AIRPORTS COMPANY SOUTH AFRICA

CAPE TOWN INTERNATIONAL AIRPORT

TENDER NO.: CTIA 7691/2024/RFP

APPOINTMENT OF A CONTRACTOR FOR THE BULK SERVICES INSTALLATION AND ACCESS ROADS PROJECT AT CAPE TOWN INTERNATIONAL AIRPORT'S PRECINCT 3 FOR A PERIOD OF 36 MONTHS

VOLUME 3B

THE CONTRACT

C1. AGREEMENT AND CONTRACT DATA

C1.1 Form of Offer and Acceptance – Agreement

OFFER

The Employer, identified in the Acceptance signature block, has solicited offers to enter into a contract for the procurement of:
Contract No. CTIA7691/2024/RFP: APPOINTMENT OF A CONTRACTOR FOR THE BULK SERVICES INSTALLATION AND ACCESS ROADS PROJECT AT CAPE TOWN INTERNATIONAL AIRPORT'S PRECINCT 3 FOR A PERIOD OF 36 MONTHS.

The tenderer, identified in the Offer signature block, has examined the documents listed in the Tender Data and addenda thereto as listed in the Returnable Schedules, and by submitting this Offer has accepted the Conditions of Tender.
By the representative of the tenderer, deemed to be duly authorised, signing this part of this Form of Offer and Acceptance, the tenderer offers to perform all of the obligations and liabilities of the Contractor under the contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the conditions of contract identified in the Contract Data.

THE OFFERED ALL INCLUSIVE TOTAL IS:		
		Rand (in words)
R		**(in figures)**

This offer may be accepted by the Employer by signing the Acceptance part of this Form of Offer and Acceptance and returning one copy of this document to the tenderer before the end of the period of validity stated in the Tender Data, 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.

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

ACCEPTANCE

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

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

(ii) Part C2: Pricing data

(iii) Part C3: Scope of work

(iv) Part C4: Site information

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

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

Notwithstanding anything contained herein, this Agreement comes into effect upon signing of the contract by ACSA

Unless, the successful Tenderer within five days of the date of such receipt notifies the Employer in writing of any reason why he cannot accept the contents of this Agreement, this Agreement shall constitute a binding contract between the parties and the date on which it was received as recorded on the Confirmation of Receipt part, will be the Commencement Date.

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

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

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

SCHEDULE OF DEVIATIONS

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

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

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

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

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

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

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

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

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

CONFIRMATION OF RECEIPT

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

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

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

C1.2 Contract Data

GENERAL CONDITIONS OF CONTRACT

The following standardized General Conditions of Contract:

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

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

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

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

ADDITIONAL CONDITIONS OF CONTRACT

It will be a condition of contract that:

The contractor shall achieve in the performance of the contract the Contract Skills Development Goal (CSDG) established in the CIDB Standard for Developing Skills through Infrastructure Contracts, published in Gazette Notice No.48491 of 28 April 2023.

The contractor shall achieve in the performance of the contract the Contract Participation Goals (CPG) relating to the engagement of targeted enterprises as established in the CIDB Standard for Indirect Targeting for Enterprise Development through Construction works Contracts Gazette Notice No.36190 of 25 February 2013.

SPECIAL CONDITIONS OF CONTRACT

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

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

1.1 Definitions

Add the following to Clause 1.1.1.16:

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

Replace Clause 1.1.1.28 with the following:

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

Add the following clause after Clause 1.1.1.34:

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

1.2 Interpretations

Add the following after Clause 1.2.1.2

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

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

1.3 General Provisions

Add the following at the end of Clause 1.3.1

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

Insert the following clause after Clause 1.3.6

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

2.4 Ambiguity or Discrepancy

Add the following clause after Clause 2.4.2

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

1. Form of Offer and Acceptance, including Schedule of Deviations
2. Special Conditions of Contract
3. General Conditions of Contract
4. Site Instructions
5. Drawings
6. Project Specifications
7. Particular Specifications
8. Standard Specifications
9. All schedules and any other documents forming part of the Contract."

4.3 Legal provisions

Add the following clause after Clause 4.3.2:

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

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

4.4 Subcontracting

Add the following clause after Clause 4.4.7

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

****Also note the following:**

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

- *As part of this bid and subsequent contract, ACSA **requires** a minimum of 5% sub-contracting for this bid to local black owned (at least 51% black owned) EMEs and/or QSEs for local economic empowerment. Refer form C11*
    - *For Civil Works: Sub-contractors must have a CIDB grading of 1CE – 6CE.*
    - *For Electrical Works: Sub-contractors must have 1EB/EP – 6 EB/EP.*

5.1 Time calculations

Replace Clause 5.1.1 with the following:

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

5.4 Access to the Site

Add the following to Clause 5.4.2:

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

Add the following to Clause 5.4.3:

"The Contractor shall not bear all costs and charges for special and temporary rights of way required by him in connection with access to the Site."

5.6 Programme

Omit the second sentence of Clause 5.6.1

5.7 Progress of the Works

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

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

6.8 Adjustments in rates and/or prices

Add the following to Clause 6.8.3:

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

Add the following to Clause 6.8.4:

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

6.10 Payments

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

Add the following after the second paragraph of Clause 6.10.2:

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

Add the following to Clause 6.10.4:

" Notwithstanding the above, the Employer's Agent shall not be empowered to withhold the delivery of the payment certificate until the Contractor has complied with his obligations to report in terms of Clause 4.10.2 and as described in the Scope of Work."

6.11 Variations exceeding 15 per cent

Amend Clause 6.11 as follows:

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

8.6 Insurances

Refer to Annexure 8.1 attached separately

9.2 Termination by Employer

Add the following after Clause 9.2.1.3.8:

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

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

Add the following new contractual clause:

11 Skills Development Goals (CSDG)

The Contractor shall comply with the requirements of the CIDB Build Skills Development Goals as stated under Section C3.6 ACSA Specifications (C3.6.3 Transformation Specification).

CONTRACT PRICE ADJUSTMENT SCHEDULE

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

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

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

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

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

CONTRACT SPECIFIC DATA

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

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

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

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

The following contract specific data are applicable to this Contract:

Clause number	Contract Specific Data
1.1.1.13	Defects Liability Period The Defects Liability Period is **12** months inclusive of non-working days, and special non-working days referred to in Clause 5.8.1 below.
1.1.1.14	**Due Completion Date** The time for achieving Practical Completion is **12 months** from date of Signature by ACSA, inclusive of non-working days, and special non-working days referred to in Clause 5.8.1 below.
1.1.1.15	**Employer** The **Employer** is the **Airports Company South Africa (ACSA)**, represented by any such other person or persons duly authorised thereto by the Employer in writing and is referred to in this Contract Document by the terms "Employer", as the context provides.
1.1.1.16	**Employer's Agent (Combined)** The **Employer's Agent**, referred to in the documents, is as follows: **<u>Lead Employer's Agent:</u>** **Jameel Pathan** of the organisation **Ingerop South Africa (Pty) Ltd**
1.1.1.26	**Pricing Strategy** The Pricing Strategy is a **Re-measurement Contract** as defined in Clause 1.1.1.27
1.2.1.2	**Interpretations** The address of the Employer is: **Administrative Building** **Cape Town International Airport** **Matroosfontein** **Cape Town** **7490** **Tel: 021 937 1200** The address of the Lead Employer's Agent is: **Suit 209, Tyger Lake, 2 Niagara Rd** **Bellville,** **Cape Town,** **7530** **Tel: 021 914 2833**

3.2.3	**Functions of the Employer's Agent** The Employer's Agent shall obtain the specific approval of the Employer before executing any of his functions or duties according to the following Clauses of the General Conditions of Contract: i) Clause 3.3.1 Nomination of Employer's Agent's Representative ii) Clause 3.3.4 Authority to delegate iii) Clause 5.11.2 Suspending the progress of the Works iv) Clause 5.12.4 Issuing of an instruction for acceleration instead of extension of time v) Clause 5.13.2 Reducing of a penalty for delay vi) Clause 6.11.1 Agreeing of the adjustment of the sums for general items vii) Clause 10.1.5.1 Agreeing of an extension to the 28-day period viii) Clause 10.2.3 Inclusion of credits in the next payment certificate
5.1.1	**Time calculations** Extension of time or standing time claims shall not be considered for the period prior to the instruction to Commencement of the Works. The Construction Period will only commence on the instruction to Commence with the Works has been issued.
5.2	**Commencement of the Contract** The Contract shall commence upon signature of the Contract by ACSA.
5.3.1	**Commencement of the Works** The Contractor shall, within **14 days** after signing the Confirmation of Receipt, submit the following documentation to the Employer's Agent for his approval: i) Confirmation of valid Tax Clearance (valid on date of Confirmation of Receipt) by providing: • Tax Reference Number, • Security Pin Number, and • Tax Clearance Certificate Number ii) CSD Report iii) BBBEE Certificate iv) Contractor's banking details v) A Health and Safety Plan (GCC Clause 4.3) vi) An initial programme (GCC Clause 5.6) vii) Performance Guarantee (Security – GCC Clause 6.2) viii) Insurances (GCC 8.6 - as specified) with proof of validity and premium payment made ix) Occupational Health and Safety Agreement x) Letter of Good Standing from the Compensation Commissioner (if not insured with a Licensed Compensation Insurer) xi) Proof of payment in terms of Compensation for Occupational Injuries and Diseases Act, 1993 Commencement of the Works shall only be instructed once: The Construction Works Permit has been issued to the Contractor by the Department of Labour
5.4.2	**Access to Site** The access and possession of the Site shall not be exclusive to the Contractor but as set out in Scope of Works The access to site will only be granted upon commencement of the contract.
5.4.3	**Delay in giving possession** Extension of time or standing time claims shall not be considered for the period prior to the instruction to Commencement of the Works. The Construction Period will only commence on the instruction to Commence with the Works has been issued.
5.8.1	**Non-working times** The non-working days are Sundays. Normal working days are Mondays to Fridays, or as otherwise agreed by the Employer's Agent in writing Normal working hours, or as otherwise agreed by the Employer's Agent in writing. The special non-working days are: All gazetted public holidays falling outside the year end break.

