

NEC3 Engineering & Construction Contract

Between **Airports Company South Africa**
 (Registration no: 1993/004149/06)

and **(Reg No. _____)**

for **AIRFIELD GROUND LIGHTING (AGL)**
 RUNWAY LIGHTING UPGRADE AT O.R.
 TAMBO INTERNATIONAL AIRPORT FOR
 A PERIOD OF THREE (03) YEARS

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CONTRACT No.

Part C1: Agreements & Contract Data

Contents:		No of pages
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C1.2b	Contract Data provided by the <i>Contractor</i>	[•]
C1.3	Proforma Guarantees	[•]
C1.4	ACSA Insurance Clauses	[•]



C1.1 Form of Offer & Acceptance

Offer

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

AIRFIELD GROUND LIGHTING (AGL) RUNWAY LIGHTING UPGRADE AT O.R. TAMBO INTERNATIONAL AIRPORT

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

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

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

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

Signature(s)

Name(s)

Capacity

**For the
tenderer:**

(Insert name and address of organisation)

Name &
signature of
witness

Date

Tenderer's CIDB registration number:

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



Acceptance

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

The terms of the contract, are contained in:

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

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

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

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

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

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

Signature(s)

Name(s)

Capacity

**for the
Employer**

(Insert name and address of organisation)

Name &
signature of

Date

witness



**UPGRADE OF AIRFIELD GROUND LIGHTING (AGL)
TO LED FITTINGS AT O.R. TAMBO INTERNATIONAL**

AIRPORTS COMPANY
SOUTH AFRICA

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

Note:

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

No.	Subject	Details
1		
2		
3		
4		
5		
6		
7		

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

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

For the tenderer:

For the Employer

Signature

Name

Capacity

On behalf
of

(Insert name and address of organisation)

(Insert name and address of organisation)

Name &
signature
of witness

Date

C1.2 ECC3 Contract Data

C1.2a - Data provided by the *Employer*

The Conditions of contract are selected from the NEC3 Engineering and Construction Contract, April 2013.

Each item of data given below is cross-referenced to the NEC3 Engineering Construction Contract which requires it.

Clause	Statement	Data
1	General	
	The <i>conditions of contract</i> are the core clauses and the clauses for Main Option	
	Main Option	B: Priced contract with Bill of Quantities
	Dispute resolution Option	W1: Dispute resolution procedure
	Secondary Options (incorporating amendments)	X2: Changes in the law X7: Delay damages X13: Performance Bond X18: Limitation of liability Z: Additional conditions of contract
	of the NEC3 Engineering and Construction Contract, April 2013	
10.1	The <i>Employer</i> is:	Airports Company South Africa SOC Limited Reg. No 1993/004149/30 VAT no 4930138393
	Address	Western Precinct, Aviation Park O.R Tambo International Airport 1 Jones Road Kempton Park 1632
	Tel No.	
10.1	The <i>Project Manager</i> is	
	Address	Western Precinct, Aviation Park O.R Tambo International Airport 1 Jones Road Kempton Park 1632
	Tel No.	
	e-mail	
10.1	The <i>Supervisor</i> is	

	Address	O.R. Tambo International ACSA offices, 4 th floor 1 Jones Road Kempton Park 1632
	Tel No.	010 207 2212
	e-mail	TBC
11.2	The <i>works</i> are	AIRFIELD GROUND LIGHTING (AGL) RUNWAY LIGHTING UPGRADE AT O.R. TAMBO INTERNATIONAL AIRPORT (Refer to section C3 for details)
11.2	The following matters will be included in the Risk Register	Availability of As-Built information Access to site Site constraints and constructability
11.2	The <i>Works Information</i> is in	Section C4, Works Information of this contract
11.2	The <i>Site Information</i> is in	Section C4, Site Information of this contract
11.2	The <i>boundary of the site</i> is	Airside maneuvering area
12.2	The <i>law of the contract</i> is the law of	The Republic of South Africa
13.1	The <i>language of this contract</i> is	English
13.3	The <i>period of reply</i> is	Three (3) working days
3	Time	
31.2	The <i>starting date</i> is	Upon contract signature by ACSA
11.2	The <i>completion date</i> is	3 years from the contract signature by ACSA
30.1	The <i>access date</i> is	
31.1	The <i>Contractor</i> submits a first (preliminary) programme with the tender by the tender closing date	Yes
32.2	The <i>Contractor</i> submits revised programmes at intervals no longer than	One (1) week

35.1	The <i>Employer</i> is not willing to take over the works before the <i>completion date</i>	The <i>Employer</i> and Others will have access to the <i>works</i> during construction or prior to completion. Such access by the Employer and Others shall not relieve the <i>Contractor</i> from liability for the completion of the <i>works</i> in accordance with the Works Information and in terms of this contract, and ensuring availability of spares post installations																															
4	Testing and Defects																																
42.2	The <i>defects date</i> is	Thirty-six (36) months after Completion of the whole of the <i>works</i>																															
43.2	The <i>defects correction period</i> is	Two (2) weeks																															
5	Payment																																
50.1	The <i>assessment interval</i> is	15th day of each successive month																															
50.1	The <i>currency of this contract</i> is the	South African Rand (ZAR)																															
51.2	The period within which payment is made is	30 days from date of invoice.																															
51.4	The <i>interest rate</i> is	The prime lending rate of the Nedbank Bank, as determined from time to time																															
6	Compensation events																																
60.1	The <i>weather measurements</i> to be recorded for each calendar month are	the cumulative rainfall (mm) the number of days with rainfall more than 10 mm the number of days with minimum air temperature less than 0 degrees Celsius																															
60.1	The place where weather is to be recorded (on the Site) is	At the Construction Site Office and the records to be kept on site in a file clearly marked for this purpose																															
60.1	Assumed values for the ten-year return <i>weather data</i> for each <i>weather measurement</i> for each calendar month are	<table><tr><td>Month</td><td>Days</td><td>Month</td><td>Days</td></tr><tr><td>January</td><td>1</td><td>July</td><td>4</td></tr><tr><td>February</td><td>1</td><td>August</td><td>3</td></tr><tr><td>March</td><td>2</td><td>September</td><td>2</td></tr><tr><td>April</td><td>2</td><td>October</td><td>2</td></tr><tr><td>May</td><td>3</td><td>November</td><td>2</td></tr><tr><td>June</td><td>3</td><td>December</td><td>1</td></tr></table>				Month	Days	Month	Days	January	1	July	4	February	1	August	3	March	2	September	2	April	2	October	2	May	3	November	2	June	3	December	1
Month	Days	Month	Days																														
January	1	July	4																														
February	1	August	3																														
March	2	September	2																														
April	2	October	2																														
May	3	November	2																														
June	3	December	1																														
7	Title	No data required for this section of the <i>conditions of contract</i>																															
8	Risks and Insurance																																
84.1	The <i>Employer</i> provides these insurances	Refer to the Insurance Clauses which is attached at the end of the Contract Data																															

84.2	The <i>Contractor</i> provides the insurance stated in	The Insurance Clauses which is attached at the end of the Contract Data. The insurances are in the joint names of the Parties and provide cover for events which are at the Contractor's risk from the starting date until the Defects Certificate or a termination certificate has been issued.
	The minimum limit of indemnity for insurance in respect of death of or bodily injury to employees of the <i>Contractor</i> arising out of and in the course of their employment in connection with this contract for any one event is:	As prescribed by the Compensation for Occupational Injuries and Diseases Act No. 130 of 1993
9	Termination	No data required for this section of the <i>conditions of contract</i>
10	Data for Main Options	
B	Priced contract with Bill of Quantities	
11	Data for Option W1	
W1.1	The <i>Adjudicator</i> is	The person appointed jointly by the parties from the list of adjudicators contained below
W1.2	The <i>Adjudicator nominating body</i> is	The current Chairman of Johannesburg Advocate's Bar Council
W1.4	The <i>tribunal</i> is	Arbitration
W1.4	If the <i>tribunal</i> is arbitration, the <i>arbitration procedure</i> is	is set out in The Rules for the Conduct of Arbitrations 2013 Edition, 7th Edition, published by The Association of Arbitrators, (Southern Africa)
W1.4	The place where arbitration is to be held is	Johannesburg, South Africa.
W1.4	The person or organization who will choose an arbitrator	The <i>Arbitrator</i> is the person selected by the Parties as and when a dispute arises in terms of the relevant Z Clause, from the Panel of Arbitrators provided under the relevant Z clause if the arbitration procedure does not state who selects an arbitrator. The Arbitrator nominating body is the Chairman of the Johannesburg Advocates Bar Council.
12	Data for Secondary Option Clauses	
X7	Delay Damages	
	Delay damages of the <i>works</i> are	Amount per day is 0.05% of the contract value, up to the maximum of 10% of the contract value
X13	Performance bond	
X13.1	The amount of the performance bond is	5% of the contract value. Pro-forma draft of a performance bond to be used is attached to this contract in Section C1.3: Sureties.

X16	Retention	
X16.1	The <i>retention percentage</i> is	N/A
X18	Limitation of Liability	
X18.1	The <i>Contractor's</i> liability to the <i>Employer</i> for indirect or consequential loss is limited to	Nil - Neither Party is liable to the other for any consequential or indirect loss, including but not limited to loss of profit, loss of income or loss of revenue
X18.2	For any one event, the <i>Contractor's</i> liability to the <i>Employer</i> for loss of or damage to the <i>Employer's</i> property is limited to	The Total Costs Incurred and/or damages suffered to the Employer's Property
X18.3	The <i>Contractor's</i> total liability to the Employer for defects due to his design which are not listed on the Defects Certificate is limited to	The Total Costs Incurred and/or damages suffered to the Employer's Property
X18.4	The <i>Contractor's</i> total liability to the <i>Employer</i> for all matters arising under or in connection with this contract, other than excluded matters, is limited to	The Total Costs Incurred and/or damages suffered to the Employer's Property
Z(A):	The Additional conditions of contract are	Z1 – Z20
	Amendments to the Core Clauses	
Z1	Interpretation of the law	
Z1.1	Add to core clause 12.3: Any extension, concession, waiver or relaxation of any action stated in this contract by the Parties, the <i>Project Manager</i> , the <i>Supervisor</i> , or the <i>Adjudicator</i> does not constitute a waiver of rights, and does not give rise to an estoppel unless the Parties agree otherwise and confirm such agreement in writing.	
Z2	Providing the Works:	
Z2.1	Delete core clause 20.1 and replace with the following: The <i>Contractor</i> provides the works in accordance with the Works Information and warrants that the results of the Works, when complete, shall be fit for their intended purpose	
Z3	Other responsibilities:	
Z3.1	Add the following at the end of core clause 27: The <i>Contractor</i> shall have satisfied himself, prior to the Contract Date, as to the completeness, sufficiency and accuracy of all information and drawings provided to him as at the Contract Date	
Z3.2	The <i>Contractor</i> shall be responsible for the correct setting out of the <i>Works</i> in accordance with the original points, lines and levels stated in the <i>Works</i> Information or notified by the <i>Project Manager</i> , <i>Supervisor</i> or the <i>Employer</i> . Any errors in the positioning of the <i>Works</i> shall be rectified by the <i>Contractor</i> at the <i>Contractor's</i> own costs.	
Z4	Extending the defects date:	

Add the following as a new core clause 46:	
Z4.1	If the <i>Employer</i> cannot use the <i>works</i> due to a Defect, which arises after Completion and before the <i>defects date</i> , the <i>defects date</i> is delayed by a period equal to that during which the <i>Employer</i> , due to a Defect, is unable to use the <i>works</i>
Z4.2	If part of the <i>works</i> is replaced due to a Defect arising after Completion and before the <i>defects date</i> , the <i>defects date</i> for the part of the <i>works</i> which is replaced is delayed by a period equal to that between Completion and the date by when the part has been replaced
Z4.3	The <i>Project Manager</i> notifies the <i>Contractor</i> of the change to a <i>defect date</i> when the delay occurs. The period between Completion and an extended <i>defects date</i> does not exceed twice the period between Completion and the <i>defects date</i> stated in the Contract Data
Z5	Termination
Z5.1	Add the following to core clause 91.1, at the second main bullet, fifth sub-bullet point, after the words “assets or”: “business rescue proceedings are initiated or steps are taken to initiate business rescue proceedings”.
Amendment to the Secondary Option Clauses	
Z6	Performance Bond
Z6.1	Amend the first sentence of clause X13.1 to read as follows: The <i>Contractor</i> gives the <i>Employer</i> an unconditional, on-demand performance bond, provided by a bank which the <i>Project Manager</i> and the <i>Employer</i> have accepted, for the amount stated in the Contract Data and in the form set out in Annexure C.ii of this Contract Data.
Z6.2	Add the following new clause as Option X13.2: The <i>Contractor ensures</i> that the performance bond is valid and enforceable until the end of the <i>contract period</i> . If the terms of the performance bond specify its expiry date and the end of the <i>contract period</i> does not coincide with such expiry date, four weeks prior to the said expiry date, the <i>Contractor</i> extends the validity of the performance bond until the end of the <i>contract period</i> . If the <i>Contractor</i> fails to so extend the validity of the performance bond, the <i>Employer</i> may claim the full amount of the performance bond and retain the proceeds as cash security
Z7	Limitation of liability:
Z7.1	Insert the following new clause as Option X18.6: The <i>Employer's</i> liability to the <i>Contractor</i> for the <i>Contractor's</i> indirect or consequential loss is limited to R0.00
Z7.2	Notwithstanding any other clause in this contract, any proceeds received from any insurances or any proceeds which would have been received from any insurances but for the conduct of the <i>Contractor</i> shall be excluded from the calculation of the limitations of liability listed in the contract
Additional Z Clauses	
Z8	Cession, delegation and assignment
Z8.1	The <i>Contractor</i> shall not cede, delegate or assign any of its rights or obligations to any person without the written consent of the <i>Employer</i> , which consent shall not be unreasonably withheld. This clause shall be binding on the liquidator/business rescue practitioner /trustee (whether provisional or not) of the <i>Contractor</i>
Z8.2	The <i>Employer</i> may cede and delegate its rights and obligations under this contract to any person or entity

Z9	Joint and several liability
Z9.1	If the <i>Contractor</i> constitutes a joint venture, consortium or other unincorporated grouping of two or more persons, these persons are deemed to be jointly and severally liable to the <i>Employer</i> for the performance of the Contract.
Z9.2	The <i>Contractor</i> shall, within 1 week of the Contract Date, notify the <i>Project Manager</i> and the <i>Employer</i> of the key person who has the authority to bind the <i>Contractor</i> on their behalf.
Z9.3	The <i>Contractor</i> does not materially alter the composition of the joint venture, consortium or other unincorporated grouping of two or more persons without prior written consent of the <i>Employer</i> .
Z10	Ethics
Z10.1	The <i>Contractor</i> undertakes:
Z10.1.1	not to give any offer, payment, consideration, or benefit of any kind, which constitutes or could be construed as an illegal or corrupt practice, either directly or indirectly, as an inducement or reward for the award or in execution of this contract;
Z10.1.2	to comply with all laws, regulations or policies relating to the prevention and combating of bribery, corruption and money laundering to which it or the <i>Employer</i> is subject, including but not limited to the Prevention and Combating of Corrupt Activities Act, 12 of 2004.
Z10.2	The <i>Contractor's</i> breach of this clause constitutes grounds for terminating the <i>Contractor's</i> obligation to Provide the Works or taking any other action as appropriate against the <i>Contractor</i> (including civil or criminal action). However, lawful inducements and rewards shall not constitute grounds for termination.
Z10.3	If the <i>Contractor</i> is found guilty by a competent court, administrative or regulatory body of participating in illegal or corrupt practices, including but not limited to the making of offers (directly or indirectly), payments, gifts, gratuity, commission or benefits of any kind, which are in any way whatsoever in connection with the contract with the <i>Employer</i> , the <i>Employer</i> shall be entitled to terminate the contract in accordance with the procedures stated in core clause 92.2. the amount due on termination is A1.
Z11	Confidentiality
Z11.1	All information obtained in terms of this contract or arising from the implementation of this contract shall be treated as confidential by the <i>Contractor</i> and shall not be used or divulged or published to any person not being a party to this contract, without the prior written consent of the <i>Project Manager</i> or the <i>Employer</i> , which consent shall not be unreasonably withheld.
Z11.2	If the <i>Contractor</i> is uncertain about whether any such information is confidential, it is to be regarded as such until otherwise notified by the <i>Project Manager</i> .
Z11.3	This undertaking shall not apply to –
Z11.3.1	Information disclosed to the employees of the <i>Contractor</i> for the purposes of the implementation of this agreement. The <i>Contractor</i> undertakes to procure that its employees are aware of the confidential nature of the information so disclosed and that they comply with the provisions of this clause;
Z11.3.2	Information which the <i>Contractor</i> is required by law to disclose, provided that the <i>Contractor</i> notifies the <i>Employer</i> prior to disclosure so as to enable the <i>Employer</i> to take the appropriate action to protect such information. The <i>Contractor</i> may disclose such information only to the extent required by law and shall use reasonable efforts to obtain assurances that confidential treatment will be afforded to the information so disclosed;

- Z11.3.3** Information which at the time of disclosure or thereafter, without default on the part of the *Contractor*, enters the public domain or to information which was already in the possession of the *Contractor* at the time of disclosure (evidenced by written records in existence at that time);
- Z11.4** The taking of images (whether photographs, video footage or otherwise) of the *works* or any portion thereof, in the course of Providing the Works and after Completion, requires the prior written consent of the *Project Manager*. All rights in and to all such images vests exclusively in the *Employer*
- Z11.5** The *Contractor* ensures that all his Subcontractors abide by the undertakings in this clause.

