUNWAYS

(To be completed by Contractor during construction)

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APPENDIX B: APPLICATION FORM FOR CLOSURE OF AIRSIDE FACILITIES

(To be completed by Contractor during construction)

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REHABILITATION OF RUNWAY 01/19 AND REHABILITATION OF THE AIRSIDE APRON TAXI LANE AT CAPE TOWN INTERNATIONAL AIRPORT

APPLICATION FORM FOR CLOSURE OF AIRSIDE FACILITIES

Applicant's information:

Name of Contractor/Company:.....

Name of person in charge:.....Signature:.....

Contact No : Tel : .....Cell : .....

Fax : ……. .....e-mail : .....

CLOSURE OF AIRSIDE FACILITIES				
Section of RWY/TWY for closure	**Date (D) and time (T) of closure**	**Expected date (D) and time (T) re-opening**	**Actual re-opening of facility after inspection for service**	
			Date (D) and (T) time	**Name (N) and signature (S) of person authorised by ACSA to inspect facility**
	D:	D:	D:	N:
	T:	T:	T:	S:
	D:	D:	D:	N:
	T:	T:	T:	S:
	D:	D:	D:	N:
	T:	T:	T:	S:
Remarks (delays, problems, etc):				
ACSA Conditions:				

For ACSA purposes only:

Department informed/NOTAM copied to		
Department	**Contact person**	**Date**
ATNS		

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Fire and Rescue		
Safety & Security		
Other:		

NOTAM processed by: Name .....Signature:.....Date.....

NOTAM approved by: Name .....Signature:.....Date.....

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NOTES:

1. To Compiler of NOTAM: A copy of this request must be returned to the Applicant/Contractor on approval of request.

2. To Applicant/Contractor: This form must be returned to the Manager: Airside after inspection for re-opening of the facility with the necessary signatures.

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Runway Closure Form

By Contractor					By Closing Shift			By Opening Shift		
Date	**Contractor**	**Section RWY/TWY Closure**	**NOTAM Ref No.**	**Date & Time on**	**Expected Date & Time off**	**Shift Name**	**Escort Name**	**Actual Date & time on**	**Actual Date & time off**	**RWY/TWY Open and Serviceable by:(Shift/Sign)**
	1.									
	2.									
	3.									
	4.									
	5.									
	6.									
	7.									
	8.									
	9.									
	10.									

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APPENDIX C: ROUTING PLAN

(to be submitted by successful contractor)

APPENDIX D: METHOD STATEMENT

(to be submitted by successful contractor)

APPENDIX E: MUNICIPAL AND ELECTRICAL TARRIFS

C3.5.3 ACSA CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

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REHABILITATION OF RUNWAY 01/19 AND REHABILITATION OF THE AIRSIDE APRON TAXI LANE AT CAPE TOWN INTERNATIONAL AIRPORT

ACSA Construction Environmental Management Plan – EMS 050

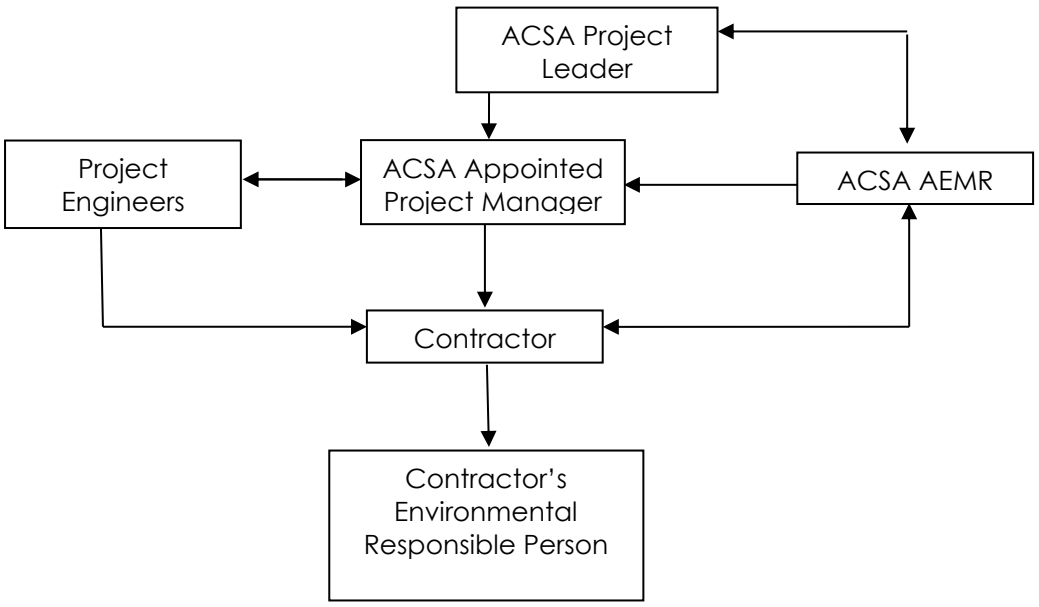
1. BACKGROUND

The purpose of this Environmental Management Plan (EMP) is to co-ordinate mitigation, rehabilitation, and monitoring measures of construction projects at ACSA airports such that environmental pollution and risks are minimized as far as possible.
This EMP is provided to contractors at the tender stage to ensure all costs associated with this EMP can be appropriately costed.

2. ORGANISATIONAL STRUCTURE

It is essential that an organizational structure is established early in the construction phase of the project and that all parties concerned accept the structure. This identifies the responsibilities and the authority of the ACSA Project Leader, design team, Project Manager (PM), consulting engineers and the numerous contractors and sub-contractors.

Responsibility for the application of the construction phase EMP for the project starts with ACSA's Project Leader. The ACSA Project Leader will devolve this responsibility to the designated and appointed Project Manager to assume this task within his or her portfolio, who will in turn issue conformance instructions to the Contractor(s). The Contractor(s) will appoint an Environmental Responsible Person who will ensure that the requirements of the EMP are implemented by monitoring and auditing the performance of the Contractor. ACSA's AEMR (Airport Environmental Management Representative) shall play an oversight role and report on overall EMP compliance to the ACSA Project Leader.



2.1 ACSA Project Leader

This is an ACSA employee ultimately responsible for the overall success of a project. This person could be within the Commercial, Maintenance & Engineering, Projects or Airport Planning Department.

2.2 Project Manager (PM)

The PM is responsible for ensuring that on-site activities are undertaken in accordance with the requirements of the EMP. The PM will thus need to ensure that:

- This EMP is included in the contracted agreements issued to the contractor(s)
- Environmental Method statements requested by ACSA's AEMR are provided prior to construction
- Corrective action is implemented as required
- Appropriate records and information regarding compliance with the EMP requirements are maintained and made available to the AEMR
- Instructions as required by the AEMR are issued to the relevant contractor

2.3 Contractor

- The Contractor shall ensure that all employees, sub-contractors, suppliers, etc. are fully aware of and comply with the environmental issues and requirements detailed in this EMP
- The Contractor shall liaise closely with their Environmental Responsible Person and PM and will ensure that works on site are conducted in accordance with this EMP
- The Contractor is to have a copy of the EMP on site and be familiar with its contents
- The Contractor must ensure that all employees (permanent and temporary) and all sub-contractors that work on the site for longer than two days, receive Environmental Awareness Training prior to commencing work on site
- The Contractor shall appoint an Environmental Responsible Person in writing, and will forward this appointment to ACSA's AEMR
- Prior to construction commencement, the Contractor shall draft and submit written environmental method statements to ACSA's AEMR for approval, covering those activities which are identified (in this document and/or by the AEMR), as being potentially harmful to the environment

Environmental Method Statements indicate how compliance shall be achieved and environmental risk will be mitigated. The environmental method statement shall state clearly:

- Timing of activities
- Materials to be used
- Equipment and staffing requirements
- The proposed construction procedure designed to implement the relevant environmental specifications
- The system to be implemented to ensure compliance with the above; and
- Other information deemed necessary by the AEMR and Environmental Responsible Person.

Method statements shall be submitted at least five working days prior to expected commencement of work on an activity, to allow the AEMR time to study and approve the method statement. The contractor shall not commence work on that activity until such time as the method statement has been approved in writing by the AEMR.

Due to changing circumstances, it may be necessary to modify method statements. In such cases, the proposed modifications must be indicated and agreed upon in writing between the AEMR and Environmental Responsible Person. The AEMR and Environmental Responsible Person must retain records of any amendments and ensure that the most current version of any method statement is being used.

2.4 Contractor's Environmental Responsible Person

The Contractor shall appoint / designate an environmental responsible person (Designated Environmental Officer (DEO)) to liaise with ACSA's AEMR and ensure that the requirements set out in this EMP are implemented. The Environmental Responsible Person shall:

- Develop a system to ensure that the EMP and Environmental Method Statements are effectively implemented;
- Audit this system so that he/she can demonstrate to the AEMR that the EMP and Environmental Method Statements are being effectively implemented;
- Ensure that Contractors staff, sub-contractors, suppliers etc. are aware of their requirements in terms of the EMP and that they adhere to the EMP.
- Ensure that responsible persons for sub-contractors or sub-sub contractors are designated to carry out the requirements of the EMP and Environmental Method Statements;
- Have sufficient authority to issue site instructions to the Contractors staff on their site.
- Ensure that the Contractor and his Subcontractors and his employees have received the appropriate environmental awareness training before commencing on site.
- Meet with the Contractor to discuss the implementation of and non-conformances with this document.
- Identify appropriate corrective action if non-compliance occurs or unforeseen environmental issues arise that require environmental management action.
- Keep a register of major incidents (spills, injuries, complaints, legal transgressions, etc) and other documentation related to the EMP.
- Issue stop orders when required.
- Report to ACSA's AEMR any problems (or complaints) related to conformance with this document which cannot first be resolved in co-operation with the Contractor and/or his Subcontractors.
- Assist in finding environmentally acceptable solutions to construction problems.

2.5 The Designated Environmental Officer (DEO)

Once a nominated representative of the Contractor has been approved he/she shall become the DEO and shall be the responsible person for ensuring that the provisions of this EMPI are complied with during the life of the contract. The DEO shall submit regular written reports to the Engineer, but not less frequently than once a month.

The DEO may undertake other construction duties unless the Appendix to Tender prescribes this position as 'dedicated' as opposed to the standard position being 'designated'. However, the DEO's environmental duties shall hold primacy over other contractual duties and the Engineer has the authority to instruct the Contractor to reduce the DEO's other duties or to replace the DEO if, in the Engineer's opinion, he/she is not fulfilling his/her duties in terms of the requirements of this EMPI. Such instruction will be in writing clearly setting out the reasons why a replacement is required.

As a minimum the DEO shall have an accredited diploma qualification in environmental or natural sciences or equivalent and a minimum of 2 years 'experience in a similar role in construction or other environmental regulatory field. In addition to the compliance duties relating to EMPI the DEO shall also provide full cooperation whenever the Contractor is subjected to regular environmental audits.

2.6 ACSA's AEMR shall:

- Request, review and approve environmental method statements from the Contractor.
- Undertake regular inspections (at least monthly, and more frequently at the AEMR's discretion) of the site in order to check for compliance with method statements as well as specifications outlined in this EMP.
- Provide an audit report to the ACSA Project Leader.

3 ENVIRONMENTAL SPECIFICATIONS

3.1 LOCATION OF CAMP AND DEPOT

The Contractor's Camp and Materials Storage Area shall be located at a position approved by the AEMR. No site staff other than security personnel shall be housed on site.

The Contractor shall provide water and/or washing facilities at the Contractor's Camp for personnel.

The Contractor's Camp and Materials Storage Area shall be kept neat and tidy and free of litter.

3.2 DEMARCATION OF THE SITE & ACCESS

It is important that activities are conducted within a limited area to facilitate control and to minimise the impact on the existing natural environment, existing tenants, and other construction activities in the vicinity and public thoroughfares.

The Contractor shall demarcate the boundaries of the site in order to restrict his construction activities to the site. The Contractor shall ensure that all his plant, labour and materials remain within the boundaries of the site. Failure to do so may result in the Contractor being required to fence the boundaries of the site at his own expense to the satisfaction of the AEMR.

Security and access to the site must be controlled at all times.

3.3 TRAFFIC CONTROL & SAFETY

Traffic control and safety shall be done in accordance with the South African Traffic Safety Manual, with the relevant signs, flagmen, barriers, etc being provided at the various access points. Traffic control shall be done in co-operation with local traffic officials. All laws and regulations applicable on the public road system are enforceable on the construction site. Due to the activities involved in the construction phase, trucks and other related vehicles will be using the roads leading to the site. These vehicles will need to be roadworthy and abide by the speed limits. The Environmental Management Plan for the construction phase should monitor the impact on current traffic by additional construction vehicles to ensure noise, safety and dust issues are kept to a minimum.

3.4 ABLUTION FACILITIES

The Contractor shall provide the necessary ablution facilities for all his personnel.

Chemical toilets shall be provided, with a minimum of one toilet per 15 persons. Toilets shall be easily accessible and shall be transportable. The toilets shall be secured to prevent them from blowing over, and shall be provided with an external closing mechanism to prevent toilet paper from being blown out. Toilet paper dispensers shall be provided in all toilets. Toilets shall be cleaned and serviced regularly by a reputable toilet servicing company. Toilets shall be emptied before long weekends and builders' holidays.

The Contractor shall ensure that chemicals and/or waste from toilet cleaning operations are not spilled on the ground at any time. Should there be repeated spillage of chemicals and/or waste (i.e. more than three incidents), the Contractor shall be required to place the toilets on a solid base with a sump at his own expense. Accumulations of chemicals and waste will have to be removed from the site and disposed at an approved waste disposal site or sewage plant.

Abluting anywhere other than in the toilets shall not be permitted. Repeated use of the veld or other areas for ablution purposes (i.e. more than three incidents) may result in the guilty party being given a spot fine. The Contractor shall also be responsible for cleaning up any waste deposited by his personnel.

3.5 DOMESTIC WASTE WATER

Wastewater from any other ablution or kitchen facilities on site shall be discharged into a suitable conservancy tank. The Contractor shall be responsible for ensuring that the system continues to operate effectively throughout the project and that the conservancy tank is emptied as required during the project. The Contractor

shall employ a suitable qualified sub-contractor or the local authority to empty the conservancy tank.

3.6 ENVIRONMENTAL TRAINING

According to the National Environmental Management Act (107 of 1998), any costs incurred to remedy environmental damage shall be borne by the person responsible for that damage; it is therefore critical that the contractors read and understand the requirements of this document and any succeeding documents pertaining to environmental requirements before construction commences. It is a requirement of the act that everyone takes reasonable measures to ensure that they do not pollute the environment. Reasonable measures include informing and educating employees about the environmental risks of their work and training them to operate in an environmentally acceptable manner.

Training is fundamental to the successful implementation of the EMP. All personnel whose work may result in an impact on the environment must receive appropriate training in the environmental procedures to be followed. In this regard, the following must be fulfilled:

- All personnel working on the construction site must attend an environmental awareness training workshop conducted by the Environmental Responsible Person prior to commencing work on site. The purpose of the workshop is to provide staff with the information they require to enable them to meet the requirements of the EMP. The Environmental Responsible Person may call upon the services of a specialist environmental education translator should this be required. Contractors, sub contractors and all their staff must attend.
- The Environmental Responsible Person shall keep a register of all personnel attending the environmental awareness training workshops; attendance records must be filed and available on site.
- All staff must be trained in emergency response procedures; attendance records must be filed and available on site.
- Environmental awareness posters are to be displayed on site. Environmental 'do's and don'ts' must be clearly illustrated. The posters shall use pictures to convey the intended message and any explanatory text will be in English and the local dialect.

3.7 SOLID WASTE MANAGEMENT

Solid waste includes construction debris (e.g. packaging materials, timber, cans etc.) waste and surplus food, food packaging etc.

The Contractor shall institute an on-site waste management system that is acceptable to the AEMR in order to prevent the spread of refuse within and beyond the site. The Contractor is reminded that wind velocities on the construction site can be extremely high.