	A year-end break during which the Contractor grants the majority of his permanent workforce leave around 15 December and the first Monday of the subsequent year (as defined by SAFCEC).
5.12	**Extension of time to Practical Completion** Extension of time or standing time claims shall be considered for the period prior to the instruction to Commencement of the Works. The Construction Period will only commence on the instruction to Commence with the Works has been issued.
5.13.1	**Penalty for delay** The penalty for failing to complete the Works within the specified time limit plus approved extensions of time, is **R30,000.00** per calendar day.
5.14.1	**Requirements for Practical Completion** The requirements for achieving Practical Completion shall be as set out in the Scope of Works.
5.16.3	**Latent defects liability** The latent defects liability period is **10 years**.
6.2.1	**Delivery of Security** The time to deliver the Security is within 14 days of the Contract Commencement Date. The security to be provided by the Contractor shall be a performance guarantee of **10%** of the Contract Sum. The Form of Guarantee shall contain the exact wording of the document included in C1.3.
6.5.1.2.3	**Dayworks** The percentage allowance to cover overhead charges is **10%**
6.8.2	**Adjustment in rates and/or prices** The Contract Price Adjustment Provision shall not apply to this contract.
6.10.1.5	**Payments** The percentage advance on materials not yet built into the Permanent Works is **80%**. Payment to the Contractor for any materials on site shall only be authorized after proof of ownership by the Contractor has been lodged with the Employer's Agent in the form of receipted invoices or other acceptable documents.
6.10.3	**Retention money** Notwithstanding the provision of a performance guarantee in terms of Clause 6.2.1, interim payments to the Contractor shall be subject to retention by the Employer of an amount of **10%** of the said amounts due to the Contractor. The limit of retention money is **5%** of the Contract Sum, including allowances for contingencies and Contract Price Adjustment. A guarantee in lieu of retention is permitted.
8.6.1.1.2	**Plant and material insurance** The value of Plant and materials supplied by the Employer to be included in the insurance sum is **R0.00 (Nil**).
10.1	**Contractor's claim** Extension of time or standing time claims shall not be considered for the period prior to the instruction to Commencement of the Works. The Construction Period will only commence on the instruction to Commence with the Works has been issued.

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

Part 2: Contract Data provided by the Contractor

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

Physical address	
Postal address	
Telephone number	
Fax	
Email	

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

C1.3 Proforma Performance Guarantee

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

GUARANTOR DETAILS AND DEFINITIONS

"**Guarantor**" means:

Physical address:

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

"**Contractor**" means:

"**Employer's Agent**" means: Ingerop South Africa (Pty) Ltd

"**Works**" means: Contract No. CTIA 7691/2024/RFP: APPOINTMENT OF A CONTRACTOR FOR THE BULK SERVICES INSTALLATION AND ACCESS ROADS PROJECT AT CAPE TOWN INTERNATIONAL AIRPORT'S PRECINCT 3

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

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

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

Amount in words:

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

Amount in words:

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

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

PERFORMANCE GUARANTEE

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Signed at ……

Date ……

Guarantor's signatory (1) ……

Capacity ……

Guarantor's signatory (2) ……

Capacity ……

Witness signatory (1) ……

Witness signatory (2) ……

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

DETAILS AND DEFINITIONS

"**Bank or Company**":	
Physical address:	
"**Employer**" means:	Airports Company South Africa
"**Contractor**" means:	
"**Employer's Agent**" means:	Ingerop South Africa (Pty) Ltd
"**Works**" means:	Contract No. CTIA7691/2024/RFP: APPOINTMENT OF A CONTRACTOR FOR THE BULK SERVICES INSTALLATION AND ACCESS ROADS PROJECT AT CAPE TOWN INTERNATIONAL AIRPORT'S PRECINCT 3
"**Site**" means:	The site as defined in Clause 1.1.1.29 of the General Conditions of Contract.
"**Contract**" means:	The Agreement made in terms of the Form of Offer and Acceptance and such amendments or additions to the Contract as may be agreed in writing between the parties.
"**Contract Sum**" means:	The accepted amount inclusive of tax of R Amount in words:
"**Guaranteed Sum**" means:	The maximum aggregate amount of R Amount in words:
"**Expiry Date**" means:	The date of issue by the Employer's Agent of the Certificate of Completion of the Works
"**GCC"** means :	General Conditions of Contract for Construction Works, Third Edition (2015)
"Plant and Materials" means:	Plant and materials brought on to the Site, by or on behalf of the Contractor or which are fabricated or stored at places other than the Site and have been agreed in writing by the Employer and Contractor to be governed by Clause 6.9.1 of the GCC

SURETY

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

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

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

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

4. Subject to the maximum liability referred to in 3, the Bank or Company undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Bank or Company at the Bank or Company's physical address calling up this Surety, such demand stating that:
   4.1 the Contract has been terminated due to the Contractor's default and that this Surety is called up in terms of 4; or
   4.2 a provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Surety is called up in terms of 4; and
   4.3 the aforesaid written demand is accompanied by a copy of the notice of termination and/or the provisional/final sequestration and/or the provisional liquidation court order.

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

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

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

Signed at ……

Date ……

Bank or Company signatory (1) ……

Capacity ……

Bank or Company signatory (2) ……

Capacity ……

Witness signatory (1) ……

Witness signatory (2) ……

C1.5: RETENTION MONEY GUARANTEE (PRO FORMA)

ISSUED TO *Airports Company South Africa (ACSA)* (hereinafter called "the Employer")

ON BEHALF OF .....
(hereinafter called "the Contractor")

in connection with TENDER NO: **CTIA7691/2024/RFP APPOINTMENT OF A CONTRACTOR FOR THE BULK SERVICES INSTALLATION AND ACCESS ROADS PROJECT AT CAPE TOWN INTERNATIONAL AIRPORT'S PRECINCT** (hereinafter called "the Contract").

WHEREAS the Employer and the Contractor have agreed that the Contractor may provide a guarantee in lieu of the whole or a portion of the retention moneys provided for under the Contract;

NOW THEREFORE we, the undersigned, undertake, in accordance with the following provisions, to pay to the Employer such amounts as the Employer may, from time to time, demand from us.

1. Each demand by the Employer shall be in writing, signed by the Employer and delivered to us at
.....
.....
.....
.....
.....
..... *[INSERT GUARANTOR'S FULL STREET ADDRESS]*
as we shall in writing notify to the Employer and shall be accompanied by a certificate complying with Clause 2, signed by the Employer's Agent in office as such in terms of the Contract.

2. The Employer's Agent's certificate referred to in Clause 1 shall certify that:

   (a) he is the Employer's Agent in office as such in terms of the Contract,

   (b) the Contractor is in breach of his obligations under the Contract, and

   (c) the amount demanded, which amount the certificate shall specify, does not exceed

      (i) the amount of retention moneys which, but for this guarantee, would have been retained by the Employer in terms of the Contract at the date of the certificate, less the aggregate of the amounts of retention money actually retained by the Employer and the amounts previously paid by us to the Employer in terms hereof,

      (ii) a genuine estimate of the cost to the Employer of having the breach referred to in paragraph (b) remedied less the aggregate of any amounts withheld by the Employer from payments due to the Contractor in terms of the Contract by reason of the breach referred to, and any amount of retention money actually held by the Employer save to the extent that the same had been deducted from any previous demand in terms hereof;

3. We shall within.....days after our receipt of a demand complying with the provisions in Clauses 1 and 2 make payment to the Employer of the amount demanded at ***Administrative Building, Cape Town International Airport, Matroosfontein, Cape Town, 7490*** as the Employer shall in writing notify to us.