Z12 *Employer's Step-in rights*

- Z12.1** If the *Contractor* defaults by failing to comply with his obligations and fails to remedy such default within 2 weeks of the notification of the default by the *Project Manager*, the *Employer*, without prejudice to his other rights, powers and remedies under the contract, may remedy the default either himself or procure a third party (including any subcontractor or supplier of the *Contractor*) to do so on his behalf. The reasonable costs of such remedial works shall be borne by the *Contractor*
- Z12.2** The *Contractor* co-operates with the *Employer* and facilitates and permits the use of all required information, materials and other matter (including but not limited to documents and all other drawings, CAD materials, data, software, models, plans, designs, programs, diagrams, evaluations, materials, specifications, schedules, reports, calculations, manuals or other documents or recorded information (electronic or otherwise) which have been or are at any time prepared by or on behalf of the *Contractor* under the contract or otherwise for and/or in connection with the *works*) and generally does all things required by the *Project Manager* to achieve this end.

Z13 *Liens and Encumbrances*

- Z13.1** The *Contractor* keeps the Equipment used to Provide the Services free of all liens and other encumbrances at all times. The *Contractor*, vis-a-vis the *Employer*, waives all and any liens which he may from time to time have, or become entitled to over such Equipment and any part thereof and procures that his Subcontractors similarly, vis-a-vis the *Employer*, waive all liens they may have or become entitled to over such Equipment from time to time

Z14 *Intellectual Property*

- Z14.1** Intellectual Property ("IP") rights means all rights in and to any patent, design, copyright, trade mark, trade name, trade secret or other intellectual or industrial property right relating to the Works.
- Z14.2** IP rights remain vested in the originator and shall not be used for any reason whatsoever other than carrying out the *works*.
- Z14.3** The *Contractor* gives the *Employer* an irrevocable, transferrable, non-exclusive, royalty free licence to use and copy all IP related to the *works* for the purposes of constructing, repairing, demolishing, operating and maintaining the works
- Z14.4** The written approval of the *Contractor* is to be obtained before the *Contractor's* IP made available to any third party which approval will not be unreasonably withheld or delayed. Prior to making any *Contractor's* IP available to any third party the *Employer* shall obtain a written confidentiality undertaking from any such third party on terms no less onerous than the terms the *Employer* would use to protect its IP
- Z14.5** The *Contractor* shall indemnify and hold the *Employer* harmless against and from any claim alleging an infringement of IP rights ("**the claim**"), which arises out of or in relation to:

- Z14.5.1** the *Contractor's* design, manufacture, construction or execution of the Works
- Z14.5.2** the use of the *Contractor's* Equipment, or
- Z14.5.3** the proper use of the Works.
- Z14.6** The *Employer* shall, at the request and cost of the *Contractor*, assist in contesting the claim and the *Contractor* may (at its cost) conduct negotiations for the settlement of the claim, and any litigation or arbitration which may arise from it.

Z16 Dispute resolution:

Z16.1 Appointment of the Adjudicator

An *Adjudicator* is appointed when a dispute arises, from the Panel of Adjudicators below. The referring party nominates an Adjudicator, which nomination is either accepted or rejected by the other party. In the instance of a rejection of the nominated *Adjudicator*, the referring Party refers the appointment deadlock to the Chairman of the Johannesburg Bar Council, who appoints an *Adjudicator* listed in the Panel of Adjudicators below

The Parties appoint the *Adjudicator* under the NEC3 Adjudicator's Contract, April 2013

Panel of Adjudicators

Name	Location	Contact details (phone & e mail)
Adv. GhandiBadela	Gauten g	+27 11 282 3700 ghandi@badela.co.za
Mr. Errol Tate Pr. Eng.	Durban	+27 11 262 4001 Errol.tate@mweb.co.za
Adv. Saleem Ebrahim	Gauten g	+27 11 535-1800 salimebrahim@mweb.co.za
Mr. SebeMsutwana Pr. Eng.	Gauten g	+27 11 442 8555 sebe@civilprojects.co.za
Mr. Sam Amod	Gauten g	sam@samamod.com
Adv. SiasRyneke SC	Gauten g	083 653 2281 reyneke@duma.nokwe.co.za
Mr. Emeka Ogbugo (Quantity Surveyor)	Pretoria	+27 12 349 2027 emeka@gosiame.co.za

Z16.2 Appointment of the Arbitrator

An *Arbitrator* is appointed when a dispute arises from the Panel of Arbitrators below. The referring party nominates an Arbitrator, which nomination is either accepted or rejected by the other party. In the instance of a rejection of the nominated *Arbitrator*, the referring Party refers the appointment deadlock to the Chairman of the Johannesburg Bar Council, who appoints an *Arbitrator* listed in the Panel of *Arbitrators* below

Panel of Arbitrators

Name	Location	Contact details (phone & e mail)
Adv. GhandiBadela	Gauteng	+27 11 282 3700 ghandi@badela.co.za
Mr. Errol Tate Pr. Eng.	Durban	+27 11 262 4001 Errol.tate@mweb.co.za
Adv. Saleem Ebrahim	Gauteng	+27 11 535-1800 salimebrahim@mweb.co.za
Mr. SebeMsutwana Pr. Eng.	Gauteng	+27 11 442 8555 sebe@civilprojects.co.za
Mr. Sam Amod	Gauteng	sam@samamod.com
Adv. SiasRyneke SC	Gauteng	083 653 2281 reyneke@duma.nokwe.co.za
Mr. Emeka Ogbugo (Quantity Surveyor)	Pretoria	+27 12 349 2027 emeka@gosiame.co.za

Z17 Notification of a compensation event

Z17.1 Delete “eight weeks” in clause 61.3 and replace with “four weeks”. Delete the words “unless the event arises from the Project Manager or the Supervisor giving an instruction, issuing a certificate, changing an earlier decision or correcting an assumption.

Z18 BBBEE Certificate

Z18.1 The *Contractor* shall be expected to annually present a compliant BEE Certificate. Failure to do adhere to these requirements shall be considered a material breach of the conditions of this Contract, the sanction for which may be a cancellation of this Contract.

Z19 Communication

Z19.1 **Add a new Core Clause** 14.5 and 14.6 to read as follows:
The *Project Manager* requires the written consent of the Employer if an action will result in a change to the design, scope, and Works information that is 5% or more

Z19.2 The *Project Manager* requires the written consent of the Employer if an action will result in the Completion Date being extended by more than 30 days.

Z20 Delegation

As stipulated by Section 37(2) of the Occupational Health and Safety Act No. 85 of 1993 as amended the *Contractor* agrees to the following:

Z20.1 As part of this contract the *Contractor* acknowledge that it (mandatory) is an employer in its own right with duties as prescribed in the Occupational Health and Safety Act No 85 of 1993 as amended and agree to ensure that all work being performed, or Equipment, Plant and Materials being used, are in accordance with the provisions of the said Act, and in particular with regard to the Construction Regulations

Z24.5 The *Contractor* shall indemnify and hold the *Employer* harmless against and from any claim alleging an infringement of IP rights (“**the claim**”), which arises out of or in relation to:

- Z24.5.1** the *Contractor's* design, manufacture, construction or execution of the Works;
- Z24.5.2** the use of the *Contractor's* Equipment, or
- Z24.5.3** the proper use of the Works.
- Z24.6** The *Employer* shall, at the request and cost of the *Contractor*, assist in contesting the claim and the *Contractor* may (at its cost) conduct negotiations for the settlement of the claim, and any litigation or arbitration which may arise from it.

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

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

	<i>Weather measurement</i>				
Month	Cumulative rainfall (mm)	Number of days with rain more than 10mm	Number of days with min air temp < 0 deg.C	Number of days with snow lying at 08:00 CAT	[Other measurements if applicable]
January	[125]	[3]	[0]	[0]	
February	[110]	[1]	[0]	[0]	
March	[120]	[2]	[0]	[0]	
April	[75]	[2]	[0]	[0]	
May	[70]	[2]	[0]	[0]	
June	[60]	[2]	[0]	[0]	
July	[60]	[2]	[0]	[0]	
August	[70]	[2]	[0]	[0]	
September	[75]	[2]	[0]	[0]	
October	[120]	[2]	[0]	[0]	
November	[125]	[2]	[0]	[0]	
December	[125]	[4]	[0]	[0]	

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

Pro formas for Bonds & Guarantees

For use with the NEC3 Engineering & Construction Contract (April 2013)

[Note to contract compiler:

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

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

Option X13: Performance Bond

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

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

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

[To be reproduced exactly as shown below on the letterhead of the Bank providing the Bond / Guarantee]

For use with the NEC3 Engineering and Construction Contract (April 2013)

The Airports Company South Africa SOC Limited

Guarantor's reference No.

Riverwoods Office Park, The Maples, 24 Johnson Road,
Bedfordview 2008.

Date:

Dear Sirs,

Performance Bond – Demand Guarantee for [insert name of Contractor] required in terms of contract [insert Contractor's contract reference number or title]

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

1.1	“Guarantor”	means [insert]
1.2	“Guarantor’s Address”	means [insert]
1.3	“Contract” means	means the construction contract entered into between the Employer and the Contractor (Contract Reference No. _____ and such amendments or additions to the Contract as may be agreed in writing between the parties.
1.4	“Contractor”	means [insert]
1.5	“Employer”	means the Airports Company South Africa SOC Limited, a company registered in accordance with the laws of the South Africa
1.6	“Expiry Date”	means the earlier of - the date that the Bank receives a notice from the Employer stating that all amounts due from the Contractor as certified in terms of the contract have been received by the Employer and that the Contractor has fulfilled all his obligations under the Contract, or - the date that the Bank issues a replacement Bond for such lesser or higher amount as may be required by the Employer.
1.7	“Guaranteed Sum”	means [insert]
1.8	“Works”	means [insert]

2. The Guarantor's liability shall be limited to the Guaranteed Amount.

3. The Guarantor's period of liability shall be from and including the date of issue of this Guarantee and up to and including the Expiry Date or the date of payment in full of the Guaranteed Amount, whichever occurs first. The Project Manager 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.

4. The Guarantor hereby acknowledges that:

- a. any reference in this 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; and
- b. its obligation under this Guarantee is restricted to the payment of money.

5. The Guarantor hereby undertakes to pay the Employer any sum or sums not exceeding the Guarantee Amount in total, upon receipt of a written demand delivered to the Guarantor's Address, stating that the Contractor is in breach of its obligations under the Contract (without being required to prove the nature of the breach and the amount claimed. The written demand shall be signed by the Employer and be accompanied by the original Guarantee.

6. Payment by the Guarantor, in terms of this Guarantee, shall be made within seven (7) calendar days

upon receipt of the Employer's written demand to the Guarantor.

7. The obligations under this Guarantee constitute direct primary, irrevocable and unconditional obligations, do not require any previous notice to or claim against the Contractor, and shall not in any way be released or discharged or otherwise absolved of liability hereunder by reason of any arrangement or change in relationship made between the Contractor and the Employer and/or between the Guarantor and Contractor; nor any alteration in the obligations undertaken by the Contractor or in the terms of the Contract; nor any indulgence, failure, delay by the Employer as to any matter; nor any dissolution or liquidation or such other analogous event of the Contractor (whether or not the Guarantor has notice thereof).
8. 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 Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.
9. All payments made by Guarantor shall be due and payable in the amount specified in any payment demand made in respect hereof by the Employer and shall be made free and clear of and without any deduction for or on account of any tax or future taxes, levies, imposts, duties, charges, fees, set off, counterclaims, deductions or withholdings of any nature whatsoever and by whomever imposed. All charges of the Guarantor related to the issuance or performance of this Guarantee (including, but not limited to, the negotiation, payment, extension or transfer hereof) shall be borne by the Contractor and under no circumstances shall be charged to the Employer by the Guarantor.
10. This Guarantee shall be governed by and construed in accordance with the law of the Republic of South Africa and shall be subject to the jurisdiction of the High Court of the Republic of South Africa.
11. This Guarantee, with the required demand notice, shall be regarded as a liquid document for the purposes of obtaining a court order.
12. The Guarantor chooses as its *domicilium citandi et executandi* for all purposes in connection with this Guarantee at the Guarantor's Address.
13. If at any time any one or more of the provisions of this Guarantee is or becomes illegal, invalid or otherwise unenforceable in any respect neither the legality, validity or enforceability of the remaining

provisions of this Guarantee, nor the legality, validity or enforceability of such provision, under the law shall in any way be affected or impaired as a result.

SIGNED at _____ on _____ Day of _____ 202____

For and on behalf of the **GUARANTOR**, duly authorised and warranting such authority

Full Name: _____

Capacity: _____

Witness: _____

[Insert Guarantor's stamp]

C1.4 ACSA Insurance Clauses

SECTION A: DEFINITIONS

- (a) Reference to **Landside** means areas of the airport before the security points; and the restricted area beyond the security points but, within the perimeter of gatehouses, passenger terminals and cargo buildings.
- (b) Reference to **Airside** means the Apron / maneuvering areas; and area within the airside boundary/perimeter fence, excluding the internal areas of the passenger terminals, perimeter gatehouses and cargo buildings.

SECTION B: INSURANCE CLAUSES

1. Insurance requirements for **PROJECTS** with a value below R50 million on the **LANDSIDE**

Projects with a value below R50 million are automatically covered under an ACSA umbrella insurance. But please note that details of all projects with a value below R50 million, and with a duration that **exceeds** 36 months should be forwarded to ACSA Treasury as soon as the contractor is awarded as these projects are not automatically covered under ACSA umbrella insurance.

1.1 Contract Works

With regards to contract works claims, the contractor/consultant is responsible for a deductible (excess) of R250 000;

Contractors / consultants should re-insure the deductible.

1.2 Public Liability

In the event of a claim against the contractor / consultant for 3rd party property damage, the contractor / consultant will be responsible for a deductible (excess) of R275 000;

In the event of a claim against the contractor / consultant for removal of lateral support, the contractor / consultant will be responsible for a deductible (excess) of R500 000;

Contractors / consultants should re-insure the deductibles.

1.3 Professional Indemnity

All consultants are responsible for Professional Indemnity cover of R5 million. Contractors who have a material design element, excluding typical P & G related work, as part of their scope, are responsible for Professional Indemnity cover of R5 million;

In the event of a claim above R5 million, the ACSA PI cover will kick in for the amount in excess of R5 million;

Proof of cover in the form of a certificate of insurance should be provided to ACSA before a contract is signed between ACSA and the contractor and/or consultant.

2. Insurance requirements for **PROJECTS** with a value below R50 million on the **AIRSIDE**

Projects with a value below R50 million are automatically covered under an ACSA umbrella insurance. But please note that details of all projects with a value below R50million, and with duration that **exceeds** 36 months should be forwarded to ACSA Treasury as soon as the contractor is awarded as these projects are not automatically covered under an ACSA umbrella insurance

2.1 Contract Works

With regards to contract works claims, the contractor / consultant is responsible for a deductible (excess) of R250 000;

Contractors / consultants should re-insure the deductible.