All waste shall be collected and contained immediately. The Contractor shall institute a weekly clean up of the site. This daily/weekly clean up shall be for the Contractor's account.

The Contractor shall not dispose of any waste and/or construction debris by burning or burying. The use of waste bins and skips is essential. The bins shall be provided with lids and an external closing mechanism to prevent their contents from blowing out. The Contractor shall ensure that all waste is deposited by his employees in the waste bins for removal by the Contractor. Bins shall not be used for any purposes other than waste collection and shall be emptied on a regular basis. All waste shall be disposed of off site at approved landfill sites.

Waste generated at the construction camps shall be separated into recyclable and non-recyclable waste, and shall be separated as follows:

- Hazardous waste (including used oil, diesel, petrol tins, paint, bitumen, etc.);
- Recyclable waste (paper, tins, glass);
- General waste; and
- Reusable construction material

Recyclable waste shall be deposited in separate skips/bins and removed off site for recycling. The Contractor may wish to enter into an agreement with the surrounding communities and/or his staff with regard to the collection and sale of recyclable and reusable materials.

Hazardous waste, including waste oil and other chemicals (e.g. paints, solvents) shall be stored in (an) enclosed area(s), and shall be clearly marked. If deemed necessary by the Environmental Responsible Person, the Contractor shall obtain the advice of a specialist waste expert concerning the storage of hazardous waste. Such waste shall be disposed of off site by a specialist waste contractor, at a licensed hazardous waste disposal site. The Contractor shall keep documentary proof of the safe disposal of all waste, which will be available for audit at all times and will also include the waste type and volume.

The Contractor is advised that spot fines for littering have been included in this document. Offenders found littering will be liable for the spot fine.

3.8 PROTECTION OF FAUNA AND FLORA

All fauna and flora (unless alien) within and around the site shall be protected. Birds and animals shall not be caught or killed by any means, including poisoning, trapping, shooting or setting of snares.

3.9 PROTECTION OF ARCHAEOLOGICAL AND PALAEONTOLOGICAL SITES

If any possible palaeontological/archaeological material is found during excavations, the Contractor shall stop work immediately and inform the AEMR. The AEMR will inform the South African Heritage Resource Agency (SAHRA) and arrange for a palaeontologist/archaeologist to inspect, and if necessary excavate, the material, subject to acquiring the requisite permits.

3.10 WATER POLLUTION PREVENTION & MANAGEMENT

The Contractor shall prevent pollution of surface or underground water and shall comply with the Water Act, 36 of 1998, and any other national, provincial and local

legislation regarding the prevention of water pollution, including the pollution of groundwater and any wetland on site.

The Contractor must ensure that all reasonable precautions are taken to prevent the pollution of the ground and water resources as a result of site activities. Ground contamination may hinder or prevent the re-establishment of natural vegetation. The Contractor shall keep the necessary materials and equipment on site to deal with ground spills of any of the materials used or stored on site.

The Contractor shall ensure that no oil, petrol, diesel, etc is discharged onto the ground. Pumps and other machinery requiring oil, diesel, etc that is to remain in one position for longer than two days shall be placed on drip trays. The drip trays shall be emptied regularly and the contaminated water disposed of off site at a facility capable of handling such wastewater. Drip trays shall be cleaned before any possible rain events that may result in the drip trays overflowing, and before long week ends and holidays.

Stormwater and/or groundwater may accumulate on site during the construction period and there is the potential for this water to be contaminated as a result of construction procedures. The Contractor shall ensure that this water does not become contaminated. Contaminated water (eg cement washings, waste water from ablution or kitchen facilities etc) shall be collected in a conservancy tank, removed from the site and disposed of in a manner approved by the AEMR.

3.11 STORMWATER CONTROL

Contractors shall take reasonable measures to prevent erosion resulting from a diversion, restriction or increase in the flow of stormwater caused by the presence of their works, operations and activities. Any stormwater collected in bunded areas containing oils, fuels, chemicals or other potentially polluting substances shall be pumped out of the bund, collected in a suitable container and removed from the site for appropriate disposal.

Contractors shall provide adequate control measures to prevent stormwater damage and erosion during construction. Control measures should include the control by sumps and adequate pumping of water ingress into trenches below the water table. Stormwater should also be directed into attenuation ponds wherever possible. All methods of stormwater control during the construction phase are to be agreed and approved by the AEMR.

Berms and existing stormwater drainage systems shall be used to prevent surface run-off from entering site excavations.

3.12 WATER RESOURCE MANAGEMENT

Water is a scarce resource and shall be conserved wherever possible. The Contractor shall not waste water (e.g. water areas excessively etc). All leaking water pipes are to be repaired or replaced immediately. The Contractor shall provide all drinking water and water for construction purposes. Water shall not be used unnecessarily.

3.13 POLLUTION PREVENTION AND REMEDIATION

The Contractor must ensure that all reasonable precautions are taken to prevent the pollution of the ground and water resources as a result of site activities. Pollution could result from the release, accidental or otherwise, of contaminated runoff from construction camps, discharge of contaminated construction water, chemicals, oils, fuels, sewage, run off from stockpiles, solid waste, litter, etc.

The first activity to be undertaken once a spill occurs is to terminate the source of the spill and contain the polluted area.

All fuel, oil or hydraulic fluid spills are to be reported to the Project Manager/ Engineer, Environmental Responsible Person and AEMR so that appropriate clean-up measures can be implemented.

The Contractor shall keep the necessary materials and equipment on site to deal with ground spills of any of the materials used or stored on site. Sufficient quantities of suitable hydrocarbon absorbent or remediation materials must be present on site at all times. Absorbent "spill-mop-up" products need to be on hand – Enretech, Spillsorb or Drizit type products should be investigated for these purposes.

Concrete-mixing equipment (mixers and the like) shall not be discharged overland. Such water shall be collected in a conservancy tank, removed from the site and disposed of in the correct manner. The Contractor may consider reusing such water for washing other concrete equipment to minimise the amount required to be removed off site.

The Contractor is advised that cement and concrete are regarded as highly hazardous to the natural environment on account of the very high pH of the material, and the chemicals contained therein. Therefore the Contractor shall ensure that:

- concrete is mixed on mortar boards, and not directly on the ground;
- the visible remains of concrete, either solid, or from washings, are physically removed immediately and disposed of as waste. Washing the visible signs into the ground is not acceptable; and
- all aggregate is also removed.

Trucks delivering concrete shall not wash the trucks or the chutes on the site. All washing operations shall take place off site at a location where wastewater can be disposed of in the correct manner.

3.14 SERVICING/FUELLING OF CONSTRUCTION EQUIPMENT

Servicing and fuelling should preferably occur off site.

However, if these activities occur on site, the Contractor shall ensure that all servicing of vehicles and equipment takes place in designated areas agreed upon by the AEMR. All waste shall be collected and disposed of off site at an appropriately licensed landfill site. All equipment that leaks onto the ground shall be repaired immediately or removed.

Similarly, no vehicles or machines shall be refuelled on site except at designated refuelling locations, unless otherwise agreed with the AEMR. The Contractor shall not change oil or lubricants anywhere on site except at designated locations, except if there is a breakdown or an emergency repair. In such instances, the Contractor shall ensure that he has Drizit pads (or equivalent) and/or drip trays available to collect any oil, fluid, etc.

3.15 FUELS AND CHEMICALS

The Contractor shall take all reasonable precautions to prevent the pollution of the ground and/or water resources by fuels and chemicals as a result of his activities.

The Contractor shall keep the necessary materials and equipment on site to deal with ground spills of any of the materials used or stored on site.

The Contractor shall ensure that no oil, petrol, diesel, etc. is discharged onto the ground. Pumps and other machinery requiring oil, diesel, etc. that is to remain in one position for longer than two days shall be placed on drip trays. The drip trays shall be emptied regularly and the contaminated water disposed of off site at a facility capable of handling such wastewater. Drip trays shall be cleaned before any possible rain events that may result in the drip trays overflowing, and before long week ends and holidays.

The Contractor shall remove all oil-, petrol-, and diesel-soaked sand immediately and shall dispose of it as hazardous waste.

Should the Environmental Responsible Person/AEMR and/or the relevant authorities deem it necessary to institute a programme for the removal of contaminated ground resulting from the non-compliance of the controls detailed above, these costs will be for the Contractor's account. Remedial action shall be approved by the AEMR and relevant authorities, if appropriate.

3.16 FUEL & HAZARDOUS MATERIALS STORAGE

Contractors shall identify fuels and hazardous substances to be stored on the site and shall ensure that they know the effects of these substances on their staff and the environment. The Environmental Responsible Person shall keep a copy of a fuels and hazardous substance inventory which shall be available on site.

Contractors shall ensure that the quantities of fuels and chemicals on site are appropriate to the requirements and are stored and handled so as to avoid the risk of spillage. All fuels, oils and chemicals shall be confined to a specific and secured area. These materials shall be stored in an area with a concrete or other impervious base, which is adequately bunded. The volume of the bund shall be two times the volume of the containers stored. Gas and fuel should not be stored in the same storage area, and any generators used on the site should also be placed on a bunded surface.

The Contractor shall be responsible for securing any permits / certificates that may be required in respect of fuel storage from the local authorities.

In addition, the following must be implemented:

- All fuel stores must be equipped with a fire extinguisher;
- Materials Safety Data Sheets must be available on site and filed accordingly.
- No vehicle servicing may take place on the site. Servicing of equipment that uses hydrocarbon fuels, oils, lubricants and other hazardous chemicals may only take place in the site camp under conditions approved by the AEMR;
- All fuels are to be stored within a lined / demarcated area in the Site Camp. No refuelling is to take place outside of this demarcated area unless authorised by the Environmental Responsible Person. Note that filling machinery in the field (on site) from canisters should be cleared with the Environmental Responsible Person and both a "no leak" funnel / pump and one of the above mentioned absorption products must be on hand in the event of such refuelling taking place.

3.17 DUST CONTROL

The Contractor shall be responsible for the continued control of dust arising from his operations, through measures including, but not limited to, spraying of water on bare areas, rotovating straw bales into the soil surface and the scheduling of dust-generating activities to times when wind velocity is low. Overhead sprayers shall not be used in windy conditions, because too much water will be lost to evaporation. The use of water carts is preferred.

3.18 NOISE CONTROL

The Contractor shall take all reasonable precautions to minimise noise generated on site as a result of his operations, especially when working in areas or on activities that may impact on neighbouring land users.

The Contractor shall comply with the applicable regulations with regard to noise.

The Environmental Responsible Person and/or AEMR may inform adjacent land users, tenants and communities about the possibility of noise pollution and the approximate duration of the problem.

3.19 EMERGENCY PROCEDURES

The Contractor shall ensure that emergency procedures are set up prior to commencing work. Emergency procedures shall include, but are not limited to, fire, spills, contamination of the ground, accidents to employees, use of hazardous substances, etc. Emergency procedures, including responsible personnel, contact details of emergency services, etc. shall be made available to all the relevant personnel and shall be clearly demarcated at the relevant locations around the site.

The Environmental Responsible Person shall advise the Contractor, PM and AEMR of any emergencies on site, together with a record of action taken.

3.19.1 *FIRES*

The Contractor shall take all the necessary precautions to ensure that fires are not started as a result of his activities on site, and shall also comply with the requirements of the Occupational Health and Safety Act 85 of 1993.

No open fires shall be permitted on or off site. Closed fires or stoves shall only be permitted at designated safe sites in the construction camps. Fires shall also not be permitted near any potential sources of combustion, such as fuel stores, stockpiles of plant material etc.

The Contractor is advised that sparks generated during welding, cutting of metal or gas cutting can cause fires. Every possible precaution shall therefore be taken when working with this equipment near potential sources of combustion. Such precautions include having an approved fire extinguisher immediately available at the site of any such activities.

The Contractor shall be liable for any expenses incurred by any organisations called to assist with fighting fires, and for any costs relating to the rehabilitation of burnt areas.

No smoking will be permitted on the site except for within a designated area in the site camp. Suitable fire fighting equipment must be readily available in this area.

The Contractor must ensure that the contact details of the nearest Fire Department are displayed on site (together with other emergency services) and that all persons involved with the project know the location of these numbers on site.

4 SITE CLEARANCE & REHABILITATION

4.1 Removal of topsoil

Following removal of vegetation from the site, all topsoil shall be removed (up to a maximum of 30 cm depth) and stockpiled for re-use in subsequent rehabilitation and landscaping activities. The stockpiles shall not be higher than 2 m in order to minimise composting. The stockpiles of topsoil shall be located in an area agreed with the AEMR.

4.2 Stabilisation of steep slopes

The disturbance of steep slopes, for example by the removal of vegetation, may result in slope instability and erosion by rain and surface run off. The Contractor shall ensure that slopes that are disturbed during construction are stabilised to prevent erosion occurring. Any erosion that does occur must be reinstated at the Contractor's cost.

4.3 Rehabilitation

The Contractor shall be responsible for rehabilitating any areas cleared or disturbed for construction purposes that are to be incorporated into open space or buffer

zones, as well as all spoiling. The Contractor shall revegetate such areas in accordance with the specification provided below.

The Contractor shall stabilise, by straw rotovation or other, any areas that are cleared or disturbed for construction purposes which are not going to be incorporated into open space or buffer zones (i.e. areas that will be subsequently developed by another party).

All construction equipment and excess aggregate, gravel, stone, concrete, bricks, temporary fencing and the like shall be removed from the site upon completion of the work. No discarded materials of whatsoever nature shall be buried on the site or on any other land not owned by ACSA.

4.4 Landscaping and preparation for re-vegetation

Areas that require reshaping shall be cut, filled and compacted so as to follow the contours of the surrounding landscape. Topsoil removed from the area initially shall be replaced. Care must be taken not to mix the topsoil with the subsoil during shaping operations. Should a crust form on the soil before revegetation is commenced, the Contractor shall, at his own cost, loosen the crust by scarifying to a depth of 150 mm.

5 MANAGEMENT AND MONITORING

This section focuses on the systems and procedures required to ensure that the environmental specifications are effectively implemented. Emphasis is on monitoring and penalties, aimed at ensuring compliance with this document.

5.1 General inspection monitoring and reporting

The Environmental Responsible Person shall:

- Inspect the site on a daily basis to ensure that the environmental specifications are adhered to.
- Maintain a record of major incidents (spills, impacts, complaints, legal transgressions etc) as well as corrective and preventive actions taken.
- Conduct regular internal audits (at least weekly) to ensure that the system for implementation of the EMP is operating effectively and keep records of these audits.
- Conduct monthly meetings for the duration of the project. These will be attended by the Environmental Responsible Person, Contractors Resident Engineers and sub-contractor representatives, and will be minuted and available for audit. The agenda will cover compliance with the EMP and environmental method statements, results of audits, non-compliances and corrective and preventative actions with agreed dates, and environmental queries.

5.2 Penalties

Penalties may be imposed by the AEMR on Contractors who are found to be infringing these specifications. The Contractor shall be advised in writing of the nature of the infringement and the amount of the penalty. The Contractor shall determine how to recover the fine from the relevant employee and/or sub-contractor. The Contractor shall also take the necessary steps (e.g. training) to prevent a recurrence of the infringement and shall advise the AEMR accordingly.

The Contractor is also advised that the imposition of penalties does not replace any legal proceedings the Council, authorities, land owners and/or members of the public may institute against the Contractor.

Penalties may range between R200.00 and R20, 000.00, depending upon the severity of the infringement. The decision on how much to impose will be made by the AEMR, and will be final. In addition to the penalty, the Contractor shall be required to make good any damage caused as a result of the infringement at his own expense.

A preliminary list of infringements for which penalties will be imposed is as follows:

- Moving outside the demarcated site boundaries;
- Littering of the site and surrounds;
- Burying waste on site and surrounds;
- Smoking in the vicinity of fuel storage and filling areas and in any other areas where flammable materials are stored/used;
- Making fires outside designated areas;
- Defacement of natural features;
- Spillage onto the ground of oil, diesel, etc;
- Picking/damaging plant material;
- Damaging/killing wild animals; and
- Additional fines as determined by the AEMR and added to this list.