4. Subject to compliance with the provisions hereof, our liability to make the payments herein referred to shall be unconditional and shall not be affected or diminished by any disputes, claims or counterclaims between the Employer and the Contractor.

5. Our aggregate liability under this guarantee is limited to.....
.....
.....
.....
.....*[INSERT AMOUNT OF GUARANTEE IN WORDS]*
(R……
… .....*[INSERT AMOUNT OF GUARANTEE IN FIGURES]*).

6. This guarantee shall expire on the date on which the last of the retention moneys, which but for this guarantee would have been retained by the Employer, becomes payable to the Contractor.

7. This guarantee is not transferable and must be produced for endorsement if any part payment is made and must be returned to us against final payment of our aggregate liability or on the date of the expiry of the guarantee in terms of Clause 6, whichever is the earlier.

Signed in the presence of the subscribing witnesses:

At .....for and on behalf of .....

.....

on this the ..... day of ..... 20.....

SIGNATURE : .....

CAPACITY : .....

ADDRESS : .....

: .....

: .....

AS WITNESSES : 1 .....

2 .....

C1.6: ADJUDICATOR'S AGREEMENT (Pro Forma Form)

This agreement is made on the .... day of.....between:

.....*[name of company/organisation]*

of.....

..... *[address]* and

.....*[name of company/organisation]*

of.....

..... *[address]*

(the Parties) and

.....*[name]*

of.....

..... *[address]*

(the Adjudicator).

Disputes or differences may arise/have arisen* between the Parties under a Contract dated ..... and known as .....

.....

and these disputes or differences shall be/have been* referred to adjudication in accordance with the CIDB Adjudication Procedure *[hereinafter called "the Procedure"],* and the Adjudicator may be or has been requested to act.

IT IS NOW AGREED as follows:

1. The rights and obligations of the Adjudicator and the Parties shall be as set out in the Procedure.

2. The Adjudicator hereby accepts the appointment and agrees to conduct the adjudication in accordance with the Procedure.

3. The Parties bind themselves jointly and severally to pay the Adjudicator's fees and expenses in accordance with the Procedure as set out in the Contract Data.

4. The Parties and the Adjudicator shall at all times maintain the confidentiality of the adjudication and shall endeavour to ensure that anyone acting on their behalf or through them will do likewise, save with the consent of the other Parties which consent shall not be unreasonably refused.

5. The Adjudicator shall inform the Parties if he intends to destroy the documents which have been sent to him in relation to the adjudication and he shall retain documents for a further period at the request of either Party.

SIGNED BY: _____	SIGNED BY _____	SIGNED BY _____
Name:	Name:	Name:
who warrants that he/she is duly authorised to sign for and on behalf of the first Party in the presence of	who warrants that he/she is duly authorised to sign for on behalf of the second Party in the presence of	the Adjudicator in the presence of
Witness: _____	Witness: _____	Witness: _____
Name: _____	Name: _____	Name: _____
Address:	Address:	Address:
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
Date: _____	Date: _____	Date: _____

Contract Data

1. The Adjudicator shall be paid at the hourly rate of R .....in respect of all time spent upon, or in connection with, the adjudication including time spent travelling.

2. The Adjudicator shall be reimbursed in respect of all disbursements properly made including, but not restricted to:

   (a) Printing, reproduction and purchase of documents, drawings, maps, records and photographs
   (b) Telegrams, telex, faxes and telephone calls
   (c) Postage and similar delivery charges
   (d) Travelling, hotel expenses and other similar disbursements
   (e) Room charges
   (f) Charges for legal or technical advice obtained in accordance with the Procedure.

3. The Adjudicator shall be paid an appointment fee of R……
   This fee shall become payable in equal amounts by each Party within 14 days of the appointment of the Adjudicator, subject to an invoice being provided. This fee will be deducted from the final statement of any sums which shall become payable under item 1 and/or item 2 of the Contract Data. If the final statement is less than the appointment fee the balance shall be refunded to the Parties.

4. The Adjudicator is/is not* currently registered for VAT.

5. Where the Adjudicator is registered for VAT it shall be charged additionally in accordance with the rates current at the date of invoice.

6. All payments, other than the appointment fee (item 3) shall become due 7 days after receipt of invoice, thereafter interest shall be payable at 5% per annum above the Reserve Bank base rate for every day the amount remains outstanding.

C1.7 Occupational Health and Safety Agreement

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

(Contractor)	

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

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

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

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

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

I undertake to appoint, where required, suitable competent persons, in writing, in terms of the requirements of OHSA and the Regulations and to charge him/them with the duty of ensuring that the provisions of OHSA and Regulations as well as the Employer's Special Conditions of Contract, Way Leave, Lock-Out and Work Permit Procedures are adhered to as far as reasonably practicable.
I further undertake to ensure that any subcontractors employed by me will enter into an occupational health and safety agreement separately, and that such subcontractors comply with the conditions set.
I hereby declare that I have read and understand the appended Occupational Health and Safety Conditions and undertake to comply therewith at all times. I hereby also undertake to comply with the Occupational Health and Safety Specification and Plan.

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

C2 Pricing Data

C2.1 Pricing Instructions

C2.1.1 GENERAL

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

C2.1.2 UNITS OF MEASUREMENT

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

Unit	Description	Unit	Description
%	percent	mm	millimetre
h	Hour	m^2	square metre
ha	hectare	m^2-pass	square metre-pass
kg	kilogram	m^3	cubic metre
kl	Kilolitre	m^3-km	cubic metre-kilometre
km	kilometre	MN	meganewton
km-pass	kilometre-pass	MN.m	meganewton-metre
kPa	kilopascal	MPa	megapascal
kW	kilowatt	No	number
litre	Litre	ton	ton (1000 kg)
m	Metre	Veh.mth	vehicle-month
		W/day	work day

C2.1.3 DEFINITIONS

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

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

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

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

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

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

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

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

C2.1.4 GENERAL PRICING INSTRUCTIONS

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

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

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

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

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

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

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

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

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

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

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

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

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

C2.1.5 ACSA PRICING INSTRUCTIONS

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

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

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

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

C2.1.5.5 Corrections must be countersigned.

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

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

C2.1.5.8 Permit costs:

- Permit costs will need to be paid up front by the successful bidder and ACSA will reimburse against proof of payment.
- No mark-up to be levied on Permit costs.
- All employees will be checked for criminal records.
- Cost for lost permits and new employees will not be reimbursed by ACSA.
- Foreign Nationals will need to provide a valid working permit.

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

C2.1.5.10 3rd Party Procured Items/Services:

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

- Price to include delivery to site

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

C2.1.5.12 The VAT portion must be indicated separately

Item No	C2.2 Bill of Quantities		Unit	Quantity	Rate	Amount
		SECTION NO.1 PRELIMINARY AND GENERAL				
	SANS 1200A	**Fixed-Charge and Value- Related Items**				
1	/ A 8.3.1	Contractual requirements			SUM	
	A 8.3.2.1	**Facilities for Engineer (as per project specification) (SANS 1200 AB)**				
2		a) Furnished office and boardroom, including air-conditioning (PS AB 3.2)			SUM	
3		b) Internet Connection with unlimited data (PS AB 4.1)			SUM	
4		1 Name Board (PS AB 5.1)			SUM	
	A 8.3.2.2	**Facilities for Contractor**				
5		a) Offices and storage sheds			SUM	
6		b) Workshops			SUM	
7		c) Laboratories			SUM	
8		d) Living accommodation			SUM	
9		e) Ablution and latrine facilities			SUM	
10		f) Tools and equipment			SUM	
11		g) Water supplies, electric power and communications			SUM	
12		h) Dealing with water			SUM	
13		i) Access			SUM	
14		j) Plant			SUM	
15	/ A 8.3.3	Other fixed-charge obligations (Specify)			SUM	
16		Health & Safety Specification Requirements			SUM	
		Carried Forward			R	
		Section No. 1 Bill No. 1 PRELIMINARIES				

					R
		Brought Forward			
17		Environmental Management Plan Requirements		SUM	
18		Supervision for duration of construction		SUM	
19		Company and head office overhead costs		SUM	
20		Implementation of the CPG (Contract Participation Goals) requirements		SUM	
21	/ A 8.3.4	Remove Engineer's and Contractor's Site establishment on completion		SUM	
	A 8.4	**Time-Related Items**			
22	/ A 8.4.1	Contractual Requirements		SUM	
	A 8.4.2.1	**Facilities for Engineer (as per project specification) (SANS 1200 AB)**			
23		a) Furnished office and boardroom, including air-conditioning (PS AB 3.2)		SUM	
24		b) Internet connection with unlimited data (PS AB 4.1)		SUM	
25		1 Name Board (PS AB 5.1)		SUM	
	A 8.4.2.2	**Facilities for Contractor for duration of construction, except where otherwise stated**			
26		a) Offices and storage sheds		SUM	
27		b) Workshops		SUM	
28		c) Laboratories		SUM	
29		d) Living accommodation		SUM	
30		e) Ablution and latrine facilities		SUM	
31		f) Tools and equipment		SUM	
32		g) Water supplies, electric power and communications		SUM	
33		h) Dealing with water		SUM	
		Carried Forward			R

