AIRPORTS COMPANY
SOUTH AFRICA

NEC3 Engineering & Construction Contract (NEC3 ECC)

Volume 2 - The Contract

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

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

for **CONTRACTOR APPOINTMENT FOR THE UPGRADE OF THE FIRE BOOSTER PUMP SYSTEM TO SANS COMPLIANCE AT GEORGE AIRPORT**

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

Part C1: Agreements & Contract Data

Contents:

C1.1 Form of Offer & Acceptance

Offer

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

VOL 2: CONTRACTOR APPOINTMENT FOR THE UPGRADE OF THE FIRE BOOSTER PUMP SYSTEM TO SANS COMPLIANCE AT GEORGE AIRPORT (NEC ECC3);

VOL 3: TERM SERVICE CONTRACT: FIRE BOOSTER PUMP SYSTEM MAINTENANCE FOR A PERIOD OF THREE (3) YEARS (NEC3 TSC).

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.

The offered total of the Volume 2 Prices exclusive of VAT is	**R**
The offered total of the Volume 3 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 witness .....

Date .....

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

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

Note:

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

No.	Subject	Details
1		
2		
3		
4		
5		
6		
7		

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

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

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

C1.2A ECC3 Contract Data

Part one - Data provided by the *Employer*

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

Clause	Statement	Data
1	**General**	
	The *conditions of contract* are the core clauses and the clauses for main Option	
		B: Priced contract with bill of quantities
	dispute resolution Option	**W1: Dispute resolution procedure**
	and secondary Options	
		X2 Changes in the law
		X7: Delay damages
		X13: Performance Bond
		X15: Limitation of *Contractor's* liability for design to reasonable skill and care
		X18: Limitation of liability
		Z: *Additional conditions of contract*
	of the NEC3 Engineering and Construction Contract, April 2013 (ECC3)	
10.1	The *Employer* is (Name):	**Airports Company South Africa SOC Limited (reg. no: 1993/004149/06), a juristic person incorporated in terms of the company laws of the Republic of South Africa**
	Address	**Registered office at Western Precinct, Aviation Park O.R. Tambo International Airport Kempton Park Johannesburg, 1632**
10.1	The *Project Manager* is: (Name)	**Tusk Construction Support Services (Pty) Ltd**
	Address	**Panorama House, Tygerberg Office Park 163 Uys Krige Drive Plattekloof 1, Cape Town 7500**
	Tel	**021 424 4586**
	e-mail	**robin@tuskcss.co.za**

10.1	The *Supervisor* is: (Name)	**Tusk Construction Support Services (Pty) Ltd**
	Address	**Panorama House, Tygerberg Office Park 163 Uys Krige Drive Plattekloof 1, Cape Town 7500**
	Tel No.	**021 424 4586**
	e-mail	**nemalen@tuskcss.co.za**
11.2(13)	The *works* are	**CONTRACTOR APPOINTMENT FOR THE UPGRADE OF THE FIRE BOOSTER PUMP SYSTEM TO SANS COMPLIANCE AT GEORGE AIRPORT, as more fully set out in section: Service Information.**
11.2(14)	The following matters will be included in the Risk Register	**1 Risk of financial loss and/or injury of 3rd parties due to the proximity of the service (or of persons providing the service) to all airport users 2 Risk of injury to contract personnel and airport personnel due to lifting/moving of heavy objects. 3 Work in confined spaces 4 Work with flammable and toxic gases 5 Availability and accuracy of As Built Information 6 Access to Site (Approvals and permits, police clearance required) 7 Weather 8 Unknown Services 9 Tie in with existing infrastructure 10 Security & guarantee approvals 11 Live Operational environment 12 Unavailability of fire booster pumps at any stage during the works. 13 Statutory approvals 14 Site constraints and constructability 15 Notification of compensation events and ACSA approvals 16 Limited project budget 17 Procurement of materials or sub-contractors 18 Refer to Annexures for more risks**
11.2(15)	The *boundaries of the site* are	**Fire pump fenced enclosure, the adjacent access road and the information desk at George Airport**
11.2(16)	The Site Information is in	**Part 4: Site Information**
11.2(19)	The Works Information is in	**Part 3: Scope of Work and all documents and drawings to which it makes reference.**
12.2	The *law of the contract* is the law of	**the Republic of South Africa**
13.1	The *language of this contract* is	**English**
13.3	The *period for reply* is	**1 week(s)**

2	**The *Contractor's* main responsibilities**	**Data required by this section of the core clauses is provided by the *Contractor* in Part 2 and terms in italics used in this section are identified elsewhere in this Contract Data.**
3	**Time**	
11.2(3)	The *completion date* for the whole of the *works* is	**6 months after Contract Date (contract award).**
30.1	The *access dates* are:	**Part of the Site** / **Date** **1 All** / **The Starting date**
31.1	The *Contractor* is to submit a first programme for acceptance within	**2 weeks after the Contract Date.**
31.2	The *starting date* is	**Estimated to be 4 weeks from Contract Date**
32.2	The *Contractor* submits revised programmes at intervals no longer than	**4 weeks.**
35.1	The *Employer* is not willing to take over the *works* before the Completion Date.	
4	**Testing and Defects**	
42.2	The *defects date* is	**52 consecutive weeks after Completion of the whole of the *works*.**
43.2	The *defect correction period* is	**4 weeks**
	except that the *defect correction period* for	**anything affecting functional use of the fire booster pumps is 2 weeks**
47	The Contractor submits a quality plan for acceptance within:	**2 weeks of the Contract Date.** (see works information for outline requirements)
5	**Payment**	
50.1	The *assessment interval* is	**between the 15th and 22nd day of each successive month.**
51.1	The *currency of this contract* is the	**South African Rand.**
51.2	The period within which payments are made is	**30 days from receipt of invoice and signed payment certificate.**
51.4	The *interest rate* is	**(i) 0.00 percent above the publicly quoted prime rate of interest (calculated on a 365 day year) charged from time to time by Nedbank Ltd; and** **(ii) the exchange rate published by the South African Reserve Bank from time to time for amounts due in other currencies.**
6	**Compensation events**	
60.1(13)	The place for recording weather is:	**George Airport**
	The *weather measurements* to be recorded for each calendar month are,	**the cumulative rainfall (mm)**

		the number of days with rainfall more than 10 mm **the number of days with minimum air temperature less than 0 degrees Celsius** **the number of days with snow lying at 09:00 hours South African Time**
	Weather measurements are supplied by:	**South African Weather Service**
	The *weather data* are the records of past *weather measurements* for each calendar month which were recorded at:	**George Airport**
	and which are available from:	**the South African Weather Bureau and included in Annexure A to this Contract Data provided by the South African Weather Service, Private Bag X097, Pretoria, 0001** **Email: info1@weathersa.co.za** **Tel:+27 82 233 8484**
60.1(13)	Assumed values for the ten year return *weather data* for each *weather measurement* for each calendar month are:	**As stated in Annexure C1.A to this Contract Data provided by the *Employer*.**
7	**Title**	**There is no reference to Contract Data in this section of the core clauses and terms in italics used in this section are identified elsewhere in this Contract Data.**
8	**Risks and insurance**	
80.1	These are additional *Employer*'s risks	**1. Refer to ACSA insurance clauses in Annexure D.**
81.1	The Contractor's Risk	**Add:** *Definition of Force Majeure -* *The following additional conditions must satisfied:* *(1) The Contractor has engaged with the persons responsible for the riot, commotion, disorder, strike or lockout; has met with the persons or leaders; and has recorded the persons or leaders details, their grievances, the organisations involved, all threats made; and has requested the persons or leaders to cease all unlawful conduct; and* *(2) The Contractor has obtained proof of the riot, commotion, disorder, strike or lockout, and of any unlawful conduct; and* *(3) The Contractor has reported all threats and unlawful conduct to the South African Police Service; and* *(4) The Contractor has brought an urgent application to the court on an ex parte basis that correctly identify the respondents and define the unlawful conduct to be interdicted; and* *(5) The Contractor has ensured that the court order is enforced.*

84.1	The *Employer* provides these insurances from the Insurance Table	**See Annexure C1.D to this Contract Data provided by the Employer.**
84.1	The *Employer* provides these additional insurances	**Refer to Insurance Schedule in Annexure C1.D**
84.1	The *Contractor* provides these additional insurances	**Refer to Insurance Schedule in Annexure C1.D**
84.2	The minimum limit of indemnity for insurance in respect of loss of or damage to property (except the *works*, Plant, Materials and Equipment) and liability for bodily injury to or death of a person (not an employee of the *Contractor*) caused by activity in connection with this contract for any one event is	**Whatever the *Contractor* deems necessary in addition to that provided by the *Employer*.**
84.2	The minimum limit of indemnity for insurance in respect of death of or bodily injury to employees of the *Contractor* arising out of and in the course of their employment in connection with this contract for any one event is	**As prescribed by the Compensation for Occupational Injuries and Diseases Act No. 130 of 1993 and the *Contractor's* common law liability for people falling outside the scope of the Act with a limit of Indemnity of not less than R500,000.00.**
9	**Termination**	**There is no reference to Contract Data in this section of the core clauses and terms in italics used in this section are identified elsewhere in this Contract Data.**
10	**Data for main Option clause**	
B	**Priced contract with bill of quantities**	
60.6	The *method of measurement* is	**Standard Unit of Measurement published by ASAQS and amended as stated in Part C2.1, Pricing Assumptions.**
11	**Data for Option W1**	
W1.1	The *Adjudicator* is (Name)	**The person selected from the panel of adjudicators listed in Annexure C of this Contract Data (part C1.2a), by the party intending to refer a dispute to him.**
	Address	**[●]**
	Tel No.	**[●]**
	Fax No.	**[●]**
	e-mail	**[●]**
W1.2(3)	The *Adjudicator nominating body* is:	**The Chairman of the Johannesburg Society of Advocates, or his successor or his nominee.**
W1.4(2)	The *tribunal* is:	**Arbitration.**
W1.4(5)	The *arbitration procedure* is	**The latest edition of Rules for the Conduct of Arbitrations published by The Association of**

		Arbitrators (Southern Africa) or its successor body.
	The place where arbitration is to be held is	**In the city where the Site is located, within South Africa.**
	The person or organisation who will choose an arbitrator - if the Parties cannot agree a choice or - if the arbitration procedure does not state who selects an arbitrator, is	**the Chairman for the time being or his nominee of the Association of Arbitrators (Southern Africa) or its successor body.**
12	**Data for secondary Option clauses**	
X2	**Changes in the law**	**There is no reference to Contract Data in this Option and terms in italics are identified elsewhere in this Contract Data.**
X7	**Delay damages (but not if Option X5 is also used)**	
X7.1	Delay damages for Completion of the whole of the *works* are	**0.05% per day up to a limit of 10% of the contract value.**
X13	**Performance bond**	
X13.1	The amount of the performance bond is	**10% of the contract value**
X15	**Limitation of the *Contractor*'s liability for his design to reasonable skill & care**	**There is no reference to Contract Data in this Option and terms in italics are identified elsewhere in this Contract Data.**
X18	**Limitation of liability**	
X18.1	The *Contractor*'s liability to the *Employer* for indirect or consequential loss is limited to:	**Refer to insurance clauses in Annexure C1.D.**
X18.2	For any one event, the *Contractor*'s liability to the *Employer* for loss of or damage to the *Employer*'s property is limited to:	**Refer to insurance clauses in Annexure C1.D.**
X18.3	The *Contractor*'s liability for Defects due to his design which are not listed on the Defects Certificate is limited to	**As per professional indemnity clause in Annexure C1.D.**
X18.4	The *Contractor*'s total liability to the *Employer* for all matters arising under or in connection with this contract, other than excluded matters, is limited to:	**The total of the Prices other than for the additional excluded matters.** **The *Contractor's* total liability for the additional excluded matters is not limited.** **The additional excluded matters are amounts for which the *Contractor* is liable under this contract for** • **Defects due to his design which arise before the Defects Certificate is issued,**

		• **Defects due to manufacture and fabrication outside the Site,** • **loss of or damage to property (other than the *works*, Plant and Materials),** • **death of or injury to a person;** • **damage to third party property; and** • **infringement of an intellectual property right.**
X18.5	The *end of liability date* is	**The date on which the liability in question prescribes in accordance with the Prescription Act No. 68 of 1969 (as amended or in terms of any replacement legislation) for any other matter.**
Z	**The *Additional conditions of contract* are**	**Z1 to Z24 below.**

AMENDMENTS TO THE CORE CLAUSES

Z1 Interpretation and 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 *Project Manager*, the *Supervisor*, or the *Adjudicator* does not constitute a waiver of rights, and does not give rise to an estoppel unless the Parties agree otherwise and confirm such agreement in writing.

Z1.2 **Add the following as a new core clause 12.5:**

Z1.2.1 In this contract:

Z1.2.1.1 references to any Party to the Contract include its successors or permitted assigns;

Z1.2.1.2 references to the Contractor include the obligations of its personnel;

Z1.2.1.3 the references to the provisions of any law include such provisions as amended, re-enacted or consolidated from time to time in so far as such amendment, re-enactment or consolidation applies or is capable of applying to any works under this Contract;

Z1.2.1.4 references to this Contract and any deed, Contract or instrument are deemed to include references to this Contract or such other deed, agreement or instrument as amended, novated, supplemented, varied or replaced from time to time;

Z1.2.1.5 references to a "person" include a natural person, company or any other artificial person or other corporate entity, a charity, trust, partnership, joint venture, syndicate, or any other association of persons;

Z1.2.1.6 references to “month” means a calendar month;

Z1.2.1.7 headings are for convenience only and are not taken into consideration in the interpretation of the Contract;

Z1.2.1.8 where any number of days is prescribed, those days are reckoned exclusively of the first and inclusively of the last day unless the last day falls on a day that is not a working day, in which event the last day is the next succeeding working day;

Z1.2.1.9 any provision in Contract that is or may become illegal, invalid or unenforceable in any jurisdiction is ineffective to the extent of such prohibition or unenforceability in such jurisdiction and is treated as severed from the balance of Contract in such jurisdiction, without invalidating the remaining provisions of Contract in such jurisdiction or affecting it in any other jurisdiction;

Z1.2.1.10 references to any amount means that amount exclusive of VAT, unless the amount expressly includes VAT;

Z1.2.1.11 the rule of construction that if general words or terms are used in association with specific words or terms that are a species of a particular genus or class, the meaning of the general words or terms shall be restricted to that same class shall not apply, and whenever the word "including" is used followed by specific examples, such examples shall not be interpreted so as to limit the meaning of any word or term to the same genus or class as the examples given;

Z1.2.1.12 the rule of construction that the Contract is interpreted against or to the disadvantage of the party responsible for the drafting or preparation of Contract does not apply;

Z1.2.1.13 words and abbreviations that have well known technical or trade meanings are used in the Contract in accordance with such recognized meanings;

Z1.2.1.14 references to a "*subsidiary*" or a "*holding company*" is references to a direct or indirect subsidiary or holding company as defined in the law of the jurisdiction of the place of incorporation of the company that has a subsidiary or holding company and "affiliate" is any company that is under common control with such subsidiary or holding company;

Z1.2.1.15 time is of the essence in the performance of the parties' respective obligations.

Z2 **The Project Manager and Supervisor: add the following at the end of core clause 14.2:**

Z2.1 The Project Manager and the Supervisor may take an action which they have delegated.

Z3 **Early Warning: add the following at the end of core clause 16.2:**

Z3.1 The Contractor ensures that a subcontractor attends risk reduction meeting if its attendance would assist in deciding the actions to be taken.

Z4 **Providing the Works: Delete core clause 20.1 and replace with the following:**

Z4.1 The *Contractor* 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 as stated in the Works Information, and if no such purposes is stated, the ordinary purpose of the Works.

Z5 **Subcontracting:**

Z5.1 **The following clause is added as a new core clause 26.4:** "Within 5 days of request by the *Project Manager*, the Contractor provides proof to the *Project Manager* that the Contractor's payment obligations towards its Subcontractors have been discharged. Failure by the Contractor to provide such proof to the satisfaction of the *Project Manager* entitles the *Employer* to instruct the *Project Manager* to certify payment directly to any such Subcontractor and the *Contractor* shall have no recourse to recover such amounts from the *Employer*. Such direct payment do not create privity of contract between the Employer and such Subcontractor. The *Employer* may recover such direct payment from the *Contractor*."

Z6 **Other responsibilities: add the following at the end of core clause 27:**

Z6.1 The *Contractor* has 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.

Z6.2 The *Contractor* is responsible for the correct setting out of the *Works* in accordance with the original points, lines and levels stated in the *Works* Information or notified by the *Project Manager*, *Supervisor* or the *Employer*. Any errors in the positioning of the *Works* are rectified by the *Contractor* at the *Contractor's* own costs.

Z7 **Acceleration: add the following new provisions at the end of core clause 36:**

Z7.1 The Project Manager's reply is either:

Z7.1.1 A notification that the quotation is accepted, in which case, the *Project Manager* changes the Prices,

Completion Date and Key Dates and accepts the revised programme; or

Z7.1.2 A notification that the quotation is not accepted and that the Prices, Completion Date and Key Dates are not changed.