2.2 Public Liability

In the event of a claim brought against the contractor / consultant for 3rd party property damage, the contractor / consultant will be responsible for a deductible (excess) of R525 000;
In the event of a claim brought against the contractor / consultant for removal of lateral support, the contractor / consultant will be responsible for a deductible (excess) of R750 000;
In the event of a claim brought against the contractor / consultant for damage to aircraft, the contractor / consultant will be responsible for a deductible (excess) of R750 000;
Contractors / consultants should re-insure the deductibles.

2.3 Professional Indemnity

All consultants are responsible for Professional Indemnity cover of R5 million; Contractors who have a material design element, excluding typical P & G related work, as part of their scope, are responsible for a Professional Indemnity cover of R5 million;
In the event of a claim above R5 million, the ACSA PI cover will kick in for the amount in excess of R5 million;
Proof of cover in the form of a certificate of insurance should be provided to ACSA before a contract is signed between ACSA and the contractor and/or consultant.

3. Insurance requirements for **PROJECTS with a value above R50 million but below R1 billion on the LANDSIDE**

Projects with a value of more R50 million are not automatically covered under the construction policies. A separate quote is provided by insurers per project. Details of all projects with a value above R50 million should be forwarded to ACSA Treasury as soon as the contractor is awarded

3.1 Contract Works

With regards to contract works claims, the contractor / consultant is responsible for the following deductibles:
All Civil Work and Earthworks – R300 000 deductible (excess); All other claims – R300 000 deductible (excess);
Other property insured – R700 000 deductible (excess); Contractors / consultants should re-insure the deductibles.

3.2 Public Liability

In the event of a claim brought against the contractor / consultant for 3rd party property damage, the contractor / consultant will be responsible for a deductible (excess) of R275 000;
In the event of a claim brought against the contractor / consultant for removal of lateral support, the contractor / consultant will be responsible for a deductible (excess) of R500 000;
Contractors / consultants should re-insure the deductibles.

3.3 Professional Indemnity

All consultants are responsible for Professional Indemnity cover of R10 million; Contractors who have a material design element, excluding typical P & G related work, as part of their scope, are responsible for a Professional Indemnity cover of R10 million;
In the event of a claim above R10 million, the ACSA PI cover will kick in for the amount in excess of R10 million;
Proof of cover in the form of a certificate of insurance should be provided to ACSA before a contract is signed between ACSA and the contractor and/or consultant.

4. Insurance requirements for **PROJECTS with a value above R50 million but below R1 billion on the AIRSIDE**

Projects with a value of more R50 million are not automatically covered under the construction policies. A separate quote is provided by insurers per project. Details of all projects with a value above R50 million should be forwarded to ACSA Treasury as soon as the contractor is awarded

4.1 Contract Works

With regards to contract works claims, the contractor / consultant is responsible for the following deductibles:

All Civil Work and Earthworks excluding Runways – R300 000 deductible (excess); Runway

Rehabilitation – R300 000 deductible (excess);

New Runway Construction – R700 000 deductible (excess); All other claims – R300 000 deductible (excess);

Other property insured – R700 000 deductible (excess); Contractors / consultants should re-insure the deductibles.

4.2 Public Liability

In the event of a claim brought against the contractor / consultant for 3rd party property damage, the contractor / consultant will be responsible for a deductible (excess) of R1 025 000;

In the event of a claim brought against the contractor / consultant for removal of lateral support, the contractor / consultant will be responsible for a deductible (excess) of R1 250 000;

In the event of a claim for damage to aircraft, the contractor / consultant will be responsible for a deductible (excess) of R1 250 000;

Contractors / consultants should re-insure the deductibles.

4.3 Professional Indemnity

All consultants are responsible for Professional Indemnity cover of R10 million; Contractors who have a material design element, excluding typical P & G related work, as part of their scope, are responsible for a Professional Indemnity cover of R10 million;

In the event of a claim above R10 million, the ACSA PI cover will kick in for the amount in excess of R10 million;

Proof of cover in the form of a certificate of insurance should be provided to ACSA before a contract is signed between ACSA and the contractor and/or consultant.

5. Insurance requirements for **PROJECTS with a value above R1 billion, on either LANDSIDE or AIRSIDE**

The deductibles stipulated above on paragraphs 1; 2; 3; and 4 do not apply to projects with a value above R1 billion

Applicable deductibles will be determined on a project by project basis when insurers are approached for cover

Details of projects above R1 billion should be forwarded to ACSA Treasury **(before the publication of the tender document.**

**UPGRADE OF AIRFIELD GROUND LIGHTING (AGL)
TO LED FITTINGS AT O.R. TAMBO INTERNATIONAL**

C1.2 Contract Data

Part two - Data provided by the *Contractor*

Notes to a tendering contractor:

1. Please read both the NEC3 Engineering and Construction Contract (April 2013) and the relevant parts of its Guidance Notes (ECC3-GN)¹ in order to understand the implications of this Data which the tenderer is required to complete. An example of the completed Data is provided on pages 152 to 154 of the ECC3 Guidance Notes.
2. The number of the clause which requires the data is shown in the left hand column for each statement however other clauses may also use the same data
3. Data is required to be inserted relevant to NEC3 Engineering and Construction Contract, April 2013 complete by hand and in ink.

Completion of the data in full, according to NEC3 Engineering and Construction Contract, April 2013.

Clause	Statement	Data
10.1	The <i>Contractor</i> is (Name): Address Tel No. Fax No.	
11.2(8)	The <i>direct fee percentage</i> is The <i>subcontracted fee percentage</i> is	% %
11.2(18)	The <i>working areas</i> are the Site and	Only the Site Area. See C4 'Site Information'
24.1	The <i>Contractor's</i> key persons are: 1 Name: Job: Responsibilities: Qualifications: Experience: 2 Name: Job: Responsibilities: Qualifications: 3 Name: Job: Responsibilities: Qualifications:	

**UPGRADE OF AIRFIELD GROUND LIGHTING (AGL)
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4	Name:	
	Job	
	Responsibilities:	
	Qualifications:	
	Experience:	

**UPGRADE OF AIRFIELD GROUND LIGHTING (AGL)
TO LED FITTINGS AT O.R. TAMBO INTERNATIONAL**

		CV's (and further key persons data including CVs) are appended to Tender Schedule entitled .
11.2(3)	The <i>completion date</i> for the whole of the <i>works</i> is	TBC
11.2(14)	The following matters will be included in the Risk Register	• Existing Services • Access to Site • Delay in supply of material and/or equipment • Progress of the works against the program • Travelling public and ACSA stakeholders • Training to employees • Guarantees of spares
11.2(19)	The Works Information for the <i>Contractor's</i> design is in:	
31.1	The programme identified in the Contract Data is	
A	Priced contract with activity schedule	
11.2(20)	The <i>activity schedule</i> is in	
11.2(30)	The tendered total of the Prices is	(in figures) (in words), excluding VAT
B	Priced contract with bill of quantities	
11.2(21)	The <i>bill of quantities</i> is in	
11.2(31)	The tendered total of the Prices is	(in figures) (in words), excluding VAT

PART 2: PRICING DATA

Document reference	Title	No of pages
C2.1	Pricing assumptions: Option B	
C2.2	The <i>bill of quantities</i>	

C2.1 Pricing assumptions: Option B

1. The conditions of contract

1.1. How work is priced and assessed for payment

Clause 11 in NEC3 Engineering and Construction Contract, April 2013 (ECC3) Option B states:

Identified and defined terms	11 11.2	(21) The Bill of Quantities is the <i>bill of quantities</i> as changed in accordance with this contract to accommodate implemented compensation events and for accepted quotations for acceleration.
		(22) Defined Cost is the cost of the components in the Shorter Schedule of Cost Components whether work is subcontracted or not excluding the cost of preparing quotations for compensation events.
		(28) The Price for Work Done to Date is the total of - the quantity of the work which the <i>Contractor</i> has completed for each item in the Bill of Quantities multiplied by the rate and - a proportion of each lump sum which is the proportion of the work covered by the item which the <i>Contractor</i> has completed. Completed work is work without Defects which would either delay or be covered by immediately following work.
		(31) The Prices are the lump sums and the amounts obtained by multiplying the rates by the quantities for the items in the Bill of Quantities.

This confirms that Option B is a re-measurement contract and the bill comprises only items measured using quantities and rates or stated as lump sums. The Contractor is paid based on the actual quantities of work performed as opposed to the quantities set out in the Bill of Quantities. Value related items are not used. Time related items are items measured using rates where the rate is a unit of time. With this pricing method, the Contractor bears the risk for his pricing of the bill and the Employer bears the risk for changes in the quantities.

1.2. Function of the Bill of Quantities

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

1.3. Guidance before pricing and measuring

- 1.3.1. Employers preparing tenders or contract documents, and tendering contractors are advised to consult the sections dealing with the bill of quantities in the NEC3 Engineering and Construction Contract (April 2013) the requirements of the tender (if any) and the Guidance Notes before preparing the *bill of quantities* or before entering rates and lump sums into the *bill*.
- 1.3.2. The NEC approach to the P & G bill assumes use will be made of method related charges for Equipment applied to Providing the Works based on durations shown in the Accepted Programme, fixed charges for the use of Equipment that is required throughout the construction

phase, time related charges for people working in a supervisory capacity for the period required, and lump sum charges for other facilities or services not directly related to performing work items typically included in other parts of the bill.

- 1.3.3. The P & G section of the bill is not used for the assessment of compensation events.

2. Measurement and payment

2.1. Symbols

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

Abbreviation	Unit
%	percent
h	hour
ha	hectare
kg	kilogram
kl	kilolitre
km	kilometre
km-pass	kilometre-pass
kPa	kilopascal
kW	kilowatt
l	litre
m	metre
mm	millimetre
m ²	square metre
m ² -pass	square metre pass
m ³	cubic metre
m ³ -km	cubic metre-kilometre
MN	meganewton
MN.m	meganewton-metre
MPa	megapascal
No.	number
Prov sum ¹	provisional sum
PC-sum	prime cost sum
R/only	Rate only
sum	Lump sum
t	ton (1000kg)
W/day	Work day

2.2. General assumptions

- 2.2.1. Unless otherwise stated, items are measured net in accordance with the drawings, and no allowance has been made in the quantities for waste.
- 2.2.2. The Prices and rates stated for each item in the Bill of Quantities shall be treated as being fully inclusive of all work, risks, liabilities, obligations, overheads, profit and everything necessary as incurred or required by the *Contractor* in carrying out or providing that item.
- 2.2.3. An item against which no Price is entered will be treated as covered by other Prices or rates in the *bill of quantities*.
- 2.2.4. The quantities contained in the Bill of Quantities may not be final and do not necessarily represent the actual amount of work to be done. The quantities of work assessed and certified

¹ Provisional Sums should not be used unless absolutely unavoidable. Rather include specifications and associated bill items for the most likely scope of work, and then change later using the compensation event procedure if necessary.

for payment by the *Project Manager* at each assessment date will be used for determining payments due.

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

2.3. Departures from the *method of measurement*

2.4. Amplification of or assumptions about measurement items

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

C2.2 The *bill of quantities*

C2.2 Bill of Quantities

BOQ No. 1: Preliminary and General

Item No.	Description	Unit	QTY	Rate	Total
1.1	Airside Induction Training & Airport Permit	Once-off	1		
1.2	Project Monthly Report	Each	36		
1.3	Site Establishment, site office, and storage	Once-off	1		
1.4	Safety File & HIRA	Once-off	1		
1.5	Vehicle squirter hire	Each	5		
1.6	Contract works & Public Liability (deductible excess)- Refer to insurance (C1.4)	Monthly	36		
BOQ 2: Total supply of material carried forward to the summary					

BOQ No. 2: Supply of Airfield Ground Lighting:

Item No.	Description	Unit	QTY	Rate	Total
2.1	Runway Centre Line Inset (White/White), 2-plug, monitored	Each	177		
2.2	Runway Centre Line Inset (White/Red), monitored	Each	80		
2.3	Runway Edge Elevated (White/White), monitored	Each	78		
2.4	Runway Edge Elevated (White/Yellow), monitored (high intensity)	Each	74		
2.5	Runway Edge Inset (White/White), monitored (high intensity)	Each	40		
2.6	Runway Edge Inset (White/Yellow), monitored	Each	5		
2.7	Threshold/End Inset (Green), monitored	Each	68		

2.8	Threshold/End Inset (Green/Red), monitored	Each	16		
2.9	03L Threshold/End Elevated (Green), monitored	Each	32		
2.10	Approach Elevated (White)	Each	533		
2.11	Approach Elevated (Red)	Each	153		
2.12	Approach Inset (White)	Each	58		
2.13	Approach Inset (Red)	Each	54		
2.14	Runway End Light (Inset, Red)	Each	8		
2.15	Runway Closure Markings (White)	Each	68		
2.16	Touchdown Zone Lights (TDZ) – 50% Left TOE / 50% Right TOE	Each	360		
2.17	Lead-in Lights (Green), Inset	Each	51		
2.18	Crossbar Lights (White), Elevated	Each	21		
2.19	Crossbar Lights (White), Inset	Each	26		
2.20	Rapid Exit Taxiway Lighting (Yellow)	Each	24		
2.21	Lead-off Lights (Yellow/Green), Inset	Each	121		
2.22	Lead-off Lights (Green/Green), Inset	Each	72		
2.23	Runway Edge Inset High Intensity (Yellow/White), monitored	Each	2		
2.24	Runway Edge Inset High Intensity (Red/Yellow), monitored	Each	8		
2.25	Runway Edge Inset High Intensity (Yellow/Red), monitored	Each	8		
2.26	Elevated High Intensity (Yellow/Red), monitored	Each	4		
2.27	Elevated High Intensity (Red/Yellow), monitored	Each	4		
2.28	Base Plate T300/3 with Earth Connection – 8" (for CL, TDZ, LIL)	Each	20		
2.29	Base Plate T300/3 with Earth Connection – 12" (for REH, THR, RWE, APH)	Each	20		
2.30	Provisional sum	sum	1	R 2 500 000,00	
BOQ 2: Total supply of material carried forward to the summary					

BOQ No. 3: Installation, Commissioning, Decommissioning and Disposal of Airfield Ground Lighting:

Item No.	Description	Unit	QTY	Rate	Total
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3.1	Runway Centre Line Inset (White/White), 2-plug, monitored	Each	177		
3.2	Runway Centre Line Inset (White/Red), monitored	Each	80		
3.3	Runway Edge Elevated (White/White), monitored	Each	78		
3.4	Runway Edge Elevated (White/Yellow), monitored	Each	74		
3.5	Runway Edge Inset (White/White), monitored	Each	40		
3.6	Runway Edge Inset (White/Yellow), monitored	Each	5		
3.7	Threshold/End Inset (Green), monitored	Each	68		
3.8	Threshold/End Inset (Green/Red), monitored	Each	16		
3.9	03L Threshold/End Elevated (Green), monitored	Each	32		
3.10	Approach Elevated (White)	Each	533		
3.11	Approach Elevated (Red)	Each	153		
3.12	Approach Inset (White)	Each	58		
3.13	Approach Inset (Red)	Each	54		
3.14	Runway End Light (Inset, Red)	Each	8		
3.15	Runway Closure Markings (White)	Each	68		
3.16	Touchdown Zone Lights (TDZ) – 50% Left TOE / 50% Right TOE	Each	360		
3.17	Lead-in Lights (Green), Inset	Each	51		
3.18	Crossbar Lights (White), Elevated	Each	21		
3.19	Crossbar Lights (White), Inset	Each	26		
3.20	Rapid Exit Taxiway Lighting (Yellow)	Each	24		
3.21	Lead-off Lights (Yellow/Green), Inset	Each	121		
3.22	Lead-off Lights (Green/Green), Inset	Each	72		
3.23	Runway Edge Inset High Intensity (Yellow/White), monitored	Each	2		
3.24	Runway Edge Inset High Intensity (Red/Yellow), monitored	Each	8		

3.25	Runway Edge Inset High Intensity (Yellow/Red), monitored	Each	8		
3.26	Elevated High Intensity (Yellow/Red), monitored	Each	4		
3.27	Elevated High Intensity (Red/Yellow), monitored	Each	4		
3.28	Base Plate T300/3 with Earth Connection – 8" (for CL, TDZ, LIL)	Each	20		
3.29	Base Plate T300/3 with Earth Connection – 12" (for REH, THR, RWE, APH)	Each	20		
3.30	Labour - Complete installation, testing, and commissioning - Installation of acquired PAPIs Specification: Part number: 44A7343/IB40001, Position: 1 of 4, Input: 2,8-6,6A~50/60Hz, Control: Regulator, Light Engine: LED 94A0665, ID number: 2020012300018, t_a: 55°C	Lot			
3.30	Decommissioning and Disposal of AGL old light fittings NB. - The service provider shall provide a disposal certificate; this should comply with municipal bylaws - The service provider (or subcontracted services) must be registered for the transportation of hazardous waste with the local authority	Lot			
BOQ 3: Total supply of material carried forward to the summary					

BOQ No.4: Minimum spares for center line light and accessories

Item No.	Description	Unit	Rate	Total
4.1	Accessories	Lot		
4.2	Minimum holding spares TDZ (W), insert approach (W &R), and CL (W/W & R/W) (2% of listed items)	Lot		
BOQ 4: Total supply of material carried forward to the summary				

Foreign Exchange Implication:

Bidders must indicate the foreign exchange rate used in determining the price of any components in this Bill of Quantities that will be imported. The foreign exchange rate stated here forth will remain fixed for the duration of the contract.