Section No. 1
Bill No. 1
PRELIMINARIES

		Brought Forward			R
34		i) Access			SUM
35		j) Plant			SUM
36	/ 8.4.3	Supervision for duration of construction			SUM
37	/ 8.4.4	Company and head office overhead costs			SUM
38	/ 8.4.5	Other time-related obligations (Specify)			SUM
39		Health & Safety Specification Requirements			SUM
40		Environmental Management Plan Requirements			SUM
41		Implementation of the CPG (Contract Participation Goals) requirements			SUM
		Carried Forward			R

Section No. 1
Bill No. 1
PRELIMINARIES

					R	
		Brought Forward				
	/ A 8.5	**Sums Stated Provisionally by the Engineer**				
	8.5	**a) For work to be executed by Contractor**				
42	/ 8.5 (a)	Provide the amount of R2,100,000.00 (Two Million One Hundred Thousand) for External civil work: Roadworks and Anciliries upgrade at Symphony Way and Baleles Road intersection	Item			2,100,000.00
43	/ 8.5 (a)	Provide the amount of R800,000.00 (Eight Hundred Thousand) for External civil work: Construct sidewalks along Symphony Way from Stellenbosch Arterial and Symphony Way intersection towards the entrance road to Precinct 3.	Item			800,000.00
44	/ 8.5 (a)	Provide the amount of R1,400,000.00 (One Million Four Hundred Thousand) for Civil works: For a pump station with a single gravity inlet into a chamber with a basket, and a single gravity inlet into the pump station, as well as triple outlets into a chamber at the rising main outlet. (See Typical Drawing AA207300- P-104 REV A). Allowance is also made for emergency sewer pond overflow chamber, and ancillaries. M&E items are allocated under a separate Provisional Sum item	Item			1,400,000.00
45	/ 8.5 (a)	Provide the amount of R650,000.00 (Six Hundred and Fifty Thousand) External civil works: For an additional sewer rising main and gravity main from the site entrance towards the existing municipality connection manhole in Baleles Road (including HDD under Sympony Way and Baleles Road).	Item			650,000.00
46	/ 8.5 (a)	Provide the amount of R200,000.00 (Two Hundred Thousand) for Civil works: 150mm Municipal Bulk Water meter and chamber as per detail WB4	Item			200,000.00
		Carried Forward			R	
		Section No. 1 Bill No. 1 PRELIMINARIES				

					R	
		Brought Forward				
47	/ 8.5 (a)	Provide the amount of R1,350,000.00 (One Million Three Hundred and Fifty Thousand) for External civil works: For a bulk watermain from the site entrance towards the existing municipality 400mm diameter bulk watermain in Baleles Road (including HDD under Sympony Way and Baleles Road).		Item		1,350,000.00
48	/ 8.5 (a)	Provide the amount of R1,000,000.00 (One Million) for Civil Works: For two pump station (i.e. at each detention pond) with a single gravity inlet into the pump station, as well as a single outlet discharging into the rising main. (See Typical Drawing AA207300-P-108 REVB). M&E items are allocated under a separate Provisional Sum item		Item		1,000,000.00
49	/ 8.5 (a)	Provide the amount of R3,800,000.00 (Three Million Eight Hundred Thousand) for External Civil work: For external stormwater rising main pipe 315mm (From the southern pond, along Erica Drive towards Stellenbosch Arterial). M&E items are allocated under a separate Provisional Sum item		Item		3,800,000.00
50	/ 8.5 (a)	Provide the amount of R100,000.00 (One Hundred Thousand) for Demolishing and removing existing chamber including safely disconnecting and terminating services, filling up holes in ground with suitable material.		Item		100,000.00
51	/ 8.5 (a)	Provide the amount of R500,000.00 (Five Hundred Thousand) for the Detection and relocation of existing of services.		Item		500,000.00
		Carried Forward			R	
		Section No. 1 Bill No. 1 PRELIMINARIES				

		Brought Forward			R	
	/ A 8.5	**Sums Stated Provisionally by the Engineer**				
	8.5	**b) For work to be executed by nominated subcontractors**				
52	/ 8.5 (b)	1) Mechanical and electrical services at internal sewer pump station - Provide the amount of R500,000.00 (Five Hundred Thousand)	Item			500,000.00
53		2) Overheads, charges and profit on (1) above	%			
54		1) Material testing by commercial laboratories - Provide the amount of R100,000.00 (One Hundred Thousand)	Item			100,000.00
55		2) Overheads, charges and profit on (1) above	%			
56	/ 8.5 (b)	1) Generator for internal sewer pump station - Provide the amount of R300,000.00 (Three Hundred Thousand)	Item			300,000.00
57		2) Overheads, charges and profit on (1) above	%			
58	/ 8.5 (b)	1) Mechanical and electrical services for two stormwater pump stations, i.e. at each detention pond - Provide the amount of R700,000.00 (Seven Hundred Thousand)	Item			700,000.00
59		2) Overheads, charges and profit on (1) above	%			
60	/ 8.5 (b)	1) Traffic Signals at Symphony Way and Baleles Road intersection - Provide the amount of R2,000,000.00 (Two Million)	Item			2,000,000.00
61		2) Overheads, charges and profit on (1) above	%			
62	/ 8.5 (b)	1) Traffic Signal setting upgrade at Symphony Way and Stellenbosch Arterial intersection - Provide the amount of R300,000.00 (Three Hundred Thousand)	Item			300,000.00
		Carried Forward			R	
		Section No. 1 Bill No. 1 PRELIMINARIES				

		Brought Forward			R	
63		2) Overheads, charges and profit on (1) above	%			
64	/ 8.5 (b)	1) Electrical supply and reticulation to Precinct 3. (Consists of bulk supply from Airfranc substation to new Precinct 3 substation) - Provide the amount of R13,700,000.00 (Thirteen Million Seven Hundred Thousand)	Item			13,700,000.00
65		2) Overheads, charges and profit on (1) above	%			
66	/ 8.5 (b)	1) Fencing around ponds, sewer pump station and electrical service areas - Provide the amount of R2,400,000.00 (Two Million Four Hundred Thousand)	Item			2,400,000.00
67		2) Overheads, charges and profit on (1) above	%			
68	/ 8.5 (b)	1) Fencing to site perimeter - Provide the amount of R4,800,000.00 (Four Million Eight Hundred Thousand)	Item			4,800,000.00
69		2) Overheads, charges and profit on (1) above	%			
70	/ 8.5 (b)	1) Landscaping to designated areas- Provide the amount of R2,400,000.00 (Two Million Four Hundred Thousand)	Item			2,400,000.00
71		2) Overheads, charges and profit on (1) above	%			
72	/ 8.5 (b)	1) Special Wayleave conditions	Item			100,000.00
73		2) Overheads, charges and profit on (1) above	%			
		<u>Transformation requirements</u>				
74	/ 8.5 (b)	1) Provision of two Community Liaison Officers (CLO) for the duration of the contract (12 Months)	Item			300,000.00
75		2) Overheads, charges and profit on (1) above	%			
		Carried Forward			R	
		Section No. 1 Bill No. 1 PRELIMINARIES				

		Brought Forward			R	
76	/ 8.5 (b)	1) Provision of a Social Facilitator (SF) for the duration of the contract (12 months)		Item		200,000.00
77		2) Overheads, charges and profit on (1) above		%		
	A 8.8	**Temporary Works**				
78	/ PS A 8.8.2	Accommodation of traffic			SUM	
79	/ PS A 8.8.4	Existing services			SUM	
80	/ PS A 8.8.5	Cost of survey in terms of the Land Survey Act			SUM	
		Carried Forward			R	

Section No. 1
Bill No. 1
PRELIMINARIES

		Brought Forward			R	
	/ PAYMENT REFERS	**Project Specific Items**				
		Site security to be provided by the Contractor as deemed necessary by himself for the works for the duration of the contract				
81	/ PSA 8.8.7	Supply and installation of all required security measures on-site offices, site camp and work locations and provision of armed security guards/watchmen and an armed response service for the entire project duration.			SUM	
		Carried to Final Summary			R	
		Section No. 1 Bill No. 1 PRELIMINARIES				