Z8 Extending the defects date: add the following as a new core clause 46:

Z8.1 If the *Employer* cannot use the *works* due to a Defect, which arises after Completion and before the *defects date*, the *defects date* is delayed by a period equal to that during which the *Employer*, due to a Defect, is unable to use the *works.*

Z8.2 If part of the *works* is replaced due to a Defect arising after Completion and before the *defects date*, the *defects date* for the part of the *works* which is replaced is delayed by a period equal to that between Completion and the date by when the part has been replaced.

Z8.3 The *Project Manager* notifies the *Contractor* of the change to a *defect date* when the delay occurs. The period between Completion and an extended *defects date* does not exceed twice the period between Completion and the *defects date* stated in the Contract Data.

Z9 Quality Management System: add the following as a new core clause 47:

Z9.1 The *Contractor* implements and maintains a quality management system with the requirements stated in the Works Information.

Z9.2 Within the period stated in the Contract Data, the *Contractor* provides the *Project Manager* with a quality plan for acceptance. A reason for not accepting the quality plan is that it does not allow for the *Contractor* to Provide the Works.

Z9.3 If any changes are made to the quality plan, the *Contractor* provides the *Project Manager* with the changes quality plan for acceptance.

Z9.4 The *Project Manager* may instruct the *Contractor* to correct a failure to comply with the quality plan. This instruction is not a compensation event.

Z10 Assessing the amount due:

Z10.1 Delete the second bullet point of core clause 50.1 and replace with the following: "within thirteen weeks of termination of this Contract"

Z11 Final assessment: add the following as a new core clause 53:

Z11.1 The *Project Manager* makes a final assessment and certifies final payment in accordance with the Contract. The final payment is made within four weeks of the assessment.

Z11.2 An assessment of the final amount due is conclusive evidence of the final amount due under or in connection with the Contract, unless a Party raises a dispute in relation to the assessment of the final amount due.

Z11.3 The assessment of the final amount due is changed to include any agreement the Parties reached and/or a decision of the Adjudicator which has not been referred to the tribunal within four weeks of that decision. The changed assessment becomes conclusive evidence of the final amount due under or in connection with the Contract.

Z12 Notifying compensation events:

Z12.1 Delete the last sentence in core clause 61.3 and replace with the following: "If the *Contractor* does not notify a compensation event within four weeks of becoming aware of the event, he is not entitled to a change in the Prices, the Completion date or a Key Date and the *Employer* is absolved from all liability in relation to such event."

Z13 Assessing compensation events:

Z13.1 **The following is added at the end of core clause 63.4:** "the *Contractor* shall only be entitled to changes to the Prices, the Completion Date and/or the Key Date if the compensation event affects the critical path."

Z14 **Termination**

Z14.1 **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 recue proceedings".

AMENDMENTS TO THE SECONDARY OPTION CLAUSES

Z15 **Changes in Law: Add the following clause to secondary option X2 as X2.2:**

Z15.1 A change in law is defined as:

Z15.1.1 the adoption, enactment, promulgation, coming into effect, repeal, amendment, reinterpretation, change in application or other modification after the Contract Date of any law, excluding (i) the enactment of any bill inside the country, but only if such bill is enacted without any material changes being made to the contents of such bill from the form published in the Gazette (as defined in the Interpretation Act, 1957) as at the Contract Date, and (ii) any such modification in law relating to any taxes, charges, imposts, duties, levies or deductions that are assessed in relation to a person's income

Z15.1.2 any permit being terminated, withdrawn, amended, modified or replaced, other than (i) in accordance with the terms upon which it was originally granted, (ii) as a result of the failure by the *Contractor* to comply with any condition set out therein, or (iii) as a result of any act or omission of the *Contractor*, any Subcontractor or any affiliate to the *Contractor*.

Z16. **Delay damages: add the following to secondary Option X7 (if applicable in this contract)**

Z16.1 If the amount due for the *Contractor*'s payment of delay damages reaches the limits stated in this Contract Data for Option X7, the *Employer* may, at its sole discretion, terminate the *Contractor*'s obligation to Provide the Works.

Z16.2 If the *Employer* terminates in terms of this clause, the procedures and payment on termination as those applied for reasons R1 to R15 or R18 stated in the Termination Table

Z17 **Performance Bond**

Z17.1 **Amend the first sentence of clause X13.1 to read as follows:** The *Contractor* gives the *Employer* an unconditional, on-demand performance bond, provided by a bank or insurer which the *Project Manager* and the *Employer* have accepted, for the amount stated in the Contract Data and in the form set out in Annexure B of this Contract Data.

Z17.2 **Add the following new clause as Option X13.2:** The *Contractor ensures* that the performance bond is valid and enforceable until the end of the *contract period.* If the terms of the performance bond specify its expiry date and the end of the *contract period* does not coincide with such expiry date, four weeks prior to the said expiry date, the *Contractor* extends the validity of the performance bond until the end of the *contract period.* If the *Contractor* fails to so extend the validity of the performance bond, the *Employer* may claim the full amount of the performance bond and retain the proceeds as cash security

Z18 **Limitation of liability: Insert the following new clause as Option X18.6:**

Z18.1 The *Employer's* liability to the *Contractor* for the *Contractor's* indirect or consequential loss is limited to R0.00.

Z18.2 Notwithstanding any other clause in this contract, any proceeds received from the security bonds and guarantees provided by the *Contractor* in terms of this Contract and any insurances or any proceeds which would have been received from any insurances but for the conduct of the *Contractor* shall be excluded from the calculation of the limitations of liability listed in the contract.

ADDITIONAL Z CLAUSES

Z19 Cession, delegation and assignment

Z19.1 The *Contractor* shall not cede, delegate or assign any of its rights or obligations to any person without the written consent of the *Employer*, 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 *Contractor*.

Z19.2 The *Employer* may, on written notice to the *Contractor*, cede and delegate its rights and obligations under this contract to any person or entity.

Z20 Joint and several liability

Z20.1 If the *Contractor* 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 *Employer* for the performance of the Contract.

Z20.2 The *Contractor* shall, within 1 week of the Contract Date, notify the *Project Manager* and the *Employer* of the key person who has the authority to bind the *Contractor* on their behalf.

Z20.3 The *Contractor* 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 *Employer*.

Z21 Ethics

Z21.1 The *Contractor* undertakes:

Z21.1.1 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;

Z21.1.2 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 *Employer* is subject, including but not limited to the Prevention and Combating of Corrupt Activities Act, 12 of 2004.

Z21.2 The *Contractor*'s breach of this clause constitutes grounds for terminating the *Contractor*'s obligation to Provide the Works or taking any other action as appropriate against the *Contractor* (including civil or criminal action). However, lawful inducements and rewards shall not constitute grounds for termination.

Z21.3 If the *Contractor* 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 *Employer*, the *Employer* 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.

Z22 Confidentiality

Z22.1 All information obtained in terms of this contract or arising from the implementation of this contract shall be treated as confidential by the *Contractor* 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 *Project Manager* or the *Employer*, which consent shall not be unreasonably withheld.

Z22.2 If the *Contractor* is uncertain about whether any such information is confidential, it is to be regarded as such until otherwise notified by the *Project Manager*.

Z22.3 This undertaking shall not apply to –

Z22.3.1 Information disclosed to the employees of the *Contractor* for the purposes of the implementation of this agreement. The *Contractor* 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;

Z22.3.2 Information which the *Contractor* is required by law to disclose, provided that the *Contractor* notifies the *Employer* prior to disclosure so as to enable the *Employer* to take the appropriate action to protect such information. The *Contractor* 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;

Z22.3.3 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);

Z22.4 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*.

Z22.5 The *Contractor* ensures that all his Subcontractors abide by the undertakings in this clause.

Z23 Liens and Encumbrances

Z23.1 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

Z24 Intellectual Property

Z24.1 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.

Z24.2 IP rights remain vested in the originator and shall not be used for any reason whatsoever other than carrying out the *works.*

Z24.3 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.

Z24.4 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.

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 C1.A: One-in-ten-year-return *weather data* obtained from SA Weather Bureau for George Airport

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

	Weather measurement				
Month	Cumulative rainfall (mm) *	Number of days with rain more than 10mm *	Number of days with min air temp < 0 deg.C	Number of days with snow lying at 08:00 CAT	[Other measurements if applicable]
January	**79**	**2.3**	**0**	**0**	
February	**60**	**1.8**	**0**	**0**	
March	**49**	**3**	**0**	**0**	
April	**47**	**4**	**0**	**0**	
May	**27**	**2.5**	**0**	**0**	
June	**40**	**2**	**0**	**0**	
July	**43**	**3**	**0**	**0**	
August	**55**	**3.5**	**0**	**0**	
September	**61**	**3.5**	**0**	**0**	
October	**77**	**3.5**	**0**	**0**	
November	**75**	**3.5**	**0**	**0**	
December	**45**	**3**	**0**	**0**	

* Typical / notional values have been entered for tendering purposes, but the actual one-in-ten-year return statistical data has been requested from Weather SA and will be made available to all bidders if received before the close of queries or to the successful bidder upon award.

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

Annexure C1.B: Pro forma Security Bonds and Guarantee

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

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

Guarantor's reference No.

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]

Annexure C1.C: Panel of Adjudicators

One of the following adjudicators shall be selected by the referring party as and when a dispute arises. This panel is valid for a period of three years, commencing on 1 May 2020.

Potential Adjudicator	**Email Address**	**Chamber**
Adv. Mkhululi Duncan Stubbs	duncan.stubbs@gmail.com	Thulamela Chambers
Adv. Arzhar Bham SC	bhamae@law.co.za	Victoria Mxenge
Adv. Mohhamed Chohan SC	chohann@counsel.co.za	Group One
Adv. Benny Makola	benny.makola@gmail.com	Group 621
Adv. Vincent Maleka SC	ivmaleka@mweb.co.za	Thulamela Chambers
Adv. Chris Loxton SC	loxton@counsel.co.za	Group One

Annexure C1.D: ACSA Insurance Clauses

INSURANCE CLAUSES FOR CAPEX PROJECTS

The insurance clauses in this document should be extracted and attached to tender documents and to contracts.

SECTION A: DEFINITIONS

Landside refers to:

- 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.

Airside refers to:

- The Apron / manoeuvring 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

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

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 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.

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 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.

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.

C1.2B 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. Where a form field like this [ ] appears, data is required to be inserted relevant to the option selected. Click on the form field ***once*** and type in the data. Otherwise complete by hand and in ink.
4. The successful bidder shall purchase two hard copies of the NEC3 ECC 2013 contract and guidance notes and keep one copy for himself and provide the other to the employer.

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

Clause	Statement	Data
10.1	The *Contractor* is (Name): Address Tel No. Fax No.	
11.2(8)	The *direct fee percentage* is The *subcontracted fee percentage* is	**%** **%**
11.2(18)	The *working areas* are the Site and	
24.1	The *Contractor's* key persons are:	**As per CV's submitted in Tender Schedule entitled C7 unless otherwise agreed with the Project Manager.**
11.2(14)	The following matters will be included in the Risk Register by the contractor	
11.2(19)	The Works Information for the *Contractor*'s design is in:	
31.1	The programme identified in the Contract Data is	

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

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

PART C2: PRICING DATA

Document reference	Title	No of pages
C2.1	Pricing assumptions: Option B	3
C2.2	The *bill of quantities*	7

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 *bill of quantities* 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 *Contractor* has completed for each item in the Bill of Quantities multiplied by the rate and • a proportion of each lump sum which is the proportion of the work covered by the item which the *Contractor* has completed. Completed work is work without Defects which would either delay or be covered by immediately following work.
		(31) The Prices are the lump sums and the amounts obtained by multiplying the rates by the quantities for the items in the Bill of Quantities.

This confirms that Option B is a re-measurement contract and the bill comprises only items measured using quantities and rates or stated as lump sums. 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.

[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.

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 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 – Volume 2*

#	**PRICING SCHEDULE SUMMARY**	**SUM**
1	PRELIMINARY AND GENERAL	
2	FIRE PUMPS AND ANCILLARY INSTALLATION	
	CONTRACT SUB-TOTAL (EX VAT)	
	ADD 10% CONTINGENCY	
	CONTRACT TOTAL (EX VAT)	
	VAT AT 15%	
	TOTAL VOLUME 2 CONTRACT VALUE (INCL VAT)	

carried forward to Volume 2 - C1.1 Form of Offer & Acceptance

Schedule 1 - Preliminary and General

ITEM	DESCRIPTION	UNIT	QUANT.	RATE	TOTAL
	PRELIMINARY AND GENERAL				
1.1	**SECTION 1 PRELIMINARY AND GENERAL FIXED-CHARGE AND VALUE RELATED ITEMS**				
1.1.1	Allow for all clauses and Requirements in Contract Documentation	Sum	1		
1.1.2	Allow for costs involved in utilising the prescribed Conditions of contract including purchasing of two hard copies of the NEC3 ECC 2013 contract and guidance notes.	Sum	1		
1.1.3	Site Establishment Total price for the acquiring or leasing, maintenance of a construction site and erection of temporary accommodation for employees:				
1.1.3.1	Establish construction camp:	Sum	1		
1.1.3.2	Erection of accommodation for employees including ablution facilities	Sum	1		
1.1.3.3	Erection of secure storage facilities	Sum	1		
1.1.3.4	Water supplies, electric power and communications	Sum	1		
1.1.3.5	Transport	Sum	1		
1.1.3.6	Total price for the supply and maintenance and removal, on completion of the of work of all construction machinery which may be required for completion of the project	Sum	1		
1.1.3.7	The storing, guarding and protecting of all material and equipment	Sum	1		
1.1.3.8	Supply and installation of construction notice board.	Sum	1		
1.1.3.9	Removal of notice board from site upon final completion.	Sum	1		
1.1.4	Administration:				
1.1.4.1	Allow for requirements in clauses in Contract Documentation that are not separately scheduled in this price list.	Sum	1		
1.1.4.2	Site Administration	Sum	1		
1.1.5	General Costs:				
1.1.5.1	Setting out of the works and location of and protection of the existing services	Sum	1		
1.1.5.2	Prepare work program and manage throughout project	Sum	1		
1.1.5.3	Tidying up of site and removal of equipment, site establishment, rubbish,	Sum	1		
1.1.6	Permits for access to the airport including police clearance for all staff on the project.	Sum	1		
1.1.7	All personnel protective equipment including ACSA regulation safety vests for all staff going airside (reflective tape type)	Sum	1		
1.1.8	Any other fixed-charge obligations the tenderer deems necessary to complete the installation (please specify)	Sum	1		
1.2	**TIME RELATED ITEMS**				
1.2.1	General				
1.2.1.1	Contractual Requirements	Sum	1		
1.2.1.2	Operate and maintain the facilities on the Site for the duration of construction	Sum	1		
1.2.1.3	Supervision for the duration of construction	Sum	1		
1.2.1.4	Provision of Sureties and Guarantees	Sum	1		
1.2.1.5	Insurance of the works in accordance with the General Conditions of Contract	Sum	1		
1.2.1.6	Allow for health and safety requirements in accordance with the OHS Act	Sum	1		
1.2.2	Any other time-related obligations the tenderer deems necessary to complete the installation (please specify)	Sum	1		
Total for Schedule 1 - Preliminary and General (Carried over to summary page)					

Schedule 2 - Fire Pumps and Ancillary Installation

ITEM	DESCRIPTION	UNIT	QUANT.	RATE	TOTAL
	FIRE PUMPS AND ANCILLARY INSTALLATION				
2.1	**GENERAL BUILDER'S WORK**				
	Supply, deliver, rig into position, install and commission the following.				
2.1.1	Class B wooden double-leaf, single swing pump house entrance fire doors. 1920x2520mm timber frame. 2100mm high double leaf timber fire door with stainless steel hinges. Recessed mortise lock. Stainless steel handles. Heavy duty hasp and staple – padlock protector type. With heavy duty padlock and keys. Demountable 1920x400mm steel infill, split panel - notched for lifting beam.	Sum	1		
2.1.2	Sand and varnish existing timber louvres on north facing wall	No.	2		
2.1.3	Demolish existing pump plinths	No.	3		
2.1.4	Cast in situ reinforced concrete plinth with bevelled edge for diesel fire booster pump. 720Wx2050Lx100H (actual TBD on site)	No.	1		
2.1.5	Cast in situ reinforced concrete plinth with bevelled edge for electric fire booster pump. 800Wx1550Lx100H (actual TBD on site)	No.	1		
2.1.6	Cast in situ reinforced concrete plinth with bevelled edge for vertically mounted jockey pump. 300Wx300Lx100H (actual TBD on site)	No.	1		
2.1.7	Cast in situ reinforced concrete plinth with bevelled edge for domestic water booster pump set. 400x350x450 (actual TBD on site)	No.	1		
2.1.8	600Wx600Lx1800D brick-built manhole with cast base, weepholes, brick and mortar side walls and ductile iron cover.	No.	2		
2.2	**Paving rehabilitation**				
2.2.1	Temporarily remove paving (80mm, grey 200x100 to 35MPa Interlocking pavers) and carefully pack on site (do not pack near airside fence)	m^2	150		
2.2.2	Temporarily remove kerbing	m	75		
2.2.3	Remove bedding sand layer and cart away from site	m^2	150		
2.2.4	Rake base course to remove roots (if roots are present within this layer)	m^2	150		
2.2.5	Compact remaining soils to 98% Modified AASHTO density	m^2	150		
2.2.6	Imported 40mm of G5 type sub-base (CBR>45;PI<10), grade to required falls, moisten to optimum moisture content and compact to 98% Modified AASHTO density	m^3	6		
2.2.7	Reinstate bedding material with a suitable herbicide and anti-termite mix (existing bedding material can be used, must remove all signs/traces of vegetation, and mix with an approved herbicide – supplemented with imported bedding material where required)	m^3	6		
2.2.8	Re-lay existing pavers with butt joints on 50mm thick river sand bed with sand and cement mixture swept into joints and hosed down	m^2	150		
2.2.9	Relaying of existing kerbs	m	75		
2.3	**Waterproofing around perimeter of pump room building**				
2.3.1	Clear grass around perimeter of the pump room building (900mm wide strip)	m^2	15		
2.3.2	Strip the bottom 300mm of wall plaster	m^2	6		
2.3.3	Re-plaster with a powdered waterproofing admixture for mortar (Sikalite or similar)	m^2	6		
2.3.4	Apply appropriate undercoat and two coats of waterproof paint to match existing colour	m^2	62		
2.4	**Trenching and excavations**				
2.4.1	Excavate 800mm wide x 1000m deep trench	m^3	30		
2.4.2	Excavate by hand 800mm wide x 1000m deep trench	m^3	45		
2.4.3	Backfill with 200mm sifted sand, retained soil and compaction.	m	75		
2.4.4	Excavate to reveal buried valve clusters	m^3	20		
2.4.5	Backfill with 200mm sifted sand, retained soil and compaction.	m^3	20		
2.4.6	Reinstate asphalt	m^2	6.4		
Sub Total for Schedule 2 - Fire Pumps and Ancillary Installation (Carried over to next page)					