Bidders are not required to purchase forex hedging instruments (such as forward cover) at this stage to submit a bid for this tender but are expected to submit a quotation.

If applicable. Please state the exchange rate applied to your pricing.

Indicate Exchange Rate Date: _____

Currencies	Exchange Rate
ZAR/US\$	
ZAR/EURO (€)	
ZAR/BRITISH POUND (£)	
ZAR/CHINESE RMB	
OTHER	

[illegible]

	*Costs relating to Foreign Exchange implication							
	Foreign Exchange CARRIED FORWARD TO SUMMARY							
	<i>*These are cost relating to any financial instrument(s) that a bidder may acquire to fix their proposed currency exchange rate throughout the duration of the project as required in the bid</i>							

BOQ No. 5: Summary

Item No.	Description	Total
5.1	Total: BOQ No. 1: Preliminary and General Carried Forward to Summary	
5.2	Total: BOQ No. 2: Supply of Material and Accessories Carried Forward to summary	
5.3	Total: BOQ No. 3: Installation, Commissioning, Decommissioning and Disposal Carried Forward to Summary	
5.4	Total: BOQ No. 4: Supply of Minimum Spare and Accessories Carried Forward to summary	
5.5	Foreign Exchange CARRIED FORWARD TO SUMMARY	
5.6	Subtotal: SUMMARY (BOQ No.1 + BOQ No.2 + BOQ No.3 + Foreign Exchange)	
5.7	5 % Contingency	
5.8	GRAND TOTAL CARRIED TO FORM OFFER (EXCLUDING VAT)	
5.9	GRAND TOTAL CARRIED TO FORM OFFER (INCLUDING VAT)	
Form of Offer		

C3 Scope of Work

C3.1.1 Objectives

The objective of this project is for the Contractor to upgrade the Airfield Ground Lighting (AGL) Runway Lighting. This must be executed successfully, inclusive of all other processes and in accordance with the Contract between the Employer and the Contractor ("**the Work**").

C3.1.2 Overview of the Work

The Work shall be the replacement of an existing Airfield Ground Lighting (AGL) System. The project comprises of a number of tasks as stated below in no specific order and can be generalized as follows:

- The design of complete functional systems.
- Manufacturing & Testing
- Site supervision and management
- Removal of the existing AGL System.
- Installation
- Project Management
- Commissioning & Decommissioning
- Disposal
 - Disposal certificate shall be provided by the service provider; this should comply with municipal by laws
 - The service provider must be registered for transportation for hazardous waste with local authority
- Final acceptance testing.
- Documentation
- Training for the employees

C3.1.3 Extent of the Work

The service provider will be appointed to replace existing aged or non-compliant Airfield Ground Lighting with ICAO-compliant LED lights across runways 03L/21R and 03R/21L to:

- Restore photometric compliance with ICAO Annex 14 standards.
- Standardize technology (full LED system, eliminating mixed LED/tungsten).
- Enable full compatibility with CAT II operations.
- Issuance of a frangibility certificate for elevated lights
- Provision of a minimum of twelve (12) months warranty
- Provision of minimum spares for centreline lights
- Installation of acquired PAPIs

1.1 Key work activities

- Removal and environmentally compliant disposal of existing tungsten/old LED fittings.

- Supply and installation of ICAO Annex 14 type-approved LED fittings.
- Integration with existing AGL CCRs (Constant Current Regulators).
- Installation of required base plates and earth connections.
- Photometric testing, alignment, and commissioning of each fixture.
- Update of AGL layout and as-built documentation.
- Site acceptance testing (SAT) and handover to Airfield Traffic Control (ATC), Maintenance & Engineering, and airport operations.
- Training of maintenance personnel on new system components.
- Issuance of a frangibility certificate

C3.2 ENGINEERING

C3.2.1 Design Services and Activity Matrix

The services as stated here attempt to outline only the primary services together with the responsible party.

- Concept, feasibility and overall process – Employer
- Basic engineering and general layouts to tender stage – Employer
- Final detail design and engineering including all equipment, firmware, hardware and software – Contractor
- Drawings for construction - Contractor
- Programming of Work - Contractor
- Setting out of the work in all respects - Contractor
- All testing – Contractor
- Interpretation of test results – Contractor
- All as built documentation and drawings – Contractor

C3.2.2 Employers' Design – Basic System

C3.2.2.1 Design Rational

The general layout of the lights is based on a CAT2 Barrette approach lighting system. All lights, cable routes, sleeves, etc. should be installed in the same position as the existing, unless this is not possible for valid reasons. The control of these lights will be from the Air Traffic Control Tower Cabin that will control the regulators to be installed in the Electrical Substation. It is foreseen that the detail design of this Control System will take cognisance of the size and air traffic movements of the airport. The airport is equipped with a ILS and hence all light fittings must be suitable to accommodate instrument approaches.

C3.2.2.2 System Maintainability

All lights, current controllers, remote control systems and all other maintainable items shall be designed in such a manner to minimise spares requirements and be of modular construction. In addition, the design shall be such that it will accommodate ease of access, adjustments, and replacements.

C3.2.2.3 Standards

The design and working methods shall conform to all relevant local and international standards and recommended practices, including all amendments. Compliance to the following standards and recommended practices is mandatory. Test certificates, issued by an accredited agency, shall be issued as proof of certifications and/or compliance:

- SACAA – South African Civil Aviation Technical Standards – Aerodromes and Heliports Part 139
- ICAO Annex 14

- ICAO Aerodrome Design Manuals Doc 9157
 - Part 4 Visual Aids
 - Part 5 Electrical Systems
 - Part 6 Frangibility
- Relevant FAA specifications
- IEC TS Technical Specifications 61827
- IEC 61821 Electrical Installations and Maintenance of AGL series circuits
- IEC 61822 Electrical Installations for lighting of Aerodromes - CCR's
- IEC 61823 Electrical Installations for lighting of Aerodromes – Series Transformers
- Occupational Health and Safety Act, Act 85 of 1993
- SANS 10142 Part 1 and Part 2 Wiring of premises

C3.2.3 Employers' Design – Primary Elements

C3.2.3.1 High Intensity Unidirectional (white and red) Approach Lights and Installation

The configuration of the approach lights shall be compliant with ICAO Annex 14, Volume I, Edition 8, chapter 5,3,4. Lighting fixtures with LED technology shall present an MTBF at full intensity (6.6A) of not less than 56,000 hours.

Approach lighting system is a barrette system with the outer 600m consisting of 5 unidirectional white lights. Crossbars are located the inner 300m and 150m respectively from runway threshold. All runway approach lights are elevated except for 21R displaced threshold. Runway 03L/21R is displaced by 420m when landing from 03L. 12-inch inset approach lights have been commissioned on the displaced threshold and the 150m and 300m crossbar are also 12-inch inset fittings.

The light source shall be LED emitting white or red color. The light characteristics shall be compliant to the requirements specified in ICAO Annex 14, Vol. I, Appendix 2, fig.A2-1 (white lights) or A2-2 (red lights). No "steps" in the light output shall be visible when the current is increased progressively. For currents higher than 6.6A, the light output shall remain stable at the same value as at 6.6A. When the current is turned on at any step of the constant current regulator, the light output shall come up within less than 0.5 sec. The required beam colour shall be obtained without use of any colour filter. Colour coordinates for the five points of the primary beam shall comply with ICAO Annex14, Appendix 1, and 2.

The fixtures shall be installed according to the procedures detailed in the installation manual of the light supplier. The frangibility requirements of Annex 14 and par. 5.3.1.4 and of the Aerodrome Design Manual, Part 6, shall be fully applicable to the three following mounting methods. Depending on the topography of the approach zone surface, three mounting systems shall be used:

- Ground Mounting

The light shall be mounted on a concrete block having an embedded, 2" conduit elbow or a base plate with 2" coupling secured to a galvanised steel deep base according to the FAA specification L-867B. The light shall be mounted on a breakable coupling having a 2", 11 TPI, threaded portion, to be screwed into the conduit elbow or into the base cover plate and ensuring the lowest possible height above surrounding ground.

- Conduit Column Mounting (up to 1.8m height)

This mounting system consists of an aluminium alloy conduit of 60mm outer diameter and a breakable coupling of 60 mm inner diameter, fitted with multiple screws to adjust the conduit vertically to compensate verticality errors up to 4.5 degrees. The light shall be mounted on a concrete block having an embedded, 2" conduit elbow or a base plate with 2" coupling secured to a galvanised steel deep base according to the FAA specification L-867B. Alternatively, synthetic materials can be used for these poles. In such cases, the foundation block has to be adapted to the mounting requirements of the pole.

- Mounting on Frangible Masts (height above 1.8 m)

The masts shall be designed to support one or several lights. They shall fully comply with the requirements of the FAA specification AC 150/3545-45. They shall be manufactured from anodised aluminium or from synthetic materials. The masts shall be provided at the top with 60 mm O.D. supports for the approach lights. Couplings, screws, nuts, and bolts shall be made of stainless steel. All nuts shall be self-locking. The existing masts will be re-used for these installation.

C3.2.3.2 Runway Edge Lights and Installation

Bi-directional elevated white/white and yellow/white runway edge lights shall be installed at 60m centres. All lights shall be fitted directly onto the asphalt surface by fastening the base plate onto the asphalt by means of a suitable chemical anchor arrangement. Existing sleeves are to be used from the edge of the shoulder to the light position. The light source shall be LED and installed on the existing position. The runway edge fixtures shall be designed and installed for a runway width of 60m, resulting in an elevation setting angle of 5.5 degrees, and a toe-in of 4.5°.

The elevated light units shall be bi-directional, emitting white/white or white/yellow light. The lights on 21R displaced threshold, the edge lights will either be yellow/red. The lights shall be installed on the lights on existing 6.6A series circuits and existing bases on the displaced threshold. Use of transformers of a higher power rating than the light (provided the short-circuit current of the transformer does not exceed 7.2A nominal) shall not result in reduced lifetime or in higher light output at full intensity. The light shall be directly fed from the isolation transformer; separate power converters shall not be accepted. Lighting fixtures with LED technology shall present an MTBF at full intensity (6.6A) of not less than 50,000 hours.

The light units shall be designed to provide a high intensity light distribution into two preferential directions. The light characteristics shall comply with the requirements of ICAO Annex 14, Vol. 1, Appendix 2, fig. A2-10 for runways with a width of 60m. Light output shall be suitable for operations in the visibility conditions defined in the general requirements.

No "steps" in the light output shall be visible when the current is increased progressively. For currents higher than 6.6A, the light output shall remain stable at the same value as at 6.6A. Specifically, it shall comply with FAA Engineering Brief N° 67. When the current is turned on at any step of the CCR, the light output shall come up within less than 0.5 sec. The required beam colour shall be obtained without use of any colour filter. Colour coordinates for the five points of the primary beam shall comply with ICAO Annex 14, Appendix 1, and 2.

The fixtures shall be installed according to the procedures detailed in the installation manual of the light supplier. The frangibility requirements of Annex 14 and par. 5.3.1.4 and of the Aerodrome Design Manual, Part 6, shall be fully applicable. The light shall be mounted on a base plate with 2" coupling secured to a galvanised steel deep base according to FAA specification L-867B. An electrical disconnection shall be provided at the level of the frangible part of the mounting system.

The following section describes all aspects related to the supply of high intensity runway edge lights, in compliance with the specifications.

- ICAO – Annex 14, Volume I, par. 5.3.9
- ICAO – Aerodrome Design Manual, Part 4.
- FAA – (L-850 C) AC 150/5345-46: Specification for light fixtures for runways and taxiways
- FAA – Engineering Brief No 67: Light sources other than incandescent and xenon for airport and obstruction lighting fixtures

C3.2.3.3 Runway Threshold\End Lights and Installation

The configuration of runway threshold lights shall be compliant with ICAO – Annex 14 Ed.8, Volume I, para. 5.3.9, ICAO – Aerodrome Design Manual, Part 4 and Part 6, FAA – (L-862) AC 150/5345-46: Specification for light fixtures for runways and taxiways and FAA – Engineering Brief No 67. The following specification describes all aspects related to the supply of high intensity, inset, unidirectional threshold, threshold wing bar and runway end lights (green or red) as well as bidirectional threshold / runway end lights (green/red), in compliance with the specifications.

The configuration of the threshold, threshold wing bar and runway end lights shall be compliant with ICAO Annex 14, Volume I, chapter 5.3.10 and 5.3.11, as applicable to the Airport operating conditions.

Uni-directional green elevated runway threshold lights shall be installed at 3m centres at 03L runway threshold. Uni-directional inset green runway threshold lights shall be installed at 3m centres at 03R, 21R and 21L runway threshold. All elevated runway threshold lights shall be fitted directly onto the asphalt surface by fastening the base plate onto the asphalt by means of a suitable mechanical anchor arrangement.

The lights shall be installed on existing 12-inch inset bases 6.6A series circuits lights without modification of any other element. Use of transformers of a higher power rating than of the light shall not result in reduced lifetime nor in higher light output at full intensity.

The light shall be directly fed from the isolation transformer; separate power converters shall not be accepted. The lighting fixtures shall generally be unidirectional, green or red. When collocated, the runway end light shall be combined with a threshold light to form a bi-directional lighting fixture. In such a case, the operation of the two functionalities shall be separate and two connection leads shall be provided.

The light units shall be designed to provide a unidirectional or bidirectional light distribution. The light characteristics shall comply with the requirements of ICAO Annex 14, Vol. 1, Appendix 2, fig. A2-3 and A2-4 (green light) or A2-8 (red lights). For currents higher than 6.6A, the light output shall remain stable at the same value as at

6.6A. Specifically, it shall comply with FAA Engineering Brief N° 67. When the current is turned on at any step of the CCR, the light output shall come up within less than 0.5 sec.

The required beam colour shall be obtained without use of any colour filter. Colour coordinates for the 5 points of the primary beam shall comply with ICAO Annex14, Appendix 1, and 2. There shall be no modification of the colour when the light is powered at reduced intensity or viewed from various angles.

C3.2.3.4 Runway End Lights and Installation

Eight uni-directional inset runway end lights shall be installed at 9m centres at 03L runway end respectively, four (4) lights on either side of the runway centre line. These lights shall be installed and fastened to bases that have been installed in the asphalt. The associated series transformers shall be housed in the same manholes as for the threshold lights. The secondary cables shall be installed in suitable secondary cable sleeves between the transformer manholes and the runway shoulder edge. Existing sleeves are to be used from the edge of the shoulder to the light position.

C3.2.3.5 High Intensity Runway Centre Line Lights and Installation

The configuration of runway centre line lights shall comply with ICAO – Annex 14 Aerodromes, Volume I, para. 5.3.12, ICAO – Aerodrome Design Manual, Part 4, FAA – (L-850 A) AC 150/5345-46: Specification for light fixtures for runways and taxiways, FAA – Engineering Brief No 67: Light sources other than incandescent and xenon for airport and obstruction lighting fixtures.

Bidirectional insert 8-inch runway centre line light fittings shall be installed on both runway 03L/21R and 03R/21L at 30m spacing. The lights source shall be LED emitting white/white or white/red. Lighting fixtures with LED technology shall present an MTBF at full intensity (6.6A) of not less than 50,000.