The AEMR may also order the Contractor via the ACSA Project Leader to suspend part or all the works if the Contractor repeatedly causes damage to the environment by not adhering to the EMP. The suspension will be enforced until the offending actions, procedure or equipment is corrected. No extension of time will be granted for such delays and all costs will be borne by the Contractor.

6. MEASUREMENT AND PAYMENT

Item **Unit**

D10.01 Implementation of Construction Environmental Management Plan………..……month

The unit of measurement for item D10.01 shall be the month, or part thereof for the duration of the approved contract period. Part of a month shall be calculated to two decimal places. The contract rate shall include full compensation for implementing the Construction Environmental Management Plan, including the provision of a full time Designated Environmental Officer (DEO) to carrying the specified duties in terms of the Specifications. The contact rate shall also include the provision of a monthly environmental compliance report to the Engineer.

C3.5.4 REQUIREMENTS OF GOVERNMENT'S PROGRAMME FOR BROAD-BASED BLACK EMPOWERMENT

AIRPORTS COMPANY SOUTH AFRICA
TENDER NO. CTIA7333/2023/RFP

REHABILITATION OF RUNWAY 01/19 AND REHABILITATION OF THE AIRSIDE APRON TAXI LANE AT CAPE TOWN INTERNATIONAL AIRPORT

1. GOVERNMENT POLICY

There is a compelling need to elevate development of previously disadvantaged individuals and enterprises, and leadership by ACSA is required to establish the framework for the development of previously disadvantages individuals and enterprises. (based on CIDB NCDP 2011).

The objective of the NCDP is to promote equity ownership across the different contracting categories and grades, as well as improving skills and performance in the delivery and maintenance of capital works across the public sector.

2. APPLICABLE LEGISLATION

All tenders will be considered with specific reference to applicable legislation in force from time to time and which are specifically applicable to organs of state for example the following:-

2.1 Public Finance Management Act No. 1 of 1999;
2.2 Preferential Procurement Policy Framework Act No. 5 of 2000;
2.3 The Constitution of South Africa
2.4 Broad-Based Black Economic Empowerment Act No. 53 of 2003
2.5 National Small Business Amendment Act No. 26 of 2003

3. DEFINITIONS

1) BBBEE: Broad-Based Black Economic Empowerment
2) BO: Black Owned
3) BWOYO: Black Woman Owned, Youth Owned
4) CIDB: Construction Industry Development Board
5) CPG: Contract Participation Goals
6) EME: Exempted Micro Enterprise
7) ISO: Quality management systems standards
8) JV: Joint Venture
9) NCDP: National Contractors Development Programme
10) PPPFA: Preferential Procurement Policy Framework Act
11) PWPDO: Persons with Physical Disability Owned
12) SADC: Southern African Development Community
13) PPM: Project Portfolio Management

AIRPORTS COMPANY SOUTH AFRICA
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TABLE A

Size	Total Gross asset value (fixed property excluded) (less than)	Total annual turnover (less than)	Total full time equivalent of paid employees (less than)
Medium	R 5 m	R 26 m	200
Small	R 1 m	R 6 m	50
Very Small	R 0.5 m	R 3 m	20
Micro	R 0.1 m	R 0.2 m	5

4. CONTRACT PARTICIPATION

Airports Company South Africa aims to contract predominantly with Empowering Suppliers per the definition in P010 004P (ACSA internal transformation policy) were this relates to:

- an increase in local production,
- raw material beneficiation
- retention and employment of black people
- the transfer of skills to black owned EME's and QSE's.

1. Contract Participation Goals (CPG)

CPG refers to the extent to which the contracted resources achieve predetermined transformation objectives, expressed as a percentage (%) of the contract value. Bidders are expected to achieve this target by the end of the project.

2. Bidders are to submit a transformation proposal meeting the CPG target for all contracts over R1m including VAT.

3. CPG for this contract will be at 50% which will consist of the following B-BBEE elements:

   3.1. Equity (Target 50%): 40% weighting.
   3.2. Management (Target 50%): 40% weighting
   3.3. Skills development: 5% weighting
   3.4. Enterprise and supplier development: 10% weighting
   3.5. Socio economic development: 5% weighting

4. To facilitate achievement of targets set out in 3, and transfer of skills, the tenderer must subcontract a minimum of 30% of the contract value to local (located in the Western Cape Province) EMEs/QSEs that are at least 51% black owned entities with a CIDB Grade of 3CE to 6CE.

5. In the event that the Contractor/consultant fails to substantiate that any failure to achieve the contract participation goal relating to the granting of a preference was due to quantitative underruns, the elimination of items, or any other reason beyond the Contractor's control which may be acceptable to the Employer, the Contractor/Consultant shall be liable to pay to the Employer a financial penalty calculated in the following manner:

   $P = (0,15 \times (D - Do) \times CA)/100$

   i. where D is the tendered contract participation goal percentage;

ii. Do is the contract participation goal which the Employer's representative, certifies based on the credits passed, as being achieved upon completion of the contract;
iii. CA is the contract amount.
iv. P is the monetary value of penalty payable

No financial award is due for over performance on CPG.

5. MEASUREMENT AND PAYMENT

Item **Unit**

E10.01 Implementation of the CPG requirements……..……L Sum

The unit of measurement for item E10.01 shall be the sum. The contract sum shall include full compensation for implementing the CPG requirements. The contact sum shall also include the provision of a monthly CPG compliance report to the Engineer.

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1. Sample score sheet for Calculation of Contract Participation goals

Transformation score sheet (C3.7.3.3(6))

(Only Populate the white blocks/cells)

Ownership target 51%	Method 1	% of contract executed by prime contractor	% Black Ownership	Total CPG Element	Weightir CPG	Contract CPG
	Method 2	% contract being executed by targeted JV Partners	% Black Ownership		40%	
	Method 3	% on contract being executed by targeted subcontracto	% Black Ownership			
Management target 51:	Method 1	% of contract executed by prime contractor	% Black Management	Total CPG Element	Weighting	
	Method 2	% contract being executed by targeted JV Partners	% Black Management		40%	
	Method 3	% on contract being executed by targeted subcontracto	% Black Management			
Skills Development				Total CPG Element	Weighting	
	Method 2	% contract being executed by targeted JV Partners	% Black Management		5%	
	Method 3	% on contract being executed by targeted subcontracto	% Black Management			
ESD				Total CPG Element	Weighting	
	Method 2	% contract being executed by targeted JV Partners	% Black management		10%	
	Method 3	% on contract being executed by targeted subcontracto	% Black management			
SED				Total CPG Element	Weighting	
	Method 2	% contract being executed by targeted JV Partners	% Black Management		5%	
	Method 3	% on contract being executed by targeted subcontracto	% Black management			
					CPG Score:	

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C3.5.5 REQUIREMENTS OF THE CIDB BUILD PROGRAME

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1. GENERAL

The contractor shall achieve in the performance of the contract the Contract Skills Development Goals (CSDG) as stated in the Standard for Developing Skills through Infrastructure Contracts (Published in GN 43495 of 03 July 2020) – See Section C4, Annexure C&D.

CSDG shall be achieved in the performance of a contract in relation to the provision of different types of workplace opportunities linked to work associated with a contract which culminate in or lead to:

a) **Method 1:** a part- or full occupational qualification registered on the National Qualification Framework;
b) **Method 2:** a trade qualification leading to a listed trade (GG No. 35625, 31 August 2012);
c) **Method 3:** a national diploma registered on the National Qualification Framework; and
d) **Method 4:** registration in a professional category by one of the professional bodies listed in the standard.

This section shall be read concurrently with the Standard for Developing Skills through Infrastructure Contracts (Published in GN 43495 of 20 March 2020). The contractor shall comply with the provisions of the Standard for Developing Skills through Infrastructure Contracts for the contract duration.

The Construction Skills Development Goal shall be a minimum of 0.25% of the contract value for this contract. The contractor shall make use of the table below in preparing a proposal on how the CSDG will be met in this contract.

Payment item E10.01 has been allowed in the bill of quantities for implementation of the CSDG over a period of 6 months. This item is a time related item and shall be paid out monthly for over the contract duration.

The table below shall be used by the Contractor to propose the method in which the CSDG will be met. In the event of the Contractor failing to meet the relevant requirements and goals, the Contractor will be penalised as detailed in Item 5 of C3.5.4 above.

2. MEASUREMENT AND PAYMENT

Item **Unit**

F10.01 Implementation of the CIDB B.U.I.L.D program……..……month

The unit of measurement for item F10.01 shall be the month, or part thereof for the duration of the approved contract period. Part of a month shall be calculated to two decimal places. The contract rate shall include full compensation for implementing the CIDB B.U.I.L.D Program, including the provision of a dedicated, full time responsible person, to carrying out all the required administrative duties accompanied with the establishment, implementation and supervision of the CIDB B.U.I.L.D Program. The contact rate shall also include the provision of a monthly CIDB B.U.I.L.D Program compliance report to the Engineer as detailed in the CIDB

Standard for Developing Skills through Infrastructure Contracts, 31 March 2023, General Notice 1779 of 2023.
supervision of the CIDB B.U.I.L.D Program. The contact rate shall also include the provision of a monthly CIDB B.U.I.L.D Program compliance report to the Engineer.

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Skills Types	**Number of Learners**	***Notional Cost/ Learner/ Quarter (Rand)**	**Notional Cost /learner/ year (Rand)**	**Total Notional Cost over 10 Months Contract (Rand)**
Method 1: a part- or full occupational qualification registered on the National Qualification Framework;				
Method 2: a trade qualification leading to a listed trade (GG No. 35625, 31 August 2012);				
Method 3: a national diploma registered on the National Qualification Framework;				
Method 4: registration in a professional category by one of the professional bodies listed in the standard.				
Total Cost (Cost of CSDG)				
CSDG Score % (Total cost of CSDG/Contract value Excluding VAT)				

C3.6 MANAGEMENT

C3.6.1 PLANNING AND PROGRAMMING

(a) Planning

The Contractor shall ensure that he:

a) is well informed with regard to the Employer's overall implementation programme for construction and investigative projects and make available resources as required to efficiently complete required services; and
b) compile designs, procurement documentation, tender evaluation reports timeously as not to unnecessarily delay the implementation of the construction or investigative projects.

(b) Programming

The programme referred to in the General Conditions of Contract shall be a network-based programme in accordance with the precedence method; a detailed cash flow graph indicating projected monthly invoice amounts shall also be provided. The critical path of the programme of work shall be clearly indicated and the programme monitored continually and updated monthly by the Contractor in accordance with his progress.

1. In compiling the programme of work, the contractor shall incorporate the following important specific requirements and constraints:

   (a) The identification and marking of affected services prior to commencing construction works.

   (b) The requirements of the Environmental Management Plan (EMP) as specified in the relevant sections of the Particular Specifications and the requirements in respect of inspections and community liaison.

   (c) The requirements of the Occupational Health Safety (OHS) Act of 1993 and the Construction Regulations, 2003.

   (d) The relocation of services.

   (e) An allowance to accommodate "normal" rain days.

2. Programming shall be scheduled for a continuous presence for the contract period as stated in Volume 1, Part1: Contract Data Completed by the Employer, of Part C1 Agreement and Contract Data, and should be based on 52 weeks per year.

3. The sequence for completion of the Works required to acknowledge the constraints imposed by operating existing facilities either un-interrupted until additional processing capacity is provided by the completion of portion of the new work included in this contract, or partially interrupted in consultation with the Employer.

4. The programme submitted shall include at least the following details:

   (a) A work breakdown structure identifying the major activity groups.

   (b) For each activity group further details shall be provided with regard to the scheduled start and end dates of the separate work sites.

   (c) The critical path shall be indicated and floats on non-critical activities shall be shown.

   (d) The working hours per day, week and month allowed for in the programme with details of resource allocations per activity.

   (e) Production rates for key activities, e.g. milling, asphalt laying, cleaning operations, engineering, fabrication, delivery, installation, commissioning, etc.

C3.6.2 PROJECT REPORTING

The Contractor shall submit to the Employer at monthly intervals, via the Engineer, a progress report indicating the following details:

(a) Work completed in previous month and total progress to date, per activity.

(b) Activities behind programme, for which the Contractor shall detail all reasons for such delays as well as the measures to be implemented to make up delays.

(c) A GANTT chart showing the original programme, the latest approved version of the programme, actual progress achieved and revised completion states, if and when applicable.

(d) Full details of all personnel being used.

Failure to comply with all of the foregoing requirements shall entitle the Engineer to use a programme based on his own assumptions to evaluate claims for extension of time for completion of the works, or for additional compensation.

C3.6.3 GENERAL MANAGEMENT

(a) Software Application for Programming

Only latest Windows **Microsoft Project programming software package** will be accepted.

(b) Format of Communications

All Contract communication shall be in English and in writing (letters, faxes and electronic mail).

(c) Key Personnel

The Contractor shall be required to allocate sufficiently experienced personnel to execute the Contract successfully. The following shall be the minimum key personnel required for the duration of the Contract the Period of Performance:

a) 1 X Contract Manager for the portfolio of projects;

(d) Management Meetings

The Contractor and such other persons as may be nominated by the Engineer shall be required to attend periodic site meetings, the date and place for which will be set by the Engineer in consultation with the Employer and Contractor.

A main purpose of the site meetings will be to review and discuss progress and programme, and all persons attending the site meetings must be empowered to act on behalf of the firms they represent.

(e) Forms for Contract Administration

The Contractor shall maintain a file (hard copy and electronically) per Contract project, which shall contain:

b) the details of the sub-contractors, if any;
c) project programme, with commencement and completion date;
d) procurement information;
e) progress reports, minutes, letters, faxes, emails of all project or project related correspondence;

f) record documentation, reports, designs, and drawings;
g) a copy of the Health and Safety Plan and the Environmental Management Plan;
h) record of cost implications, variations, claims and disputes; and
i) empowerment records.

At the end of this Period of Performance the Contractor shall hand-over such hard copy files to the Employer, including all electronic records, documentation, reports, designs, and drawings.

(f) Daily records

The Contractor is to provide a site diary, which is to be kept on site, for the purpose of keeping daily records in respect of work performed on the site.

(g) Payment certificates

The Contractor shall be required to complete a progress report before he will be allowed to complete the standard payment certificate required to be submitted with his tax invoice. To this end the Contractor shall make himself available for a progress reporting training session to be facilitated by the Employer.

(h) Use of documents by the employer

All information (communications, designs, drawings, documents or reports) provided to the Employer by the Contractor, in the course of performing the service required for this Contract, are intended to ensure that the projects are implemented successfully.

(i) Proof of compliance with the law

The Service Provider shall ensure that he complies to all prevailing legislation that applies to the provision of his services as part of this Contract and indemnifies the Employer where he deliberately neglects compliance with such legislation.

(j) Recording of weather

The Contractor shall be permitted to take his own rainfall measurements on site subject to the Engineer's approval, but access to the measuring gauge(s) shall be under the Engineer's control. The Contractor is to provide and install all the necessary equipment for accurately

measuring the rainfall as well as to provide, erect and maintain a security fence plus gate, padlock and keys at each measuring station, all at his own cost.

(k) Bonds and guarantees

If the Tenderer, when notified of the acceptance of his tender, fails to provide a guarantee within the period stipulated in the Contract Data and the Employer elects to cancel the contract on that ground, the Employer may demand a sum of R1500,00 per day, or the Employer may take other action whether by way of a claim for loss or damage suffered by the Employer arising out of such breach.

(l) Methods and Procedures

The methods and procedures that must be complied with include but are not limited to:

- Methods and Procedures in the Standards Specifications (SANS 1200)
- Methods and Procedures in the Particular Specifications
- Occupational Health and Safety Specifications
- Environmental Work Instructions
- Procedures for working airside (only service roads)

C3.6.4 QUALITY MANAGEMENT

(a) General

The Contractor's Quality Management System shall include quality management objectives, policies, organization, procedures and work instruction that comply with the requirements of ISO 9001/2000.