					Sch 2 - Fire Pumps and Ancillary Installation
ITEM	**DESCRIPTION**	**UNIT**	**QUANT.**	**RATE**	**TOTAL**
	Carried over from previous page				
2.5	**Support structure for sectional steel water tank**				
2.5.1	Excavate in earth to create reduced level (150mm below R.C. floor)	m^3	12.2		
2.5.2	Carting away of excavated material	m^3	8.1		
2.5.3	Compact underlying soils to 93% Modified AASHTO density	m^2	30.4		
2.5.4	Imported 150mm G5 type sub-base (CBR>45;PI<10), level and compact to 98% Modified AASHTO density.	m^3	4.6		
2.5.5	30MPA R.C. floor, 300mm thick. Bevelled top edges.	m^3	6.1		
2.5.6	High tensile steel reinforcement (60kg/m^3)	kg	284		
2.5.7	Formwork to edge of surface bed	m	14.4		
2.5.8	Joints in slab	m	8		
2.5.9	800mm R.C. concrete upstand beams (500mm above R.C. floor), 0.23m wide x 0.5m high. (dwarf walls with bevelled edges, complete with 80x3mm steel capping strips) (steel measured above)	m^3	2.3		
2.5.10	High tensile steel reinforcement (160kg/m^3)	kg	583		
2.5.11	Formwork to edge of dwarf walls	m	42.6		
2.6	Fit 200mmx80mm barge board to existing protruding roof beams.	m	6.5		
2.1.13	Once-off, annual test of pump room lifting beam. 220x200 I-beam.	sum	1		
2.7	**Fire Booster Pumps, controls, cables & ancillary equipment.**				
	Note rigging cost covered below.				
2.7.1	Install 1 off free-issue diesel pump set and free-issue exhaust and silencer.	Sum	1		
2.7.2	Provide diesel engine spares for first year of service, tools, ear protectors, wall cabinet	Sum	1		
2.7.3	Install 1 off free-issue electric pump set.	Sum	1		
2.7.4	Install 1 off free-issue jockey pump set.	Sum	1		
2.7.5	Install 1 off free-issue complete Auto-start Arrangement.	Sum	1		
2.7.6	Install 1 off free-issue combined diesel fire pump annunciator panel, 55kW electrical starter panel and jockey pump controller.	Sum	1		
2.7.7	Supply and install remote alarm panel to receive "Fire Pump Running" and “Fire Pump Room Fault” signals via GSM from the panel described above complete with SIM card module and 7Ahr backup battery	Sum	1		
2.7.8	Power cabling from control panel, equipotential bonding, control wiring and terminations of all the above equipment.	Sum	1		
2.7.9	Control signals from electric fire pump control to MDB. Contactors to non-essential MDB circuits to temporarily be dropped while electric fire pump starts. Signal to be made available to MDB.	Sum	1		
2.7.10	Supply and install a drip tray below the diesel engine.	No.	1		
2.8	**Fuel system**				
2.8.1	Install 1 off free-issue 190 litre, steel diesel fuel tank and bund tray.	Sum	1		
2.8.2	First fill of diesel (full at handover). Diesel for testing and commissioning must be included in commissioning priced item at the end of this Schedule.	L	180		
2.8.3	Cut 300x300mm hole in pump room wall and fit new lockable stainless steel access cover. For diesel delivery through wall hatch.	Sum	1		
2.8.4	22mm copper fuel drain pipe to outside for spill recovery from bund, including 22mm valve.	Sum	1		
2.8.5	No smoking sign mechanically fixed to door	No.	2		
2.9	**Rigging and transfer of free issue equipment from airside storage into position**	Sum	1		
2.9.1	New manufacturer's warranties for free-issue pumps and controls - see schedule 3, Opex BOQ)	Note			
Page Total (excluding carried over line)					
Sub Total for Schedule 2 - Fire Pumps and Ancillary Installation (Carried over to next page)					

					Sch 2 - Fire Pumps and Ancillary Installation
ITEM	**DESCRIPTION**	**UNIT**	**QUANT.**	**RATE**	**TOTAL**
	Carried over from previous page				
2.10	**Fire water pipework and fittings**				
2.10.1	All pipework external to the Pump Room shall be hot dipped galvanised after manufacture. Supply, installation and testing of the complete new piping system, including valves, bends, sockets, flanges, reducers, couplings, end caps, brackets and supports, as described in the technical specification and drawings.	Sum	1		
2.10.2	All pipework within the Pump Room shall be black steel and painted. Supply, installation and testing of the complete new piping system, including valves, bends, sockets, flanges, reducers, couplings, end caps, brackets and supports, as described in the technical specification and drawings.	Sum	1		
2.10.3	Paint touch ups	Sum	1		
2.10.4	200mm OS&Y gate valve	No.	Rate only		
2.10.5	160mm OS&Y gate valve	No.	Rate only		
2.11	**Domestic water installation**				
2.11.1	Compact domestic water booster pump set with integrated speed control, 5-way valve, expansion tank, pressure guage. 1.0L/s at 40m head.	No.	1		
2.11.2	40mm dia medium grade SABS 62 galvanised pipework up to filter station: Supply, installation and testing of the piping system, including valves, bends, sockets, flanges, reducers, couplings, end caps, brackets and supports, as described in the technical specification and drawings.	Sum	1		
2.11.3	42mm dia Copper pipework to SABS 460 Class 2 from filter station to Mains Water line across the service road from the pump room.: Supply, installation and testing of the piping system, including valves, bends, sockets, flanges, reducers, couplings, end caps, brackets and supports, as described in the technical specification and drawings.	Sum	1		
2.11.4	Run and standby filter station complete with isolating valves, 40mm dia pipework and fittings.	Sum	1		
2.12	**Existing reservoir**				
2.12.1	Allow for 250mm pipe freeze on the booster pump suction line to facilitate the cutting in and fitting of a 250mm isolating valve.	Sum	1		
2.12.2	New 150mm dia pilot operated level control inlet float valve.	No.	1		
2.12.3	600Wx600Lx1800D brick-built manhole complete with cast base, brick and mortar walls and cover for new suction line isolation valve	No.	1		
2.12.4	250mm gate valve on suction line, buried	No.	1		
2.13	**Level control system**				
2.13.1	Level control system incorporating Level Indication: 1] Reservoir Full; 2] Audible Alarm for low level domestic water; 3] Domestic water shut-off for fire reserve; 4] Reservoir empty. Soleniod valve control for isolating domestic water draw line for point 3].	Sum	1		
2.14	**Backup fire water tank**				
2.14.1	Rectangular sectional steel backup fire water tank (29 kL useable water volume, 43kL gross capacity) c/w cat ladder with hoop and top inspection manhole.	No.	1		
2.14.2	150mm dia pilot operated level control inlet float valve.	No.	1		
2.14.3	200mm Vortex inhibitor	No.	1		
2.15	**FIRE PROTECTION**				
2.15.1	**Fire Detection and Alarm System**				
2.15.1.1	Single-loop analogue addressable fire alarm panel with volt free contact to telemetry panel. Complete with backup battery.	No.	1		
2.15.1.2	Heat detector - rate of rise type	No.	1		
Page Total (excluding carried over line)					
Sub Total for Schedule 2 - Fire Pumps and Ancillary Installation (Carried over to next page)					

					Sch 2 - Fire Pumps and Ancillary Installation
ITEM	**DESCRIPTION**	**UNIT**	**QUANT.**	**RATE**	**TOTAL**
	Carried over from previous page				
2.15.2	**Extinguishers**				
2.15.2.1	9 kg dry powder wall hung extinguisher	No.	2		
2.15.2.2	Extinguisher wall bracket / backing board	No.	2		
2.15.2.3	Fire extinguisher signage, mechanically fixed to wall	No.	2		
2.16	**VENTILATION**				
2.16.1	Install 1 Off free-issue wall mounted Ventilation Fan & outdoor cowl	Sum	1		
2.16.2	New Ventilation Fan including moulded outdoor cowl. c/w electrical connections. Wall mounted Luft LMP300A to match existing. 500 L/s @ 50Pa)	Sum	1		
2.17	**ELECTRICAL**				
2.17.1	**100kVA oil filled Transformer**				
2.17.1.1	Oil sample and laboratory test by specialist	Sum	1		
2.17.1.2	Oil filtration if deemed necessary by the test	Sum	1		
2.17.2	New Main Distribution Board	Sum	1		
2.17.3	Reconnection of existing retained circuits including lighting circuit, socket circuit, 4C cable to Citilite billboard, power to telemetry panel,	Sum	1		
2.17.4	3.3 kV resin cast cable joint 3C 25sqmm	No.	Rate only		
2.17.5	Electrical strip-out items:				
2.17.5.1	Remove existing main DB once replacement DB is ready to install.	Sum	1		
2.17.5.2	Remove wiremesh trays to existing pumps and store for reuse	Sum	1		
2.17.5.3	Remove telemetry panel and antenna	Sum	1		
2.17.6	Wireways:				
2.17.6.1	40mm galvanised steel channel to support cable drops	m	12		
2.17.6.2	100mm medium duty wiremesh tray	m	20		
2.17.6.3	25mm PVC conduit with steel saddles for fire detection system - including bends, T's, glands, couplings, etc.. - surface mounted	m	12		
2.17.6.4	20mm PVC conduit - including bends, T's, glands, couplings, etc. - surface mounted	m	30		
2.17.6.5	Reinstate retained wiremesh trays	m	15		
2.17.7	Cable (excluding fire pump installation cabling lump sum above):				
2.17.7.1	50 mm^2 4C PVC/Cu cable	m	15		
2.17.7.2	4 mm^2 4C PVC/Cu cable	m	15		
2.17.7.3	2.5 mm^2 7C PVC/Cu cable - contactor control wiring	m	12		
2.17.7.4	50 mm^2 4C termination	No.	2		
2.17.7.5	4 mm^2 4C terminations	No.	2		
2.17.7.6	25 mm^2 bare Cu earth wire	m	15		
2.17.7.7	2.5 mm^2 bare Cu earth wire	m	15		
2.17.7.8	25 mm^2 bare Cu earth wire terminations	No.	2		
2.17.7.9	4 mm^2 house wire	m	100		
2.17.7.10	2.5 mm^2 house wire	m	80		
2.17.8	General Electrical:				
2.17.8.1	16A DP Isolators for fans	No.	2		
2.17.8.2	20A SP Isolator for fire alarm panel and remote alarm panel.	No.	2		
2.17.8.3	20A TPN motor rated isolator for domestic water pump	No.	1		
2.17.8.4	Surface mount wall box	No.	3		
2.17.8.5	Equipotential bonding to SANS 10142 requirements. Including domestic water pump.	Sum	1		
2.17.8.6	10W mains LED lamp for existing external lights	No.	2		
Page Total (excluding carried over line)					
Sub Total for Schedule 2 - Fire Pumps and Ancillary Installation (Carried over to next page)					

					Sch 2 - Fire Pumps and Ancillary Installation
ITEM	**DESCRIPTION**	**UNIT**	**QUANT.**	**RATE**	**TOTAL**
	Carried over from previous page				
2.18	**General**				
2.18.1	Approval of manufacturer's shop drawings for: Pipework, DB, tank, domestic water system and controls	Sum	1		
2.18.2	Testing and commissioning of complete works including same by the original supplier of the free-issue equipment	Sum	1		
2.18.3	As installed "drawings on commissioning of complete works"	Sum	1		
2.18.4	Inspection and handling over of the complete works	Sum	1		
2.18.5	Operation and maintenance manuals , Certificates of Compliance	Sum	1		
2.18.6	Client training. 1 hr session	Sum	2		
2.18.7	Average monthly maintenance as per OEM requirements on all new and retained equipment within the fire booster pump station for a period of 12 months (i.e. the defects period)	Sum per month	12		
Page Total (excluding carried over line)					
Total for Schedule 2 - Fire Pumps and Ancillary Installation (Carried over to summary page)					

C3 Works Information

C3.1 DESCRIPTION OF THE WORKS

1. EMPLOYER'S OBJECTIVES

The purpose of this project is to upgrade the existing fire booster pump station at George Airport.
An earlier project strove to upgrade the pump room to ASIB standards and as such some of the equipment was already procured and delivered to the airport as per the schedule of existing equipment in this document. The engineer and employer have agreed that this current project will upgrade the fire booster pump room to SANS requirements.
Currently the pump house contains two electric motor-driven pumps and a pressure maintaining jockey pump. These pumps will be removed from the pump house and handed over to the airport.
To facilitate a seamless transition between the construction and defects period and the further maintenance of the pump house, the tenderer must be capable of extending the maintenance of the pump house by a further 36 months after the defects period has lapsed. The tenderer will enter into a 36-month service level agreement for this extended maintenance period and is to be priced for in a separate tender and included as an annexure to this tender.
Tenderers must allow for all items, whether specified or not, which are required to complete the installation in a neat and workmanlike manner, according to the true intent of this document and the drawings.
A tender may be accepted in whole or in part with certain items being added, or in whole with the provision that certain items of work may be added or omitted up to a reasonable time before the completion date.

2. OVERVIEW OF THE WORKS

The goal for the pump house is to be a SANS and ICAO compliant pump house and pump assembly.
This project covers the manufacture, works testing, delivery to site, off-loading, erection, installation, and on-site testing of the following items:

- Removal and hand over to ACSA of existing pumps and piping within the existing pump house;
- Installation of already procured pumps and control gear within the existing pump house;
- Procurement of the balance of system that was not delivered to site under the previous project;
- The contractor shall price for all new pipework, fittings and valves within the pump room;
- The existing mechanical valves will be repurposed as far as practically possible through discussion with the engineer;
- Reuse of the existing concrete reservoir as a combined fire water and domestic water storage vessel;
- The fire water vs domestic water allocations will be reserved by means of an electronic water level control system;
- Provision of a separate, sectional steel backup fire water tank;
- A domestic water pump and filtration system will be installed;
- Modifications to existing buried pipework and valves. This would include the freezing of the Ø250 suction line pipe.
- New buried pipework.
- Builders' work in and around the pump room as outlined further below.

Existing equipment held in storage for installation as part of the project, all as supplied by Natal Fire Pumps:

- 1x electrical fire pump – Curo 65-250 / 55kW Electric Pump
- 1x diesel fire pump – Curo 80-400 / John Deere 4045T Diesel Fire Pump
- 1x diesel fire pump annunciator control panel – ASIB spec
- 3x diesel engine exhaust pieces including silencer
- 1x jockey fire pump – Lowara 35V13 Jockey Pump
- 1x fan – Luft LMP 300A Extractor Fan
- 1x Diesel Tank and bund tray – gross 196L, nett estimated 176L. This set includes a level sensor.
- 4 leg auto start arrangement (valves and pressure switches in a tiered arrangement)
- 1x battery stand
- 1x fan cowling

Condition of stored equipment:
The components are stored at the airside maintenance facility and are under roof cover and have not been used.

The ASIB control panel, jockey pump, fan and auto start arrangement legs are in the original packaging while the other items are exposed. The electric pump has no apparent defects. The diesel engine exhaust manifold has surface corrosion but is not considered out of the ordinary.
Both pumps and ancillary equipment will require recommissioning in order to confirm correct operation. New warrantees are required for the free-issue equipment. These two tasks are part of a separate pricing schedule as the client needs these to be appointed to the successful contractor, but from opex budget.