The required beam colour shall be obtained without use of any colour filter. Colour coordinates for the 5 points of the primary beam shall comply with ICAO Annex14, Appendix 1, and 2. There shall be no modification of the colour when the light is powered at reduced intensity or viewed from various angles.

The light units shall be designed to provide a bidirectional light distribution. The light characteristics shall comply with the requirements of ICAO Annex 14, Vol. 1, Appendix 2, fig. A2-7, for runways 60 m wide. Light output shall be suitable for operations under low visibility conditions.

There shall be no visible steps in the light output when the current is increased progressively. The light output shall remain stable, for currents higher than 6.6A. The light output shall come up within less than 0.5 sec, when the CCR is selected at any step.

The required beam colour shall be obtained without use of any colour filter. Colour coordinates for the 5 points of the primary beam shall comply with ICAO Annex14, Appendix 1, and 2. There shall be no modification of the colour when the light is powered at reduced intensity or viewed from various angles.

C3.2.3.6 High Intensity Runway Touch Down Zone Lights and Installation

Touch down zone lighting are provided on port and starboard site of 03L/21R and 03R/21L runway touch down zones. The lights shall comply with ICAO – Annex 14, Volume I, par.5.3.13, ICAO – Aerodrome Design Manual, Part 4, FAA – (L-850B) specification AC 150/5345-46: Specification for light fixtures for runways and taxiways and FAA – Engineering Brief No 67: Light sources other than incandescent and xenon for airport and obstruction lighting fixtures.

The lights shall be 8-inch unidirectional LED semi flush inset fixtures, emitting white light. The lights shall be installed on existing 6.6A series circuits and bases without having to change any other element (CCR, primary and secondary cabling, series isolating transformer). Use of transformers of a higher power rating than the light (provided the short-circuit current of the transformer does not exceed 7.2A nominal) shall not result in reduced lifetime or in higher light output at full intensity. The light shall be directly fed from the isolation transformer, a separate power converter shall not be accepted.

The LED light fixture shall present an MTBF at full intensity (6.6A) of not less than 50,000 hours. All components shall be corrosion proof without using environment aggressive protective coatings. For ease of maintenance, no optical adjustment shall be required after replacement of LED assembly or glass prism.

The light units shall be designed to provide a unidirectional light distribution. The light characteristics shall comply with the requirements of ICAO Annex 14, Vol. 1, Appendix 2, fig. A2-5. Light output shall be suitable for weather operations and visibility conditions defined for CAT2 aerodrome category requirements. For currents higher than 6.6A, the light output shall remain stable at the same value as at 6.6A. Specifically, it shall comply with FAA Engineering Brief N° 67. The light output shall respond within 0.5 sec when the current is turned on at any step of the CCR. Colour coordinates for the five points of the primary beam shall comply with ICAO Annex14, Appendix 1, and 2.

C3.2.4 Employers' Design – Secondary Elements

C3.2.4.1 Primary Cables

The existing cables are complies with the following specifications:

Conductor build-up	84 x 0.3mm tinned copper wire
Conductor rated area	6.0mm ²
Thickness of FRPE insulation	2.5mm ²
Overall diameter of core	8.25mm ²
Minimum area of screen	4.0mm ² tinned copper braid
Thickness of PVC sheath	1.7mm ²
Overall diameter	12.4mm to 12.6mm
Rated operating voltage	5kV
Tested conductor resistance	3.3 Ohm.km ⁻¹
Tested insulated resistance	>1 000 Ohm.km ⁻¹ @ 5kV

Diameter over core	8.25mm
Insulation	Polyethylene Flame Retardant
Outer sheath	Flame Retardant PVC Sheath

The primary cable is either blue or red in colour and labeled with suitable cable identification labels in the manhole not more than 100mm from male and female plugs. The labels are either constructed of metal with durable, indelible markings, or of the PVC slip-on type with durable, indelible markings. Cable markers shall be installed at 100m intervals from the substations and where the direction changes except where the cable is running underneath a paved surface. All cables are strapped to the cable tray inside manholes. The cable complies with applicable international standard specifications based on DIN VDE 0271 and IEC 502, Aerodrome Design Manual Part 5-Electrical Systems and shall also meet the requirements of the SACAA.

The primary cables are terminated with resin filled primary connector kit at each manhole or transformer base.

Note that all cables are installed in sleeves, on cable racks/trays or in dedicated concrete trenches. All cables shall be clearly marked in accordance with a system to be agreed by the Engineer.

C.3.2.4.2 Secondary Cables

These cables are unarmoured and have a cross section of at least 2.5mm² and insulated to withstand a voltage of at least 600V. The cables shall be suitable to be installed in sleeves, concrete or in soil. In this instance all cables shall be installed in sleeve unless otherwise agreed to by the Engineer. These cables have no joint. The transformer-end of these cables are terminated onto a resin filled plug/socket arrangement.

C.3.4.3 Bases

Two types of bases are installed. FAA type L867 or similar is to be used for the housing of transformers where specified. This base is fitted with an earth stud on which the counter poise wire is to be terminated as well as suitable cable entries. However, FAA type L868 are used as the base for all inset lights.

A concrete plinth of suitable strength and dimensions to accommodate the load of light vehicular movements have been erected around the transformer base and be slightly proud of the surrounding ground. This is obviously not the case for the bases for the inset lights.

The installation of the bases for the inset lights have been performed in line with the following method:

- Core drill to a suitable diameter to the level of the conduit and break out the asphalt layers
- Fit the base onto the hole and position it accurate using a jig and special levelling tool.
- Pour the correctly mixed epoxy into the void and allow it to settle. Wait a minute or so and top it up to the required level.

- Leave the jig in its position until the epoxy has dried sufficiently where after the jig can be removed.
- The light should be bolted onto the base as late as possible to allow for the proper setting of the epoxy.

C.3.2.4.4 Manholes

Spherical manholes are to be made of pre-cast concrete and shall have a diameter of 1 000mm and not be deeper than 1 000mm. The manhole shall be fitted with suitable trays on which the cables and series transformers shall be installed. In addition, an earth bar, connected to an earth rod shall also be provided for in the manhole. Cable entries into the manholes are provided for by the Contractor. The cover of the manholes is either cast iron re-enforced concrete. The total manhole installation shall have the load bearing capacity like what is specified in the FAA L867 specification for bases. The installation level of the manhole is such that it will just be proud of the immediate surroundings.

C3.2.4.5 Counterpoise and Earthing

A counter poise system has been provided and consist of a buried 16mm² bare copper wire installed on top of the primary cables where possible. The height above the primary cable is at least the same as the width of the primary cable installation assuming the counterpoise cable is installed above the centre of the primary cable run.

All the equipment in the Electrical Substation is connected to the earth of the substation. The braided shield of the primary cable shall also be connected to earth studs and earth bars at every practical point.

C3.2.4.6 Sleeves – Primary Cables

The sleeves have a diameter related to the number of installed cables in the same sleeve and be installed in a trench 500mm below the ground. The sleeves are to be manufactured from HDPE or similar material with a wall thickness of not less than 10mm. The sleeve's connections are specially designed for the application. The trench are to be backfilled and compacted with the excavated material with the provision that no stone having any dimension of more than 75mm. Imported soil may be required to top up areas of sagging.

C3.2.4.7 Sleeves – Secondary Cables C3.3

Acceptance Testing

C3.3.1 Factory Acceptance Testing

Factory Acceptance Testing shall take place as a “once-off” event with a duration of not more than 2 days in the primary manufacturing facility of the Contractor and/or the **Original Equipment Manufacturer (OEM)** respectively. The attendance of these tests by the Engineer will be to the discretion of the Engineer. The testing of equipment shall in any event be completed and signed off by the applicable Quality Assurance department of the OEM and all documents such as type test certificates, specific test certificates, material certificates, compliance certificates etc. shall be

issued as part of the documentation related to this project. The following equipment shall be tested specifically:

Type tests and/or materials certificates shall be issued for:

- All lights and signage incl. frangible couplings – all parameters.
- Resin to fit inset light bases.
- Plugs

C3.3.2 Site Acceptance Testing

The following tests will be carried out as a minimum:

- Photometric testing of runway centre line lights
- Photometric testing of runway edge line lights
- Photometric testing of runway touch down zone lights
- Photometric testing of runway end/threshold lights

C3.3 Management

C3.3.1 Construction Drawings

The Contractor shall will prepare drawings for the following:

- Lights shall be installed on existing positions
- Surveyed drawings for approach masts – height

The approved drawings will then be issued for “construction purposes” and at least 2 copies will be kept on Site and a 3rd hard copy will be issued to the Engineer. The purpose of this construction drawing will be to keep track of which lights have been replaced.

C3.3.2 Project Meetings

Monthly formal site meetings will be held for the duration of the site work and it shall be expected that at least one person from the Contractor, having adequate decision making power in respect of planning, change management and project finance will be in attendance. This does not preclude any other meetings that are deemed to be necessary.

C3.3.3 Daily Records

The Contractor shall keep on site a set of minutes of all site meetings, daily records of resources (people and equipment employed), a site instruction book, a complete set of contract working drawings and a copy of the procurement document and make these available at all reasonable times to Engineer or the Employer.

The Contractor shall maintain a daily site record of all activities conducted during the field activities. This record shall include a detailed list of all work done, any personal injuries related to the fieldwork, and any relevant comments

In addition, the following documents shall be maintained as part of the daily site records:

- Time Programme
- QA Programme
- Safety Statistics

- Materials on site
- Site Variation Orders

C3.4 Non-Construction Activities C3.4.1

Manuals and As Built Drawings

Four (4) complete sets of manuals containing the following will be supplied by Contractor on completion:

- An index clearly indicating the contents
- All documents related to the FAT and SAT.
- Recommended maintenance schedules – see more details at C3.4.3.
- Commissioning procedures
- Operations and maintenance manuals for all types of lights, the RCMS and CCRs
- Specific procedures for the operation of the RCMS.
- Electronic record drawings ("As built") based on surveyed data (using the WGS84 Lo.23 coordinate system) of the installation indicating cable routes, light positions, conduits, sleeves, manholes and circuit wiring details. Drawings shall not be marked-up standards and be issued in in A1/A0 hard copies but two sets of A3 bound drawings will also be issued.

C3.4.2 Training

The Contractor shall train the maintenance personnel on how to maintain the new lights. A dedicated training manual will be compiled as part of the course and be issued to each individual attending. The training for the maintenance personnel must be designed on the basis that the electricians will not have any prior AGL experience.

C3.4.3 Maintenance Manuals

These manuals shall have all the information to ensure that the system will be properly maintained. It shall be comprehensive to the extent that an electrician can service the system. Fault diagnostics shall also be included so that faults can be traced and components are exchanged with a minimum of difficulty. Sections covering the following aspects shall be included as a minimum:

- Trouble shooting and fault finding.
- Preventative maintenance, which shall include a comprehensive checklist for each and every type of service which shall include as a minimum:
 - Description of activity
 - Frequency of activity
 - Resources required; i.e. tools, spare parts, consumable & manpower
 - Time per activity
 - Various types of services
 - Total man-hours required to complete each type of service
- A list of all parts and non-standard tools required
- A recommended list of spares that must be kept in stock as well as minimum spare stock levels.

C4. Site Information

PART C4: SITE INFORMATION

Description of the Site and its surroundings

1.1 General description

The construction site is located on the airside at O.R. Tambo International Airport. This is a restricted area with stringent access control measures put in place. The Contractor is reminded that this is a National Key Point and as such must adhere to all airports rules and regulations regarding health safety, environment, security, fire and access control.

Table 1: Required Runway Lights for Upgrade:

ORTIA	03L/21R	Runway Associated Lights
Existing Code	Existing Description	New Axon and Reliance Portfolio
DRCA3RW0AS00000	DRC/A-2-R/W-0-II-NM	AXON Rwy CL Red/White 2-plug monitored
DRCA3WW0AS00000	DRC/A-2-W/W-0-II-NM	AXON Rwy CL White/White 2-plug monitored
DRCA2RN0AS00000	DRC/A-2-R/N-0-I-NM	AXON Rwy CL Red/Blank 1-plug monitored
DRCA2WN0AS00000	DRC/A-2-W/N-0-I-NM	AXON Rwy CL White/Blank 1-plug monitored
EREL6YW39S00000	EREL-YW-LR-NM-with earthing	EREL-Yellow/White-High Intensity Elevated-Monitored
EREL6WY39S00000	EREL-WY-LR-NM-with earthing	EREL-White/Yellow-High Intensity Elevated-Monitored ((RWY edge)
EREL6WW39S00000	EREL-WW-LR-NM-with earthing	EREL-White/White-High Intensity Elevated-Monitored (RWY edge)
EREL6YR39S00000	EREL-YR-LR-NM-with earthing	EREL-Yellow/Red-High Intensity Elevated-Monitored
EREL6RY39S00000	EREL-RY-LR-NM-with earthing	EREL-Red/Yellow-High Intensity Elevated-Monitored ((RWY edge))
1409.46.140	BASE PLATE T300/3 avec terre	BASE PLATE T300/3 with earth connection
IREL/3210112	LED IREL	AXON Rwy Edge Inset Monitored High Intensity (W/W)
IREL/3810112	LED IREL	AXON Rwy Edge Inset Monitored High Intensity (W/Y)
IREL/9210112	LED IREL	AXON Rwy Edge Inset Monitored High Intensity (Y/W)
IREL/9510112	LED IREL	AXON Rwy Edge Inset Monitored High Intensity (R/Y)
IREL/XX10112	LED IREL	AXON Rwy Edge Inset Monitored High Intensity (Y/R)
DTZA2WN4AS00000	DTZ/A-1-W/N-L-I-NM	AXON TDZ 8" inset monitored - Left
DTZA2WN5AS00000	DTZ/A-1-W/N-R-I-NM	AXON TDZ 8" inset monitored - Right
868.066	IL 868D-THR/L-2.2/6.6A-fo-g	AXON Threshold - Monitored 12" - Green - Left - insets
868.067	IL 868D-THR/R-2.2/6.6A-fo-g	AXON Threshold - Monitored 12" - Green - Right
	Red-EENS2RN00MI0012	Runway End light inset

	Green-ETHS2GN00MI0012	Reliance Runway Threshold elevated - monitored
	White	Closure mark (white)
	White	Crossbar (white)- insets
	White	Crossbar (white)- elevated
	Green/Green	Lead off light (G/G)- Inset
	Green/Nothing	Lead in light (G/nothing)- Inset
	Yellow/Green	Lead off light (Y/G)- Inset
	Yellow/Nothing - RSRY301S1NYNM101	Rapit exit 321 (Y) RETIL,I,8",S,Y/N,MON,1C
		2 x CAT2 Approaches (900m)
FAP - halogen - White	FAP W	AXON Approach inset light 12" - monitored / white
FAP - halogen - Red	FAP R	AXON Approach inset light 12" - monitored / red
Halogen Approach light	White	LEAP approach Light White - elevated monitored
Halogen Approach light	Red	LEAP approach Light Red - elevated monitored
ORTIA	03R/21L	Runway Associated Lights with few spares
Existing Code	Existing Description	New Axon and Reliance Portfolio
868.066	IL 868D-THR/L-2.2/6.6A-fo-g	AXON Threshold - Monitored 12" - Green - Left
868.067	IL 868D-THR/R-2.2/6.6A-fo-g	AXON Threshold - Monitored 12" - Green - Right
863.003	IL 863D-THR/R-RWE-2.2/6.6-fo-g/r	AXON Threshold/End - Monitored 12" - Green/Red - R-2plug
863.004	IL 863D-THR/L-RWE-2.2/6.6A-fo-g/r	AXON Threshold/End - Monitored 12" - Green/Red - L-2plug
EREL6WW39S00001	EREL-WW-LR-NM-with earthing	EREL-White/White-High Intensity Elevated-Monitored
EREL6WY39S00001	EREL-WY-LR-NM-with earthing	EREL-White/Yellow-High Intensity Elevated-Monitored
EREL6YW39S00001	EREL-YW-LR-NM-with cable + GND	EREL-Yellow/White-High Intensity Elevated-Monitored
IREL/3210112	LED IREL 3210112	AXON Rwy Edge Inset Monitored High Intensity (W/W)
IREL/3810112	L-850C BI,W-L,Y-R,50HZ,NO M,1CD,NO/AK	AXON Rwy Edge Inset Monitored High Intensity (W/Y)
IREL/9210112	IREL LED YELLOW LEFT/WHITE RIGHT	AXON Rwy Edge Inset Monitored High Intensity (Y/W)
DRCA3WW0AS00000	DRC/A-2-W/W-0-II-NM	AXON Rwy CL White/White 2-plug monitored
DRCA3WR0AS00000	DRC/A-2-W/R-0-II-NM	AXON Rwy CL Red/White 2-plug monitored
DTZA2WN4AS00000	DTZ/A-1-W/N-L-I-NM	AXON TDZ 8" inset monitored - Left
DTZA2WN5AS00000	DTZ/A-1-W/N-R-I-NM	AXON TDZ 8" inset monitored - Right
1409.46.140	BASE PLATE T300/3 with earthing	BASE PLATE T300/3 with earth connection
DRCA2YN0ASI0000	DRC/A-1-Y/N-0-I-NM	AXON Rapid Exit Taxiway Indicator Light 8" Monitored(Y)-insets
		AXON Rapid Exit Taxiway Indicator Light 8" Monitored (G)-insets
		Lead in lights (G) insets