Item No			Unit	Quantity	Rate	Amount
	SANS 1200 C	**SECTION NO.2 SITE CLEARANCE**				
1	/ C 8.2.1	Clear and Grub	ha	23.40		
	/ 8.2.2	**REMOVE AND GRUB LARGE TREES AND TREE STUMPS OF GIRTH**				
		Over and Up to:				
2		a) over 0m and up to and including 0.5m	No	10		
3		b) over 0.5m and up to and including 1m	No	10		
4		c) over 1m and up to and including 2m	No	5		
5		d) over 2m and up to and including 3m	No	5		
6		e) over 3m and up to and including 4m	No	2		
7		Removal and disposal of existing palisade fencing not exceeding 3.5m high including removal of concrete posts, foundations, etc. complete including filling up holes and trenches in ground with suitable material.	m	500		
8		***Sums Stated Provisionally by the Engineer***				
		a) For work to be executed by Contractor				
		Demolish and remove building/structure comprising reinforced concrete surface bed, external and internal walls, roofing, etc. and including foundation brickwork and reinforced concrete strip footings, including filling up holes and trenches in ground with suitable fill material.	Item	1		100,000.00
		TOPSOIL				
9	/ 8.2.10	Remove topsoil to a nominal depth of 150mm to stockpile and maintain	m3	26,000		
10		Remove 150mm topsoil and discard off-site to a dump site procured by the contractor (For Surplus or unsuitable material)	m3	7,500		
11		Spread Topsoil over designated areas to a depth of 150mm from stockpile	m3	26,000	R	
		Carried to Final Summary				
		Section No. 2				

Item No			Unit	Quantity	Rate	Amount
		SECTION NO.3 SEWERS				
	/ SANS 1200 DB	**EARTHWORKS (PIPE TRENCHES)**				
	/ PS DB 8.3.2(a)	**Excavate in all materials for trenches, select, backfill, compact and disposed of all surplus material for pipes:**				
		160mm dia for depth:				
1		a) over 0m up to 1,0m	m	10		
2		b) over 1,0m up to 2,0m	m	140		
3		c) over 2,0m up to 3,0m	m	250		
4		d) over 3,0m up to 4,0m	m	510		
5		e) over 4,0m up to 5,0m	m	310		
6		f) over 5,0m up to 6,0m	m	270		
7		g) over 6,0m up to 7,0m	m	110		
	/ PS DB 8.3.2(a)	**Excavate in all materials for trenches, select, backfill, compact and disposed of all surplus material for pipes:**				
		300mm dia for depth:				
8		f) over 5,0m up to 6,0m	m	10		
	DB 8.3.2 (b)	**Extra-over above items for:**				
9		a) Intermediate Excavation	m3	60		
10		b) Hard Rock Excavation	m3	10		
11	/ PS DB 8.3.2 (c)	Excavate and dispose of unsuitable material from trench bottom.	m3	80		
12		Hand excavation to expose existing services	m3	20		
		Carried Forward			R	

					R
		Brought Forward			
	8.3.5	**Services that intersect a trench:**			
13		Sewer pipes	No	4	
14		Stormwater pipes	No	4	
15		Water Mains	No	4	
16		Electrical	No	4	
	/ SANS 1200 LB	**BEDDING**			
	LB 8.2.2.3	**Provision of bedding material compacted to 93% of MAASHTO density (100% for sand) with material from commercial sources**			
17		a) Bedding cradle	m3	70	
18		b) Fill blanket	m3	100	
	LB 8.2.1	**Provision of bedding material compacted to 93% of MAASHTO density (100% for sand) with material from trench excavations**			
19		a) Bedding cradle	m3	250	
20		b) Fill blanket	m3	335	
21		Provision of 19mm stone bedding material from commercial sources	m3	75	
		Carried Forward			R

Section No. 3
Bill No. 1
SEWERS

					R
		Brought Forward			
		EXCAVATION ANCILLARIES			
	PS DB 8.3.3.1	**Make up deficiency in backfill material with G7 material:**			
22		a) from commercial sources	m3	75	
23		b) from other necessary excavations on site	m3	200	
24		Extra over for compaction in road reserve	m3	50	
25		Dispose unsuitable trench excavations off site	m3	75	
	/ SANS 1200 LD	**SEWERS**			
	8.2.1	**Supply, lay and joint Class 34 uPVC pipe, on Class B bedding and test pipeline for dia.:**			
26		160 mm	m	1,060	
27		***315 mm***	m	15	
		Supply, lay and joint Class 12 HDPE PE100, PN12.5 pipe, on Class B bedding and test pipeline for dia.:			
28		160 mm	m	535	
		MANHOLES			
	/ PS LD 8.2.3	**Supply and build Fibre Cement manholes as per CoCT detail S2 to SABS 1200 standard for depths:**			
		Over and Up to:			
29		1,0 m - 1,5 m	No	2	
30		2,0 m - 2,5 m	No	1	
31		2,5 m - 3,0 m	No	2	
32		3,0 m - 3,5 m	No	7	
33		3,5 m - 4,0 m	No	1	
					R
		Carried Forward			
		Section No. 3 Bill No. 1 SEWERS			

					R
		Brought Forward			
34		4,0 m - 4,5 m	No	2	
35		4,5 m - 5,0 m	No	2	
36		5,0 m - 5,5 m	No	3	
37		6,0 m - 6,5 m	No	1	
38	/ PS LD 8.2.11	Connection to existing 160mm dia. Municipal sewer and make good	No	1	
		SEWER ENDCAPS			
39		160mm	No	7	
		Carried to Final Summary			R
		Section No. 3 Bill No. 1 SEWERS			

Item No		SECTION NO.4 WATER	Unit	Quantity	Rate	Amount
	/ SABS 1200 DB	**EARTHWORKS (PIPE TRENCHES)** **EXCAVATION**				
	/ PS DB 8.3.2(a)	Excavate in all materials for trenches, select, backfill, compact and dispose of all surplus material ***up to the following diameter:***				
		Dia up to 200 mm for depths:				
1		a) 1,0m to 1,5m	m	590		
	/ PS DB 8.3.2(a)	Excavate in all materials for trenches, select, backfill, compact and dispose of all surplus material ***up to the following diameter:***				
		Dia up to 250 mm for depths:				
2		a) 1,0m to 1,5m	m	880		
	DB 8.3.2 (b)	**Extra-over item (a) above for:**				
3		i) Intermediate Excavation	m3	50		
4		ii) Hard Rock Excavations	m3	5		
5	/ DB 8.3.2 (c)	Excavate and dispose of unsuitable material from trench bottom.	m3	20		
6		Hand excavation to expose existing services	m3	20		
	8.3.5	**Services that intersect a trench:**				
7		Sewer pipes	No	4		
8		Stormwater pipes	No	4		
9		Water Mains	No	4		
10		Electrical	No	4		
	/ SANS 1200 LB	**BEDDING**				
		Carried Forward			R	

Section No. 4
Bill No. 1
WATER

		Brought Forward			R
	LB 8.2.2.3	**Provision of bedding material compacted to 93% of MAASHTO density (100% for sand) with material from commercial sources**			
11		a) Bedding cradle	m3	285	
12		b) Fill blanket	m3	70	
		Provision of bedding material compacted to 93% of MAASHTO density (100% for sand) with material from trench excavations			
13		a) Bedding cradle	m3	1,100	
14		b) Fill blanket	m3	270	
15		Provision of 19mm stone bedding material from commercial sources	m3	90	
	/ DB 8.3.3	**EXCAVATION ANCILLARIES**			
	PS DB 8.3.3.1	**Make up deficiency in backfill material with G7 material:**			
16		a) from commercial sources	m3	90	
17		b) from other necessary excavations on site	m3	200	
18		Extra over for compaction in road reserve	m3	50	
19		Dispose unsuitable trench excavations off site	m3	90	
	/ SANS 1200	**MEDIUM PRESSURE PIPELINE**			
	8.2.1	**Supply,lay and joint Class 12 uPVC pressure pipes, on Class B bedding, for dia:**			
20		250 mm	m	830	
21		200 mm	m	580	
22		160 mm	m	60	
		Carried Forward			R

Section No. 4
Bill No. 1
WATER

		Brought Forward				R
		SPECIALS AND FITTINGS				
		Extra over 8.2.1 for supplying, laying, and bedding of specials complete with couplings:				
		DI T-pieces for uPVC pipes				
23		250 mm x 250 mm dia	No	2		
24		250 mm x 200 mm dia	No	8		
25		200 mm x 200 mm dia	No	4		
26		200 mm x 160 mm dia	No	2		
27		160 mm x 160 mm dia	No	2		
		DI Reducer for uPVC pipes				
28		250 mm x 200 mm dia	No	2		
		DI bends for uPVC pipes				
29		250 mm x 45°	No	1		
30		250 mm x 11.25°	No	4		
31		200 mm x 22,5°	No	1		
32		200 mm x 45°	No	1		
		DI end caps for uPVC pipes				
33		250 mm dia	No	2		
34		200 mm dia	No	11		
	8.2.13	**VALVES & HYDRANTS**				
		Extra-over 8.2.1 for the Supplying, Fixing, and Bedding of Valves and Fire Hydrants				
		Supply and install socketed gate valve in a Bell-Toby chamber complete as per the detail W1, with socketed gate valve size of:				
35	/ PS L 8.2.3	250mm	No	8		
		Carried Forward				R
		Section No. 4 Bill No. 1 WATER				