3. EXTENT OF THE WORKS

This project covers essentially the pump enclosure area, the extent is shown on drawing PS2014_2022-M-001. ACSA are responsible for all ongoing maintenance elsewhere.
Works beyond the enclosure include the installation of a non-return valve within a buried valve cluster across the adjacent service road, a new tie in onto the potable water main and work on the receiving end of the alarm systems (at the terminal building information desk).

C3.2 PROJECT TECHNICAL SPECIFICATION

1. GENERAL

This part of the specification deals with the main items of material and equipment which it will be the Fire Protection Contractor's responsibility to supply and install in accordance with this document and the drawings.
Sufficient information is provided in this document and on the drawings to enable the tenderer to accurately price the work. Tenderers must allow for all items, whether specified in detail or not and are required to complete the installation in a neat and workmanlike manner.

No casual labour (i.e. "off the street" labour) may be employed by the Contractor unless pre-arranged with the Employer. Whenever this is required, the Contractor shall come to a suitable arrangement with the Employer regarding sourcing and screening of such individuals.

2. PROJECT DESCRIPTION AND INSTALLATION

The work included in this contract includes the supply and installation of one diesel driven pump set, one 3 phase electric pump set and jockey pump, control panels, and all associated interconnecting pipework.
The Fire Protection Contractor shall supply and install a smoke detection system in the pump room.
Builder's work that will form part of this contract includes:

- Re-laying of ±150m² interlocking, shaped 80mm paver driveway from entrance gate to pump house. The pavers and bedding material are to be lifted and the base course is to be checked for weed and grass roots. This inspection will determine whether the base course is to be treated, re-laid and compacted.
- New Class B wooden double leaf, single swing pump house entrance fire doors.
- Plinths for the new fire booster pumps.
- Install missing roof edging (barge board).
- Waterproofing of exterior wall

A sectional steel water tank will be installed to act as the reserve fire water supply during maintenance of the main reservoir.
Coordination with the local municipality must occur before construction begins to ensure that no local maintenance to the water infrastructure will be done during the construction phase.
Construction should occur in the following order:
1. While the existing system is in operation/standby mode, install the sectional steel tank, and the necessary pipework
2. Alert the Fire Brigade to have a Fire Engine parked on site
3. Decommission the existing pumps
4. Delivery and off-loading of new pumps, piping, controls and supply air fans to the pump house
5. Installation of the new pumps
6. Connect the new suction line to the existing suction line
7. Fire Brigade will no longer be required
8. Install a water level control system in the existing reservoir
9. Commission the new pumps and level control system
10. Install the new domestic water pump set in the pump room with associated pipework
11. Construct the bund wall inside the pump room

12. Penetrations in pump room walls
13. Installation of new supply air fans
14. Removal and handover of existing pumps and piping to ACSA
15. Testing of the system

Commissioning will be done in a phased manner whereby each type of new or altered system is tested and proved before final overall commissioning. Client stakeholders will be invited to relevant commissioning or witnessing events.

3. DESIGN AND INSTALLATION STANDARDS

GOVERNMENT ACTS AND REGULATIONS

The Contractor shall be responsible for compliance of all works with Government acts, by-laws and regulations, including but not limited to the following (including all amendments):

- Occupational Health and Safety Act 85 of 1993
- Minerals Act 50 of 1991
- National Water Act 36 of 1998
- Atmospheric Pollution Prevention Act 45 of 1965
- Environmental Conservation Act 73 of 1989
- Promotion of Access to Information Act 2 of 2000
- National Road Traffic Act 93 of 1996
- National Environmental Management Act 107 of 1998
- National Building Regulations and Building Standards Act 103 of 1977
- Municipal by-laws and Regulations
- Regulations of the local Supply Authority.
- Local Fire Regulations.

South African Standards

The Contractor shall be responsible for compliance of all works with South African Standards, including but not limited to the following:

SOUTH AFRICAN STANDARDS

Code	Standard Title
SANS 23	Brazing alloys containing silver
SANS 62-1	Steel pipes Part 1: Steel pipes of NB not exceeding 150 mm
SANS 62-2	Steel pipes Part 2: Pipes and pipe fittings of nominal bore not exceeding 150 mm, made from steel pipe
SANS 121	Hot-dip (galvanised) zinc coatings (other than on continuously zinc-coated sheet and wire)
SANS 455	Covered electrodes for the manual arc welding of carbon and carbon manganese steels
SANS 460	Plain-ended solid drawn copper tubes for potable water
SANS 1067-2	Copper-based fittings for copper tubes Part 2: Capillary solder fittings
SANS 1091	National colour standards
SANS 1186-1	Symbolic safety signs Part 1: Standard signs and general requirements
SANS 1200 H	Standardized specification for civil engineering construction Section H: Structural steelwork
SANS 1200 HC	Standardized specification for civil engineering construction Section HC: Corrosion protection of structural steelwork

Code	Standard Title
SANS 1453	Copper tubes for medical gas and vacuum services
SANS 1700	Fasteners – All parts
SANS 3575	Continuous hot-dip zinc-coated carbon steel sheet of commercial, lock forming and drawing qualities
SANS 10044	Welding – All parts
SANS 10064	The preparation of steel surfaces for coating
SANS 10094	The use of high-strength friction-grip bolts
SANS 10103	The measurement and rating of environmental noise with respect to annoyance and to speech communication
SANS 10142	The wiring of premises Part 1: Low-voltage installations
SANS 10173	The installation, testing and balancing of air conditioning ductwork
SANS 10238	Welding and thermal cutting processes – Health and safety
SANS 10400	The application of the National Building Regulations (various parts)
SANS 12944-4	Paints and Varnishes – Corrosion protection of steel structures by protective paint system Part 4 - Types of surface and surface preparation
SANS 14713	The design, fabrication and inspection of articles for hot-dip galvanizing
SANS 50025	Hot rolled products of structural steels (various parts)

International Standards

The Contractor shall be responsible for compliance of all works with International Standards, including but not limited to the following:

INTERNATIONAL STANDARDS

Code	Standard Title
API 5L	Specification for line pipe.
ASTM F 1508	Standard specification for Angle Style, Pressure Relief Valves for Steam, Gas and Liquid Services
BS 21	Specification for pipe threads for tubes and fittings where pressure-tight joints are made on the threads
BS 476	Fire Tests on Building Materials and Structures
BS 848 Part 1 & 3	Fans for general purposes: Performance testing
BS 970	Specification for wrought steels for mechanical and allied engineering purposes
BS 1486	Lubricating nipples
BS 1821	Specification for class I oxy-acetylene welding of ferritic steel pipework for carrying fluids
BS 1856	General requirements for the metal-arc welding of mild steel
BS 2633	Specification for Class I arc welding for ferritic steel pipework for carrying fluids
BS 2640	Specification for Class II oxy-acetylene welding of carbon steel pipework for carrying fluids
BS 3601-22	Specification for carbon steel pipes and tubes with specified room temperature properties for pressure purposes.
BS 4504	Circular flanges for pipes, valves and fittings (PN designated) 3.1: Specification for steel flanges 3.3: Specification for copper alloy and composite flanges.
BS CP 3005 (1969)	Thermal Insulation of Pipework and Equipment
BS 5000-99	Machines for miscellaneous applications.
IP44	International Protection Marking to SANS 60529 / IEC 60529

Code	Standard Title
IP55	International Protection Marking to SANS 60529 / IEC 60529
ISO 1940	Mechanical vibration
ISO 2372	Mechanical vibration of machines with operating speeds from 10 to 200 rev/s
ISO 8501-1	Preparation of steel substrates before application of paints and related products – Visual assessment of surface cleanliness – Part 1

The tender must be based on the Engineer's design. Should any part of the completed installation not comply with SANS Requirements and thus not meet with the local authority's approval, the Fire Protection Contractor shall make good such defects free of charge, to the satisfaction of the Engineer and the local authority.
Where reference is made in this Document to the SANS Requirements, this shall be interpreted as referring to the relevant Clauses of:
SANS 10252-1 Water supply and drainage for buildings Pt 1: Water supply installations for buildings
SANS 10105-2 The use & control of fire-fighting equipment Pt 2: Fire hose reels and above-ground hydrants.
SANS 10400-O Lighting and Ventilation
SANS 10400-T Fire Protection
SANS 10400-W Fire installation

4. APPROVAL AND INSPECTION

In addition to obtaining approval from the Engineer, the entire installation shall also conform to the requirements of the National Building Regulations.
The Fire Protection Contractor shall be responsible for making all the necessary arrangements for the local authority inspections and shall pay all inspection fees and costs. Allowance for these fees and costs must be made in the tender.

5. PUMPING INSTALLATION

5.1 General

The pumping system will consist of one diesel driven pump set, one 3 phase electric motor driven pump set, both sized to handle the full design flow of water on their own. A jockey pump set, sized to maintain the system pressure under normal conditions, shall also be provided.
The make-up supply to the tank, all suction and delivery pipework, test pipework, engine cooling pipework, drains. etc, shall be supplied and installed by the Fire Protection Contractor.
The pump assembly shall include an automatic air release valve installed in the vertical position at the highest point in the system, which would be on the common Ø200 discharge header.

The following fittings, within the new sectional steel backup fire water and concrete reservoir tanks, associated with the suction, make up, test return, level controls etc. shall be supplied and installed by the Fire Protection Contractor:

- Tank inlet pilot operated float valve
- Suction anti-vortex inhibitor (only applicable to the new sectional steel water tank)
- Level indicator equipment

Also included are the diesel fuel supply system, engine and control batteries, a fully automatic control panel.
The Pump room shall be mechanically ventilated by the Fire Protection Contractor.
In addition to complying with SANS requirements, however, the installation shall be to the Engineer's approval, and the items Specified in the following paragraphs must be regarded as being additional to SANS requirements. The entire installation shall be neatly finished and shall conform to generally accepted good engineering practice. Particular attention shall be paid to the proper support of all pipework, and to the control and management of thrust loads.

The Contractor will respect OEM warrantees to the Employer always when procuring spare parts, products or 3rd party services. It will be the Contractor's sole responsibility to ensure that OEM warranty requirements are adhered to always.

Where Contractors use or quote on spare parts of a lower quality than recommended by the OEM, or parts not recommended by the OEM, this shall be clearly indicated to the Engineer on the quotation. This also implies that the Contractor must build relationships with the various key OEM's.

5.2 Fire Booster Pump Sets

The following pump sets were tendered in 2019 and delivered to the airport in July 2020. These must be recommissioned by the original supplier or manufacturer (Contact Natal Pump Services 031 701 3261):

5.2.1 Diesel Driven Set (1 off).

Diesel Engine: Type: Compression Ignition, turbo-charged
Power: To suit pump characteristics
Cooling System: Heat exchanger as per ASlB
Pump: End suction, centrifugal
Duty: 2500L/min at 800 kPa

5.2.2 Electric Motor Driven Pump (1 off).

Motor: Electric, continuously rated, standard protected splash proof
Motor Supply: Three phase, Four wire
Pump Type: End suction centrifugal
Duty: 2500L/min at 800 kPa

5.2.3 Jockey Pump (1 off).

Motor: Electric, continuously rated. standard protected splash proof
Motor Supply: Three phase four wire. VSD Controlled via pressure switch
Pump Type: Vertical in-line centrifugal
Duty: 40L/min at 800kPa

5.2.4 General Requirements

The diesel engine manufacturer must guarantee that the engine will accept full load within the specified time. A removable drip tray shall be provided under the diesel engine designed to catch any spillage or leakage from any part of the engine. If the tray cannot be removed, it shall be provided with a plugged drainpipe. A simple means shall be provided to drain oil from the engine.
For the purposes of engine de-rating, the following conditions may be assumed on site:

Altitude — Sea Level
Maximum ambient temperature: 35°C

All pump couplings shall meet the requirements of SANS 1808-2:2017 and be to the Engineer's approval.
The diesel engine exhaust pipe shall be lagged for its full length within the Pump Room and shall discharge to outside. A silencer is in storage and is to be installed. A flexible connection shall be provided between the engine and the exhaust pipe.
A minimum of two sets of approved ear protectors shall be included with the engine spares and tools. The spares, tools, drawings. service manuals. etc, shall be installed in a purpose made wall mounted cabinet of steel construction and lockable.
The cabinet shall be provided with all necessary shelves, pockets and brackets so that all items to be stored may be neatly and clearly housed.
Spares and tools shall include:

- 1 set of fuel filters
- 1 set of lubricating oil filters
- 1 set of air filters
- 1 set of V-belts
- 1 hydrometer
- 2 sets of ear protectors
- Lockable wall cabinet

The jockey pump control system shall incorporate an adjustable timer so that it will overrun for five minutes until it has brought the system up to pressure.
A bypass line fitted with a pressure relief valve must be provided, which would be connected into the common Ø200 discharge header and relieve into the Ø150 test water return line.

5.3 Pipework, Valves and Fittings

All pipework within the Pump Room shall be black steel. All pipework external to the building shall be hot dipped galvanised after manufacture.
Pipework up to 150mm diameter shall be SABS 62 medium/heavy grade and API 5L Schedule 40 for pipe sizes greater than 150mm diameter. Pipe fittings would be SABS 509 malleable screwed fittings for pipe sizes up to 50mm diameter, and ASTM A234 buttweld fittings for pipe sizes greater than 50mm diameter.
All pipe supports shall be of robust construction and for the Engineer's approval. All delivery and test pipework shall be properly anchored, particularly at each change in direction, to counter the effects of thrust.
All components of pipe supports shall be hot dipped galvanised.
All valves shall be supplied with chains and padlocks to secure them in the open or closed position. Padlocks shall be brass and must be master keyed.
Butterfly valves (of the geared, wheel operated type) shall be installed on the suction, delivery, test, and reservoir make up pipes. The suction stop valve on the pump inlet pipe shall be of the outside screw and yoke (OS&Y) gate valve type. All other valves shall be of the gate type except when they are required for flow regulating when Globe or Diaphragm valves are to be used.
All non-return vales shall be of a type which will minimize the effects of water hammer.
The water level in the reservoirs shall be controlled by a pilot operated level control inlet float valve. The pilot valves shall provide non-modulating, two position, on-off operation.

5.4 Fuel System

The fuel tank shall be fitted with a low level alarm, arranged to provide an audible and visual alarm on the main control panel when the fuel level drops below approximately one hour's run time.
The full tank shall be provided with a bunded area of sufficient capacity to hold the full volume of stored fuel plus 10%. A lockable stainless-steel hatch in the external wall shall be provided for filling purposes. The tank is to be filled with diesel at completion.

5.5 Control Panel Electrical Work

The Fire Protection Contractor shall supply and install the diesel pump controller and annunciator panel and separate jockey pump controller. The Fire Protection Contractor will connect the main electrical supply to the main isolator on the panel.
The Fire Protection Contractor shall supply and install the pump room ventilation fans together with circuit breakers and all wiring to supply the Pump Room ventilation fans.

6. WATER STORAGE TANKS

6.1 Existing concrete reservoir

The existing concrete water storage reservoir is to be retained. The dimensions of the reservoir were surveyed and recorded as follows:

- Bottom level 188.70m amsl
- Current water level 190.39m amsl
- u/s roof slab 190.96m amsl
- Top of roof slab 191.14m amsl
- Internal Diameter 10.97m
- Outer Diameter 11.52m

The gross capacity of the reservoir is therefore 213.6 kL and the current stored water capacity is currently approximately 160 kL.
The proposed levels are:

New design levels:	AMSL [m]	Height [m]	Vol [kL]	Subtotal
Headroom	190.96	0.35		
70% domestic bulk	190.61	0.86	81	116
30% domestic alarm	189.75	0.37	35	
50kL fire reserve	189.38	0.53	50	
Unusable	188.85	0.15	14	
Bottom	188.7	0		
			180	

A new piloted level control float valve is to be installed on the reservoir supply.
The current water level sensing system on the reservoir shall be replaced with a level control sensing system. An isolating gate valve shall be installed on the existing suction line to the pump room. A new brick walled manhole shall be built around the new valve and fitted with a ductile iron cover.
The domestic water booster pump will assist with water circulation through the reservoir. The regular fire and rescue team testing drills will also draw off water through airside hydrants.

6.2 Backup fire water tank
A sectional steel backup fire water tank, having a net usable volume of 29kL, is to be installed on concrete plinths within the fire pump / reservoir enclosure. A vortex inhibitor shall be installed within the sectional steel tank on the pump suction pipe and a pilot operated float valve shall be installed on the supply water inlet.
The sectional steel tank shall as a minimum consist of:

- Internal bracing consisting of angle iron welded to base plates, in line with the manufacturer's requirements for the particular dimensions of the tank.
- Base plates shall be bolted to tank panels
- Panels shall be jig assembled to ensure dimensional accuracy
- The tank roof panels shall be fixed to cold rolled lipped channel purlins supported by tubular posts.
- All nuts & bolts shall be of a high tensile grade
- All sealants and rubber components shall be non-toxic & non-tainting.
- All steel components shall be hot dip galvanised.

A 150mm diameter fill line for this tank shall be connected into the existing 150mm diameter pipe feeding the concrete reservoir. A second manhole will need to be built adjacent to the existing one to accommodate this new connection and an isolation valve shall be installed.