(b) Quality Plan

The Contractor shall within 20 days from the commencement date submit a Project Quality Plan for the Contract. The Plan shall indicate how the Quality System shall apply to the specific requirements of the Contract to ensure compliance of the works with the requirements of the scope of works. The Project Quality Plan shall be subject to the approval of the Engineer.

(c) Quality Control Plans

Quality Control Plans shall be prepared by the Contractor and/or his subcontractors for each group of activities. Where applicable, approved plant, equipment or services required to realize the specific component shall be included.

Quality Control Plans shall be submitted to the Engineer for approval and for the inclusion of his construction monitoring activities before any construction of the permanent works may commence.

The following surveillance requirements shall be included for affirmation by the Engineer or his representative.

Record (R) Documentary evidence of the activity and statistical analysis of the data to be retained and copied to the Engineer.

Verification (V) The Engineer or his representative will not necessarily be present during the activity but documentary evidence to permit verification of compliance with the requirements is generated, retained and copied to the Engineer.

Witness (W & S) The Engineer or his representative requires notification to permit witnessing of the activity. The notice period shall be agreed to depending on the nature of the activity and shall be reviewed from time to time. Documentary evidence shall be retained and copied to the Engineer.

Hold (H) The Contractor may not proceed to the following activity until the Engineer or his representative has approved the proceeding activity. Documentary evidence shall be retained and copied to the Engineer.

Random (R) Construction monitoring by random inspection. Random construction monitoring may be carried out at any stage of the activity or preparation for the activity. Documentary evidence shall be retained and copied to the Engineer.

The following categories shall apply in determining the requirement for a Quality Control Plan:

Category	***Clarification***	***Quality Control Plan***
Critical	A component, group of components, structure, the failure of which to comply	Required for all components.

	with the specifications may affect the performance of the works of which it is a part and /or will cause a detrimental environmental impact, and /or may result in hazardous or unsafe conditions.	
Major	A component, group of components, structure, element of a structure or facility, other than categorized as critical, the failure of which to comply with the specifications may compromise the performance of the works of which it is a part, result in increased , maintenance and/or impact negatively on the quality of the works.	As determined by the Contractor and to the approval of the Engineer.
Minor	All items other than those categorized as Critical or Major and which are visible and capable of rectification during routine inspections.	As determined by the Contractor

(d) Quality Management Audit

The Contractor shall carry out periodic assessments of the adherence to the Quality Plan and Quality Control Plans by senior qualified staff who are not normally employed on the Site. The Engineer and/or his representative shall be invited to attend at the periodic assessments meeting and be afforded the opportunity to report on the implementation of the Quality System at the Site. The assessment reports shall be copied to the Engineer.

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AIRPORTS COMPANY SOUTH AFRICA

CAPE TOWN INTERNATIONAL AIRPORT

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THE REHABILITATION OF THE RUNWAY 01/19 (RWY 01/19) AND THE REHABILITATION OF THE AIRSIDE APRON TAXILANE AT CAPE TOWN INTERNATIONAL AIRPORT

C4. SITE INFORMATION

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REHABILITATION OF RUNWAY 01/19 AND REHABILITATION OF THE AIRSIDE APRON TAXI LANE AT CAPE TOWN INTERNATIONAL AIRPORT

C4.1 EMPLOYER'S OBJECTIVES

The Employer's objective is to rehabilitate and strengthen certain components of Runway 01/19 and Alpha Taxilane at Cape Town International Airport.

C4.2 OVERVIEW OF THE WORKS

RUNWAY 01/19

This project is necessitated by the observed deterioration of the wearing course on the runway and the delayed construction of the New Realigned Runway (NRR). The current predominant wearing course on RWY 01/19 is an Ultra -Thin Friction Course (UTFC), which was constructed in 2013 during the rehabilitation of the runway. The current UTFC has an estimated design life of approximately 8 years when subjected to frequent rubber removal maintenance within the touch down zone (TDZ). RWY 01/19 has started showing signs of deterioration in the form of aged binder, aggregate loss, opened construction joints and minor patch repairs in excess of the statistical norm.

APRON TAXILANE

The apron taxilane forms part of a critical route for aircrafts arriving / departing the aerodrome at CTIA. The apron taxilane serves as the main access route between the aprons and the runways. The existing apron taxilane is estimated to be over 50 years old. The Apron Taxilane has over the recent years shown some signs of distress and deterioration mainly along the wheel tracks of heavy wide body aircraft and the distress has become worse over time. Based on a visual assessment the evidence suggests a possible geotechnical failure of the existing structural granular support

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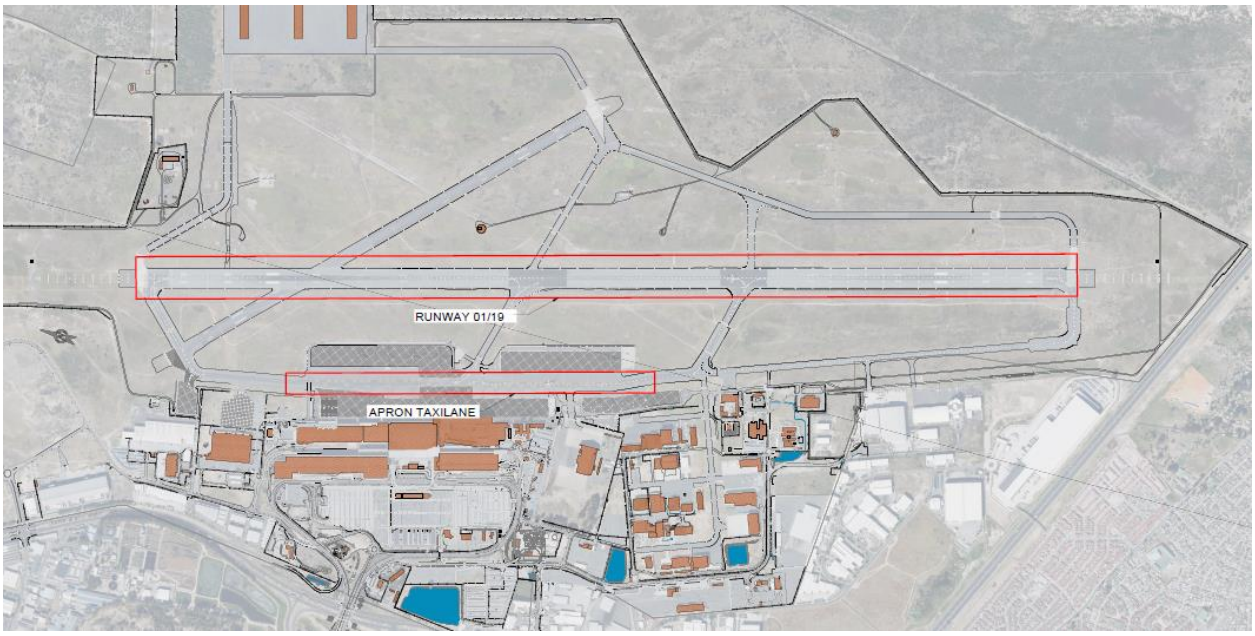
C4.3 THE SITE

A locality plan of the two projects is illustrated in figure below.



C4.3.1 EXISTING GEOMETRY

(a) Cross-section

The cross section RWY 01/19 is a constant 60m wide with 5m surface shoulders on either side. Alpha taxilane varies in width along the project, between Alpha aprons and Bravo aprons.

C4.3.2 EXISTING PAVEMENT

(a) RWY 01/19

RWY 01/19 was built in the early 1950's to a length of 2km and was subsequently lengthened and upgraded, however it is uncertain as to when this upgraded occurred. A rehabilitation of RWY 01/19 was undertaken in 2013. Based on the record of works undertaken, the serviceable life of the existing runway was extended, and the associated drainage systems and ancillary features were improved to comply with the ICAO and CAA requirements. Since the rehabilitation in 2013 no major maintenance interventions were required until 2016. Thereafter, the cost of maintenance has increased from year to year which included frequent rubber removals, patch repairs, water jetting for cleaning or removing of paint marking, etc.

The current pavement structure along the runway is configured as follows:

- Surfacing: UTFC, BRASO, and continuously graded wearing course.
- Base: Bitumen treated base (BTB).
- Subbase: Stabilised or un-stabilised crushed stone.
- Subgrade: Unknown (Geology of region indicates sandy type subgrade).

(b) Alpha taxilane

Surfacing and Base Layers
The surfacing and base layers comprise of a layer of wearing course (AC) and multiple asphalt base layers (BC). The combined thickness of these asphalt layers varied between 300mm to 400mm.

Subbase Layer
The subbase thickness varies between 100mm and 230mm. The material generally comprised of dry to moist, brown, very dense, uniform, crushed hornfels stone. The subbase material generally classifies as G6 quality material.

Selected layer
selected layer which consisted of moist, brown, dense, uniform, crushed sandy sandstone, which is 250mm thick. This material also classifies as G6 quality material.

Subgrade Layer
The subgrade material generally consists of moist, light brown, medium dense, uniform, fine-grained sand (transported - Aeolian). The subgrade material generally classifies as G8 quality material.

A materials investigation was undertaken along the R102 portion (km 30.92 to km 41.82) of the project section, prior to rehabilitation in 2007. The table below provides a summary of the material quality and thicknesses recorded. The rehabilitation in 2007 along this section consisted of the following:

C4.3.3 SERVICES

Existing services are indicated in Volume 4: Drawings for Civilworks. Other than centre line lighting and TDZ lighting, it is not envisaged that any existing services require relocation or protection to accommodate the proposed works.

It is envisaged that the existing light and bases shall be removed prior to overlays, void temporary filled with asphalt. The secondary cables replaced and new core drilled for new lights. It is currently envisaged that the existing lights will be re-used. All the above will be verified by the electrical engineer prior to construction. Figure below illustrates a typical existing centre line light.

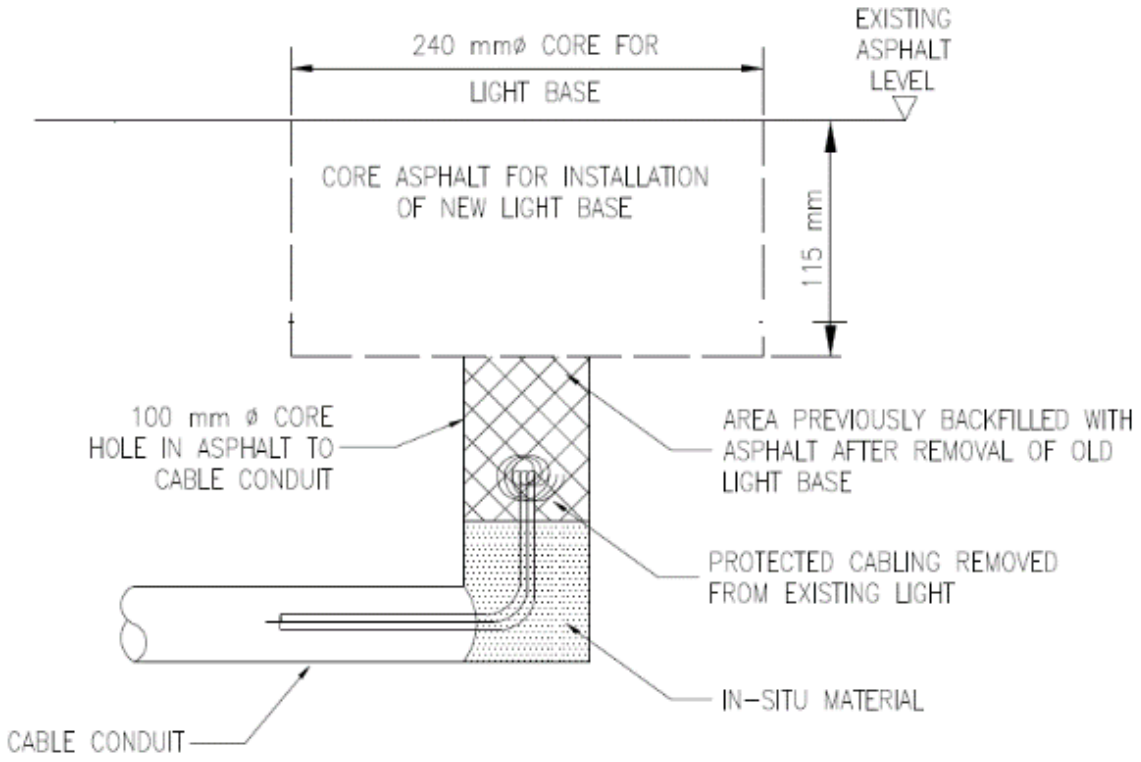


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Table C4.4/1

REFERENCES IN COLTO STANDARD SPECIFICATIONS TO THE COLTO GENERAL CONDITIONS OF CONTRACT AND RELEVANT SAICE GENERAL CONDITIONS OF CONTRACT FOR CONSTRUCTION WORKS 2015					
COLTO Standard Specification		**COLTO General Conditions of Contract 1998 (GCC)**		**SAICE General Conditions of Contract for Construction Works: 3rd Edition 2015**	
Clause No	**Page No**	**Clause No**	**Description or Reference**	**Clause No**	**Description or Reference**
1115	1100-2		Definition of GCC		Definition of SAICE
1202	1200-2	15	Construction programme	5.6	Programme
1115	1100-2		Definition of GCC		Definition of SAICE
1202	1200-2	15	Construction programme	5.6	Programme
1206	1200-3	14	Setting out of works and beacons		Omitted
1209(e)	1200-5	52(2)	Valuation of material brought onto site	6.10.2	Valuation of material brought onto site
1210	1200-5	54	Certificate of practical completion	5.14	Completion
1212(l)	1200-7	49(2)	CPA on alternative designs	6.8.2	CPA on alternative designs
1215	1200-9	45	Extension of time for completion due to abnormal rainfall.	5.12	Extension of time for completion due to abnormal rainfall.
1217	1200-10	35	Care of the works	8.2	Care of the works
1303(iii)	1300-1	49	Price adjustment Item 13.01 (a)	6.8	Price adjustment Item 13.01 (a)
1303(iii)	1300-2	49	Price adjustment Item 13.01 (b)	6.8	Price adjustment Item 13.01 (b)
1303(iii) 1303(iii)	1300-1 1300-2	53 53	Variations exceeding 20% Variations exceeding 20%	6.11	Variations exceeding 15% Variations exceeding 15%
1303	1300-2	12	Payment Item 13.01 (c)	5.2	Commencement of the Works

Taxilna lane lighs It is envisaged that the existing light and bases shall be removed prior to overlays, void temporary filled with asphalt. The secondary cables replaced and new core drilled for new lights. It is currently envisaged that the existing lights will be re-used. All of the above will be verified by the electrical engineer prior to construction. Figure below illustrates a typical existing centre line light.