		Brought Forward			R
36	/ PS L 8.2.3	200mm	No	4	
		37 / PS L 8.2.3 **Supply and install underground Fire hydrant complete with T-pieces and extensions on uPVC pipe, in hydrant chamber as per detail W2 for pipe size of:**			
		250mm dia	No	7	
38	/ PS L 8.2.3	200mm dia	No	4	
39	/ PS L 8.2.3	Supply and install 25mm Air Valve with all fittings and extensions on a 200mm dia uPVC pipe in chamber as per detail W-02-02	No	1	
		Ancillaries			
40	/ PS L 8.2.11	Anchor/Thrust blocks and pedestals	m3	40	
	/ SANS 1200 LF	**ERF CONNECTIONS (WATER)**			
	8.2.2	**Supply, lay and bed HDPE, Type IV Class12 pipes on class C bedding complete with couplings, test and disinfect the following pipes:**			
41		25 mm dia	m	20	
	/ 8.2.3	Extra-over item 8.2.2 for specials			
		Saddles for HDPE pipes on uPVC main pipes			
42		25 mm on 250 mm dia	No	2	
		Lockable ferrules for HDPE pipes			
43		25 mm dia	No	4	
		Male elbows for HDPE pipes			
44		25 mm	No	16	
		End caps for HDPE pipes			
45		25 mm	No	2	
46	/ 8.2.8	Marker posts	No	2	
		Carried Forward			R
		Section No. 4 Bill No. 1 WATER			

		Brought Forward			R	
		<u>Connection to existing</u>				
47	/ PS L 8.2.16	Connection to existing 400mm dia. water main with new 400mm dia.	No	1		
		Carried to Final Summary			R	
		Section No. 4 Bill No. 1 WATER				

Item No		SECTION NO.5 STORMWATER	Unit	Quantity	Rate	Amount
	SANS 1200 DB	**EXCAVATION**				
	/ PS DB 8.3.2(a)	Excavate in all materials for trenches, select, backfill, compact to 100% of MAASHTO and dispose of all surplus material for pipes with:				
	8.3.2(a)	**Dia up to and including 600 mm for depths:**				
1		0,0 m to 1,0 m	m	95		
2		1,0 m to 2,0 m	m	1,465		
3		2,0 m to 3,0 m	m	95		
	/ PS DB 8.3.2(a)	Excavate in all materials for trenches, select, backfill, compact to 100% of MAASHTO and dispose of all surplus material for pipes with:				
	8.3.2(a)	**Dia from 675 mm and up to and including 1350 mm for depths:**				
4		0,0 m to 1,0 m	m	25		
5		1,0 m to 2,0 m	m	120		
6		2,0 m to 3,0 m	m	45		
7		3,0 m to 4,0 m	m	120		
8		4,0 m to 5,0 m	m	145		
9		5,0 m to 6,0 m	m	10		
	/ PS DB 8.3.2(a)	Excavate in all materials for trenches, select, backfill, compact to 100% of MAASHTO and dispose of all surplus material for:				
	8.3.2(a)	**Rectangular precast concrete culvert in accordance with SW-05-01 and SW-05-02:**				
10		900 x 600mm High	m	230		
11		1200 x 600mm High	m	140		
		Carried Forward			R	

					R
		Brought Forward			
12		1500 x 600mm High	m	370	
13		2100 x 600mm High	m	90	
14		3000 x 600mm High	m	15	
	8.3.5	**Services that intersect a trench:**			
15		Sewer pipes	No	4	
16		Stormwater pipes	No	4	
17		Water Mains	No	4	
18		Electrical	No	4	
	DB 8.3.2 (b)	**Extra-over item (a) above for:**			
19		i) Intermediate Excavation	m3	70	
20		ii) Hard Rock Excavations	m3	15	
21	/ DB 8.3.2 (c)	Excavate and dispose of unsuitable material from trench bottom.	m3	15	
22		Hand excavation to expose existing services	m3	15	
		Carried Forward			R

Section No. 5
Bill No. 1
STORMWATER

					R
		Brought Forward			
	/ SANS 1200	**BEDDING (PIPES)**			
	LB 8.2.2.3	**Provision of bedding material compacted to 93% of MAASHTO density (100% for sand) with material from commercial sources**			
23		a) Bedding cradle	m3	175	
24		b) Fill blanket	m3	190	
	8.2.1	**Provision of bedding material compacted to 93% of MAASHTO density (100% for sand) with material from trench excavations**			
25		Selected granular material	m3	685	
26		Selected fill material	m3	755	
27		Provision of 19mm stone bedding material from commercial sources	m3	55	
	/ DB 8.3.3	**EXCAVATION ANCILLARIES**			
	PS DB 8.3.3.1	**Make up deficiency in backfill material with G7 material:**			
28		a) from commercial sources	m3	75	
29		b) from other necessary excavations on site	m3	75	
30		Extra over for compaction in road reserve	m3	19	
31		Dispose unsuitable trench excavations off site	m3	80	
	8.3.5 (a)	**Services that intersect a trench:**			
32		Sewer pipes	No	4	
33		Stormwater pipes	No	4	
34		Water Mains	No	4	
35		Electrical	No	4	
					R
		Carried Forward			

Section No. 5
Bill No. 1
STORMWATER

		Brought Forward			R
	DB 8.3.5 (b)	**Services that adjoin a trench**			
36		Sewer pipes	No	5	
37		Stormwater pipes	No	5	
38		Water Mains	No	5	
39		Electrical	No	5	
	/ SANS 1200 LE	**PIPES & CULVERTS**			
		Supply, handle and lay, HDPE PE			
		100, PN 12.5 type pipes on a class B bedding			
40		315 mm dia	m	435	
	8.2.1	**Supply, handle and lay, spigot and socket type concrete pipes on a class B bedding**			
41		375 mm dia 100D	m	215	
42		450 mm dia 100D	m	100	
43		525 mm dia 100D	m	165	
44		600 mm dia 100D	m	70	
45		750 mm dia 100D	m	20	
46		825 mm dia 100D	m	270	
	8.2.2	**Supply, handle and lay, portal and rectangular precast concrete culvert laid on and including prefabricated floor slab in accordance with SW-05-01 and SW-05-02 for:**			
47		Culvert size 900 x 600mm high, Class 175S	m	230	
48		Culvert size 1200 x 600mm high, Class 150S	m	140	
49		Culvert size 1500 x 600mm high, Class 100S	m	370	
					R
		Carried Forward			
		Section No. 5 Bill No. 1 STORMWATER			

		Brought Forward			R
50		Culvert size 2100 x 600mm high, Class 75S	m	90	
51		Culvert size 3000 x 600mm high, Class 75S	m	15	
	/ 8.2.8	**MANHOLES**			
	/ PS LE 8.2.8 (a)	**Supply and install complete manholes precast concrete 1000mm ring manholes with type 2A DI covers and frames as per CoCT detail SW2.2A and SW2.2B for depths:**			
		Over and Up to			
52		1,0 m to 1,5 m	No	3	
	/ PS LE 8.2.8 (a)	**Supply and install complete manholes precast concrete 1250mm ring manholes with type 2A DI covers and frames as per CoCT detail SW2.2A and SW2.2B for depths:**			
		Over and Up to			
53		1,0 m to 1,5 m	No	2	
54		1,5 m to 2,0 m	No	2	
	PS LE 8.2.8 (a)	**Supply and install complete manholes precast concrete 1500mm ring manholes with type 2A DI covers and frames as per CoCT detail SW2.2A and SW2.2B for depths:**			
		Over and Up to			
55		3,0 m to 3,5 m	No	1	
56		3,5 m to 4,0 m	No	1	
57		4,0 m to 4,5 m	No	3	
	/ PS LE 8.2.8 (a)	**Supply and install complete manholes precast concrete 1950mm ring manholes with type 2A DI covers and frames as per COCT detail SW2.2A and SW2.2B for depths:**			
		Carried Forward			R

Section No. 5
Bill No. 1
STORMWATER

		Brought Forward			R
		Over and Up to			
58		1,5 m to 2,0 m	No	7	
59		2,0 m to 2,5 m	No	6	
60		2,5 m to 3,0 m	No	3	
	/ PS LE 8.2.8 (a)	**CATCHPITS**			
		Construct double grid inlet catchpits complete as per CoCT detail SW3.1 for depths:			
		Over and Up to			
61		0,5 m to 1,0 m	No	25	
		SUBSURFACE DRAINS			
62	/ PS LE 8.2.14	Supply and install subsurface drains complete to detail SW1.1 general conditions (Including excavation and clean sand for backfill)	m	2,195	
63	/ PS LE 8.2.15	Connect subsurface drains to manholes and catchpits	No	55	
		Armorflex			
64		Supply and lay Armoflex with galvanised wire on A4 Bidim geotextile	m2	2,135	
65		Armorflex 140	m2	2,135	
66		Insitu topsoil to be filled in between blocks	m2	1,495	
67		Clean sand to be filled between blocks	m2	1,495	
	SANS 1200 DM	**Road-bed preparation and compaction of material to minimum of 93% of MAASHTO density (100% for sand) for:**			
68		i) 150mm depth , under roads (in-situ selected layers)	m3	320	
69		ii) 20mm Sand bed	m3	45	
					R
		Carried Forward			
		Section No. 5 Bill No. 1 STORMWATER			