7. FIRE PROTECTION IN THE PUMP ROOM

The Pump Room shall be fitted with a fire detection and alarm system. The alarm panel shall be a single loop analogue addressable panel with backup battery. A rate-of-rise heat detector shall be mounted to the roof structure. Alarm and fault signals shall be relayed to the main airport fire alarm panel located at the information desk. The fire alarm panel shall have a GSM interface and be provided with a GSM receiver interface for installation at the terminal information desk. The ACSA project manager will apply for a SIM card and contract with SMS bundle from their service provider. The contractor shall install and commission the SIM card.
Two 9kg capacity dry chemical powder, hand fire extinguishers are to be wall mounted in the pump room. These shall be the SABS mark of approval and be fitted with service labels at the time of hand over.

8. MONITORING AND REMOTE ALARMS

The existing telemetry panel and antenna shall be removed and handed over to ACSA.
The new fire pump control panel that is in storage on site shall be installed and commissioned. It is an ASIB compliant annunciator panel with diesel pump controls, a 55kW electric motor starter and various other controls and signals. The panel has illuminated indication buttons, a lamp test button, audible alarm, mute and reset buttons.
The panel includes a GSM link. The new contract shall set the module up to SMS predetermined mobile numbers in the event of any fault within the pump house, including the operation of either diesel or main electric booster pumps. The ACSA project manager will apply for a SIM card and contract with data and SMS bundle from their service provider. The contractor shall install and commission the SIM card.
The new panel has full Ethernet capabilities on-board, with remote access via HTTP. Email notifications shall be set up as per GSM requirements.
All necessary software shall be sourced from the original supplier.
The control panel signals / indicators include:

- Fire pump panel system on
- Fire pump panel system fault
- Cell link maintenance
- Fire pump panel 220V AC mains / charger fail
- Fire pump panel battery fault
- Fire pump panel battery reverse polarity
- Fire pump panel battery disconnected

- Diesel pump fire
- 400V AC mains fail
- Diesel pump run
- Diesel pump fail
- Control circuit fail
- Battery charger1/2 fail
- Engine charger ½ fail
- High engine temperature
- Diesel tank low level
- Electric pump fire
- Electric pump run
- Electric pump fail
- Electric pump mains / control circuit fail
- Main reservoir water tank low level
- Pumphouse protection
- Jockey pump run
- Jockey pump trip
- PLC battery charger fail

The fire protection contractor shall supply and install a new remote alarm panel at the terminal building information desk that shall indicate "Pump Running" and “Pump Room Fault”. The communication shall be via a GSM unit. An electrical isolator shall be installed at the information desk.
The ACSA project manager will apply for a SIM card and contract with SMS bundle from their service provider. The contractor shall install and commission the SIM card.

9. DOMESTIC WATER BACKUP INSTALLATION

The airport terminal building loses municipal water pressure during load shedding. Part of the existing reservoir's capacity shall be put into use for boosted domestic water backup.
A domestic water feed in line shall be cut into the existing reservoir suction line, downstream of a new main isolation valve. The discharge side shall be connected back into the airport water mains across the service road from the pump room.
The Domestic Water Pump shall be of the compact booster type and be complete with an integrated speed controller to keep constant pressure in the pipe system. It shall also include a 5-way valve, expansion tank and pressure gauge.
The single phase IP55 pump motor shall incorporate thermal protection against slow overloading and blocking.
The Domestic Water Pump design shall be robust, with stainless steel pump housing and impeller, allowing for easy installation and have dry run protection.
Pump Duty: 1.0L/s at 40m Head.
The controller will be set to maintain a pressure marginally higher than the typical water main pressure to assist with water flow through the reservoir and prevent stagnation.
The contractor shall arrange for the municipal water mains pressure readings to be taken. Once during peak demand time and once out of peak time.

10. PUMP ROOM VENTILATION SYSTEM

Two ventilation fans shall be installed by the Fire Protection Contractor in the wall of the Pump Room. One fan has already been procured and will be free issued to the contractor. The additional fan shall be of the plate mounted axial type and shall be supplied with a motor side screen and external louvre as per Luft LMP 300A to match the existing unit.
The fans shall be automatically switched on/off by the starting/stopping of either the diesel or electric pump set, and shall be so arranged as to draw air out of the pump room. A volt free contact must be fitted in the control panel of the pumps.

11. UNDERGROUND PIPING

All existing underground pipework shall be re-used. Generally, underground pipes are manufactured of uPVC.
New buried pipework shall be installed for the backup fire water tank suction line and the domestic water outgoing supply line.

12. MAKE-UP WATER PIPING

Make up water piping shall be 150mm Ø galvanised steel as indicated on the drawings. Pipe support brackets shall be hot dipped galvanised and spaced as per the piping manufacturer's requirements.

13. PIPEWORK

All pipework shall comply with the following:
13.1 Pipes up to and including 100mm diameter shall be SANS 62, medium grade.
13.2 150mm diameter pipes shall be SANS 62 heavy grade.
13.3 Pipes greater than 150mm diameter shall be API 5L, Schedule 40.
13.4 Pipe Fittings up to and including 50mm diameter shall be malleable cast iron to SANS 509.
13.5 Pipe Fittings greater than 50mm diameter shall be buttweld fittings to ASTM A234.
NOTE: Inferior grade imported fittings will not be acceptable and the onus will be on the Fire Contractor to satisfy the Engineer as to the quality of imported fittings.
13.6 Generally, pipe fittings up to 50mm will be screwed and above 50mm shall be welded or flanged. All flanges shall be Table E of BS10: 1962 or SANS 1123: 2017 equivalent. Slip type couplings which require that the pipework is anchored against thrust will not be permitted. No other pipe jointing system will be considered unless full details are submitted with the TENDER and it is SABS approved for fire installations.
13.7 All pipes and fittings located outside the building, under canopies, etc. shall be galvanized.

14. PIPE SUPPORTS

The Fire Protection Contractor shall supply and fix all pipe supports. All pipe support components shall be manufactured from corrosion resistant materials, or shall be hot dipped galvanised, or shall be properly painted after installation.
Pipe support outside the building must be stainless steel or hot dipped galvanised steel.
Where pipe supports are fixed to structural steel, supports shall be clamped to the steel. No drilling of, or welding to structural steel will be permitted.

15. FLOW TEST ARRANGEMENT

There must be a test valve and pipe connection coupled to the pump delivery branch downstream of the non-return valves, including an approved orifice plate test arrangement to facilitate a flow and running pressure test on both pumps at any flow up to 7500 L/min.

16. INSPECTORS TEST VALVES

The Fire Protection Contractor shall supply and install test points similar and equal to the Binder Twinlok® Test Plug on the suction and discharge sides of each pump, as indicated on the schematic drawing.

17. SIGNAGE

Where required, emergency and information signage shall be in accordance with SANS 1186 and bear the SABS mark of approval.

18. PRESSURE TESTING OF SYSTEM PIPEWORK

The Fire Protection Contractor shall perform pressure tests as follows;

- Pressurize system to a minimum 600 kPa with air for 12 hours, ensuring all 'open' ends and fittings have been sufficiently sealed.
- Pressurize system to 1800 kPa with water and ensuring no pressure drop for a minimum period of 24 hours.
- All tests must be recorded and signed by the Fire Protection Contractor and witnessed by an Engineer's representative.

19. ELECTRICAL INSTALLATION

There is a 3300/400V transformer rated at 100 kVA situated outside the pump room. It was manufactured in 2010. The silica gel in the breather unit shall be replaced and the oil sampled for testing at a specialist laboratory. Oil filtration shall be undertaken if determined to be necessary.
The transformer is fed via 3.3kV reticulation from a step-up transformer in the main substation area which is backed up diesel driven LV generators.
The existing electrical distribution board in the pump room will be replaced with a new 400V wall mounted, main distribution board.

The existing incoming supply is a 50 mm² 4-core cable that will be retained.
Some non-essential supplies shall be fed via contactors so that overloading of the DB and transformer is avoided during the start-up period of the electrical fire booster pump. The supplies shall only be disconnected temporarily.
The non-essential supplies are:

- Domestic water booster pump
- Citilite billboard
- Second outgoing feed – tbd by George maintenance team (presumably the car rental parking lot lighting kiosk)

The new plantroom extract fans will be contactor controlled to run with either the electric or diesel fire booster pumps during fire mode and fire pump test mode. The contactors shall be of the normally closed type so that fail safe operation is for the fans to run. The fire pump control panel signal shall keep the contactors open during non-fire modes.

20. PAINTING OF FIRE WATER PIPES AND FITTINGS

The exposed components of the fire system shall be professionally painted as per the manufacturer's specifications. As a minimum this shall include degreasing, de-rusting and cleaning, followed by a primer, undercoat and two coats of gloss paint of an approved colour. The primer, undercoat and first final coat shall be applied before installation of the pipes. After installation any touching up (with primer and undercoat) must be done followed by the final gloss coat.
Re-used existing pipe and valve components shall be touched up with primer, undercoat and final coats as above.

21. BUILDERSWORK

21.1 Support Structures

Supporting structure for the new sectional steel tank:

- Prepare ground for support structure;
- The floor shall be cast on layer works:
  - Excavate to 400mm below grade and cart away material;
  - Retain some material for back-fill;
  - Compact underlying soil to 93% modified AASHTO;
  - Import 150mm of G5 type sub-base and compact to 98% modified AASHTO.
- Cast 300 mm, 30MPA reinforced concrete (R.C.) floor with formwork;
- The floor reinforcement shall be high-tensile steel (60 kg/m^3);
- Cast rows of parallel 230mm wide, 500mm high R.C. upstand beams (dwarf walls) with 80x3mm steel capping strips;
- The beam reinforcement shall be high-tensile steel (160 kg/m^3);
- The upstand beams shall be constructed with smooth finish formwork;
- All castings (floor and beams) shall have bevelled top edges.

Plinths for pumps:

- The existing concrete plinths in the pump room shall be broken down;
- Cast new R.C. plinths cast for the two new fire booster pumps, the fire jockey pump and the domestic water booster pump;
- Plinths shall be cast with top-level welded steel mesh;
- Residual damaged areas of flooring shall be repaired and painted.

21.2 Door

The double door shall be replaced with a new exterior grade timber fire door.

- New 1920x2520mm timber frame.
- 2100mm high double leaf timber fire door. Stainless steel hinges – three per side.
- Recessed mortise lock. Stainless steel handles.
- Heavy duty hasp and staple - padlock protector type or with padlock protection cover. Heavy duty padlock and keys.
- Demountable 1920x400mm (3mm) steel infill, split panel - notched for lifting beam. With drop-in square tube to hold the two parts in place.

21.3 Roof edging

New roof sheeting was done in 2019/2020. The southern elevation shall be fitted with a new barge board fixed into the protruding timber beams. The boards shall match the existing sides and be of the fibre cement composite type and be pre-drilled on site and installed according to the manufacturer's specifications.
The new boards shall be painted with undercoat and two coats of white PVC paint.
All existing boards on the side elevations of the building shall be cleaned and re-painted.

21.4 Paving

To address the weeds growing through the paving the following shall be undertaken:

- Remove and store the paving blocks and kerbing;
- Remove the bedding material and determine the extent of the roots;
- Rake roots out of base course (if roots are present within this layer);
- Compact remaining soil;
- Reinstate the base course to the desired levels and compaction to 98% MOD AASHTO (existing base course can be used, must remove all signs/traces of vegetation, and mix with an approved herbicide – supplemented with imported G5 material where required). Allow 40mm of fill;
- Reinstate bedding material with a suitable herbicide and anti-termite mix (existing bedding material can be used, must remove all signs/traces of vegetation, and mix with an approved herbicide and anti-termite mix – supplemented with imported bedding material);
- Reinstate paving blocks and kerbs to the designed levels and grade to allow for stormwater control;
- Wash with sand and cement mixture.

A separate pricing schedule is included for opex items. The contractor shall price for cement wash and brush of the paving surface 12 months after completion.

21.5 Wall treatment

To address low level damp on the internal walls of the pump room:

- Clear grass around perimeter of the pump room building (900mm wide strip)
- Strip the bottom 300mm of wall plaster
- Re-plaster with a powdered waterproofing admixture for mortar (Sikalite or similar)
- Apply appropriate undercoat and two coats of waterproof paint to match existing colour

21.6 Trenching and reinstatement

Trenching across the road for the domestic water works shall be supervised and proper compaction of the backfill shall be ensured.
Trenching in the vicinity of buried cables and pipes shall be done by hand with spades rather than mechanical digging plant.

21.7 Existing lifting beam

The existing lifting beam shall load bearing tested and a certificate provided for its annual safety testing.

22. OPERATING & MAINTENANCE MANUALS (O&M)

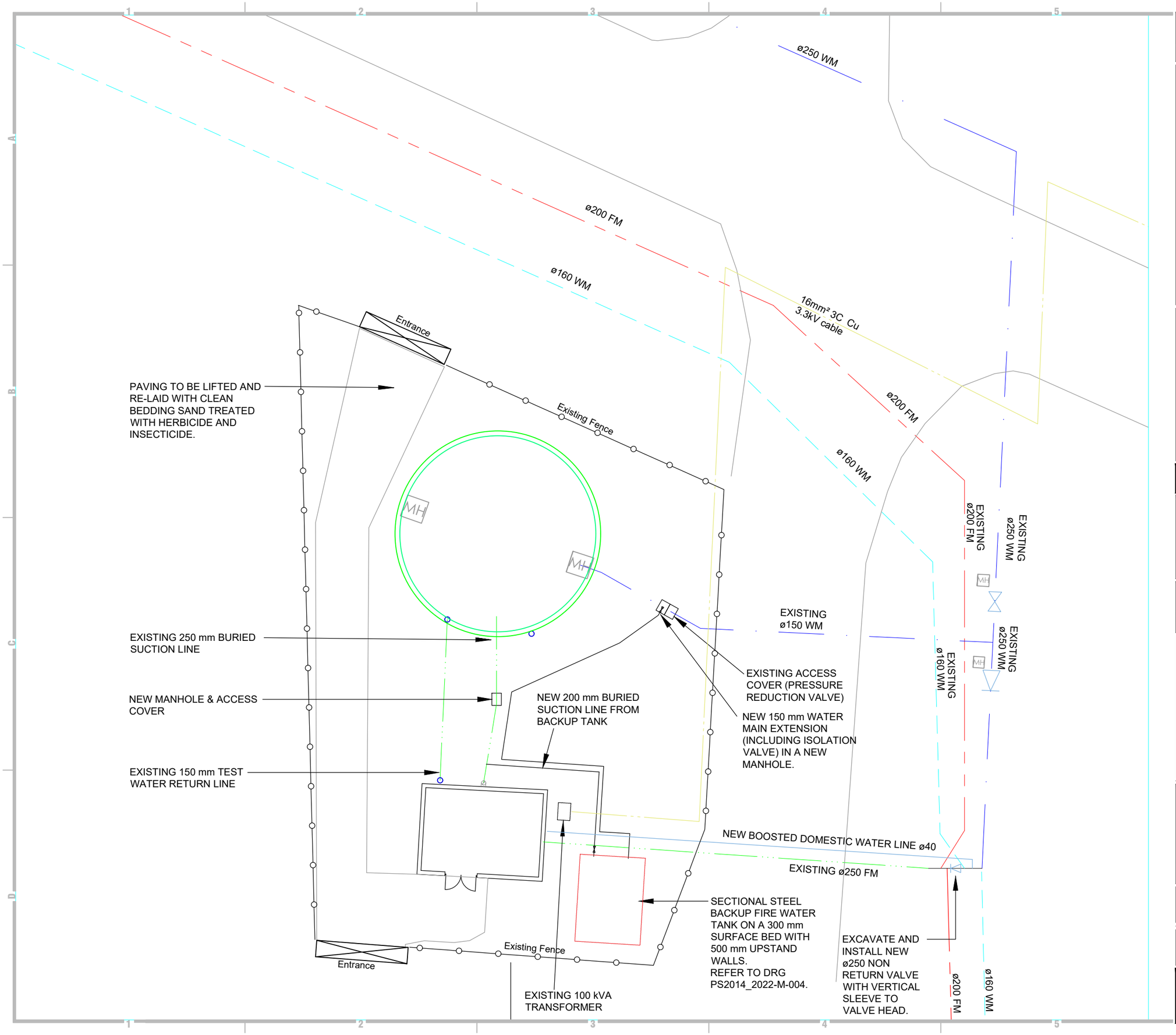
22.1 General

At practical completion, there is to be a formal handover of the pumps house to ACSA Local Maintenance Department. The defects period of 12 months commences at completion. The maintenance of the pump house during the defects period is to be included in this contract (Volume 2). After the defects period a further 36-month maintenance period will begin, which the tenderer is to price for separately. A new service level agreement will be entered into between ACSA and the tenderer for this 36-month maintenance period. This forms part of the Volume 3 forming part of this tender.
Three copies of the manuals described in this section shall be handed over as part of the final, formal handover procedures. As far as possible all documents shall be the original issued by suppliers etc. Three paper copies and one set on USB memory stick in AutoCAD format, of all as built drawings shall be included. Each volume shall be separately bound and clearly labelled.