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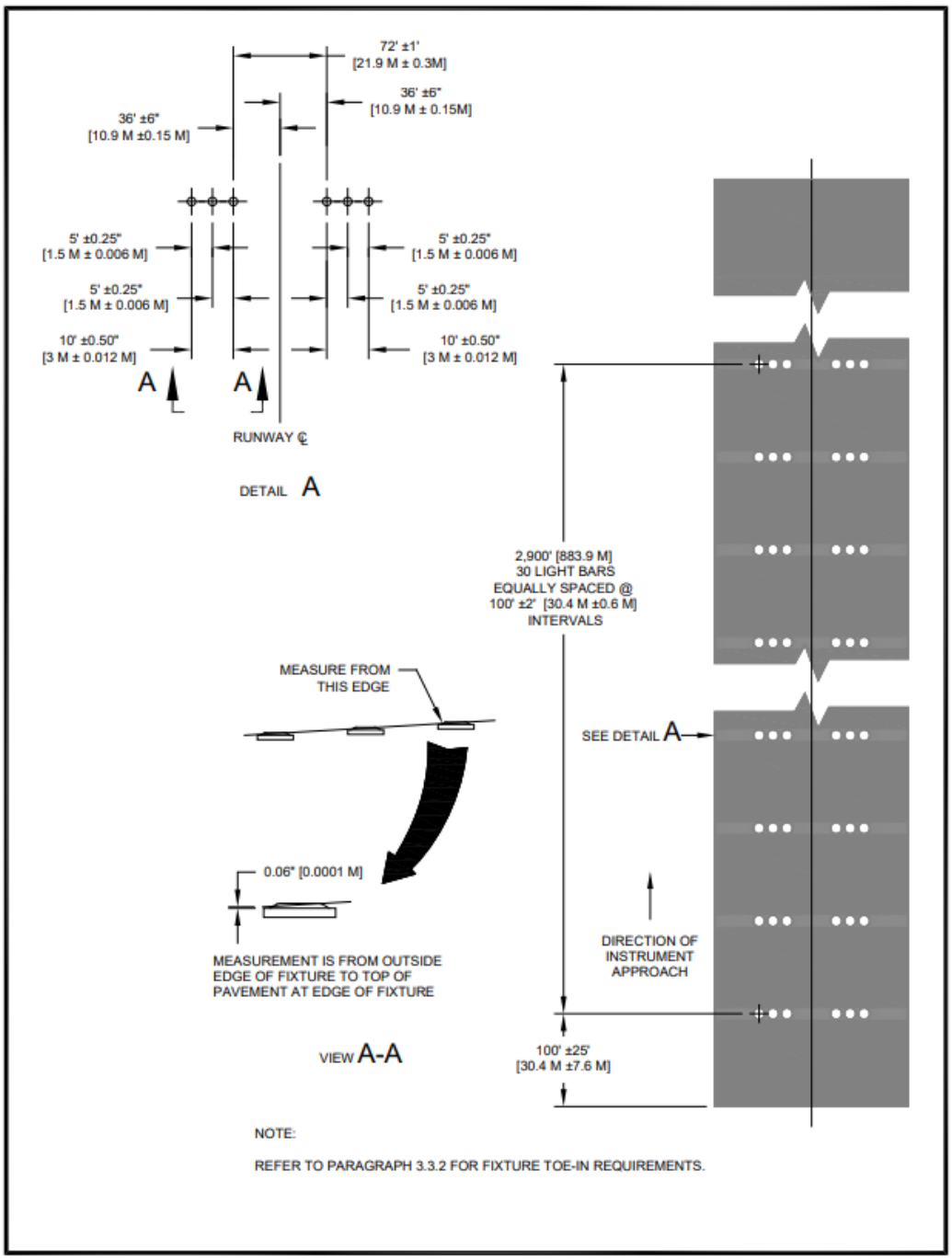
REHABILITATION OF RUNWAY 01/19 AND REHABILITATION OF THE AIRSIDE APRON TAXI LANE AT CAPE TOWN INTERNATIONAL AIRPORT

Figure A-35. Touchdown Zone Lighting Layout



C4.3.4 CLIMATE AND WEATHER RECORDS

The temperature and rainfall data were obtained from the South African Weather Service (SAWS). Rainfall and temperature data were recorded at WO station 0021178A3 situated at the Cape Town International Airport. WO weather station, 0021178A3, contained temperature and rainfall for a 25-year period.

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The minimum and maximum temperatures recorded at Station 0021178A3 over a 25 year period between 1992 and 2017 are shown graphically in the figure overleaf.

It can be seen that the six summer months from October to March are moderate to warm with the monthly average minimum temperatures remaining above 11 °C and the monthly average maximum temperatures vary between 22 °C and 27 °C.

During the six winter months between April and September the weather is cooler but still moderate with the monthly average minimum temperatures remaining above 7 °C and the average monthly maximum temperatures vary between 17 °C and 22 °C.

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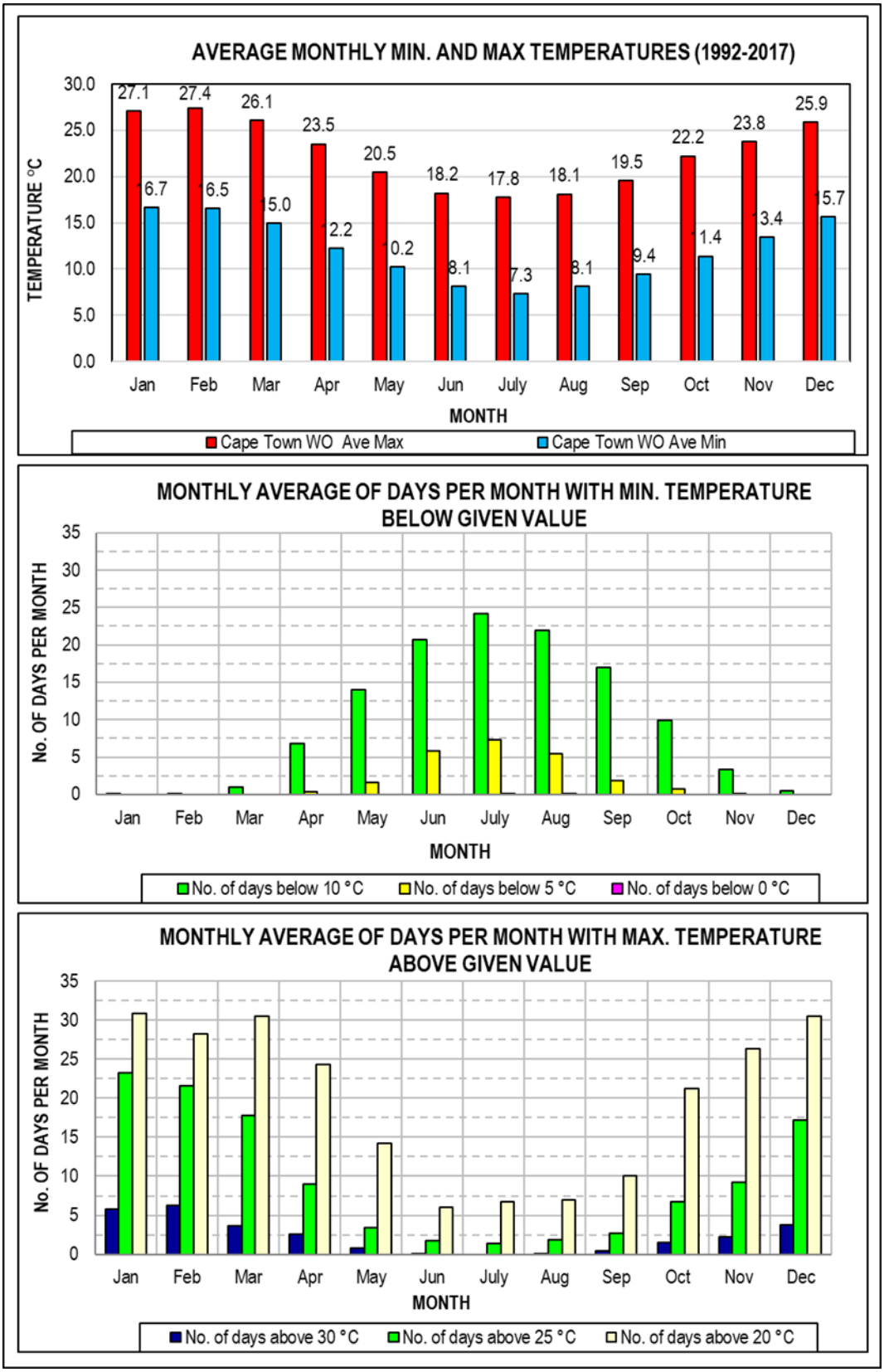
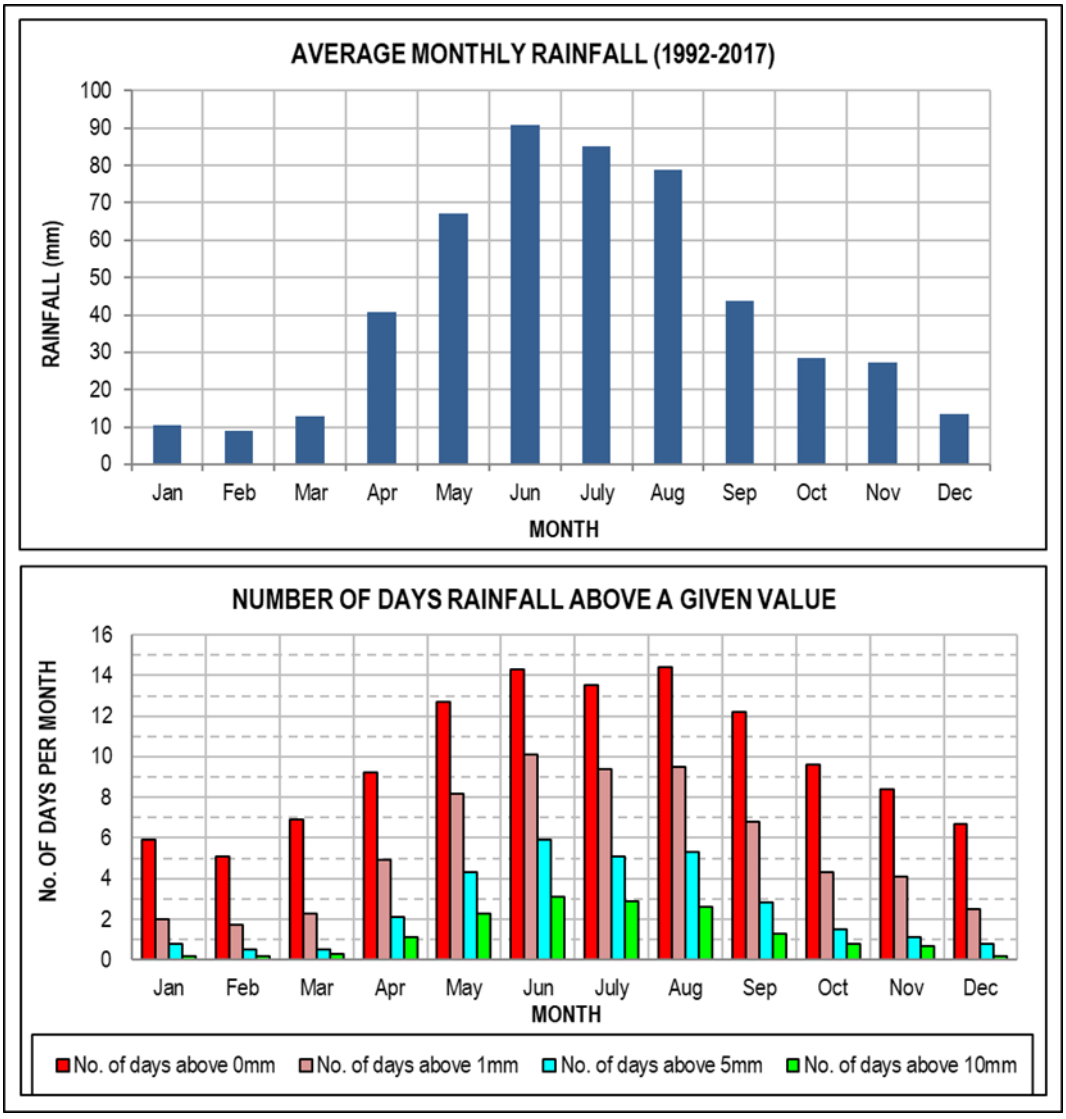


The average monthly rainfall and average number of days per month exceeding 0 mm, 1 mm, 5 mm and 10 mm of rain, recorded at Cape Town WO station for the period from February 1992 to March 2017, are shown graphically in the figure below.

During the period between February 1992 and March 2017, an average annual rainfall of 508 mm was recorded. Approximately 80 % of the annual rainfall occurs during the winter period from April to September. The area can therefore be classified as a winter rainfall area. The average number of days with rainfall exceeding 10 mm ranges from 1 to 3 days during winter months to less than 1 day during summer months.



C4.3.5 CONSTRUCTION CONSTRAINTS AND ENVIRONMENTAL CONDITIONS

The following climatic aspects are of significance to the construction and performance of the asphalt work and others:

- During the summer, rainfall occurs mostly in the form of high intensity thunderstorms, the month that should have the least disruption on construction activities is May to November. The rest of the month's rain delays can be expected with the highest delays in December to February.
- Asphalt temperatures cool very rapidly when being placed during days when the temperature drops to below 5°C and, it might be difficult to achieve effective compaction of thin asphalt and surfacing layers. Bitumen's are also sensitive for these conditions with possible stripping of stone particularly for night work during the winter months.
- It is undesirable to construct the asphalt in very cold weather, which highlights the importance of planning in months May, June, July and August as previously mentioned, asphalt premix work will be severely constrained with the minimum temperature falling below 5°C.
- Very low temperatures increase the stiffness of asphalt mixes and also the brittleness of the mixes. This can lead to early fatigue and shrinkage cracking if design principles are ignored.
- Consistently high air temperatures (> 25°C,) during the summer can result in the softening of the asphalt leading to rutting (deformation) in the upper asphalt under slow moving (creep load) with high tyre pressures. Special attention needs to be given to asphalt and bitumen properties, considering the choice of binder and mix stability.

C4.3.6 RESTRICTED ACCESS TO THE SITE OF THE WORKS

The contractor will have restricted access to the works at any given time because simultaneous closure of the runway and taxiways during normal operational hours will not be permitted.

Although the entire site will be handed to the Contractor at the start of the contract, the airport manager and the air traffic controller have the right to decide at short notice where on the site the Contractor may work. Works on all Runways, Aprons and Taxiways will remain operational and has access on the runway. Therefore, it is compulsory for the Contractor to complete the portion of surfacing milled for the night shift the same night and to allow normal air-traffic for the next day.

The designated access point for plant and personnel will be provided to the contractor. The Contractor will be required to provide 24 hour security at these Gates. The security stall at this Gate will be in radio contract with Fire & Rescue at all times to enable the provision of escort services.

Construction material must be delivered via the temporary access gate to the site camp under escort service. The Contractor shall erect, maintain, move and finally remove temporary barriers, fences, signs and markings, all as prescribed by the airport authorities. The Contractor shall ensure that all barricades, markers and signs are placed under escort, prior to entering a work area for construction purposes.

Movement outside the areas demarcated for construction shall not be permitted, unless special arrangements have been made and approved by the AM.

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C4.3.7 MATERIAL SOURCES

All material will be obtained from commercial sources. Existing RAP material for staging areas is available at the proposed contractors site camp.

The following supplier is the nearest commercial source of asphalt:

- Much Asphalt Eerste River
  Stasie Rd & Ryneveld St, Eerste River, Cape Town
  Tel. 021 902 4438

C4.3.8 TRAFFIC DATA

Cape Town International Airport is home to almost 3 800 000 departing passengers and 45 654 incoming air traffic movements. It is Africa's largest airport and processes over 10 million passengers annually. Detailed Annual Aircraft Movements since 2005 were obtained and are summarised below. The years refer to the ACSA financial years ending March.