		Crossbar (W)
		Closure mark (W)
		Rapit exit 321 (Y)
		2 x CAT2 Approaches (900m)
Halogen Approach light	White	LEAP approach Light White - elevated monitored
Halogen Approach light	Red	LEAP approach Light Red - elevated monitored

Table 2: Part number for light-emitting diode fittings:

Part Number	Description
RSRC101S2NWRM301	RW CL,F&I,8",S,W/R,MON,2C
RSRC101S2NWWWM301	RW CL,F&I,8",S,W/W,MON,2C
RSRC101S1NRNM101	RW CL,F&I,8",S,R/N,MON,1C
RSRC101S1NWNM101	RW CL,F&I,8",S,W/N,MON,1C
ERES6YW39M00012	ERES-W/E-YW-C-2-Mon-Co-G
ERES6WY39M00012	ERES-W/E-WY-C-2-Mon-Co-G
ERES6WW39M00012	ERES-W/E-WW-C-2-Mon-Co-G
ERES6YR39M00012	ERES-W/E-YR-C-2-Mon-Co-G
ERES6RY39M00012	ERES-W/E-RY-C-2-Mon-Co-G
1409.46.140	ADB PLASTIC BASEPLT T300/3 W/EARTHING
RSRE102S2CWWWM101	RWE 45,F&I,12",S,CRV,W/W,MON,1C
RSRE102S2CWYM101	RWE 45,F&I,12",S,CRV,W/Y,MON,1C
RSRE102S2CYWM101	RWE 45,F&I,12",S,CRV,Y/W,MON,1C
RSRE102S2CRYM101	RWE 45,F&I,12",S,CRV,R/Y,MON,1C
RSRE102S2CYRM101	RWE 45,F&I,12",S,CRV,Y/R,MON,1C
RSRZ101S1LWNM101	TDZ,F&I,8",S,LFT,W/N,MON,1C
RSRZ101S1RWNM101	TDZ,F&I,8",S,RGT,W/N,MON,1C
RSRY301S1NYNM101	RETIL,I,8",S,Y/N,MON,1C
TBA	Lead in lights G
TBA	Lead off lights G/G
RSRT302S1LFNM101	RW THR ,I,12",S,LFT,G/N,MON,1C
RSRT302S1RFNM101	RW THR ,I,12",S,RGT,G/N,MON,1C
TBA	RW THR,I,12",S,RGT,G/R,MON,1C
TBA	RW THR,I,12",S,RGT,R,MON,1C
EENS2RN00MI0012	RWY End-Glass-1P-R-ICAO-MON anti cor-CB
ETHS2GN00MI0012	Threshold-Glas-1P-G-ICAO-Mon-Corr-CB
1409.06.021	MR M 2IN 11TPI FAE
RSAC302S1NWNM101	APP CL,I,12",S,W/N,MON,1C
RSAS302S1LRNM101	APP SR,I,12",S,LFT,R/N,MON,1C
RSAS302S1RRNM101	APP SR,I,12",S,RGT,R/N,MON,1C
EAPS2WN00MI0012	APPROACH-GLAS-1P-W-ICAO-MON ANTI COR-CB
EAPS2RN00MI0012	APPROACH-GLAS-1P-R-ICAO-MON-CORR-CB
RSRC101S2NWRM301	RW CL,F&I,8",S,W/R,MON,2C

RSRC101S2NWWM301	RW CL,F&I,8",S,W/W,MON,2C
ERES6YW39M00012	ERES-W/E-YW-C-2-Mon-Co-G
ERES6WY39M00012	ERES-W/E-WY-C-2-Mon-Co-G
ERES6WW39M00012	ERES-W/E-WW-C-2-Mon-Co-G
1409.46.140	ADB PLASTIC BASEPLT T300/3 W/EARTHING
RSRE102S2CWWM101	RWE 45,F&I,12",S,CRV,W/W,MON,1C
RSRE102S2CWYM101	RWE 45,F&I,12",S,CRV,W/Y,MON,1C
RSRE102S2CYWM101	RWE 45,F&I,12",S,CRV,Y/W,MON,1C
RSRZ101S1LWNM101	TDZ,F&I,8",S,LFT,W/N,MON,1C
RSRZ101S1RWNM101	TDZ,F&I,8",S,RGT,W/N,MON,1C
RSRY301S1NYNM101	RETIL,I,8",S,Y/N,MON,1C
RSRT302S1LFNM101	RW THR ,I,12",S,LFT,G/N,MON,1C
RSRT302S1RFNM101	RW THR ,I,12",S,RGT,G/N,MON,1C
RSRT302S2LFRM301	RW THR ,I,12",S,LFT,G/R,MON,2C
RSRT302S2RFRM301	RW THR ,I,12",S,RGT,G/R,MON,2C
EAPS2WN00MI0012	APPROACH-GLAS-1P-W-ICAO-MON ANTI COR-CB
EAPS2RN00MI0012	APPROACH-GLAS-1P-R-ICAO-MON-CORR-CB

1.2 Access

- The Contractor shall liaise with ACSA Security Staff in order to obtain access permits for his staff and vehicle working at the airport.
- Personnel and vehicles entering or leaving the site will be subjected to routine searches.
- The Contractor shall obtain the "gate permit" from the Project Manager before material and equipment are brought and removed from the airside.
- The Contractor shall include in his rates the costs for access permits and no extra payment or claim of any kind will be allowed on account of difficulties of access to site.

1.3 Permits

- The Contractor shall familiarize himself with ACSA's safety and security requirements relating to permits to prevent any unnecessary work delay.
- This shall include the permit application process.
- The Contractor shall have no claim against ACSA in the event that a permit request is refused.
- The following table is not all inclusive, but is provided for illustration purposes:

Permit	Required by/for	Department
AVOP – Airside Vehicle Operator permit	All drivers of vehicles on airside	ACSA Safety
Airside Vehicle Permit	All vehicles that enter airside	ACSA Safety
Basement Parking Permit	All vehicles allowed to enter the delivery basement	ACSA Parking
Personal Permit	All persons employed on the airport	ACSA Security

Cell Phone Permit	All persons taking cell phones to airside	ACSA Security
Tools Permit	All persons taking tools to airside	ACSA Security
Laptop Permit	All persons taking laptop computers to airside	ACSA Security
Camera Permit	All persons taking camera equipment to airside	ACSA Security
Hot Works Permit	All welding and/metal cutting work on the airside	ACSA Safety
Airside Permit	Projects/Works For all projects on the airside	ACSA Airport Operations / Safety

- Proof of having attended the Airside Induction Training course is required for all personal permit applications.
- Persons applying for an AVOP must provide proof of having attended an AVOP course.
- Fees are levied for these courses. Fees are further levied for all permit renewals and refresher courses where applicable.
- No work shall be done without a written permission in the form of a permit/works order.

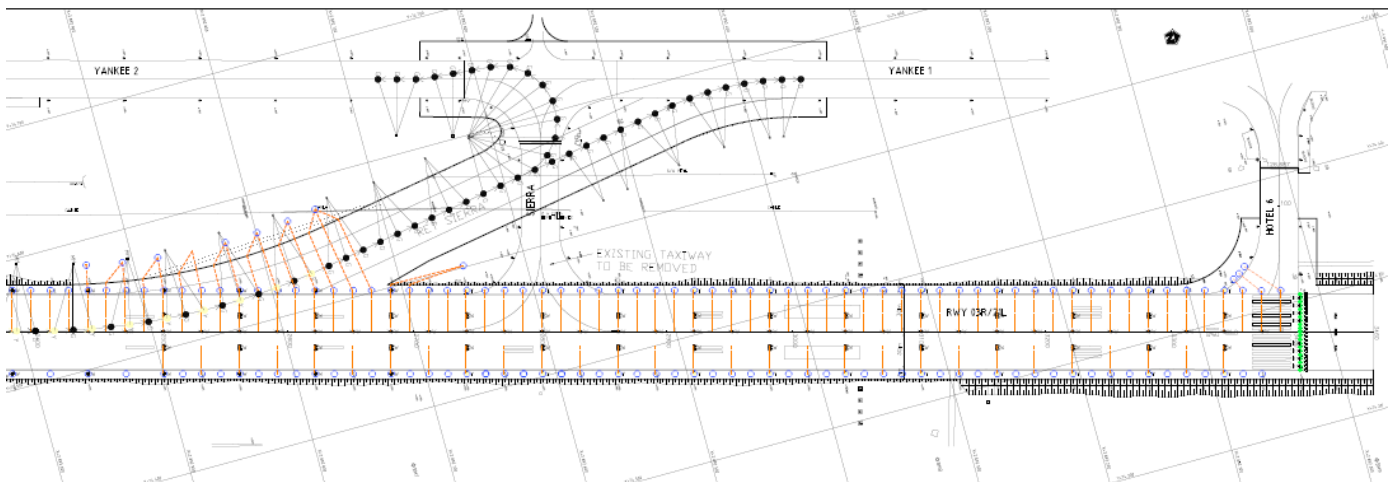
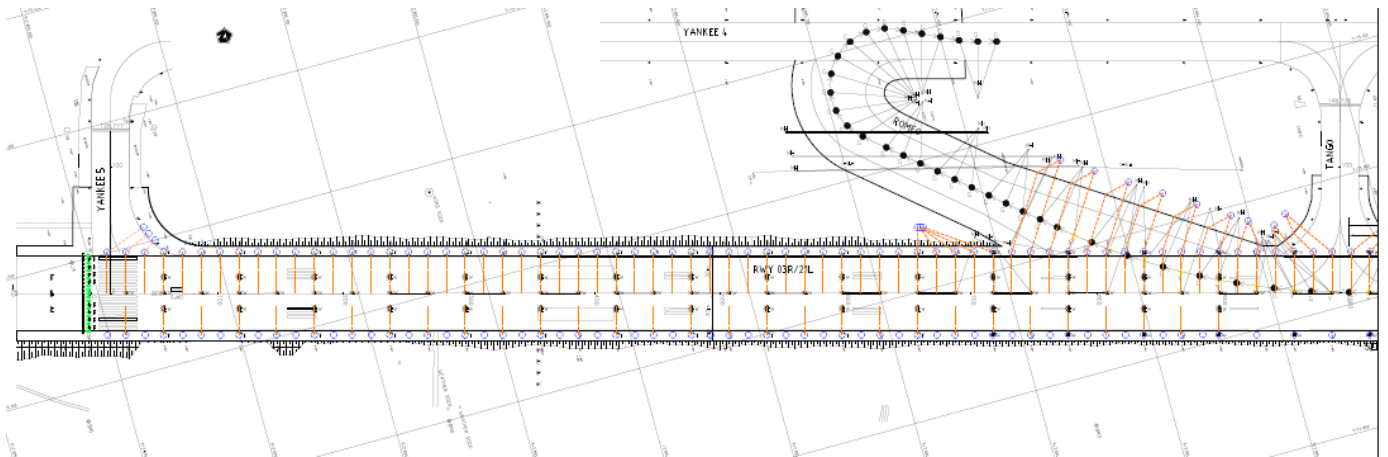
1.4 Cell phones and two-way radios

- Use of cell phones on airside is not permitted unless the user is in possession of an appropriate Airport permit for the device.
- Cell phone permit issuing authority lies with the ACSA Security department.
- The Contractor will not be allowed to use two-way radios at the Airport unless these radios are of the type, model and frequency range as approved by the ACSA IT department.
- Approved radios may be arranged via said department – payment will be for the account of the Contractor.

1.5 Hidden and other service on site

There might be water and sewer pipes located underground. Also, there are other cables going through the trenches and these must be treated as live cables. There are also communication cables located underground.

1.6 Site layout



LIST OF ABBREVIATIONS

ACSA Airports Company South Africa
GAR General Administration Regulations
GSR General Safety Regulations
OHSA Occupational Health and Safety Act 85 of 1993
OHSS Occupational Health and Safety Specification
SABS South African Bureau of Standards

1. INTRODUCTION

1.1 Purpose of the Occupational Health and Safety Specification

The purpose of the OHSS is to assist Contractors to achieve compliance with the Occupational Health and Safety law, in order to reduce incidents and injuries. The OHSS will be implemented during the construction of this project or any construction activity that the Employer has control over.

The OHSS is a performance specification to ensure that the Employer and any bodies that enter into formal agreements with the Employer viz. Agents, Consultants and Contractors achieve an acceptable level of OHS performance. No advice, approval of any document required by the OHSS such as hazard identification and risk assessment action plan or any other form of communication from the Employer shall be construed as an acceptance by the Employer of any obligation that absolves the Contractor from achieving the required level of performance and compliance with legal requirements. Further, there is no acceptance of liability by the Employer which may result from the Contractor failing to comply with the OHSS, i.e. the Contractor remains responsible for achieving the required performance levels.

1.2 Implementation of the Occupational Health and Safety Specification

This OHSS forms an integral part of the Contract, and Contractors are required to make it an integral part of their Contracts with Sub-Contractors and Suppliers. It will be disseminated by the Employer to persons responsible for the design of the infrastructure works, who will ensure that it is included in the Tender Document(s) issued to prospective Contractors. The prospective Contractors shall incorporate the requirements of the OHSS in their submission of tenders to the Employer.

This specification must be read in conjunction with the OHS Act No 85 of 1993 (as amended), the Regulations as published in Government Gazette No 37305 of 7 February 2014 as well as the General Safety Regulations published in Government Notice No. R 1031 of 30 May 1986, as amended.

The OHS Act Agreement in this document (Returnable Schedules) must be fully completed by the Contractor.

2. STANDARD OCCUPATIONAL HEALTH AND SAFETY SPECIFICATION

2.1 Scope

This OHSS covers the requirements for eliminating and mitigating incidents and injuries in all Employer controlled projects.

The scope also addresses legal compliance, hazard identification and risk control, promoting a health and safety culture amongst those working on ACSA projects and those affected by the activities taking place in and around them.

2.2 Interpretations

2.2.1 Application

The OHSS contains clauses that are generally applicable to building / construction and that impose pro-active controls associated with activities that impact on human health and safety as they relate to plant and machinery. Compliance to the requirements of the OHSA, Construction regulations and General Safety Regulations is in addition to the requirements of the OHSS and is part of the Contractor's responsibility. The Employer will through the Agents, as appointed, monitor that the Contractor complies with the requirements of the OHSA and will not prescribe to the Contractor how such compliance is achieved.

Definitions

- The definitions used will be those set out in the Regulation Gazette No 37305 of 7 February 2014 with the following addition:
- ACSA: Airports Company South Africa
- Hazard Identification and Risk Assessment and Risk Control: Means a documented plan, which identifies hazards, assesses the risks and details the control measures and safe working procedures which are to be used to mitigate and control the occurrence of hazards and risks during construction or operation phases.
- Health and Safety Management Plan: Means a documented plan which addresses the hazards identified and include safe working procedures to mitigate, reduce or control the hazards identified.
- Induction Training: Means once off introductory training on general health and safety issues given to all employees before commencement of work on site.
- Risk: Means the probability or likelihood that a hazard can result in injury or damage.
- Site: Means the area in the possession of the Contractor for the construction of the works. Where there is no demarcated boundary it will include all adjacent areas, which are reasonably required for the activities for the Contractor, and approved for such use by the Engineer.