22.2 O&M Manual Content

SECTION	DETAILS TO BE INCLUDED
Fire Protection System	Complete description of the fire protection system.
Guarantee / warrantee	Summary schedule of guarantee/warrantees comprising description, start date, duration and completion dates.
Guarantee / warrantee	All guarantee and/or warrantee certificates
Suppliers Literature	Original copies of supplies literature / catalogues
Operating Manuals	Complete system Operating Manual including process flow diagrams for troubleshooting for all system components.
Maintenance	Complete maintenance schedule for 48 months including process flow diagrams for maintenance on all system components.
Commissioning Data	All commissioning data and test certificates
Spare Parts	Schedule of recommended spare parts and schedule of suppliers
As Built Drawings	

C3.2. DRAWINGS



General Notes

A3

CLIENT APPROVAL	NAME:	SIGNATURE:
ENGINEERS APPROVAL	NAME: ANDREW DALLY	SIGNATURE:
DESIGNED BY	NAME: CHANEL SCHOEMAN	SIGNATURE:

rev:	description:	by:	date:
2	DRAFT FOR TPEC	AD	18/11/2022
1	FOR TENDER APPROVAL	AD	08/11/2022
0	FIRST ISSUE	AD	01/08/2022

TENDER

project:
UPGRADE OF THE FIRE BOOSTER PUMP STATION AT GEORGE AIRPORT

client ref no:
2852. BPA #: 7972

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MECHANICAL

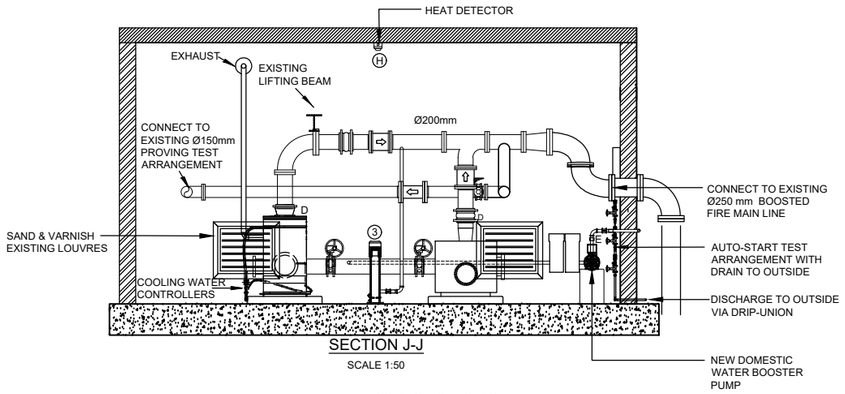
drawing title:
FIRE BOOSTER PUMP STATION OVERVIEW PLAN

discipline:	scale:	date:
M	1:200 @ A3	29/07/2022

design:	drawn:	checked:
C SCHOEMAN	C SCHOEMAN	AN DALLY ECSA 9170004

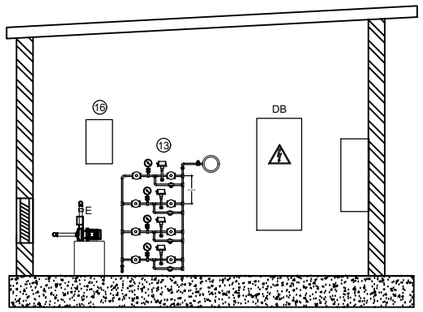
project:	dwg no:	rev:
PS2014 2022	M-001	2

EQUIPMENT SCHEDULE		
ITEM	DESCRIPTION	QTY
1	DIESEL DRIVEN FIRE PUMP SET (2500 l/min @800kPa)	1
2	ELECTRIC FIRE PUMP SET (2500 l/min @800kPa)	1
3	JOCKEY PUMP AND MOTOR (40 l/min @800kPa) (VSD CONTROLLED)	1
4	DOMESTIC WATER BOOSTER PUMP (1 l/s, 40m HEAD) WITH INTEGRATED SPEED CONTROL	1
5	DIESEL CONTROLLER	1
6	ELECTRIC CONTROLLER	1
7	JOCKEY CONTROLLER 1	1
8	RUN & STANDBY FILTER STATION	1
9	SKID BASE	2
10	D.B. BOARD	1
11	FUEL TANK	1
12	WALL MOUNTED EXTRACT AIR FAN COMPLETE WITH PLASTIC LOUVRE SHUTTER & WEATHER COWL (500l/s @50Pa) - ONE NEW, ONE FREE ISSUE FROM CLIENT	2
13	4 TIER AUTO STARTER ARRANGEMENT	1
14	EXISTING PRESSURE RELIEF VALVE	1
15	SINGLE LOOP ANALOGUE ADDRESSABLE FIRE ALARM PANEL	1
16	RESERVOIR LEVEL CONTROL PANEL	1



SECTION J-J

SCALE 1:50

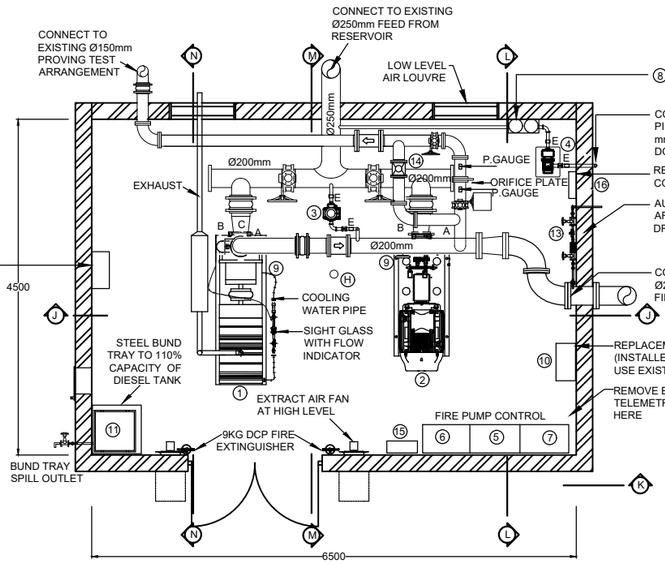


SECTION L-L

SCALE 1:50

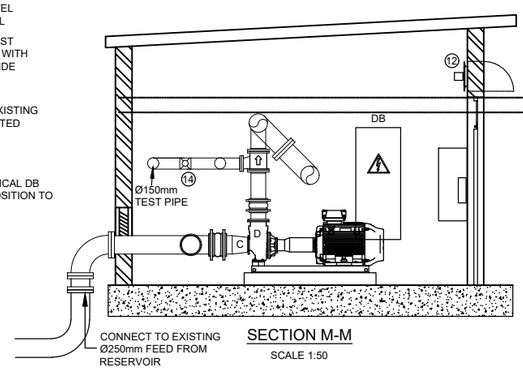
GAUGES LEGEND

A - SUCTION COMPOUND
B - DELIVERY PRESSURE GAUGE
C - ECCENTRIC SUCTION TAPER
D - CONCENTRIC DELIVERY TAPER
E - ISOLATING VALVE
F - PRESSURE GAUGE



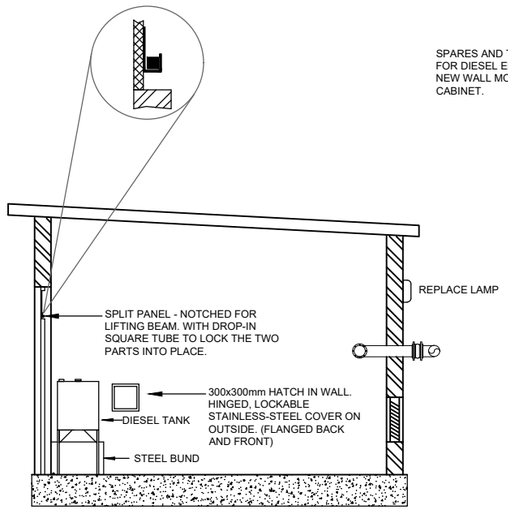
PLAN LAYOUT

SCALE 1:50



SECTION M-M

SCALE 1:50



SECTION N-N

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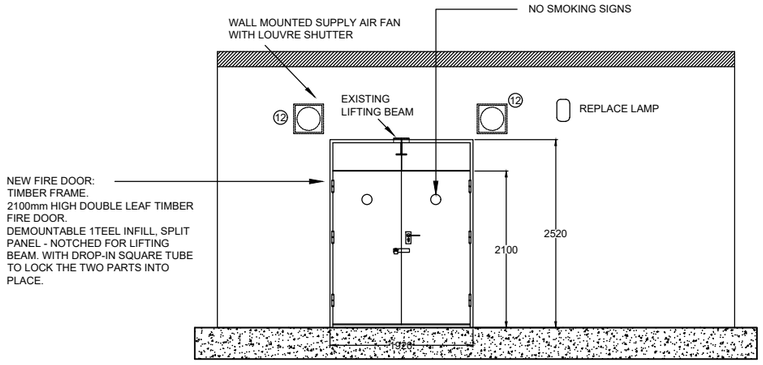


FRONT ELEVATION

SCALE 1:50

General Notes

A3

CLIENT APPROVAL	NAME:	SIGNATURE:
ENGINEERS APPROVAL	NAME: ANDREW DALLY	SIGNATURE:
DESIGNED BY	NAME: CHANEL SCHOEMAN	SIGNATURE:

rev:	description:	by:	date:
3	DRAFT FOR TPEC	AD	18/11/2022
2	FOR TENDER APPROVAL	AD	08/11/2022
1	UPDATED FOR DETAILED DESIGN REPORT REV	RS	11/08/2022
0	FIRST ISSUE	RS	01/08/2022

TENDER

project:
UPGRADE OF THE FIRE BOOSTER PUMP STATION AT GEORGE AIRPORT

client ref no:
2852. BPA #: 7972

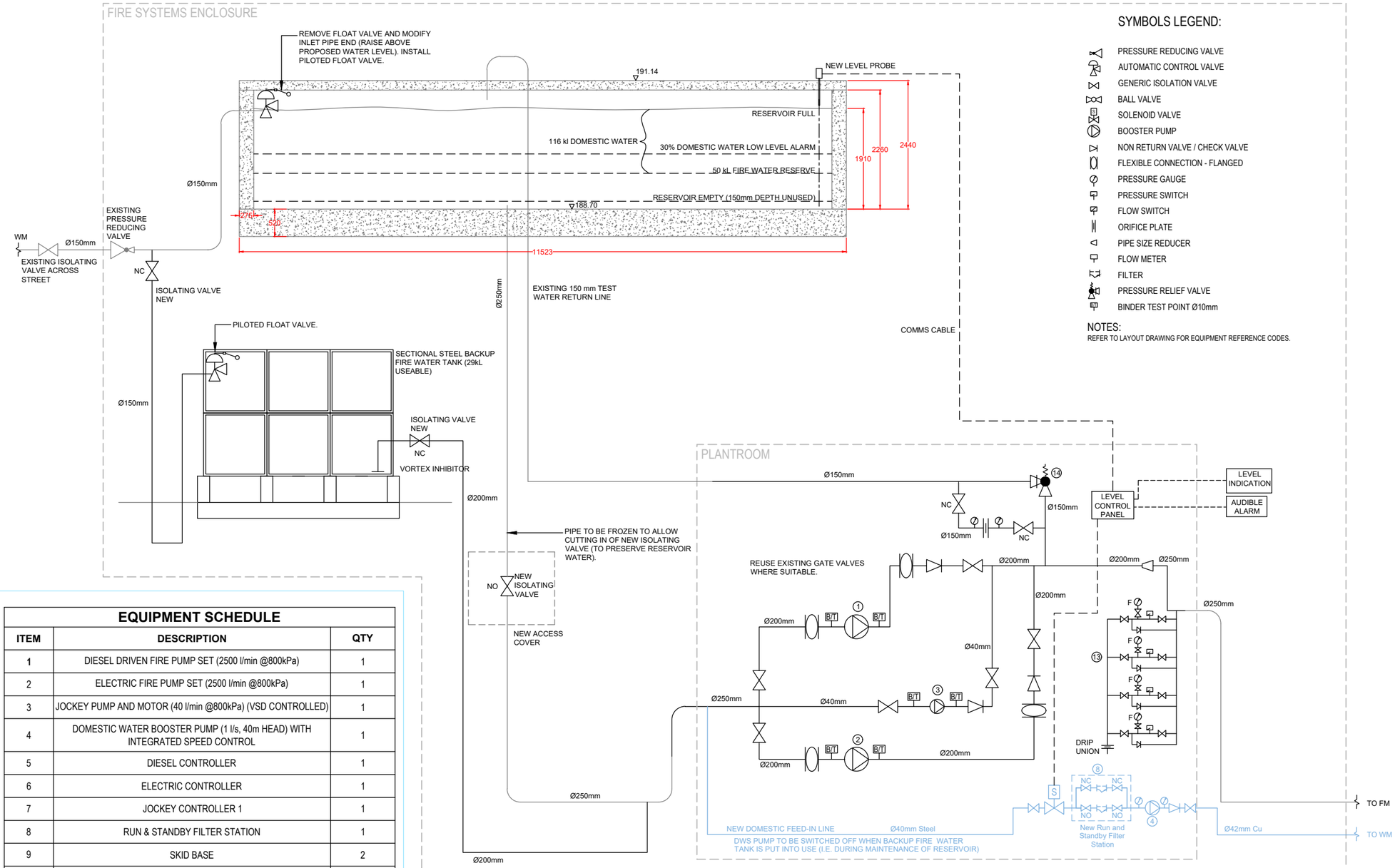
Tusk Construction Support Services
3 High Street
1st Floor
Rosenpark
Tygervalley
Bellville
Cape Town
Tel: +27 (0) 21 424 4586/23
www.tuskcss.co.za

MECHANICAL

drawing title:
FIRE BOOSTER PUMP STATION PLANTROOM LAYOUT & SECTIONS

discipline:	scale:	date:
C SCHOEMAN	C SCHOEMAN	AN DALLY ECSA 9170004
design:	drawn:	checked:

project:	dwg no:	rev:
PS2014 2022	M-002	3



SYMBOLS LEGEND:

- PRESSURE REDUCING VALVE
- AUTOMATIC CONTROL VALVE
- GENERIC ISOLATION VALVE
- BALL VALVE
- SOLENOID VALVE
- BOOSTER PUMP
- NON RETURN VALVE / CHECK VALVE
- FLEXIBLE CONNECTION - FLANGED
- PRESSURE GAUGE
- PRESSURE SWITCH
- FLOW SWITCH
- ORIFICE PLATE
- PIPE SIZE REDUCER
- FLOW METER
- FILTER
- PRESSURE RELIEF VALVE
- BINDER TEST POINT Ø10mm

NOTES:
REFER TO LAYOUT DRAWING FOR EQUIPMENT REFERENCE CODES.