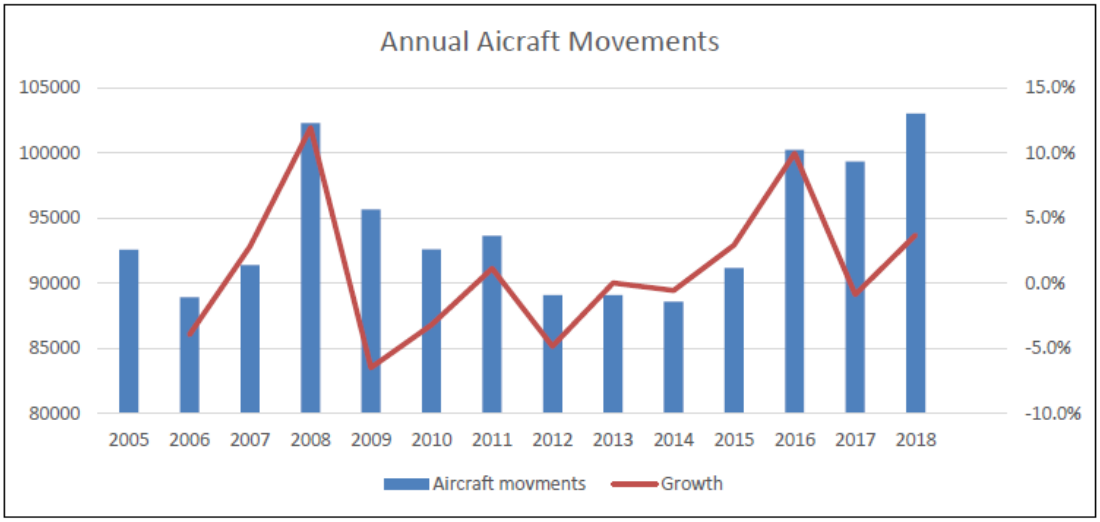

Fig Annual Aircraft Movements

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Aircraft type and percentage contribution at CTIA (2019 statistics)

Code and % split	Aircraft Type	Percentage
Code C, 81%	A319-100 opt	7,4%
	A230-200 Twin opt	10,2%
	Adv. B737-200 LP	1,2%
	B737-300	0,9%
	B737-400	25,7%
	B737-800	35,6%
Code D, 0.4%	B767-300 LR	0,4%
Code E, 18.6%	A330-200 opt	2,8%
	A330-300 opt	1,3%
	A340-300 opt / belly	3,6%
	A340-600 opt / belly	3,7%
	A747-400 opt / belly	0,9%
	B777-200 LR	2,5%
	B777-300 ER	2,0%
	B787-8	0,9%
	B787-9 Preliminary	0,9%

From the statistics provided, it was determined that Code C aircraft make approximately 88 departures per day while Code E aircraft make approximately 21 departures per day.

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REHABILITATION OF RUNWAY 01/19 AND REHABILITATION OF THE AIRSIDE APRON TAXI LANE AT CAPE TOWN INTERNATIONAL AIRPORT

Annexure A

DRAFT PROJECT ELECTRICAL SPECIFICATIONS

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C3.2: ANNEX B: PARTICULAR SPECIFICATIONS (ELECTRICAL)

The Specifications for Electrical Work is contained in two specifications:

C3.2.1 Standard specification for airfield ground lighting

C3.2.2 Project specification for electrical work

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REHABILITATION OF RUNWAY 01/19 AND REHABILITATION OF THE AIRSIDE APRON TAXI LANE AT CAPE TOWN INTERNATIONAL AIRPORT

C4.4 C3: SCOPE OF WORK

C4.5 C3.2.2 PROJECT SPECIFICATION FOR ELECTRICAL WORK

C4.6 INDEX PAGE

1 SCOPE OF THE ELECTRICAL WORKS

1.1 GENERAL

The description of the works contained in this project specification is an outline of the work to be executed in terms of the contract, but it shall not limit the work to be carried out by the Electrical Subcontractor to ensure a fully compliant installation.

ADB shall be the selected supplier for all airfield ground lighting equipment.

The Electrical Subcontractor shall be certified by the airfield ground lighting manufacturer ADB,confirming that their staff successfully completed a training course and have the competence to install the equipment to the specification of the manufacturer to ensure warranty of the equipment.

All materials, equipment and workmanship shall comply with the requirements of ACSA, this Project Specification and the Standard Specification.

The Electrical Subcontractor shall have all required tools and equipment as specified by the manufacturer for the installation of the AGL equipment.

The Electrical Subcontractor shall be certified by the airfield ground lighting manufacturer ADB for the calibration of the CCR's as required by the ADB AGL control system.

Due to the specialist nature of the work the Electrical Subcontractor shall submit proof of previous experience relating to the installation of AGL networks. All project references and contact details shall be included with the tender submission.

1.2 WORK TO BE DONE BY CIVIL CONTRACTOR (MAIN CONTRACTOR)

The Civil Contractor shall be responsible for programming the construction of the new facilities and co-ordinating the activities of the Electrical Subcontractor.

In addition to providing the asphalt overlay the Civil Contractor shall be responsible for the following:

- The provision of the new manholes offset 50 m from the runway edge (between km 2,6 andkm 3,2).
- The lowering of existing 50 m manholes and draw pits. •

Plinths for runway closure cross lights.

- Patching work in the shoulder to accommodate the new deep bases.

1.3 WORK TO BE DONE BY ELECTRICAL SUBCONTRACTOR

1.3.1 REHABILITATION OF RUNWAY 01/19

- Accurate surveys detailing the positions of existing light fittings and runway conduits.

- The removal, cleaning, refurbishment of 106 runway elevated edge lights and re-installation toensure CAT I compliance throughout the contract period.
- The removal of existing 8”/12” shallow bases and installation of new 8”/12” shallow bases after thecompletion of the asphalt layer works.
- The removal of existing touchdown zone, flush mounted edge and taxiway lead on / off lights andinstallation of new inset lights after completion of the asphalt layer works.
- The removal of existing runway centre line inset lights and installation of new LED inset lights aftercompletion of the asphalt layer works.

1.3.2 GRADING ON RUNWAY STRIPS

- The removal of existing secondary cabling and conduits.
- The provision of new secondary conduit network complete with draw wires to pull in the new secondary cabling.
- Protection of all affected existing MV and fibre optic services to accommodate the grading works.
- The removal of all electrical equipment in the 57 redundant manholes offset at 12 m from the runway edge between km 2,6 and km 3,2.
- The removal of 57 redundant manholes (Civil structure) between km 2,6 and km 3,2. • The

removal of existing primary cabling and sleeves between km 2,6 and km 3,2.

- The provision of all electrical equipment to be installed in 14 new manholes offset at 50 m from runway edge between km 2,6 and km 3,2 including suitably sized isolation transformers, primary cabling, secondary cabling, all connectors, accessorises and a manhole earthing system.
- The provision of new primary sleeve network complete with draw wires to pull in the new primary cabling between km 2,6 and km 3,2.
- The removal and replacement of existing elevated edge light bases with deep bases to accommodate the grading works on the graded strip.
- The installation of new cable pulling deep bases in the runway shoulders to accommodate the works on the graded strips.

1.3.3 GENERAL

- The provision of new permanent runway closure crosses and all associated electrical infrastructureat the 01 and 19 ends.
- Temporary connections (as required) for existing edge lights to ensure CAT I status.
- Remedial work on 88 existing manholes offset at 50 m including checks to the earthing system, sequencing of the secondary circuits, labelling of equipment and replacement of all cable connectors.
- Operation of the temporary displaced threshold and flight test calibration on temporary PAPIs bythe CAA.

- Supply, maintain, placement and removal of battery operated steady red lights for closing offdesignated runways and taxiways.
- All redundant equipment, including bases, connectors, cabling and light fittings shall be removedand either salvaged as scrap or handed over to the ACSA M&E Department.
- Full photometric measurements shall be taken of all lights to ensure ICAO compliance.
- All existing and new CCRs shall be calibrated including EFD and LFD settings at the completion ofthe works.
- The SCADA control system shall be reconfigured to accommodate the new runway closurecrosses.
- Testing and commissioning of completed installation.

2 COMPLIANCE WITH REGULATIONS AND STANDARDS

The works shall comply with the latest revisions and amendments of the following:

- The international standards and recommended practices for aerodromes, Annex 14 as issued by the International Civil Aviation Organisation (ICAO).
- The Electrical Subcontractor shall comply with all the requirements of the South African Civil Aviation Authority.
- The FAA advisory circular AC 150/5345-10E.
- The Aerodrome design manual Part 5 as amended.
- The successful Contractor and his Electrical Subcontractor shall ensure that the Contract Works, specified herein, plus or minus variations which may be instructed by the Engineer in writing from time to time, shall conform in all respects to the requirements of the Occupational Health and Safety Act (Act 85, 1993) with compliance to the Construction Regulations of 2002.
- At no time shall there be more than 2 consecutive edge lights inoperative so that the airport can comply with their category rating (CAT I).

3 DRAWINGS

The reduced drawings that form part of the tender documents shall be used for tender purposes only. The Contractor will be issued with three A0 paper copies of each of the drawings required for construction. The Contractor shall, at his own expense, produce there from all further prints requiredfor the construction of the Works.

The Contractor shall not use the drawings for any purpose other than the execution of the works.

The drawings as listed on Drawing No T01.CPT.170-T-001 in Volume 4 form part of the tender documents and shall be used for tender purposes only.

4 GENERAL REQUIREMENTS AND PROVISIONS

4.1 EXISTING SERVICES

Every effort was made to attain the latest As-Built information for the existing services around Runway 01/19.

However before the commencement of work the Electrical Subcontractor shall arrange that each work area is thoroughly traversed and examined by a cable detection specialist. ACSA, ATNS and the Engineer or his representative will attend these various inspections. An allowance has been made in the Bill of Quantities for the use of cable detection specialist to locate medium voltage and fibre optic cables.

The contract shall also include for an MV, LV and fibre optic cable jointer to be on standby during theconstruction period in the event of an emergency. The cable jointer must be locally based and will berequired to be on site within 30 min after call-out.

The Electrical Subcontractor shall also be liable for any loss or consequential loss suffered by the owner of a known service, which is damaged by the Electrical Subcontractor's operations, e.g. fuel losses from a fuel pipeline with the associated fire hazards or loss of the ILS due to power failure or cable damage.

Furthermore the works will be executed in close proximity to existing edge lights and shall be executed without interfering with the operation of these lights. The Electrical Subcontractor shall ensure that the position of the existing cables are known to himself and his personnel and shall take all reasonable care to avoid damage to the temporary cables. Protective covers shall be used as required to protect the lights from being covered by bituminous or other products whilst the work is carried out.

Should it not be possible to avoid damage to any of the existing cables, the Electrical Subcontractor shall obtain approval from the Engineer before carrying out the work. Once approval has been received the Electrical Subcontractor shall ensure that sufficient time is left for the reinstatement of the cables before opening the runway to air traffic.

4.2 CONSTRUCTION LIGHTING

The Electrical Subcontractor shall supply his own construction lighting as the work will be executedat night. For compliance to safety requirements the minimum illumination shall be greater than 75 luxon the work surface.

4.3 REMOVAL OF EXISTING LIGHTS

The Electrical Subcontractor shall ensure that the existing lights are surveyed and referenced prior tothe removal thereof to ensure that the lights can be re-installed in the correct locations.

On removal of the existing bases care shall be taken to ensure that the wiring is protected, the void left by the old base shall be filled, compacted and overlaid with asphalt. The cable void shall be filledwith soft sand before the base void is filled. This is to ensure the protection of the secondary cables.

4.4 SECURING EXISTING CONDUITS AND RE-INSTALLATION OF LIGHTS

The Electrical Subcontractor shall exercise care during excavations to ensure that existing conduits are secure prior to backfill, as any damage shall be repaired at the Electrical Subcontractor's cost.

On completion of the asphalt works the new lights shall be installed, by coring the asphalt for thenew light bases with a further access core to the conduit and cables, at their referenced positions. The backfill between the light bases and the core hole shall be with FR/575 epoxy casting resin in general use by ACSA for this type of work.

4.5 JOINTING OF CONDUITS AND SLEEVES

All required conduits/sleeves joints shall be carried out with the use of appropriate couplings recommended by the manufacturer. Slip on type couplings can only be used with the use ofappropriate adhesive. A maximum of two joints will be allowed between new 50 m manholes.

4.6 PROGRAM

The program of the Electrical Subcontractor shall be co-ordinated with the program of the Civil Contractor. The completion of the electrical work is subject to the reinstatement of CATIII (01 side) and CAT II (19 side) in terms of the requirements of Annex 14 (Clause 10.4.7).

5 MANUALS, DRAWINGS AND TEST CERTIFICATES

Four (4) complete sets of manuals containing the following shall be supplied by the ElectricalSubcontractor on

completion of the work and before commissioning commences:

- An index clearly indicating the contents.
- Recommended maintenance schedules.
- Commissioning procedures.
- Operations and maintenance manuals for all types of lights and CCRs.
- Electronic record drawings ("As built") based on surveyed data (using the WGS84 Lo.19 co- ordinate system)
- of the installation indicating cable routes, light positions, conduits, sleeves, manholes and circuit wiring details. Test Certificates of new lights and CCRs as applicable.
- Set of photometric readings for all new and refurbished light fittings.
-

6 INSTALLATION OF CONDUITS AND SLEEVES FOR ELECTRICAL CABLES

6.1 GENERAL REQUIREMENTS

To accommodate the requirements for the graded strip area the existing secondary cabling and conduit network between the runway shoulder and the airfield manholes shall be lowered to a minimum depth of ±600 mm below **final ground level** (i.e as referenced at the completion of the graded strips).

The existing secondary cabling HDPE conduit network shall therefore be removed and replaced witha new secondary cabling HDPE conduit network, which shall also include the provision of a deep base (“deep can”) located in the runway shoulder for housing the edge lights and used for cable pulling.

During the change over from the existing to the new secondary cabling HDPE conduit network temporary cables shall be installed on the surface to ensure that the edge light circuits are operational once Runway 01-19 is active (to comply with CAT I requirements).

The new conduits shall comply with the following:

- Conduits shall withstand asphalt temperatures of 140 °C.
- Where conduits are required on the asphalt (i.e Taxiway areas) it must be installed at the minimum depth below asphalt levels as indicated on the layout drawings. The conduit shall be installed at a slope towards the edge of the runway/taxiway to enable water to drain away from the light.
- All conduits installed must be fitted with suitable plugs at each end and shall be provided with suitable nylon pull (draw) wires.
- Where required slots shall be cut into the taxiway/runway at the new light positions. Slots shall be to the width and to the depth as shown on the layout drawings. The 32 mm or 50 mm HDPE conduits shall be laid in the slot and the slot filled as shown on the drawing.

6.2 DETAILS OF CONDUITS TO BE INSTALLED

6.2.1 32 mm High Density Polyethylene (HDPE)

32 mm outside diameter HDPE conduits shall be provided for cabling to the light fittings. These conduits shall be suitable for housing wires for up to 2 lights. These conduits shall comply with SABS ISO4427 and shall be type 4 (PE63), class PN10 HDPE conduits.

6.2.2 50 mm High Density Polyethylene (HDPE)

50 mm outside diameter HDPE conduits shall be provided for cabling to the light fittings. These conduits shall be suitable for housing wires for up to 8 lights. These conduits shall comply with SABS ISO4427 and shall be type 4 (PE63), class PN10 HDPE conduits.

Where required at the Taxiway lights a header shall be constructed with “T–offs” to each light.

6.2.3 110 mm High Density Polyethylene (HDPE)

110 mm outside diameter HDPE sleeves shall be supplied and installed as indicated on the layout drawings between the new 50 m manholes. These sleeves shall comply with SABS ISO4427 and shall be type 4 (PE63), class PN6 HDPE sleeves.

6.3 MEASUREMENTS AND PAYMENT

6.3.1 Supply and Installation of conduits in the graded strip (Items 1.7.1-1.7.4)

i) 50 mm HDPE conduits type IV class 10
ii) 32 mm HDPE conduits type IV class 10
iii) 110 mm HDPE conduits type IV class 6

The tendered rates shall include full compensation for the supply of all required materials to site, including for the supply of connector fittings, excavation of the trench to 600 mm deep (referenced to final graded level) and installation of the above conduits and backfilled and compacted to 98% Mod AASHTO for sand.

6.3.2 Supply and Installation of conduits in runway (Item 1.7.5)

i) 50 mm HDPE conduits type IV class 10 including cutting of slots and filling with epoxy
ii) 32 mm HDPE conduits type IV class 10 including cutting of slots and filling with epoxy

The tendered rates shall include full compensation for the supply of all required materials to site, including for the supply of connector fittings, cutting of slots in taxiway/runway asphalt and installation of the above conduits and backfill with specified epoxy fillers as per the layout drawings.

6.3.3 Removal of light bases and temporary backfilling of holes after removal of the light bases

The tendered rate shall include full compensation for the removal the existing light bases, supply ofhot asphalt mix and the backfill of the holes with hot mix asphalt to the density as specified in Section 4200 of this tender document.

7 LIGHT INSTALLATIONS

7.1 GENERAL

To accommodate the runway strengthening and application of the friction course layer all affected runway centre line, touchdown zone, flush mounted edge and taxiway lead on / off lights shall be removed and replaced with new inset lights. The runway centre line inset halogen lights shall be replaced with LED lights.