The Act:

Means, unless the context indicates otherwise, the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) and Regulations promulgated there under.

Contractor: The Contractor terminology used in these specifications shall be deemed to cover Principal Contractor, Contractors and Subcontractors.

4. REQUIREMENTS AT TENDER STAGE

The Contractor shall make available the following with his completed tender:

A Preliminary Health and Safety Plan as described in Regulation 7 of the Construction Regulations. The Safety Plan must be based on the Construction Regulations 2014 and this specification and will be subject to approval by the Employer. This will include a Hazard Identification and Risk Assessment appropriate to the project, expansion of Annexure D, and a declaration to the effect that he has the competence, completion of Occupational Health and Safety Questionnaire, and necessary resources to carry out the work safely in compliance with the Construction Regulations 2014.

Failure to submit the foregoing with his tender, will lead to the conclusion that the Contractor is not able to carry out the work under the contract safely in accordance with the Construction Regulations and may result in the tender being disqualified.

5. NOTIFICATION OF COMMENCEMENT OF CONSTRUCTION WORK

Prior to the commencement of construction work but not later than 7 days after the award of the contract, the Contractor shall, in terms of Regulation 4, notify the Provincial Director of the Department of Labour in writing if the following work is involved:

- the demolition of structures and dismantling of fixed plant of height of 3,0 m or more;
- the use of explosives;
- construction work that will exceed 30 days or 300 person-days;
- excavation work deeper than 1,0 m; or
- working at a height greater than 3,0 m above ground or landings.

The notification must be done in the form of the pro forma included under Returnable Schedules (The Occupational Health and Safety Act) of the tender document. See Annexure A for a copy of the notification. A copy of the notification form must be kept on site, available for inspection by inspectors, Employer, Engineer, employees and persons on site.

5. GUIDELINES FOR THE DEVELOPMENT OF A HEALTH & SAFETY PLAN

5.01 Background

In terms of the Construction Regulations [Regulation 5(1)(b)] of the Occupational Health and Safety Act, No 85 of 1993, the Client is required to compile an Occupational Health and Safety specification for each of its projects and the Contractor, appointed by the Client in terms of Regulation 5(1)(k), is required to prepare an Occupational Health and Safety Plan. This plan has to be prepared in terms of Regulation 7(1)(a) as well as the Client's Occupational Health & Safety Specification. In terms of Regulation 5(1)(l), the Client and the Contractor are required to agree on the Occupational Health and Safety Plan before any work may commence.

5.02 Framework for an Occupational Health and Safety Plan

5.02.1 Introduction

The Contractor must demonstrate to the Client that he has a suitable and sufficiently documented Occupational Health and Safety Plan as well as the necessary competencies, experience and resources to perform the construction work safely. The Contractor is required to submit, the following documentation for perusal and verification by the Client:

- Management Structure including an organogram – Tender Stage
- Quality Plan – Tender Stage
- Human Resources Plan – Tender Stage
- Registered Workplace Skills Plan
- "Letter of good standing" from the Compensation
- Commissioner or licensed compensation insurer – Tender Stage
- Proof of induction and other training of employees
- Example copies of minutes of previous Occupational Health and Safety Committee meetings and copies of Incident Investigation Reports

5.02.2 Contents of an Occupational Health and Safety Plan

The Occupational Health and Safety Plan shall include the following:

5.02.2.1 Occupational Health and Safety Management Programme

- Management of Occupational Health and Safety risks
- Occupational Health and Safety structures and appointments
- Programme of Occupational Health and Safety inspections
- Occupational Health and Safety Representatives
- Occupational Health and Safety committee

5.02.2.2 Statement Regarding the Communication and Management of the Work

- Management structure and responsibilities
- Occupational Health and Safety objectives for the project and arrangements for monitoring and review of Occupational Health and Safety performance
- Arrangements for regular liaison between parties on site
- Consultation with the workforce
- The exchange of design information between the Client, Engineer, supervisors and subcontractors on site
- Handling design changes during the project
- Selection and control of subcontractors
- The exchange of Occupational Health and Safety information between all subcontractors
- Security
- Site induction and onsite training
- Facilities and first-aid
- The reporting and investigation of accidents and incidents
- The production and approval of risk assessments and method statements
- Site Occupational Health and Safety rules

- Fire and emergency procedures
- Reporting to the Client i.e. results of Occupational Health and Safety inspections.
- Incident investigations and committee meetings
- Reporting of incidents to the Department of Labour and Compensation Commissioner where appropriate

6: PROJECT / SITE SPECIFIC REQUIREMENTS

A list of activities and considerations that have been identified for the project and the construction site and for which Risk Assessments, Standard Working Procedures (SWP), management and control measures and Method Statements (where necessary) have to be developed by the Contractor is given in Annexure D. This list is not to be considered as inclusive and other items must be added as required. In addition, the following health risks should be taken into account. It may become necessary to include others according to the requirements of the project.

Health risks

- Health risks arising from neighbouring as well as own activities and from the environment e.g. threats by dogs, bees, snakes, lightning etc.
- Exposure to noise
- Exposure to vibration
- Protection against dehydration and heat exhaustion
- Protection from wet and cold conditions
- Exposure to hazardous substances and chemicals used on site.

Emergency Procedures

The Principal Contractor shall submit a detailed Emergency Procedure for approval by the Client prior to commencement on site. The procedure shall detail the response plan including the following key elements:

- List of key competent personnel;
- Details of emergency services;
- Actions or steps to be taken in the event of the specific types of emergencies;
- Information on hazardous material/situations.

Emergency procedure(s) shall include, but shall not be limited to, fire, spills, accidents to employees, use of hazardous substances, bomb threats, major incidents/accidents, etc. The Contractor shall advise the Client, Agent, Engineer and all relevant authorities forthwith, of any emergencies, together with a record of action taken. This shall be confirmed in writing as soon as possible after the incident. A contact list of all service providers (Fire Department, Ambulance, Police, Medical and Hospital, etc.) must be maintained and available to site personnel. These procedures shall form part of the Health and Safety Plan.

First Aid Boxes and First Aid Equipment

The Contractor shall appoint in writing First Aider(s). If not already accredited, the appointed First Aider(s) are to be sent for accredited first aid training. Valid certificates are to be kept on site. The Contractor shall provide an on-site First Aid Station with first aid facilities, including first aid boxes containing, at least, the requirements of the Annexure to Section 3 of the General Safety Regulations. All Contractors with more than five (5) employees shall supply their own first aid box. Contractors with more than ten (10) employees shall have a trained and certified First Aider on site at all times.

Personal Protective Equipment (PPE) and Clothing

The Contractor shall ensure that all workers are issued with and shall wear hard hats, protective footwear and overalls as well as any other necessary PPE as set out in Section 2.3 of the General Safety Regulations. Contractors are encouraged to provide reflective vests for all their staff. The Contractor and all Contractors shall make provision and keep adequate quantities of SABS always approved PPE on site. This shall include necessary safety gear for visitors. The Contractor shall clearly outline procedures to be taken when PPE or Clothing is:

- Lost or stolen;
- Worn out or damaged.

- Issued to temporary labour or staff.

The above procedure applies to Contractors and their Sub-contractors, as they are all Employers in their own right.

Occupational Health and Safety Signage

The Contractor shall provide adequate on-site OHS signage. This should include but is not limited to: 'no unauthorised entry', 'report to site office', 'site office', 'beware of overhead work', 'hard hat area'. Signage shall be posted up at all entrances to site as well as on site in strategic locations e.g. access routes, stairways, entrances to structures and buildings, scaffolding, and other potential risk areas/operations. These signs shall be in accordance with the requirements of the General Safety Regulations as amended.

8: HEALTH AND SAFETY FILE

The Contractor shall in terms of Construction Regulation 7(1)(b) always maintain a Health and Safety File on site. The Health and Safety File is a file or other permanent record containing information on aspects of the construction project - which will be necessary to ensure the health and safety of any person who may be affected by the construction work.

The Contractor shall ensure that all other contractors open similar files in accordance with the Regulations. The Contractor shall appoint a suitably qualified person to prepare the Health and Safety File and to keep it up to date for the duration of the contract. The Health and Safety file shall include at least the following information:

All Documents as required by the Act and Regulations

All reports of inspections and audits

All non-conformity reports

All working drawings, calculations and design where applicable

Detailed list of sub-contractors with contact details

List of all hazardous materials used and stored on site with Data Sheets and Materials Hazard Data sheets

All Hazard Identification and Risk Assessments carried out for the project

All Health and Safety Plans for the project.

All method statements

Minutes of all relevant meetings

Incident records, including investigations and results

Record of all appointments under the Regulations

Annexure B is a list of the records to be kept on site.

The Health & Safety File shall be handed over to the Client on completion of the contract. It must contain all the documentation as set out above, or as instructed, as well as any handed to the Contractor by any contractors together with a record of all drawings, designs, materials used and other similar information concerning the completed project.

9: RISK ASSESSMENT

Before commencement of any construction work during the construction period, the Contractor shall have a risk assessment performed and recorded in writing by a competent person. (Refer Regulation 9 of the Construction Regulations 2014).

Risk is a measure of the likelihood that the harm from a particular hazard will be realised, taking into account the possible severity of the harm. Harm to people includes death, injury (permanent or temporary), physical or mental health or any combination thereof. Risk management in health and safety includes the identification of hazards, assessing risks, taking action to eliminate or reduce the risk, monitoring the effectiveness and performing regular reviews of the entire process. The Principal Contractor shall compile method statements to address or handle the following:

- Hazards particulars to the contract
- Identify what could go wrong and how
- Identify the likelihood of this happening
- Identify the persons at risk
- Identify the extent of possible harm
- Eliminating or reducing this risk
- A monitoring plan
- A review plan

Contractors must ensure that all subcontractors conduct risk assessments for their scope of work as well. All risk assessments shall be updated and re-evaluated with any extra works or with any change to the scope of the works.

The risk assessment shall identify and evaluate the risks and hazards that may be expected during the execution of the work under the contract, and it shall include a documented plan of safe work procedures to mitigate, reduce or control the risks and hazards identified.

The risk assessment shall be available on site for inspection by inspectors, Employer, Engineer, subcontractors, employees, trade unions and health and safety committee members, and must be monitored and reviewed periodically by the Contractor.

10: ARRANGEMENTS FOR MONITORING AND REVIEW

The Client and/or Agent will conduct a Monthly, or at greater frequency, Audit to audit compliance with Construction Regulation 5(1)(n) and (o) to ensure that the Contractor has implemented and is maintaining the agreed and approved OH&S Plan. Annexure C will be used as format when conducting the audit.

The Client reserves the right to conduct other ad hoc audits and inspections as deemed necessary.

A representative of the Contractor must accompany the Client on all audits and inspections and may conduct his own audit/inspection at the same time. Each party will, however, take responsibility for the results of his own audit/inspection results.

11: MEASUREMENT AND PAYMENT

In tendering rates for these items the Contractor shall ensure that the sum of the amounts of the four items shall not be less than 1% of the Work Value of the Tender (Total: Schedule A).

Item Unit

Contractor's initial obligations in respect of the Occupational Health and Safety Act and Construction Regulations..... lump sum

The full amount will be paid in one instalment only once:-

- (a) The Contractor has notified the Provincial Director of the Department of Labour in writing of the project.
- (b) The Contractor has made the required initial Appointments of Employees and Sub-Contractors.
- (c) The Client has approved the Contractor's Health and Safety Plan.
- (d) The Contractor has set up his Health and Safety File.

Annex B: Special Requirements at an Operational Airport

Work done on or near an active airport is subject to several special requirements and conditions to ensure the safe operation of the airport at all times.

The work under this contract is to be carried out under operational conditions. Various limitations and requirements are to be taken cognisance of during the preparation of the tender and the construction programme. These limitations will not entitle the contractor to claim for extension of time.

1. Airports Manager

The Airports Manager is at all times responsible for the effective and safe operation of the airport. The Airports Manager or his designated representative will represent the Employer at the airport and he has full authority to act on behalf of the Employer, as set out in the contract documents.

The Airport manager 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 permits.

The Airport Management may at any time withdraw or suspend an Airside vehicle Permit or any Airside Security Permit.

All negotiations between the Contractor and the airport management shall be through the Principle Agent.

2. Airport Security and Safety

All personnel of the Consultants or Contractor will have to undergo a Security and Safety Awareness Programme before the start of the contract.

The Principle Agent/Contractor shall ensure that airport security is at all times complied with by his own personnel, all subcontractors and their personnel as well as all suppliers.

Access to the security area for personnel, vehicles and construction plant can only be obtained with permission from the Employer. Permits may be required for personnel and vehicles frequently moving through the security check points and shall at all times be visibly displayed while a person or vehicle is within the security area. Identity Documents must be available and presented on request.

Permits are only valid for a specific area inside the security area and the responsibility rests with the Contractor to control the movement of personnel, plant and vehicles to ensure their compliance with this requirement. A Prime Cost Sum has been provided for the cost of any permits required.

The Contractor will be required to provide permits for each and every material delivery vehicle entering the site, and they are to be escorted by a permit and radio license holder. The Employer may withdraw any or all permits without prior notice in the case of misuse, in which case the Contractor will have no claim against the Employer.

The Contractor shall make specific arrangements with the Employer, through the Principle Agent, to ensure the expedient delivery of time-dependent materials such as asphalt. If required, the Contractor shall supply additional security personnel, approved by the Airport Manager to assist with security control. If, due to the extra volume of construction traffic that has to pass through security, additional

entrance facilities have to be provided, it shall be done in consultation with the Airport Manager and Principle Agent. These facilities and personnel have to be provided by the Contractor.

3. **Responsibilities of Consulting Engineers/Contractor**

As a condition of approval of an application for an Airside Vehicle Permit, the Consulting Engineer/Contractor shall ensure that all vehicles and drivers are covered by the Contract Works, Public Liability and SASRIA Special Risks Insurance.

When a vehicle is no longer required for airside use, the Consulting Engineer/ Contractor must upon removing it from airside use, remove and return the Airside Vehicle Permit to the airport manager.

The Consulting Engineer/Contractor shall immediately report to the airport manager 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.

Plant, equipment and personnel of the Consulting Engineer/Contractor shall at all times operate and remain 50m clear of all active runways and taxiways (measured from nearest edge of facilities). In Cat 2 conditions the 50m increases to 100m.

4. **Accident/Penalties**

The Principle Agent/Contractor shall report to the Airport Manager 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.

Distinction will be made between the following types of accidents:

- (i) Accidents of minor nature not having effect on the operational efficiency of the involved vehicles, building or airport property.
- (ii) Accidents causing property damage affecting the operational efficiency of vehicles or infrastructure or causing injury to persons traveling in vehicles.

Accidents in the first category must be reported to the Airport Manager within 24 hours. Accidents in the second category must be reported to the Airport Manager immediately and the South African Police Services (SAPS) shall be called to the accident site to investigate and report on the causes of the accident. Where possible neither the driver, the passenger or vehicles should leave the accident site before the arrival of the SAPS.

The parties involved must ensure that adequate arrangements are made for the rapid removal or repair of the immobilised vehicles on **operational** areas.

All accidents/incidents, irrespective of the seriousness thereof, affecting aircraft or loading bridges, must be reported immediately to the AM.

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.

5. **Identification and Warning Lights**

All construction vehicles and self-propelled plant used inside the security area shall be properly marked to promote easy identification. A register of all identification numbers for all vehicles shall be kept up to date by the Contractor and shall at all times be available for inspection by the Airport Manager or

Engineer. Each vehicle or self propelled plant item, as required by the Engineer, shall be fitted with approved amber rotating warning light which shall be in continuous operation while the vehicle is moving in the security area. The Contractor will be responsible for all costs involved in this item.

6. Additional Security Measures

No cameras or the taking of photos will be allowed within the security area without written approval from the Airport Manager. No fire-arms, explosives or any other weapons may be brought into the security area.

Smoking and the making of fires are prohibited in certain areas of the airport. Open fires may only be made in designated areas after written permission has been obtained from the Airport Manager, who will also supervise such fires. No smoking is allowed in the apron areas.

No accommodation of personnel will be allowed in the security area of the airport.

No drawings, sketches, diagrams, information, etc. pertaining to the works, airport, accidents, etc. may be made, reproduced or registered, except when it is necessary for the execution of the contract. No information regarding accidents, airport activities, reports, etc. shall be given to anybody and no press release shall be made or interview may be given to anybody without the written permission from the Airport Manager.