EQUIPMENT SCHEDULE

ITEM	DESCRIPTION	QTY
1	DIESEL DRIVEN FIRE PUMP SET (2500 l/min @800kPa)	1
2	ELECTRIC FIRE PUMP SET (2500 l/min @800kPa)	1
3	JOCKEY PUMP AND MOTOR (40 l/min @800kPa) (VSD CONTROLLED)	1
4	DOMESTIC WATER BOOSTER PUMP (1 l/s, 40m HEAD) WITH INTEGRATED SPEED CONTROL	1
5	DIESEL CONTROLLER	1
6	ELECTRIC CONTROLLER	1
7	JOCKEY CONTROLLER 1	1
8	RUN & STANDBY FILTER STATION	1
9	SKID BASE	2
10	D.B. BOARD	1
11	FUEL TANK	1
12	WALL MOUNTED EXTRACT AIR FAN COMPLETE WITH PLASTIC LOUVRE SHUTTER & WEATHER COWL (500l/s @50Pa) - ONE NEW, ONE FREE ISSUE FROM CLIENT	2
13	4 TIER AUTO STARTER ARRANGEMENT	1
14	EXISTING PRESSURE RELIEF VALVE	1
15	SINGLE LOOP ANALOGUE ADDRESSABLE FIRE ALARM PANEL	1
16	RESERVOIR LEVEL CONTROL PANEL	1

General Notes

A3

	NAME:	SIGNATURE:
CLIENT APPROVAL		
ENGINEERS APPROVAL	NAME: ANDREW DALLY	
DESIGNED BY	NAME:	SIGNATURE:

rev:	description:	by:	date:
2	DRAFT FOR TPEC	AD	18/11/2022
1	FOR TENDER APPROVAL	AD	08/11/2022
0	COUNCIL ENQUIRY	AD	06/10/2022

TENDER

project:
UPGRADE OF THE FIRE BOOSTER PUMP STATION AT GEORGE AIRPORT

client ref no:
2852. BPA #: 7972

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MECHANICAL

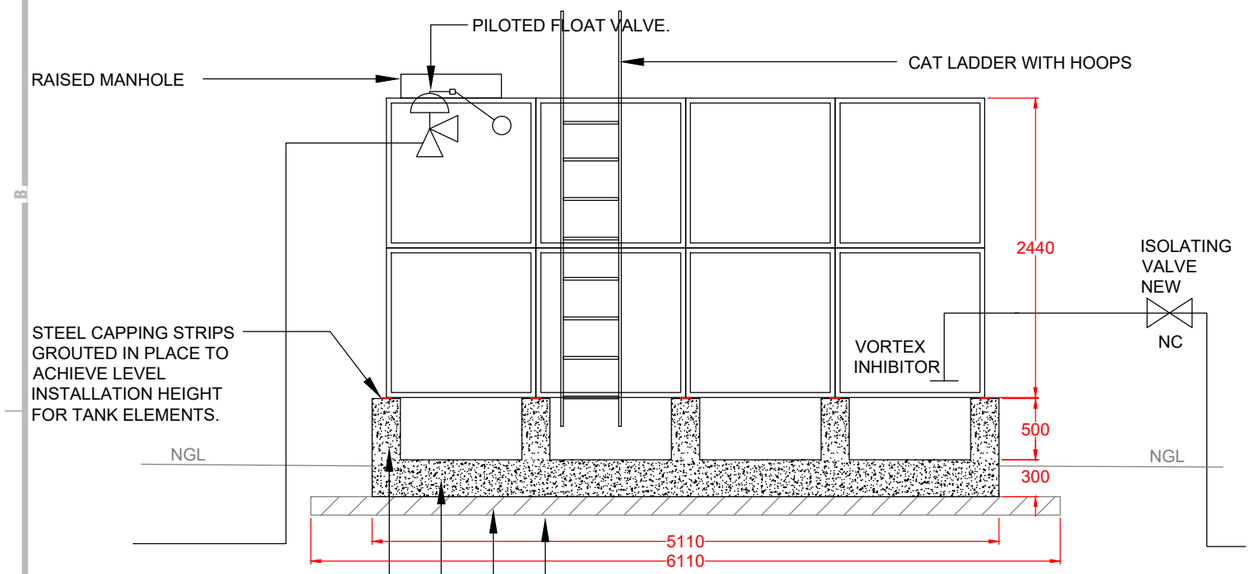
drawing title:
FIRE BOOSTER PUMP STATION PLANTROOM SCHEMATIC

discipline:	scale:	date:
M	NTS	01/08/2022

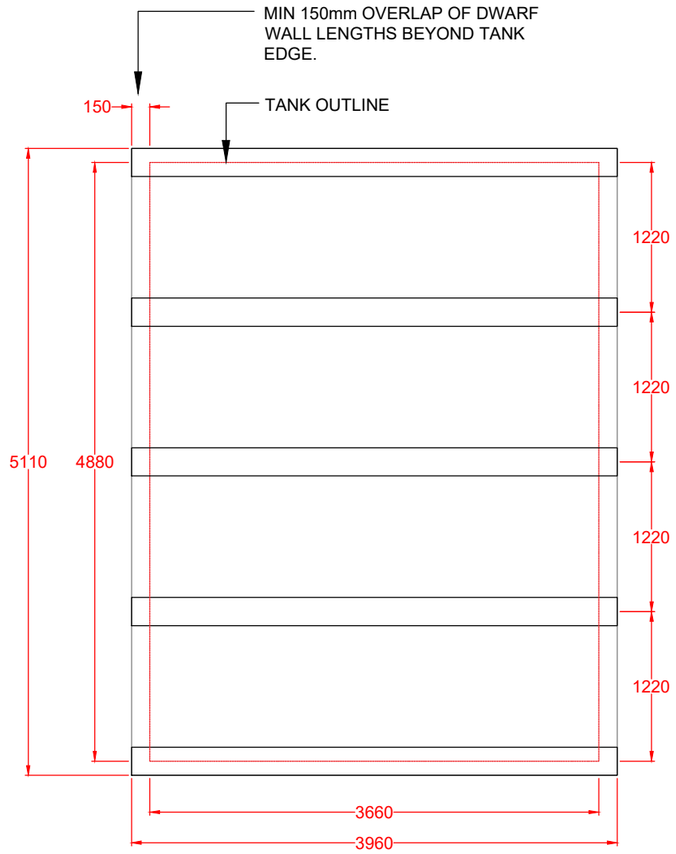
design:	drawn:	checked:
AN DALLY	E MOHLWINI	AN DALLY ECSA 9170004

project:	dwg no:	rev:
PS2014 2022	M-003	2

SECTIONAL STEEL BACKUP FIRE WATER TANK (29kL USEABLE)



ELEVATION
1:50



TANK SUPPORT BASE - PLAN - 1:50

General Notes

A3

	NAME:	SIGNATURE:
CLIENT APPROVAL		
ENGINEERS APPROVAL	NAME: ANDREW DALLY	SIGNATURE:
DESIGNED BY	NAME:	SIGNATURE:

rev:	description:	by:	date:
1	DRAFT FOR TPEC	AD	18/11/2022
0	COUNCIL ENQUIRY	AD	02/11/2022

COUNCIL SUBMISSION

project: **UPGRADE OF THE FIRE BOOSTER PUMP STATION AT GEORGE AIRPORT**

client ref no: **2852. BPA #: 7972**

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MECHANICAL

drawing title: **FIRE BOOSTER PUMP STATION BACKUP STEEL TANK DETAIL**

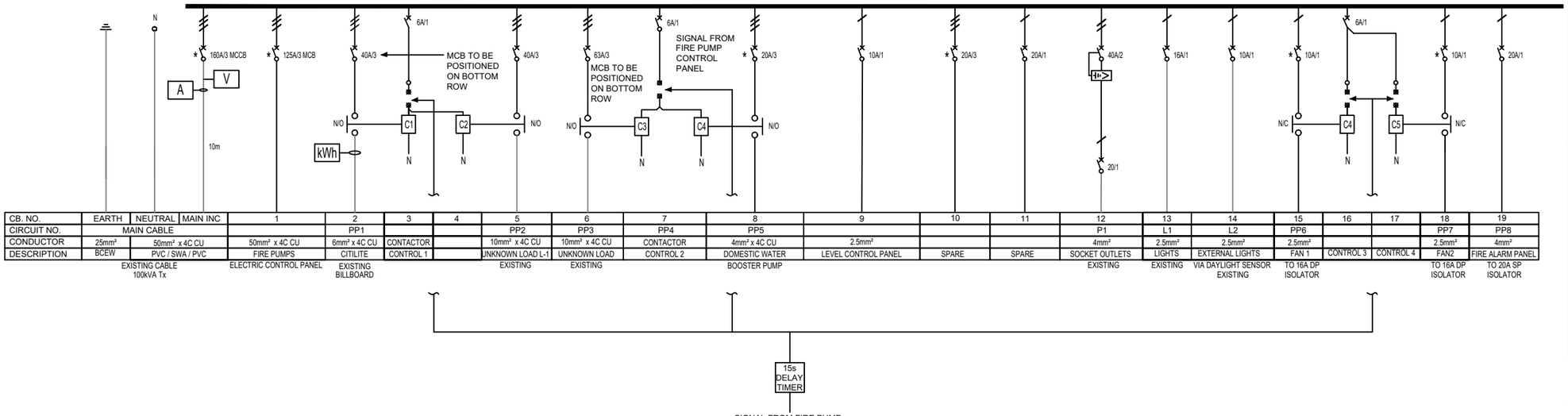
discipline:	scale:	date:
M	1:50 @ A3	01/11/2022

design:	drawn:	checked:
L REDDY	E MOHLWINI	M DU PLOOY

project:	dwg no:	rev:
PS2014 2022	M-004	1

General Notes — A3

NEW PUMP ROOM MDB



CB. NO.	EARTH	NEUTRAL	MAIN INC	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
CIRCUIT NO.	MAIN CABLE				PP1			PP2	PP3	PP4	PP5				P1	L1	L2	PP6			PP7	PP8
CONDUCTOR	25mm²	50mm² x 4C CU		50mm² x 4C CU	6mm² x 4C CU	CONTACTOR		10mm² x 4C CU	10mm² x 4C CU	CONTACTOR	4mm² x 4C CU	2.5mm²			4mm²	2.5mm²	2.5mm²	2.5mm²			2.5mm²	4mm²
DESCRIPTION	BCEW	PVC / SWA / PVC		FIRE PUMPS	CITILITE	CONTROL 1		UNKNOWN LOAD L-1	UNKNOWN LOAD	CONTROL 2	DOMESTIC WATER	LEVEL CONTROL PANEL	SPARE	SPARE	SOCKET OUTLETS	LIGHTS	EXTERNAL LIGHTS	FAN 1	CONTROL 3	CONTROL 4	FAN2	FIRE ALARM PANEL
	EXISTING CABLE 100kVA Tx			ELECTRIC CONTROL PANEL	EXISTING BILLBOARD			EXISTING	EXISTING		BOOSTER PUMP				EXISTING	EXISTING	VIA DAYLIGHT SENSOR EXISTING	TO 16A DP ISOLATOR			TO 16A DP ISOLATOR	TO 20A SP ISOLATOR

Note:
1. All DB components shown are new.
2. Existing feeds will be re-terminated.

DISTRIBUTION BOARD INFORMATION						
CONSTRUCTION		LIMITTING DIMENSIONS	SERVICE ACCESS	Front: *	Rear:	Both:
Recessed		Width:	ENTRY:	Top:	Bottom:	Side:
Semi-Recessed		Height:	Incoming:		*	
Surface	*	Depth:	Outgoing:		*	
Free Standing		COLOR SABS 1091	Busbar Rating:	Rating:	Rating (E)	Fault Level:
Floor Standing		Normal Section (N): N/A	Phase:	100%	100%	15kA
INNER PANEL HINGED		ESSENTIAL SECTION: RED	Busbar Neutral:		Half:	Full: *
Doors Lockable		UPS SECTION: N/A	Material Thickness	2mm	Labels	Black on White
Seperate Cubicles		-	ElectroGalvinised	*	MCCB	
Spare Space 20%		Voltage 400 Volt	Form (Type)			

NOTE: THE CONTACTORS SHALL BE SIMILAR OR EQUAL TO THE 'ABB' ESB/EN-RANGE (NOISE FREE) CONTACTORS

LEGEND

- ISOLATOR
- CIRCUIT BREAKER
- * INDICATES SLOW CURVE
- PHOTOCELL
- TIMECLOCK
- EARTH LEAKAGE
- EARTH LEAKAGE CIRCUIT BREAKER
- THREE PHASE SURGE PROTECTION TO SABS 0142 STANDARD
- kWh METER
- CIRCUIT BREAKER WITH RATED MOTOR OVERLOAD PROTECTION
- ANALOGUE AMMETERS PER PHASE WITH MAXIMUM CURRENT INDICATORS
- 240V OR 400V CONTACTOR
- VOLTMETER WITH SELECTOR FOR PHASE TO PHASE AND NEUTRAL

rev:	description:	by:	date:
2	DRAFT FOR TPEC	RS	18/11/2022
1	FOR TENDER APPROVAL	RS	08/11/2022
0	FIRST ISSUE	RS	01/08/2022

TENDER

project: **UPGRADE OF THE FIRE BOOSTER PUMP STATION AT GEORGE AIRPORT**

erf no:

Tusk Construction Support Services
3 High Street
1st Floor
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Tygervalley
Bellville
Cape Town
Tel: +27 (0) 21 424 4586/23
www.tuskcss.co.za

ELECTRICAL

drawing title: **FIRE BOOSTER PUMP STATION**

CLIENT APPROVAL	NAME:	SIGNATURE:
ENGINEERS APPROVAL	NAME: ROBIN STARKE	SIGNATURE:
DESIGNED BY	NAME: EDWARD MOHLWINI	SIGNATURE:

discipline:	scale:	date:
E	NTS: @ A3	29/07/2022

design:	drawn:	checked:
E MOLHWINI	E MOLHWINI	R STARKE ECSA 20130756

project:	dwg no:	rev:
PS2014 2022	E-EP-001	2

C3.3. MANAGEMENT

Management meetings
The Contractor will be expected to attend meetings relating to operations, contract management and other issues that may arise from time to time. As far as is practicable, the Contractor will make all required persons available for these meetings. The Contractor shall not submit claims for payment for staff attending any of these meetings. Fortnightly meetings are envisaged for periods where this are activities on site.

Monthly reports
When invoicing, the Contractor shall ensure that all required reports for the corresponding month are attached to the monthly invoice. This will include monthly reports on but not limited to:

1. Safety/Environmental or legislative issues and compliance
2. Outstanding maintenance/contractual issues

Health & Safety
The following areas in the company are declared as “HOT WORKS PERMIT” areas:

All airside areas

All basement areas

All areas accessible to the public

All enclosed areas

The terminal building

Any process in the above-mentioned areas involving open flames, sparks, or heat shall be authorised by the issue of a permit to work - obtainable from the ACSA Safety department. Any work done under the protection of a permit to work shall be in strict compliance with every prescription regarding the permit.

Safety equipment shall be used where applicable (e.g. safety, goggles, boots, harness, etc.) The Contractor, at his/her own expense shall provide such equipment, for his/her employees. The Contractor shall apply the necessary discipline and control to ensure compliance by his workers.

All Contractors must ensure that his/her employees are familiar with the existing emergency procedures and must co-operate in any drills or exercises, which might be held. Emergency / fire equipment and extinguishers shall not be obstructed at any time

No person shall perform an unsafe / unhygienic act or operation whilst on Company premises.

No unsafe/dangerous equipment or tools may be brought onto or used on Company premises. The Company reserves the right to inspect all equipment/tools at any time and to prevent/prohibit their use, without any penalty/low service damages to the Company and without affecting the terms of the Contract in any way.

The Company reserves the right to act in any way to ensure the safety/security of any persons, equipment or goods on its premises and will not be liable for any costs or loss evoked by the action. This includes the right to search all vehicles and persons entering, leaving or on the premises and to inspect any parcel, package, handbag and pockets. Persons who are not willing to permit such searches may not bring any such items or vehicles onto the premises.

The Contractor shall maintain good housekeeping standards in the area where he is working for the duration of the contract.

At no time, must the Contractor interfere with, or put at risk, the functionality of any Sprinklers and/or fire prevention system. Care must also be taken to prevent fire hazards.

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.

Protection of the public
The Contractor shall take special care in order not to harm or endanger the public in any way. Work shall be sufficiently hoarded and guarded to safeguard children and the general public from injury relating to machinery, work or other.

Contingency Measures
The contractor shall put in place contingency measures to ensure the continuous availability of fire hydrant water to the airport during all stages of the works.

Barricades and lighting
Where hoarding, barricades or lighting is required in the execution of the Works, the Contractor shall provide same at his/her own expense. Hoarding, barricades and lighting shall comply with industry accepted norms and standards and may not be used for purposes of advertising or any other purpose than safeguarding the Works.

Permits
The Contractor shall not be compensated for additional costs relating to the Employer's required permits, or for labour/time spent in obtaining it. An allowance must be made in the Activity Schedule in this regard.

The Contractor must ensure that he/she is, always, familiar with the Employer's safety and security requirements relating to permits for no work to be delayed as a result thereof. This will include the permit application process. All staff on the project will require police clearance as part of the permitting process and the successful contractor must immediately start the process of obtaining police clearance upon contract award.

Note that (within reason) the Contractor will have no claim against the Employer if a permit request is refused.

The following table is not all inclusive, but is provided for illustration purposes:

Permit (where applicable)	**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
Laptop permit	All persons taking lap top computers to airside	ACSA Security
Camera permit	All persons taking cameras or camera equipment to airside	ACSA Security
Hot Works Permit	All welding and/metal cutting work	ACSA Safety

As a minimum, the contractor is expected to need the following:

PERMIT PRICE LIST

EFFECTIVE NOV 2022

Estimated permitting needs for George Airport Fire Pump Room Project PERMIT TYPE	PRICE EX VAT	Collecting the free issue equipment from airside:	All workers in and around the fire pump enclosure	Pressure testing at airside hydrants	Total #	Cost
PERSONAL PERMITS						
PERMANENT PERMIT - 6 DAYS TO 2 YEARS	**R173.72**		10		**10**	**R1 737.20**
AVOP (PERMIT ONLY) see below for training	**R52.11**	0		1	**1**	**R52.11**
DAMAGED CARD RE-PRINT	**R104.23**				**0**	**R0.00**
UPGRADING CATEGORY	**R104.23**				**0**	**R0.00**
LOST PERSONAL PERMIT						
1ST LOST INCLUDING AVOP *	**R104.23**				**0**	**R0.00**
2ND LOST *	**R205.81**				**0**	**R0.00**
3RD LOST NO ISSUE		NO 3RD ISSUE ALLOWED				
*penalty does not include issue of new permit						
TEMPORARY PERSONAL PERMIT						
1 DAY	**R25.90**	3	5		**8**	**R207.20**
2 - 5 DAYS	**R33.52**		5	2	**7**	**R234.64**
PERMANENT VEHICLE PERMITS						
1 YEAR	**R869.36**				**0**	**R0.00**
1-3 MONTHS	**R217.15**				**0**	**R0.00**
4 - 6 MONTHS	**R428.97**				**0**	**R0.00**
6 - 12 MONTHS	**R869.36**				**0**	**R0.00**
CHANGE OF REGISTRATION	**R77.71**				**0**	**R0.00**
EDIT VEHICLE PERMIT	**R77.71**				**0**	**R0.00**
ADD ON PERMIT COSTS	**R3 888.13**	1		1	**2**	**R7 776.26**
TEMPORARY VEHICLE PERMIT						
1 DAY	**R31.23**	1			**1**	**R31.23**
2 DAYS	**R58.68**				**0**	**R0.00**
3 DAYS	**R86.10**			1	**1**	**R86.10**
LOST VEHICLE PERMIT	**R1 610.72**				**0**	**R0.00**
SAPS FINGERPRINT CRIMINAL CHECK	**R75.00**	1	10	1	**12**	**R900.00**
CELL PHONE PERMIT (1ST ISSUE AND RENEWAL FEE)	**R52.25**			1	**1**	**R52.25**
LOST CELL PHONE PERMIT FEE					**0**	**R0.00**
TRAINING						
AIRSIDE INDUCTION TRAINING - initial	**R596.00**		3		**3**	**R1 788.00**
AIRSIDE INDUCTION TRAINING - refresher	**R416.00**				**0**	**R0.00**
AIRPORT VEHICLE OPERATOR TRAINING - initial	**R570.00**	0		0	**0**	**R0.00**
AIRPORT VEHICLE OPERATOR TRAINING - refresher	**R416.00**				**0**	**R0.00**
				ex VAT		**R12 864.99**

Proof of having attended the airside induction training course is required for all airside 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.