		Brought Forward			R
	SANS 1200 DK	**GABIONS**			
70	/ 8.2.1	Surface preparation for bedding of gabions	m2	450	
	8.2.2	**Construct gabions using PVC-coated galvanised wire mesh. Mattresses with wire thickness of 2,5mm mesh openings of 100 x 80mm for the following dimensions, with stone from commercial sources:**			
71		2.0 x 0.5 x 0.5 m	m3	20	
72		1.0 x 1.0 x 1.0 m	m3	15	
		Construct reno mattress using PVC-coated galvanised wire mesh. Mattresses with wire thickness of 2,5 mm and mesh openings of 100 x 80 mm for the following dimensions, with stone from commercial sources:			
73		2.0 x 1.0 x 0.3m	m3	20	
	8.2.3	**Extra-over 8.2.2 for packing selected stone for exposed face**			
74		A4 Bidim or similar approved	m2	450	
		STORMWATER PONDS			
75	/ PS LE 8.2.14	Supply and install subsurface drains in free draining sand under stormwater ponds as per drawing:	m	880	
	/ PS LE 8.2.16	**Ponds**			
		Headwall Inlets to Ponds			
		Construct box culvert headwall complete as per SW-05-01 and SW-05-02 for:			
76		1500x600mm high	No	1	
77		3000x600mm high	No	1	
		Carried Forward			R

Section No. 5
Bill No. 1
STORMWATER

		Brought Forward			R
		SEDIMENT BAYS			
78	/ 8.2.1	Surface preparation for bedding of gabions	m2	70	
	8.2.2	**Construct gabions using PVC-coated galavanised wire mesh. Mattresses with wire thickness of 2,5mm and mesh opening 100 x 80mm for the following dimensions, with stone from commercial sources:**			
79		2.0 x 0.5 x 0.5 m	m3	20	
		Extra-over 8.2.2 for packing selected stone for exposed face			
80		A4 Bidim or similar approved	m2	70	
81		150mm Thick 30Mpa concrete surface bed cast in 3m x 3.7m panels (broomed finish)	m3	11	
82		125mm Gravel sub-base compacted to 95% MOD AASHTO	m3	9	
83		Saw cut joint at 4.4m x 3.6m centers	m	120	
		End Caps (Brick-up SW pipe)			
84		375mm	No	1	
85		450mm	No	8	
86		525mm	No	4	
87		600mm	No	3	
88		750mm	No	1	
		Carried to Final Summary			R
		Section No. 5 Bill No. 1 STORMWATER			

Item No			Unit	Quantity	Rate	Amount
		SECTION NO.6 CABLE DUCTS				
	/ SANS 1200 DB	**EARTHWORKS (PIPE TRENCHES)**				
	/ 8.3.2	**EXCAVATION**				
	PS DB 8.3.2(a)	**Excavate in all materials for trenches up to 1200 mm wide, select, backfill, compact and dispose of all surplus material for combined trenches for 110mm to 160mm dia ducts for depths:**				
1		0 m to 1,0 m	m	1,800		
	/ SANS 1200 LB	**BEDDING (PIPES)**				
	LB 8.2.2.3	**Provision of bedding material compacted to 93% of MAASHTO density (100% for sand) with material from commercial sources**				
2		a) Bedding cradle	m3	40		
3		b) Fill blanket	m3	40		
	8.2.1	**Provision of bedding material compacted to 93% of MAASHTO density (100% for sand) with material from trench excavations:**				
4		Selected granular material	m3	150		
5		Selected fill material	m3	150		
6		Provision of 19mm stone bedding material from commercial sources	m3	20		
		Carried Forward			R	

Section No. 6
Bill No. 1
CABLE DUCTS

		Brought Forward			R
	/ DB 8.3.3	**EXCAVATION ANCILLARIES**			
	PS DB 8.3.3.1	**Make up deficiency in backfill material:**			
7		a) Imported from commercial sources	m3	20	
8		b) from other necessary excavations on site	m3	5	
9		Extra over for compaction in road reserve	m3	5	
10		Dispose unsuitable trench excavations off site	m3	20	
	/ DB 8.3.3	**EXCAVATION ANCILLARIES**			
	PS DB 8.3.3.1	**Make up deficiency in backfill material:**			
11		a) from commercial sources	m3	20	
12		Dispose unsuitable trench excavations off site	m3	20	
	/ SANS 1200 LC	**CABLE DUCTS**			
	/ 8.2.5	**Supply, handle and lay the following uPVC Class 6 pipes on a Class C bedding**			
		Telecommunication			
13		110 mm dia	m	1,660	
		Electrical			
14		110mm dia	m	270	
15		160 mm dia	m	270	
	8.2.7	**JUNCTION BOXES/MANHOLES**			
16		Communication Double junction box, as per detail G-01-01	No	23	
		Carried to Final Summary			R
		Section No. 6 Bill No. 1 CABLE DUCTS			

Item No			Unit	Quantity	Rate	Amount
		SECTION NO.7 EARTHWORKS (BULK)				
	/ SANS 1200 D 8.3.2	**BULK EXCAVATIONS**				
		a) Cut to fill from Erven compacted to 93% MOD AASHTO density (100% for sand)				
1		i) To Erven	m3	68,000		
2		ii) To bottom of stormwater ponds	m3	500		
3		iii) To Roads	m3	500		
4		iv) To spoil off-site to a dump site procured by the contractor (For Surplus or unsuitable)	m3	8,000		
5		v) To temporary stockpile	m3	1,000		
	8.3.3	**b) Cut to fill from Stormwater Ponds compacted to 93% MOD AASHTO density (100% for sand)**				
6		i) To Erven	m3	40,000		
7		ii) To pond walls	m3	500		
8		iii) To Roads	m3	200		
9		iv) To spoil off-site to a dump site procured by the contractor (For Surplus or unsuitable)	m3	4,200		
		c) Extra over for Sections 2 - 10				
10		1) Intermediate Excavation	m3	1,500		
11		2) Hard Rock Excavation	m3	100		
		d) Cut to fill from stockpile compacted to 93% MOD AASHTO density (100% for sand)				
12		i) To Erven	m3	500		
13		iii) To Roads	m3	500		
		Carried Forward			R	

Section No. 7
Bill No. 1
EARTHWORKS (BULK)

					R
		Brought Forward			
14		Free draining sand material from commercial sources to bottom of ponds compacted to 93% MOD AASHTO density (100% for sand)	m3	10,800	
15		G7 material from commercial sources to erven compacted to 93% MOD AASHTO density (100% for sand)	m3	186,000	
16		Compact in-situ material in erven and areas to be filled, with a minimum of 6 roller passes of a 10t vibratory roller.	m2	125,000	
	SANS 1200 D	**STRAW STABILISATION**			
17		On erven	m2	215,000	
	SANS 1200 D	**Existing Services**			
18	/ 8.3.8.1	c) Excavate by hand in soft material to expose existing services.	m3	100	
		EARTHWORKS (ROADS)			
	/ SANS 1200 DM	**TREATMENT OF ROAD-BED**			
	SANS 1200 DM 8.3.3 (a)	**Road-bed preparation and compaction of material to minimum of 93% of MAASHTO density (100% for sand) for:**			
19		i) 300mm depth , under roads (in-situ selected layers)	m3	3,200	
20		ii) 150mm depths , under sidewalks (in-situ selected layers)	m3	400	
21		iii) 150mm depths, under areas to be filled	m3	250	
		EARTHWORKS (ROADS)			
22		Cut to temporary stockpile for re-use	m3	100	
	PS DM 8.3.4	**Cut to fill, compacted to 93% of MAASHTO density (100% for sand):**			
23		Within road reserve	m3	3,000	
24		On erven	m3	3,000	
		Carried Forward			R
		Section No. 7 Bill No. 1 EARTHWORKS (BULK)			

					R	
		Brought Forward				
25		Cut to spoil off-site to dump site procured by the contractor (For surplus or unsuitable)	m3	600		
	PS DM 8.3.5	**Selected layers compacted to 93% MOD AASHTO density (100% for sand) for thicknesess of, and using materials:**				
26		i) 150 mm G7 upper selected from commercial sources	m3	100		
27		ii) 150 mm G7 upper selected from stockpiles or selected elsewhere on site	m3	100		
	8.3.13	**FINISHING**				
28	/ PS DM 8.3.17	Trim, shape and compact verges	m2	2,500		
		Carried to Final Summary			R	
		Section No. 7 Bill No. 1 EARTHWORKS (BULK)				