Any interference with airport personnel, equipment or aircraft will be considered as an infringement of this clause. The Contractor will be held responsible for any damage, direct or indirect, to any airport equipment, aircraft, etc. caused by his own personnel or those of his subcontractors or suppliers whether on duty or not. The Contractor shall make good all costs necessary to remedy the situation including re-calibration of equipment where necessary. The Contractor shall note that especially navigation equipment is extremely sensitive and may be disturbed by sitting or leaning on it.

No aircraft may be touched or moved by any member of the construction team. In case of an aircraft accident, no assistance what so ever may be given by the Contractor unless specifically requested and all staff must stay away from any part of an accident scene for a distance of at least 300m.

If the Contractor is found lacking in any of the security measures or requirements, it will be sufficient cause for the termination of all construction activities until the matter has been rectified to the satisfaction of the Airport Manager.

No claim resulting from inadequate security and safety measures will be considered.

7. Compliance with Instructions

If the Contractor does not promptly comply with all instructions of the Airport Manager and Principle Agent, the Employer has the right to amend the working schedule in aid of safety. The PA also retains the right to suspend all works until the Contractor, in the opinion of the PA, complies with the requirements.

8. Delays Caused by Airport Management

If delays, leading to an extension of time, are caused by aspects such as airport requirements, a reasonable claim for extension of time may be considered. However, if such delays coincide with delays caused by other circumstances, such as weather conditions, no claim for extension of time caused by requirements of airport management will be considered.

9. General Requirements for Execution of the Work

At the end of each work period, all plant, vehicles, material and obstructions must be removed to a demarcated safe area. The cost of removal of plant and materials and cleaning operations shall be deemed to be included in the relevant work items or in the general items. The Engineer reserves the right to ban any item of plant or equipment which leaks excessive amounts of fuel or oil. In addition all significant spillages of fuels and oils will be cleared immediately to the satisfaction of the Engineer failing

which the Engineer reserves the right to have this work carried out by a third party to the cost of the Contractor.

The Employer retains the right to clean any of the mentioned areas if the Contractor neglects to do so to his satisfaction. In such a case the costs incurred by the Employer will be recovered from the Contractor at a rate of R400,00 per hour or part thereof taken by the sweeping machine of the Employer to do the work. This cost will be deducted from any monies payable to the Contractor.

If night work has to be done only suitable power and lighting units, approved by the Engineer, complying with the requirements of the Occupational Health and Safety Act No. 85 of 1993, SABS 0142-1981 and ICAO Annex 14 regulations shall be used.

10. Times for the Execution of the Works

Most of the work on this contract must be executed during daytime. If, due to airport requirements, certain aspects of the work have to be done during night time, the following will apply:

The Contractor shall supply sufficient lighting facilities to enable him and his subcontractors to perform the work according to the requirements of the specification.

At the end of the night's work all lights, power plants, etc. must be removed to a safe area indicated by the PA and the Airport Manager. Remuneration for the acquisition, transport, erection and maintenance of lighting and power plants shall be included in the items provided and shall be all-inclusive. Power plants that spill fuel or oil will not be allowed on the works.

11. Movement on the Airport, Barriers, Lights and Marks

It is the responsibility of the Contractor to properly control the movement of personnel, vehicles and plant connected to the contract. The Contractor shall erect, remove and maintain all temporary barriers, warning lights and marks as required by the Airport Manager.

These control and limitations to movement of the Contractor will not be paid for separately and sufficient provision for it shall be made in the tendered items. Delays and disruption of the contractor's programme or progress as a result of the above requirements will not constitute reason for a claim of whatever nature.

12. Dust and Pollution Control

The Contractor shall limit dust pollution to the minimum as required by the Airport Manager. During windy conditions, the PA may temporarily suspend all work where dust pollution creates unacceptable conditions until such time that conditions return to normal.

In the case of working areas alongside the taxiways it shall be a definite requirement that at all times, weekends included, exposed areas are kept damp and free from dust and loose material which may be sucked into the engines of passing aircraft. The taxiways adjacent to the works shall be swept as required but at least daily.

All costs involved in dust and pollution control shall be borne by the Contractor.

13. Storing of Vehicles, Plant and Materials

It is a requirement that, at the end of each work period, all vehicles and plant are returned to the designated camp area allocated to the Contractor. With the approval of the Project Manager / Engineer, certain equipment may remain on or near the work area if the area is properly demarcated.

If material is temporarily stored outside the designated campsite, stockpiles shall be limited to a height of 1,0 m above natural ground level.

14. Fires

No open fires whatsoever will be allowed. All necessary precautions must be taken to prevent veld or other unauthorized fires.

In the case of fire, including veld fires, the Contractor must instruct his employees to assist the airport management in extinguishing the fire if requested to do so.

The Contractor shall indemnify the Employer against claims that may arise from fires due to negligence by the Contractor or his operations. If it is required by the Employer to extinguish any fires caused by the Contractor, the cost thereof will be for the Contractor.

In case of a fire caused by air traffic activities, the area involved shall immediately be evacuated by the Contractor to an area beyond a radius of 300 m from the fire.

15. Environmental

The Airports Company South Africa (ACSA) recognises the impacts airport expansion projects have on the environment during the planning, design and construction phase of new projects and embraces the obligations of corporate environmental responsibility to manage and minimise these impacts as far as possible.

Contractors are encouraged to explore and implement (where possible) feasible opportunities for minimising environmental impacts in the form of stormwater, soil and groundwater pollution, resource and raw material utilisation, as well as energy and water conservation measures.

ANNEX C: ACSA Construction Environment 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 organisational 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.

1.1 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.

1.2 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

1.3 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 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-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 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.

2. Environmental Specifications

2.1 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.

2.2 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.

2.3 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.

2.4 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.

2.5 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 mater.

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.

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 firefighting 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 and 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. **Annexures Part C5 Page | 37**

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.

C4.3 Acsa Environmental Policy

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INTEGRATED ENVIRONMENTAL MANAGEMENT POLICY STATEMENT

Airports Company South Africa SOC Limited (ACSA), as a world-class airport operator, acknowledges that airport activities and operations may have diverse impacts on the environment. It therefore accepts its stewardship role of responsible care for the environment in order to reduce its environmental impact.

Airports Company South Africa SOC Limited is committed to:

- Maintain an Environmental Management System based on the requirements of ISO 14001:2015.
- Conduct regular audits of the system to ensure its adequacy and effectiveness.
- Monitor and measure significant environmental aspects of airport activities and operations, and provide a framework for the setting and reviewing of environmental objectives and targets.
- Ensure employees, operators, tenants, service providers, contractors and supply chain that fall within the scope of the Environmental Management System are aware of the environmental aspects associated with their activities and operations, and of the requirements of the Environmental Management System.
- Report its environmental performance indicators in the integrated annual report.
- Continually improve environmental performance.
- Seek opportunities to reduce the impact of aircraft noise by engaging with industry stakeholders.
- Monitor aircraft noise at Cape Town International Airport, King Shaka International Airport and O R Tambo International Airport in accordance with SACAA requirements.
- Actively seeking out opportunities to reduce energy consumption from non-renewable energy sources.
- Measure the carbon footprint at Cape Town, King Shaka, O R Tambo and Chief Dawid Stuurman International Airports, while actively seeking out opportunities to reduce its overall carbon footprint.
- Monitor air quality at Cape Town International Airport, King Shaka International Airport and O R Tambo International Airport in accordance with SACAA requirements..
- Actively seek opportunities to reduce water consumption.
- Avoid the pollution of storm water and/or groundwater as a result of airport operations.
- Ensure that all waste is minimised, or otherwise reduced, re-used and/or recycled.
- Conserve biodiversity where feasible on its property.
- Collaborating with and engaging surrounding communities to seek opportunities to minimise the environmental impact of airport operations on the environment.
- Comply with relevant environmental legal obligations.
- Where Airports Company South Africa SOC Limited does not directly control the impacts at the Corporate Office or at airports, the Group shall work in partnership with operators, contractors, tenants, service providers and supply chain management to improve performance.

This Integrated Environmental Management Policy is applicable to Airports Company South Africa SOC Limited infrastructure, and the geographical areas within which the organisation operates its aeronautical business of running airports, developing airports, and growing our footprint. This is centred around the nine airports and Corporate Office, and includes the associated employees, stakeholders, service providers, and contractors.

ACSA managers and staff acknowledge that the implementation of this Environmental Policy is their responsibility and are committed to it. This policy statement shall be reviewed by Management every three (3) years and made available to any interested parties upon request.

Signed:



Mpumi Mpofu
Chief Executive Officer

Date: 11/08/22

Issue No: 12

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C4.5.1 Generic Hazard Assessment

Likelihood Probability	Description	Examples of what to look out for...
Category 1	Extremely Improbable (Rare)	Almost inconceivable that the event shall occur
Category 2	Improbable (Seldom)	Very unlikely that the event shall occur. It is not known that it has ever occurred before
Category 3	Remote (Unlikely)	Unlikely but could possibly occur. Has occurred rarely.
Category 4	Occasional	Likely to occur sometimes. Has occurred infrequently.
Category 5	Frequent	Likely to occur many times or regularly. Has occurred frequently or regularly

		Catas-trophic	Hazardous	Major	Minor	Negligible
		A	B	C	D	E
Frequent	5	5A	5B	5C	5D	5E
Occasional	4	4A	4B	4C	4D	4E
Remote	3	3A	3B	3C	3D	3E
Improbable	2	2A	2B	2C	2D	2E
Extremely Improbable	1	1A	1B	1C	1D	1E

Annexure C3 – Generic Hazard assessment

Generic Hazard	Specific component of Hazard	Hazard consequence related	Existing defences to control risk	Safety Risk Index
Driving on airside	Incidents	Damage to aircraft/vehicles/property/persons	Airside induction is required for all persons entering the Airside. For persons wishing to drive on the Airside Service Road an AVOP 2 permit is required. Where work is to be conducted on the Airfield, then contractors are required to be under escorts or have undergone Radio Licence training and be in the possession of an AVOP 3 permit. The speed limit on the Apron Service Roads is 30km/h, 15km/h at the back of stand and 60km/h on the Perimeter Road. During period of Low Visibility (LVP) will be effected and no vehicular movements are allowed on the Airfield. Low visibility procedures will be in place	4A
Driving on and taxiways without permission	Incursion (include definition)	Collision with aircraft/property damage or fatality/ies	Runway and taxiway markings are indicated as per ICAO Annex 14. Permission is required from Air Traffic Control when crossing runways and taxiways. Signage indicating movement areas are painted on the ground or by means of illuminated signage boxes. Only persons in possession of a valid Airside Vehicle Operators Permit with the necessary radio licence (Partac training) will be permitted to drive in restricted areas. Vehicles under escort must follow at reasonable distance.	3A

Noise	Health Risks	Noise induced hearing loss	Baseline and annual audiograms are to be conducted. Contractors are to implement a hearing conservation programme and issue staff with hearing protection and provide the necessary training in this regard. Contractors to identify noisy operations in passenger areas and are to conduct noise generating operations at off peak times where possible or if unavoidable with ACSA's Project Leaders written permission.	3B
Jet blast	Potential injuries and property	Damage to vehicles/property/persons	Signage warning against jetblast is installed at high risk areas. Risks associated with jetblast are covered during Airside Induction Training. Caution to be taken around aircraft when the anti-collision lights are activated in the Apron bays. 75 meter clearance behind aircraft to be observed to prevent jetblast. Contractors to be aware of aircraft movements	4C
Perimeter fence breach	Security risk	National Key Point Violation	Access and egress points are strictly enforced. Contractors are only to use the entry points as provided by the ACSA Project Leader. No materials are to be stored within 3meter of the perimeter fence.	3B
Crane operations	Height of crane	Flight path obstruction/collision with aircraft	30 meter height restriction procedure – refer to Airfield Operation Department for further information	2A
Weather	Adverse weather conditions	Damage to aircraft/vehicles/equipment	Weather warnings are issued by the Airside Safety Department as and when required. All equipment on the Airside is to be secured	4A

Construction works	Foreign Object Debris (FOD)	Ingestion into aircraft engine	Airside induction is required for all staff working on the Airside, FOD bins are to be used for any FOD found lying on the ground. All waste to be secured to prevent it from becoming airborne (refer to Environmental Terms and Conditions)	4B
Construction works	Working Height	at Injury /fatality	Fall protection plan to be devised by the contractors in line with the Construction Regulations 2014. Rescue plans are to be included	3A
Construction works	Storage of hazardous chemicals substances	Contamination/fire/ injury to persons/ environmental impact	ACSA's Environmental terms and conditions are to be adhered to. All relevant legislation and bylaws are to be adhered to. All necessary permits are to be applied for by the contractor such as transport permits, possession permits and flammable certificates. ACSA Environment and Fire and Rescue to be notified where a spill occurs.	4B
Construction works	Waste	Attracts rodents and birds which leads to bird strikes and adds to FOD	Waste management to be implemented in line with ACSA's Environmental Terms and Conditions	4B
Construction works	Spillages (fuels/oils/hydraulics/chemicals/ human waste)	Contamination/Pollution /injury to persons/adverse health effects	ACSA's Environmental terms and conditions and applicable legislative controls are to be adhered to. ACSA Environment and Fire and Rescue to be notified where a spill occurs	4B
Construction works	Dust	Damage to aircraft/injury to persons/adverse health effects/	Dust suppression measures are to be implemented and PPE used where required	4A

Construction works/ Trenching	Damage to underground services. Interruption of critical services	Electrocution, loss of critical services, damage to property, major injuries, aircraft diversions	Consult as-built plans. Scan area before trenching. Trenching to be done under competent supervision.	4A
Delivery of materials	Falling materials or stones or sand	Vehicle/pedestrian accidents	Materials are to be delivered within specified time frames, flagman to be utilised during deliveries, load limitations to be observed, netting is to be used, contractors to clean road after deliveries	4E
Lack of – signage warning signs	Injuries and accidents	Injuries and accidents	Contractors to install sufficient demarcations around construction sites along with the necessary warning signs and beacon lights (refer to Construction Regulations and Traffic Act) No signs are to be removed without prior permission and notification. Temporary way finding signage is required if signage has been disturbed	2D
Road crossing Central Boulevard	Not using the for crossing	Vehicle and pedestrian accidents	Contractor staff are to cross the Boulevard via the North or South tunnels	4B
Waste management	Environmental impact	Illegal dumping	Temporary laydown areas to be identified and no illegal dumping is permitted.	3C
Trolleys	Damaging trolleys through misuse	Injuries and property damage	Contractors to provide their own trolleys. ACSA's trolleys are for passenger use only	5D
Golf carts	Misuse of golf carts	Injuries and property damage	Contractor staff to be aware of golf cart movements on the Landside. Golf cart use for airport users only and not for contractor use for transporting materials. Golf cart operate in predetermined routes – contractors to be aware thereof	3D
Fire equipment	Use and abuse of fire equipment	Injuries and property damage	Fire equipment is only to be used during emergencies. Contractors to provide their own fire equipment. No materials to be stored in ACSA fire cabinets. Emergency exits are to be kept clear at all times	2B

Unattended bags	Security risk	injuries/fatality to Airport users/stakeholders/AC SA employees. Bomb threat-damage to property, vehicle. Operational disruptions	Contractors are not permitted to leave bags unattended as they will be removed and will be handed to SAPS	5C
Speed limits	Car accidents	Injuries and vehicle damage	Speed limits on the Central Boulevard and Elevated Road are 40km/h, exiting the road networks is 50km/h, Tower Road is 50km/h and Freight Road is 50km/h. Speed humps are installed along Tower Road and Freight Road to reduce speeding	3C
Deliveries	Elevated Road	Disrupt traffic flow and passenger movements	No trucks allowed, deliveries to be done via North or South Delivery Yards, delivery notes are required and delivery times are to be specified.	2C
Overhead works	Falling items	Injuries, vehicles, property damage	Fall protection plan required as per the Construction Regulations 2014.	5C
General housekeeping	Damage to escalators	Injuries, property damages	Escalators are not used to transport heavy items in the Parkade	4C

**UPGRADE OF AIRFIELD GROUND LIGHTING (AGL)
TO LED FITTINGS AT O.R. TAMBO INTERNATIONAL**