All useable spare parts shall be retrieved from the removed inset lights and handed over to the ACSA M&E as maintenance spares.

All flush mounted (inset) lights shall be level with the final asphalt overlay levels in accordance with the ICAO and manufacturer's requirements.

Full photometric measurements shall be made of all lights to ensure ICAO compliance.

7.2 INSTALLATION OF INSET LIGHTS

The Electrical Contractor shall accurately survey the existing light positions and conduit positions to enable him to re-locate the exact position of existing conduit for new lights to be installed.

All light fittings shall be uniquely identified with road marking paint on the edge of runway and taxiway.

Procedure to be followed when new inset lights are to be installed after asphalt overlay:

- Determine the exact position of the light, mark it with reference marks to facilitate positioning of thecore drill.
- Drill a hole, 100 mm diameter in the runway/taxiway by means of a diamond phase core drillmounted on a sturdy rig, until the drill reaches the conduit or cabling previously protected.
- Drill a recess, 240 mm diameter and approximately 130 mm deep (to suit the type of light) in the runway/taxiway by diamond phase core drill mounted on a sturdy rig.
- The recess sides shall be perpendicular to the surface of the runway/taxiway. The bottom shall beflat or slightly concave to ensure correct positioning of the base.

- Clean and dry the surface and sides of the recess before installing the base. The temperature of the base, recess sides and wire ways shall not be lower than the minimum application temperature for the resin.

- A sand layer shall be placed as a bedding and seal layer in the 240 mm recess so that the epoxyfill does not run into the 100 mm hole done for the cabling.

- Fill all voids with FR/575 epoxy casting resin used for airport lighting. This shall be neatly done andnot spilled over the newly laid asphalt.

- Install, adjust, level and commission the lights in accordance with the manufacturer's requirements using an appropriate jig.

- Install, adjust, level and commission the lead on lights in accordance with the manufacturer's toe in requirements on the curves using an appropriate jig and alignment marks on the light fittings.

7.3 INSTALLATION OF ELEVATED EDGE LIGHTS

All 106 elevated edge lights shall be removed and taken away for refurbishment. The refurbishment shall be carried out on a shift-by-shift basis as the lights are removed, with an allowance made for twenty new lights to allow sufficient time for the removed lights to be refurbished before re- instatement. The existing bases shall be removed and replaced with deep bases in accordance with Clause 7.4. The Civil Contractor shall be responsible for all patching work in the shoulder areas to accommodate the new deep bases.

The refurbishment shall include, re-lamping, cleaning of lenses and replacement of all faulty components to ensure full compliance with ICAO standards. A provision for new fittings has been allowed in the Bill of Quantities if refurbishment is not possible.

Before work in the graded strip area can commence the Electrical Subcontractor shall disconnect theexisting edge light secondary circuits, pull out the secondary cabling from the conduits and make temporary surface connections to ensure that CAT I status is maintained. The temporary surface cables shall be disconnected **at the start of each shift** and moved outside the graded strip area before the Civil work commences. At the **end of each shift** the temporary cables shall be reconnected so that CAT I status is re-instated before the runway is reopened.

Once operations on the runway shoulders commence the CAT I status shall be retained by the useof temporary runway edge lights fabricated from an existing light head screwed onto a stake as indicated on Drawing T01.CPT.170-E-100.

7.4 BASES FOR INSET AND ELEVATED LIGHTS

7.4.1 Shallow Bases

All the new fittings shall be installed in new ADB 8”(HPI-08) or 12”(HPI-12) shallow bases once the asphalt works is completed. The 8”/12” shallow bases shall be complete with secondary cable plug in feeds, compression glands and all required accessories. The new shallow bases shall becomplete with an integral earth stud on the inside of the base. All shallow bases shall be tagged with an active RF ID tag for unique identification.

7.4.2 Deep Bases

New ADB deep bases (FAA L-867) shall be installed on the runway shoulder 2 m from runwayedge at 15 m or 60 m intervals as indicated on the layout drawings. The deep bases will be used tohouse the elevated edge lights as well as the elevated runway closure crosses in accordance with Clause 14. All deep bases housing lights shall be tagged with an active RF ID tag for unique identification.

In addition the deep bases will also be used as draw pits for pulling in the secondary cabling from the manholes offset at 50 m from the runway edge.

The deep bases shall be fabricated from A36 grade steel. The bases shall be of welded construction with an integral earth stud welded on the inside of the base. The bases shall comply with FAA specification L-867 grommeted for 50 mm/32 mm HDPE conduits. The bases shall be 610 mm deep and sized to accommodate the respective light fittings (either elevated runway edge or runway closure cross). The bases shall be complete with all required accessories required for mounting the lights and for cable pulling.

The bases shall be complete with steel cover plates to blank off bases used for cable pulling. The cover plates shall be equipped with a suitable sealing gasket as approved by the manufacturer.The bases and covers shall be hot dipped galvanised to SABS0214. Refer to Drawing T01.CPT.170-E-100 for an illustration of the deep base.

8 EPOXY CASTING RESIN FOR AIRPORT LIGHTING

The epoxy to be used for light fittings installations, as approved by ACSA, shall comply with thefollowing specification:

Type	:	Eli-cast FR/575 Epoxy Casting Resin
Description	:	Black, ambient temperature curing epoxy resin
Viscosity / 25ºC	:	Medium viscous, free flowing liquid
Application	:	By pouring, can be mixed with aggregates and spread with a trowel
Mixing Rates	:	By weight : 1. Part Resin : 2. Part Hardener : 3. Part Sand Filler
Potlife (300g mass/25ºC)	:	25 Minutes
Geltime (300g mass/25ºC)	:	40 Minutes
Setting Time	:	1 Hour
Practical Cure / 25ºC	:	_ 24 Hours
Full Cure / 25ºC	:	_ 1 Week
Exotherm	:	_ Unfilled casting resin (1000 g x 6 cm thick) 87ºC _ Aggregate filled: very low exotherm.
Specific Gravity / 25ºC	:	_ 1,14g/cm³
Specific Gravity / 25ºC	:	_ 1,1g/cm³
Specific Gravity / 25ºC	:	1,8 - 1,89g/ cm³
(Mixed Resin)	:	By weight :100 Parts Resin :100 Parts Hardener :200 Parts Sand Filler
Hardness Cured: 24 hours / 25ºC (Including Sand Filler)	:	Shore D 90 - 95
Lowest application temperature	:	15ºC
Maximum service temperature	:	Unfilled : 70ºC Filled : 80 - 90ºC

The epoxy to be used for filling conduit slots on runway and taxiway installations, as approved byACSA, shall comply with the following specification:

Type	:	Eli-cast FR/576 Epoxy Casting Resin
Description	:	Black, ambient temperature curing epoxy resin
Viscosity / 25ºC	:	Low viscous, free flowing liquid
Application	:	By pouring, can be mixed with aggregates andspread with a trowel
Mixing Rates	:	By weight : 1. Part Resin : 2. Part Hardener : 3. Part Sand Filler
Potlife (1kg mass / 25ºC)	:	25 Minutes
Geltime (1kg mass / 25ºC)	:	40 Minutes
Setting Time /25ºC	:	1 Hour
Practical Cure / 25ºC	:	24 Hours
Full Cure / 25ºC	:	1 Week
Exotherm	:	Unfilled casting resin (1000 g x 6 cm thick) 90ºC Aggregate filled: very low exotherm.
Specific Gravity / 25ºC	:	1,14g/cm³
Specific Gravity / 25ºC	:	1,1g/cm³
Specific Gravity / 25ºC	:	1,8 - 1,89g/ cm³
(Mixed Resin)	:	By weight : 100 Parts Resin : 100 Parts Hardener : 200 Parts Sand Filler
Hardness Cured: 24 hours / 25ºC (Including Sand Filler)	:	Shore D 90 - 95
Lowest application temperature	:	15ºC
Maximum service temperature	:	Unfilled : 70ºC Filled : 80 - 90ºC

C4.7 The costs for the supply of epoxy shall be included in the relevant installation prices.

9 GENERAL SPECIFICATION REGARDING TAXIWAY LIGHTING

9.1 GENERAL

All new light fittings shall comply with the Standard Specification.

The new fittings shall be installed in new 8'' shallow bases once the asphalt works is completed.

Lights shall be bi-directional medium intensity semi-flush lights and shall comply with the relevant clauses of the latest revision of Annex 14 Volume 1 suitable for Category III requirements.

All lights shall use as far as possible the same components to reduce the quantity of spare parts.All lights

shall be water tight incorporating "O" ring seals.

Suitable compression glands shall be used for the entry of cables inside the inner cover to seal itfrom water penetration.

All components shall be corrosion proof without using aggressive metal protective coatings.

9.2 INSET LIGHTS

The projection above the finished runway/taxiway level shall not exceed 12,7 mm.

Lights shall resist all stresses imposed by impact, roll over and static loads of present day aircraft without damage to the light or aircraft or vehicle tyres.

Lights shall be suitable for mounting in 8" shallow bases as applicable.

Shallow base lights with bottom or side entry for cables shall be provided. The bases shall be fitted with 2 glands where 4 x cables are required. The one gland shall be sealed off if only 2 x cables are installed and the 2 x lamps paralleled at the light. The bases shall be complete with factory sealed glands and feed through cables.

The taxiway lights shall be provided with bi-directional green/green and alternating green/yellow filters as shown on the layout drawings.

The prisms shall be user-replaceable without need to apply sealing compound.

The light shall be fastened to the base with screws and studs to prevent rotation of the dome due to aircraft wheel impact.

10 GENERAL SPECIFICATION REGARDING RUNWAY LIGHTING

10.1 GENERAL

All new light fittings shall comply with the Standard Specification.

The Halogen type runway centre line lights shall be replaced with new LED type lights.

The new fittings shall be installed in new 8'' shallow bases once the asphalt works is completed.

Lights shall be unidirectional or bi-directional or omni-directional as specified and shall be high to medium intensity and shall comply with the relevant clauses of the latest revision of Annex 14 Volume 1 suitable for Category III requirements.

All lights shall use as far as possible the same components to reduce the quantity of spare parts.All lights

shall be water tight incorporating “O” ring seals.

Suitable compression glands shall be used for the entry of cables inside the inner cover to seal itfrom water penetration.

All components shall be corrosion proof without using aggressive metal protective coatings.

Runway circuits shall remain physically separated from the Taxiway circuits i.e routing in separate conduits/sleeves and manholes.

10.2 INSET LIGHTS

New bi-directional, high intensity, semi-flush runway centre line LED lights shall be installed with 2xcircuits, to energise either the 01 or 19 side.

New bi-directional high intensity semi-flush edge lights shall be installed.New uni-

directional high intensity semi-flush TDZ lights shall be installed.

Shallow base lights with bottom or side entry for cables shall be provided. The bases shall be fitted with 2 glands where 4 x cables are required. The one gland shall be sealed off if only 2 x cables are installed and the 2 x lamps paralleled at the light. The bases shall be complete with factory sealed glands and feed through cables.

The prisms shall be user-replaceable without need to apply sealing compound.The

projection above ground level shall not exceed 12,7 mm.

The light shall be fastened to the base with screws and studs to prevent rotation of the dome due toaircraft wheel impact.

10.3 ELEVATED EDGE LIGHTS

Bi-directional high intensity, runway elevated edge lights shall be installed where applicable.Re-lamping

of lights shall be done by a back captive door and shall not require any tool.

The optical system of edge lights shall consist of a double lens. The outer component shall have an externally smooth surface to prevent accumulation of dirt. The inner lenses shall be in two halves, true coloured when required.

The lights shall resist jet blasts from the heaviest present day aircraft and shall be frangible in caseof impact.

The items below indicate some of the key components which are required for the refurbishment ofthe existing lights.

- Outer dome
- Positioning ring for inner lenses
- 180° Inner prismatic lenses
- O-ring gasket
- Clamping ring
- Lamp, quartz halogen, prefocus (200 W)Wire
- strain reliever
- Frangible stem
- Ball joint
- 2-pole plug to FAA L-823 with heat resistant wires
-

11 CURRENT (SERIES) / TRANSFORMERS

11.1.1 Existing Transformers (existing manholes)

The existing airfield transformers are in a satisfactory working condition but a provision for new65 W, 100 W and 200 W transformers has been allowed in the Bill of Quantities in the event of unforeseen failures during the construction period.

11.1.2 New Transformers (new manholes)

The Electrical Subcontractor shall install new series transformers for the runway lights associated to the new 50 m manholes and runway closure crosses as indicated on the layout drawings.

The series transformers shall be in full compliance with ICAO Aerodrome Design Manual Part 5. The core shall be made from low-loss grain oriented steel laminations. Primary and secondary windings shall be adequately separated but not super-imposed. There shall be no creeping path between the primary and the secondary windings. The transformer and connection leads shall be pressure encapsulated with thermo-plastic elastomer, which resists ozone, UV light, chemical agents, shocks and rough handling. The encapsulation shall not absorb water. The transformers shall be 6.6A/6.6A; Neoprene rubber insulated and shall be fitted with a centre earth stud, which shall be connected to the earthing bar at the manhole.

The following size series transformers will be required.

- Edge Lights: 300W
- Closure crosses: 200W
- Touch Down Zone Lights: 100 W
- Centreline Lights (LED): 65 W

12 CABLING AND CONNECTORS

12.1 GENERAL

New primary cabling shall be supplied and installed to accommodate the new Runway ClosureCrosses and the new 50 m manholes as indicated on the layout drawings.

New secondary cabling shall be supplied and installed as indicated on the layout drawings.

All cabling and light fittings shall be labelled, with the labelling not more than 100 mm from male andfemale plug. The price for labelling shall be included in the installation cost.

12.2 PRIMARY WIRING

The primary cables shall conform to the following specifications:

- Conductor build-up : 84 x 0.3 mm tinned copper wire
- Conductor rated area : 6.0 sq mm
- Thickness of FRPE insulation : 2.5 mm
- Overall diameter of core : 8.25 mm
- Minimum area of screen : 4.0 sq mm tinned copper braid
- Thickness of PVC sheath : 1.7 mm
- Overall diameter : 12.4 mm to 12.6 mm maximum
- Drum length and weight : 1000 m / 240 kg
- Rated operating voltage : 5 kV
- Tested conductor resistance : 3.3 ohms / km
- Tested insulation resistance : greater than 2500 M ohms / km at 5 kV
-

12.3 SECONDARY WIRING

The secondary cabling shall conform to the following specification:

- 2 x single core, copper conductor 4 mm², PVC/Nylon insulated cables per light. Each pair ofcables shall be provided with suitable connectors.

12.4 CONNECTORS

The following connectors (plugs) shall be provided and installed:

- Primary Cables : - Ensto K/O 500
- Secondary Cables : - Ensto K/D 503.1
  Ensto K/D 503.1/R

13 MANHOLES

13.1 EXISTING 50 M MANHOLES

The Electrical Subcontractor shall carry out remedial work on existing manholes with particular focus onthe following:

- The manholes shall be cleaned with all dirt removed.
- All airfield cable connectors, transformers and metallic parts shall be bonded to the earth barvia 6 mm² green insulated copper earth conductors.
- The sequencing on the secondary circuits shall be checked and corrected if necessary. • All

cable connectors shall be replaced.

-

All equipment shall be labelled and rearranged to provide a neat presentation.

- The 70 mm² BCEC connection to the earth rod shall be checked and reinstated via a cadweld joint if broken.
- The connection to the airfield earth trench shall be checked and reinstated if broken.
- All isolation transformers shall be securely anchored to the cable tray in the manhole.
- Earth resistivity and continuity tests shall be provided to the Engineer for approval.

Refer to Drawing T01.CPT.170-E-100 which depicts the layout of the existing manhole and Figure 1which depicts the condition of the existing manhole.

C4.9 C4.2.1 Figure 1: Existing manhole layout

13.2 NEW 50 M MANHOLES

The electrical equipment in the existing 12 m manholes located on the eastern side of Runway 01/19 between km 2,6 to km 3,2 shall be removed including all isolation transformers, primary and secondary cabling.