For access into the pump enclosure via the outside access gate from the roadside, no Airside permits will be needed, but contractor permits. This will be a D category permit, and the requirements will be a SAPS fingerprint criminal clearance check and must be done with fingerprints taken and paid at SAPS not ACSA, and no AIT (Airside Induction Training) will be required. Should members have criminal records this will be assessed on the nature of the crime and how long ago by the local airport security committee, if rejected it can go to the appeal committee, once the appeal committee has taken a decision it will be final, and either a permit will be issued or denied.

For those require access into the airside, AIT and the criminal clearance check will have to be done, if they will be driving into the airside unescorted, they would also need to do AVOP (Apron Vehicle Operators Permit) and practical to drive on airside. If they will be escorted by maintenance and engineering, they don't need AVOP, as maintenance will take the lead and stay with the person while in airside. Collection of the pumps in storage will be under escort as well as commissioning testing.

All documentation for permits is available from the permit office on site, and the application for the links for training will be supplied, and we can guide you on how to complete the document, and the applying for the billing department for a invoice to be issued for the training only, and proof of payment will then release the online links to do the training, all permit fees is payable on site or a account number and reference can be supplied prior issuing of permits.

All permit fees can be paid on site with a bank card, the amounts will be easier to work out closer to the time, and all permanent permits does have the add on fee applicable.

Any clarity can be obtained directly from Stanley Jansen or Mbuyiselo Meke.

The below will also be the requirements to be able to load the contractor onto the APIS (Permit) system, to enable the issue of permits:

1. Avsec 1 Permit Document that need to be completed. (Authorised Signatory's For Permits)

2. Letter Head of good standing from SARS.

3. proof of insurance

4. Security Clearance of all employees must be submitted to the Permit Office not older than 3 months.

5. Air Side induction Training for all employees that will be performing duties on Airside and Apron Vehicle Operators for those who will be driving, applications must be submitted to HRSSCTraining@airports.co.za, application form attached, an invoice must also be requested and after payment, proof of payment must be submitted.

6. Tax Compliance Status.

7. Company Registration Certificate.

8. Broad-Based BEE Verification Certification.

Access

The Contractor must accept and respect the fact that the Airport is continuously undergoing construction and improvement and that a variety of stakeholders are involved in the Employer's business. Therefore, within reason and with prior arrangement with the Contractor, the Employer might require the following from time to time:

- Assisting with airport operations Re-scheduling of work to accommodate other contractors
- Pointing out services to consultants or other contractors
- Providing access to other contractors
- Attending co-ordination and planning meetings
- Removing rubble and/or equipment from site

Requirements for a quality plan

One of the deliverables for the successful bidder is to prepare and submit a quality plan prior to the start date.

Such a plan could include, but not be limited to, the requirements above plus cover the following concepts:

Outline Quality Plan

i. Introduction
A. Purpose of the Quality Plan
B. Overview of the Project
C. Responsibilities of Project Team Members
D. Quality Assurance/Quality Control (QA/QC) Process

Ensure that procedures are in place to manage:

ii. Project scope and ensuring that all workers understand their tasks
A. Project objectives and requirements
B. Project deliverables
C. Project schedule and budget
D. Project location, site conditions and clearly identified demarcation of works

iii. Quality control measures
A. Inspection and testing
B. Non-conformance and corrective action
C. Documentation and record keeping
D. Quality control inspections and audits

iv. Adherence to client requirements
A. Contractual obligations including permitting
B. Client communication and feedback
C. Management of changes to requirements
D. Client approvals and acceptance criteria

v. Safety and environmental protection guidelines
A. OHS guidelines and procedures
B. Hazard identification and risk assessment
C. Incident reporting and investigation
D. Emergency response
E. Personal protective equipment (PPE) requirements

vi. Implementation and monitoring
A. Quality management system
B. Quality control procedures
C. Quality record keeping

vii. Continuous improvement
A. Incident investigation including root cause analysis
B. Process improvement initiatives
C. Feedback and lessons learned
D. Continuous improvement plan

viii. Conclusion

C4 Site Information

Description

The bulk of the works are within the existing fire booster pump enclosure to the north of the terminal building at the George Regional Airport.
Works beyond the enclosure include the installation of a non-return valve within a buried valve cluster across the adjacent service road, a new tie in onto the potable water main and work on the receiving end of the alarm systems (at the terminal building information desk).

General Site Conditions

Temperature (Min - Max)	5ºC to 29ºC
Relative Humidity	40% to 100%
Wind	Predominantly from S and S-E
Height above Sea Level	190 m
Slope (Existing/Modified)	N/A
Seismic	N/A

C5 Annexures

Contents:		No of pages
Ann A	Risk Assessment	7
Ann B	Special requirements at an operational airport	5
Ann C	Contract forms from Volume 1 to be appended for awarded contract	tbc

ANNEX A

Risk assessment

Ref	The risk	Risk Owner	How can it happen? (Cause)	What can happen? (Effect)	Assessment Likely-hood	Assessment Impact	Risk	Implementation of existing controls	Control Owner	Does the Control Affect Impact or Likelihood	Effective-ness	Weight-ing	Residual likely-hood	Residual Impact	Residual Risk
2	Delay to Handover of Site to The Contractor	Project Manager	1. Engineers late approval of The Contractor's Programme, Cashflow and Quality Plan	The Contractor waits for handover of site, further delaying the start date of Construction.	3	3	High	The Engineer to be fully versed in ACSA/ICAO Standards to ensure swift review of The Contractor's Programme, Cashflow and Quality Plan	Project Manager	I	80.00%	25.00%	2	3	High
			2. The Contractor does not have an approved Programme, Cashflow or Quality Plan in line with ACSA Standards					The Contractor to be fully versed in ACSA/ICAO Standards to ensure acceptable standards are met	The Contractor	L	80.00%	25.00%			
			3. Delay to security & guarantee approvals, permits and police clearance					The Contractor to be fully versed in the contract	The Contractor	L	80.00%	25.00%			
			4. Delay to statutory approvals					The Contractor to be fully versed in the contract	The Contractor	L	80.00%	25.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
3	Delayed/Short Payment to The Contractor & to Labour on site	Project Manager	1. Late payment of payment certificates to the contractor	The Construction works can be disrupted due to local labour not working because they haven't been paid.	3	3	High	The Engineer to follow the approved programme from ACSA and ensure monthly reporting is done accurately and sent to the PM timeously	The Engineer	L	80.00%	20.00%	1	3	Low
			2. The Contractor is falling behind on his approved programme (less work, less pay)	Cash flow is not met				The Contractor to follow the approved programme from ACSA and ensure monthly reporting is done accurately and sent to the PM timeously	The Contractor	L	70.00%	20.00%			
			3. The Engineer has delayed the measurement of work done for payment to The Contractor	Payment certificate is delayed				The Client to ensure payments are made timeously to ensure that work runs smoothly	The Client	L	90.00%	20.00%			

			4. Delay in notification of compensation events and associated ACSA approvals 5. Inability to approve additional work	Not following administrative procedures Limited client budget				The Contractor to be fully versed in the contract to ensure timeous approvals	The Contractor	**L**	70.00%	20.00%			
								All to be fully versed in the contract to ensure timeous approvals	All	**L**	70.00%	20.00%			
											0.00%	0.00%			
											0.00%	0.00%			
4	Poor Standard of Construction Works	Project Manager	1. The Contractor not working to the acceptable standard 2. The Contractors sub-contractors not working to an acceptable standard	The reconstruction of poorly constructed works can take several months to rectify.	**3**	**3**	**High**	The Engineer to derive stop points for The Contractor based on the approved programme. This will define exactly when The Contractor should contract The Engineer for approval of the works to ensure swift execution of The Works	The Engineer	**L**	80.00%	60.00%	**2**	**3**	**High**
								As above			80.00%	40.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
5	Late Delivery of Materials	Project Manager	1. The Contractor does not have the resources required to purchase materials to carry out The Works. 2. Shortage of materials on site due to supplier shortage or manufacturing delays. 3. Delays in Procurement of materials or sub-contractors due to administrative issues	Certain portions of The Works would be put on hold until the required materials are delivered	**2**	**4**	**High**	The Engineer must ensure that The Contractor is making the necessary means of getting the required material on site as indicated on the approved Programme.	The Engineer	**L**	40.00%	30.00%	**1**	**4**	**High**
								The Contractor should source several quotes for materials that are identified to be in "short supply" or "Special" to ensure swift execution of The Works	The Contractor	**L**	70.00%	30.00%			
								Contracts manager or procurements specialist to expedite processes.	The Contractor	**L**	70.00%	40.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			

											0.00%	0.00%			
6	Insufficient Safety on Site	The Contractor & The Client	1. The Contractors Materials & Equipment are stolen from site	Materials and equipment can go missing at night or during long periods of required shutdown. This can cause a delay to the Completion date.	**2**	**3**	**High**	The Contractor to provide sufficient day/night security and to the Site	The Contractor	**L**	70.00%	100.00%	**1**	**3**	**Low**
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
7	Contractor Equipment Breakdown	The Contractor & The Engineer	1. Poor upkeep can cause The Contractors Machinery to breakdown. 2. The Contractors equipment being damaged and/or destroyed due to inexperienced artisan piloting machinery.	Unplanned breakdowns can cause a delay to The Works and Completion date.	**2**	**3**	**High**	The Engineer/H&S Officer to inspect and report on The Contractors equipment on a regular basis	The Engineer	**L**	80.00%	50.00%	**1**	**3**	**Low**
								The Contractor to ensure periodic upkeep of all equipment on site.	The Contractor	**L**	80.00%	50.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
8	Labour Disputes	The Contractor & CLO	1. Not properly relaying information between The Contractor and Local Labour 2. Local labour not getting paid enough	Local labour disputes can cause a delay to the completion date of The Works.	**2**	**3**	**High**	The Contractor to ensure that the full scope of works for local labour is clearly identified within their contract documents.	The Contractor	**I**	50.00%	100.00%	**2**	**2**	**Low**
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
9	Delay in accessing The Site (The Contractor's Team)	The Project Manager	1. Access to and from site is controlled through ACSA's permit system	Delay to the Contractors staff and to materials being delivered to and from site.	**2**	**2**	**Low**	The Client to provide dedicated resources to escort The Contractors staff and materials, swiftly, to and from site.	The Contractor	**I**	60.00%	50.00%	**2**	**2**	**Low**

			2. The Contractor not facilitating swift delivery of materials to and from site					Logistics to be planned in advance	The Contractor	**L**	60.00%	50.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
10	Inadequate strength of Reinforced Concrete Works	The Engineer	1. Not allowing for the curing of concrete 2. The Contractor not using the correct design detail	Inadequate strength of concrete works will result in failure to hold the weight of the diesel generator	**1**	**3**	**Low**	The Contractor to provide the necessary concrete cube tests before proceeding with works that are intended to lay on concrete works	The Engineer	**L**	80.00%	100.00%	**1**	**3**	**Low**
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
11	Adverse Weather	The Engineer & The Contractor	1. Heavy Rain 2. Heavy Wind	Adverse weather can cause the flooding of excavations and other important works.	**2**	**2**	**Low**	The Contractor to have an approved procedure to adequately close up the works during adverse weather. This will ensure the least amount of down time caused during these delays	The Contractor	**L**	70.00%	70.00%	**1**	**2**	**Low**
								The Engineer to design for the Geotechnical Requirements of The Works area.	The Engineer	**L**	70.00%	30.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
12	Fire at the aerodrome during construction while **pumps** are not in operation	Client	1. Aeroplane accident	Assets can burn down, or major damages to the buildings could be suffered	**2**	**5**	**Extreme**	Existing pumps to be kept in operation for as long as possible. Changeover time to be minimised. Coordinate with the municipality to ensure that the municipal line is not closed simultaneously	The Contractor	**I**	75.00%	50.00%	**2**	**3**	**High**

			2. Kitchen accident					Notify insurer during times where there will only be a single source of fire water	The Client	I	15.00%	25.00%			
			3. Electrical fault					Notify the municipal fire brigade to put a fire engine on standby.	The Engineer	I	0.00%	25.00%			
			4. Arson								0.00%	0.00%			
			5. Car fire								0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
13	Fire at the aerodrome during construction while **reservoir** is not in operation	Client	1. Aeroplane accident	Assets can burn down, or major damages to the buildings could be suffered	**2**	**5**	**Extreme**	The sectional steel backup fire water tank will be installed first. Changeover time to be minimised. Coordinate with the municipality to ensure that the municipal water line is not closed / unavailable simultaneously.	The Contractor	I	75.00%	60.00%	**2**	**3**	**High**
			2. Kitchen accident					Notify insurer during times where there will only be a single source of fire water	The Client	I	15.00%	40.00%			
			3. Electrical fault								0.00%	0.00%			
			4. Arson								0.00%	0.00%			
			5. Car fire								0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
14	Existing infrastructure failing during construction	Client	1. Existing infrastructure could fail (pipe burst, motor breakdown)	Water leak or shutdown of fire water system rendering the airport without fire hydrant water.	**2**	**4**	**High**	Ensure servicing and maintenance is up to date.	The Client	L	75.00%	20.00%	**2**	**4**	**High**
								Perform regular inspections on the existing infrastructure in the plantroom	The Contractor	L	50.00%	20.00%			
								Have a contingency plan in place with the municipal fire department	The Contractor	I	75.00%	30.00%			
			2. 3.3kV buried cable fault could develop	Loss of power to entire pump room				Expedite the 3.3kV cable replacement through emergency maintenance procurement	The Client	L	75.00%	30.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
15	Business Disruption /	Client	1. Theft of cables or other infrastructure.	Disruption to works and airport	**3**	**4**	**Extreme**	Ensure fence is maintained.	The Contractor	L	75.00%	20.00%	**1**	**4**	**High**

	Asset Damage		2. Damage by contractor to existing infrastructure due to lack of Availability or accuracy of As Built Information 3. Damage by contractor to unknown services 4. Complications with tying into existing infrastructure					Ensure plantroom is locked after work.	The Contractor	**L**	75.00%	20.00%			
								Arrange a ground penetrating scan prior to construction	The Consultant	**L**	75.00%	20.00%			
								Arrange a ground penetrating scan prior to construction	The Consultant	**L**	75.00%	20.00%			
								Follow method statements and employ necessary skilled labour	The Contractor	**L**	75.00%	20.00%			
											0.00%	20.00%			
											0.00%	0.00%			
16	Site personnel contract COVID-19	Project Manager	1. Contractor staff contract Covid-19 at work or from elsewhere	Disruption to works	**3**	**1**	**Low**	Implement measures as per the legislation and revised H&S specification.	The Contractor	**L**	75.00%	60.00%	**2**	**1**	**Low**
								Have backup personnel	The Contractor	**I**	75.00%	40.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
17	Financial loss and/or injury of 3rd parties due to the proximity of the service (or of persons providing the service) to all airport users	The Contractor	1. Any construction related activity such as excavations, operation of plant or temporary installations could lead to an accident.	Injury to a 3rd party	**1**	**3**	**Low**				0.00%	0.00%	**1**	**3**	**Low**
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
18	Risk of injury to contract personnel and airport personnel	The Contractor	1. Lifting/moving of heavy objects. 2. Work in confined spaces 3. Work with flammable and toxic gases	Injury	**3**	**3**	**High**	Contractor to prepare and enforce method statements for work activities	The Contractor	**L**	75.00%	100.00%	**1**	**3**	**Low**
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			
											0.00%	0.00%			

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.

The Employer will require that the contractor co-operates with ACSA Security relating to security issues.

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 0142-1981and ICAO Annex 14 regulations shall be used.

10. Times for the Execution of the Works

Normal airport operational hours shall be **from 05:00 to 19:00** for every weekday of the year. The airport is open until 15:00 on Saturdays.

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.

Design consultants 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

CONTRACT FORMS FROM VOLUME 1

Forms C1, C2 and C5 to C15 from Volume 1 to be appended here only for the contract to be signed with the successful bidder.