The existing 57 x 12 m manholes shall be replaced with 14 new 50 m manholes, built in accordance with Drawing T01.CPT.170-E-100.

The Civil structure for the new manholes will be provided by others and the Electrical Subcontractor will be responsible for the provision and installation of all the required electrical equipment and the manholeearthing system.

As part of the new manholes the following shall be included:

- Provision of suitably sized isolation transformers in accordance with Clause 12.
- New airfield primary and secondary cabling and connectors in accordance with Clause 11.
- New airfield primary and secondary sleeve/conduit networks in accordance with Clause 6.
- Existing primary circuits shall be extended as indicated on the layout drawings, the reconnections and sequencing of all existing primary circuits shall be carried out by the Electrical Subcontractor.

- Suitably sized hot-dip galvanised cable supports shall be supplied and installed in the manholes to accommodate the electrical equipment and cabling as indicated on Drawing T01.CPT.170-E-100 and Figure 2. The cable supports can either be wire mesh cable tray or cable ladder and shall be complete with all fixing accessories.

- Each manhole shall have two dedicated earth bars installed horizontally on opposite sides of the manhole wall. The earth bars shall be bonded via a 70 mm² BCEC to a single 2 m earth electrode. The isolation transformers, connectors and all metallic components shall be bonded to the one of the earth bars via 6 mm² green insulated copper earth conductors.

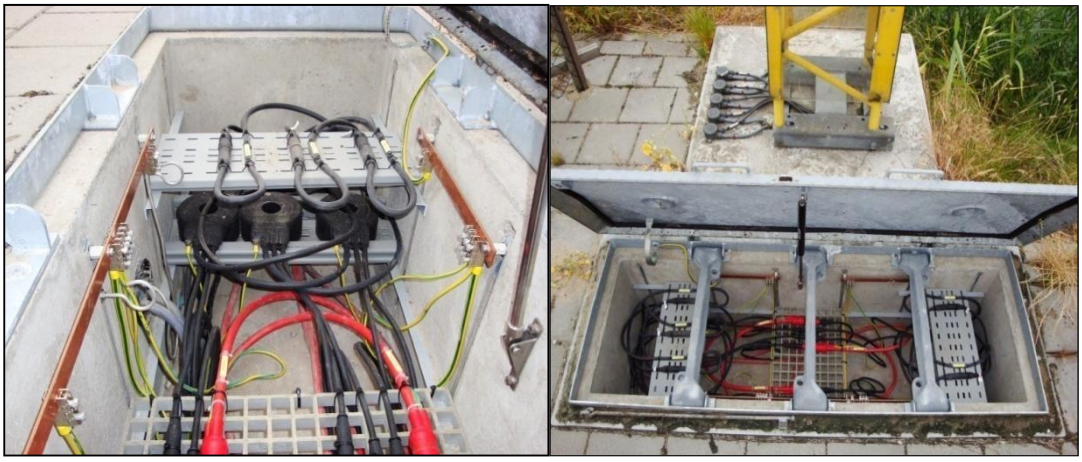
- Each earth bar shall be a 50 mm x 8 mm copper bar. The copper bar shall be mounted on moulded epoxy insulators to space the bar 30 mm from the wall. Each insulator shall be provided with two, moulded in, 12 mm brass studs. The stud at the base of each insulator shall be screwed into an internally threaded wall anchor (at least 50 mm long) and the copperbar shall be secured to the remaining stud on each insulator with a brass nut, brass washer and cadmium plated spring washer. The copper bar shall be provided with at least fourteen
  13 mm diameter holes at 35 mm centres. The two outer holes shall be employed for mounting the bar whilst the remaining holes shall each be fitted with 12 mm diameter bolts, nuts, washers and spring washers.

- A "Copperweld" 2 m earthing rod shall be provided and driven vertically into the ground adjacent to each new manhole. Once the rod has been fully driven-in, the 70 mm² BCEC links from the earth bars shall be exothermically welded to the exposed head of the rod.

- The manholes shall be integrated into the existing airfield earth trench network via a 70 mm² green insulated copper earth conductors which shall link the respective earth rods at each new manhole. The tie in points to the existing network shall be confirmed by the Engineer on site.

Refer to Drawing T01.CPT.170-E-100 and Figure 2 which depicts the layout of the new manhole.

The Electrical Subcontractor will also be responsible for the removal of the redundant 12 m manholesincluding all electrical equipment and the Civil structure.



C4.10 C4.2.2 Figure 2: New manhole layout

14 RUNWAY CLOSURE CROSSES

14.1 GENERAL

Permanent runway closure crosses shall be provided at both ends of Runway 01/19 in accordance with Drawings T01.CPT.170-E-100 and T01.CPT.170-E-102.

The installation shall include two 4 kVA CCRs per end, primary cabling, secondary cabling, cable connectors, light fittings and light bases. The contract shall also include the calibration of the CCRs and configuration upgrades on the AGL SCADA control system.

14.2 LIGHT FITTINGS

The elevated high intensity runway closure cross lights (Part Number UEL-1-150) shall be in compliance with Annex 14 Volume 1 suitable for Category III requirements.

The light fitting shall meet the runway closure cross photometric specifications with a lamp of 150 W max. The expected lamp life shall not be less than 1000 hours at full intensity. The design and construction shall comply with the main mechanical requirements of FAA AC 150/5345-46 and E-982.

All components shall be made out of temperature and UV-resistant material, suitably protected against corrosion. Plain stainless steel hardware shall be used throughout.

The elevated high intensity runway closure cross lights shall be mounted on new deep bases (FAA L- 867) as described in Clause 7. The deep base shall be installed on a concrete plinth provided by the Civil Contractor. Each base shall have a 2 m earth rod which shall be connected to an external earth stud via a 70 mm² BCEC connection.

14.3 CONSTANT CURRENT REGULATORS (CCR'S)

Four new 4 kVA constant current regulators (CCR's) shall be provided under this contract to feed the new runway closure crosses. The CCRs shall be installed in the existing 01 and 19 substations and shall be powered from the existing LV Main Distribution Boards (MDBs).

Supply modifications to accommodate the new CCRs:

- Supply and install four suitably sized LV circuit breakers to accommodate the CCRs.Panel
- modifications to accommodate LV circuit breakers.
- Supply and install (on existing cable trays) 20 m per CCR of multicore 600/1000 VPVCPVCSWAPVC power and bare copper earthing cabling.
- Termination and bonding of power and earthing cabling. Certificate of
- Compliance covering changes to the existing MDBs.

The CCRs shall conform to the following:

- The CCRs shall be complete with J-Bus remote control facility as per the existing equipment. The CCRs
- shall be microprocessor-assisted and of the solid state type using thyristors in serieswith the output transformer for automatic current regulation against load and mains voltagefluctuations. It shall comply strictly with FAA specification L-825 in advisory circular AC 150/5345-10E.
-

- It shall provide all the requirements of ICAO Aerodrome Design Manual Part 5 paragraphs3.2.1.4, 3.2.1.5 and 3.2.1.6.
- It shall be designed for indoor use in ambient temperatures up to 55ºC.
- The unit shall be a self contained floor standing unit with rolling castors fitted.
- It shall be designed for natural air cooling and no forced air cooling shall be accepted.Brightness control shall be in steps of 3, 5, 6, 7, 8, or 255.
- All operational parameters shall be programmable via a computer running the appropriatesoftware.
- The unit shall display all status values.
- The unit shall support multiplexed remote control over a well established field bus controlnetwork.
- The unit shall compensate for input voltage fluctuations from +/- 15% from nominal 3 phase400V 50Hz. Over and under voltage protection shall be provided for the unit.Over
- current and open circuit protection shall be provided.
- Taps on the output winding shall be provided to match the actual load of the series circuit.Indication on the unit front panel shall include but not be limited to:
    1. True RMS digital ammeter
    2. Shutdown by output over current
    3. Shutdown by output open circuit
    4. Asymmetrical output current
    5. Capacitive current
    6. Discrepancy between actual and selected current
    7. Lamp failure indication / detection
    8. Earth fault indication /detection
- Cable lockout system shall be provided for all outgoing cables.

The CCRs shall be calibrated under the contract and test certificates shall be provided on completion.

15 DISPLACED THRESHOLD

15.1 GENERAL

The existing temporary displaced threshold including PAPIs will be handed over by ACSA to the successful Contractor.

The Electrical Subcontractor shall be responsible for the operation of the temporary displaced thresholdlighting for the contract duration. The temporary PAPIs shall be recalibrated under this contract via a flight test by the CAA.

Whilst the displaced threshold is in use the existing elevated edge lights in the portions where the runway is closed shall be blanked off.

15.2 OPERATIONAL PROCEDURE

The following operational procedure shall be implemented by the Electrical Subcontractor before and after each shift for switching the Temporary Displaced Threshold. The ACSA M&E Department will assist with this switching procedure for the first shift.

- An “All Safe” clearance shall be requested from Air Traffic Control (ATC).Request
- ATC to deselect the following Circuits:
    - Runway Edge
    - Runway Centre Line

- All Runway PAPIs

- The existing Runway Centre Line and PAPI circuits shall be switched to the displaced thresholdcircuits at the "Displaced Threshold Kiosk" which is located South of Lima Taxiway (GPS co- ordinates shall be provided to the successful Electrical Subcontractor).
- The existing edge light circuits not in use shall be switched at a designated manhole South of Echo Taxiway (GPS co-ordinates shall be provided to the successful Electrical Subcontractor).
- Once all circuits for the displaced threshold is switched a request to the ATC shall be made to reselect all the previously deselected circuits as per above.

The reverse procedure shall be carried out at the end of each shift to re-instate the permanentthreshold.

The electrical subcontractor will also be responsible to maintain and fix the paint markings on canvas (Drawing no. T01.CPT.170-T-031) which will be provided by ACSA free of charge to existing steel pegs in the ground at the start of each shift and removal at the end of each shift. The electrical subcontractor will be allowed to cover the paint markings with shade netting during day time if he can proof that it is securely fixed and do not have any impact on the landing or departure of aircraft.

16 RUNWAY TAXIWAY CLOSURE BEACONS (STEADY RED LIGHTS)

To accommodate the construction works the runway and taxiways shall be closed off using warning beacons ("steady red lights") spaced 3 m apart for the cross-sectional length of the taxiway / runway.

The light fittings shall be in accordance with Annex 14 and approved by the CAA for use as a low intensity type A obstruction light.

The light fitting shall be battery powered, IP65 rated with 12 V LED lamps to deliver a minimum luminous intensity of 60 Candelas for a minimum of 8 hours (one shift).

The offered lights shall come complete with a weatherproof storage case capable of housing a minimum of 12 lights which enables the system to be stored and charged simultaneously, via either a 12 V supply or 400/230 V mains supply.

The Electrical Subcontractor shall allow in his pricing for the maintenance and re-charging of the warning lights for the contract duration. In addition the Electrical Subcontractor shall also include in his pricing for placement and removal of the warning beacons **at the start and end of each shift** for the contract duration.

The operational procedure for the placement and removal of the lights shall be in accordance with the Manual of Procedures for Working Airside which forms part of the tender document.

Refer to Drawing T01.CPT.170-T-003 for the various positions where warning beacons are required.

17 REDUNDANT EQUIPMENT

All redundant equipment, cabling and light fittings shall be removed and handed over by the Electrical Subcontractor to the ACSA M&E Department. The Electrical Subcontractor shall obtain a signature fromthe ACSA representative who takes possession of the equipment.

As an alternate to the above the contract shall also make an allowance for the Electrical Subcontractor to take over the redundant material with the salvaged costs offset as a saving for the client on the project.

All conduits and cabling exposed during the grading process shall be removed by the Electrical Subcontractor and taken to an off site spoil area.

18 LOWERING OF MANHOLES

The manholes highlighted on Drawing T01.CPT.170-E-105 shall be lowered to meet the final graded levels. To achieve this new manholes based on the existing 50 m manhole specification will be constructed by the Civil Contractor adjacent to the existing manholes which must be lowered.

The following shall be included in the relocation of the manholes.

- Removal and re-installation of existing airfield transformers for TDZ and Centre Line Lights.
- Removal of existing airfield transformers for Edge Lights. The transformers shall be handed over to the ACSA M&E Department.
- Installation of new airfield transformers for Edge Lights.
- Suitably sized hot-dip galvanised cable tray shall be supplied and installed in the new manholes to accommodate the electrical equipment and cabling as indicated on DrawingT01.CPT.170-E-100. The cable tray shall be complete with all fixing accessories.
- The existing secondary cabling and conduit networks will be removed and replaced in accordance with Clause 6.
- New airfield primary and secondary cabling and connectors in accordance with Clause 11. • New airfield primary and secondary sleeve/conduit networks in accordance with Clause 6. • Provision of new manhole earthing system including:
    - A dedicated earth bar bonded via a 70mm² BCEC to a 2 m earth electrode installed adjacent to the manhole.
    - The isolation transformers, cable connectors and all metallic components shall be bonded to the manhole earth bar using 6mm² green insulated copper earth conductor cables.
    - The link to the existing airfield earth trench network shall be reinstated.
- All equipment shall be neatly arranged and labelled including cabling, connectors and transformers. Refer to Drawing T01.CPT.170-E-100 which depicts the layout of the existing 50 manholes.
- On completion all the primary circuits shall be sequenced and commissioned.

To maintain CAT I status at all times the following procedures shall be followed for the lowering ofmanholes:

1. The new manholes shall be constructed by the Civil Contractor.
2. New 110mm primary sleeves and 32 mm / 50 mm secondary conduits shall be installed.
3. All required electrical equipment shall be installed including new (edge lights) and relocated (TDZ and centre line) isolation transformers, primary cabling (link between the new manholes), secondary cabling (to airfield lights), connectors and cable trays.

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4. Manhole earthing system shall be installed

5. The primary circuits for the edge lights shall be swung over from the existing manholes one at atime during a single shift.

6. Once all edge circuits are swung over the Centre Line and TDZ light circuits can be swungover.

7. On completion the existing manholes shall be removed including all redundant civil andelectrical infrastructures.

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Annexure B

Guideline for Services and Processes for Estimating Fees for Persons Registered in terms of the Engineering Profession Act, 2000, (Act No.46 of 2000)

(Double click to access the document)

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Annexure C

Framework for Infrastructure Delivery and Procurement Management

(Double click to access the document)

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Annexure A

Framework for Infrastructure Delivery and Procurement Management

May 2019

Effective Date: 01 October 2019

national treasury
Department:
National Treasury
REPUBLIC OF SOUTH AFRICA

AIRPORTS COMPANY SOUTH AFRICA
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REHABILITATION OF RUNWAY 01/19 AND REHABILITATION OF THE AIRSIDE APRON TAXI LANE AT CAPE TOWN INTERNATIONAL AIRPORT

Annexure D

Construction Industry Development Board Standard for Developing Skills through Infrastructure Contracts

(Double click to access the document)

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DEPARTMENT OF PUBLIC WORKS AND INFRASTRUCTURE
NOTICE 363 OF 2020

Government Gazette 36760 of 23 August 2013 for official version
June 2020 version 2
www.gpwonline.co.za

Construction Industry Development Board

Standard for Developing Skills through Infrastructure Contracts

July 2020

In terms of sections 5(2) of the Construction Industry Development Board Act, 2000 (Act no. 38 of 2000) (the Act), the Construction Industry Development Board is empowered to promote best practice Standards. This best practice Standard for developing skills through infrastructure contracts standard establishes a minimum contract skills development goal which is to be achieved in the performance of a contract in relation to the provision of different types of workplace opportunities linked to work associated with a contract which culminate in or lead to:

a) a part- or full occupational qualification registered on the National Qualification Framework;

b) a trade qualification leading to a listed trade (GG No. 35625, 31 August 2012);

c) a national diploma registered on the National Qualification Framework; and

d) registration in a professional category by one of the professional bodies listed in the standard.

Ms Nonkululeko Sindane
Chairperson: Construction Industry Development Board