Item No			Unit	Quantity	Rate	Amount
	SANS 1200MK	**SECTION NO.8 KERBING AND CHANNELING**				
		New precast concrete kerbs and channels on concrete bedding, as per CoCT detail RD1.1				
		Barrier Kerbs (Type BK2)				
1		Radius < 20 m	m	15		
2		Radius > 20 m and straight	m	60		
		Barrier Kerb and Channel (Type BK2 & C1)				
3		Radius < 20 m	m	295		
4		Radius > 20 m and straight	m	1,750		
		Edging (Type E1)				
5		Radius < 20 m	m	280		
6		Radius > 20 m and straight	m	1,808		
		V Channel (Type C1 x2)				
7		Radius < 20 m	m	15		
8		Radius > 20 m and straight	m	80		
		Carried to Final Summary			R	
		Section No. 8 Bill No. 1 KERBING AND CHANNELING				

Item No			Unit	Quantity	Rate	Amount
		SECTION NO.9 ROAD SURFACING, SUBBASE & BASE COURSE				
		ROAD SURFACING				
	/ COLTO 4100	**PRIME COAT**				
	/ 41.01	**Prime coat using:**				
		MC-30 Cutback bitumen				
1		On Roads	m2	9,755		
2		On Sidewalks	m2	4,430		
		ASPHALT SURFACING				
	'42.02	**Medium continuously graded asphalt surfacing, using 50/70 pen bitumen compacted to 93% theoretical density**				
3		40 mm on streets	m2	9,755		
4		30 mm on side walks	m2	4,430		
	/ SANS 1200 ME	**SUBBASE**				
	8.3.3	**Construct subbase with G5 material from commercial sources compacted to 95% of MAASHTO density (not crushed rubble)**				
5		200mm in roads	m3	1,925		
6		100mm in sidewalk	m3	445		
7		Process subbase material by means of cement stabilisation, to produce C4 subbase layer	m3	1,925		
8		Stabilising agent: Portland Cement	t	78.02		
	/ SANS 1200 MF	**BASE COURSE**				
		Carried Forward				R

		Brought Forward			R	
	MF 8.3.3	**Construct base with material from commercial sources compacted to 98% MAASHTO density**				
9		150mm G2 in roads	m3	1,445		
		Carried to Final Summary			R	

Section No. 9
Bill No. 1

ROAD SURFACING, SUBBASE & BASE

Item No			Unit	Quantity	Rate	Amount
	/ SANS 1200 MM	**SECTION NO.10 ANCILLARY ROADWORKS**				
		PERMANENT TRAFFIC SIGNS				
	PS MM 8.3.1	**Sign faces of 1,4 mm thick Chromadek steel plate (Type G275) up to 2,0 m² including pedestal**				
1		Type R1 (Stop sign) 600 mm dia	No	3		
2		Type R2.1 (Yield at Pedestrian crossing) 600 x 520mm	No	3		
3		Type R2.2 (Yield at Circle sign) 600 x 520 mm	No	3		
4		W306 (Pedestrian Crossing Ahead)	No	3		
5		W413 (Keep Left)	No	3		
	8.4	**ROAD MARKINGS**				
		Reflectorized paint applied at nominal rate of 0.42 l/m2 for:				
		a) White lines (Broken or unbroken)				
6		100 mm wide	m	1,500		
		b) White characters and symbols				
7		Word markings GM7 (STOP)	m2	3		
8		Symbol RTM4 (Pedestrian Crossing)	m2	3		
		c) Yellow characters and symbols				
9		Fire Hydrant RM7 (including Painting of kerbs)	m2	15		
		Carried to Final Summary			R	
		Section No. 10 Bill No. 1 ANCILLARY ROADWORKS				

Section No		Page No		Amount
1	PRELIMINARY AND GENERAL	129		
2	SITE CLEARANCE	130		
3	SEWERS	134		
4	WATER	139		
5	STORMWATER	147		
6	CABLE DUCTS	149		
7	EARTHWORKS (BULK)	152		
8	KERBING AND CHANNELING	153		
9	ROAD SURFACING, SUBBASE & BASE COURSE	155		
10	ANCILLARY ROADWORKS	156		
	Sub Total		R	
11	The Contractor achieve a Contract Skills Development Goal (CSDG) of Zero Point Two Five Percent (0.25%) of the Contract Amount expressed in Rand and comply with Standard for Developing Skills through Infrastructure Contracts as per Board Notice 180 of 2013 (No 36780 Government Gazette, 23 August 2013) Construction Industry Development Board Standard for Developing Skills through Infrastructure Contracts 8 August 2013.		Item	
	Sub Total		R	
	Allow the amount of 10% of the above for contingencies to be expanded as directed by the Principal Agent and to be deducted in whole or part if not required.		Item	
	Carried Forward		R	

Section No	FINAL SUMMARY	Page No		Amount
	Brought Forward		R	
	Sub Total		R	
	Tax		R	
	GRAND TOTAL		R	
	Carried to Form of Tender		R	

CALCULATION OF CONTRACT SUM	
1 PRELIMINARY AND GENERAL	R
2 SITE CLEARANCE	R
3 SEWERS	R
4 WATER	R
5 STORMWATER	R
6 CABLE DUCTS	R
7 EARTHWORKS (BULK)	R
8 KERBING AND CHANNELING	R
9 ROAD SURFACING, SUBBASE AND BASE COURSE	R
10 ANCILLARY ROADWORKS	R
SUB TOTAL	**R**
11 CONTRACT SKILLS DEVELOPMENT GOAL (0.25% OF TOTAL OF SECTIONS)	R
SUBTOTAL	**R**
CONTINGENCIES (10% OF TOLTAL OF SECTIONS)	R
SUBTOTAL	**R**
15% VALUE ADDED TAX ON SUBTOTAL	R
ALL INCLUSIVE CONTRACT SUM	**R**

SIGNED BY TENDERER: _____

TENDERER NAME: _____

AIRPORTS COMPANY SOUTH AFRICA

CAPE TOWN INTERNATIONAL AIRPORT

TENDER NO.: CTIA ....

APPOINTMENT OF A CONTRACTOR FOR THE BULK SERVICES INSTALLATION AND ACCESS ROADS PROJECT AT CAPE TOWN INTERNATIONAL AIRPORT'S PRECINCT

C3. Scope of Work

C3. SCOPE OF WORK

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

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

C3.1 DESCRIPTION OF THE WORKS

C3.1.1 EMPLOYER'S OBJECTIVES

The objective of the Employer is to appoint a contractor for the bulk services installation and access roads at Cape Town International Airport's Precinct 3.

C3.1.2 OVERVIEW OF THE WORKS AND EXTENT OF WORKS

The description of the project contained in the scope of work is merely an outline of the contract works and shall not limit the work to be carried out by the contractor under this contract. The Works included in this contract will mainly consist of the works described in the sub-sections below:

Internal:

The primary aim of this project is to establish the necessary infrastructure for supporting the approved subdivision. This entails conducting extensive bulk earthworks to shape industrial erven, implementing sewer systems including a sewer pump station, managing stormwater including stormwater ponds and pumps, establishing water reticulation, installing ducts. There will be a public access road that will provide entry to Precinct 3 development along Symphony Way. It will extend into Precinct 3, forming a central public road running east-west, facilitating access to the industrial/warehouse areas and allowing for potential future access to the south and the north. A private road will begin at the internal T-intersection of Rudder Road and Seaplane Way (internal Precinct 3 road names), extending toward a possible guardhouse. Initially, the road reserve leading to the guardhouse will be 28.1 meters wide, accommodating two lanes for incoming traffic and two lanes for outgoing traffic. Subsequently, beyond the guardhouse, the road reserve will narrow to 20 meters, providing one lane in each direction. These roads will be surfaced with asphalt and bordered by concrete kerbs, acting as an effective edge restraint. Surfaced asphalt sidewalks will also be constructed on both sides on the road.

External:

This contract entails several external upgrades, which include the installation of traffic signals and lane widening at the intersection of Symphony Way and Baleles Road. A new sidewalk also needs to be constructed from Stellenbosch Arterial and Symphony Way intersection towards the site entrance. Additionally, there's a requirement to upgrade the traffic signal lane configuration settings at the Symphony Way and Stellenbosch Arterial intersection.

Due to the absence of gravity stormwater pond outlets, the ponds will be pumped dry during off-peak hours. The outlet pipe will be laid from the southern pond along the ACSA boundary wall towards Erica Drive and discharge into the municipality's stormwater system on Stellenbosch Arterial Road. This pipe system will include a rising main, necessitating horizontal directional drilling beneath Stellenbosch Arterial Road to connect with the municipal stormwater system.

An external new bulk sewer will be installed from the Precinct 3 site entrance road to connect with the municipal system on Baleles Road. This installation will include a 160mm gravity main, and horizontal directional drilling will be employed to pass under Symphony Way towards Baleles Road.

The external connection point for the bulk water main is situated within the Delft area, east of the Baleles intersection. The housing development adjacent to this location also necessitates an external water connection along the same route. They have similarly designed their own connection. Whichever of these two developments materializes first will be responsible for constructing the bulk water main.

Electrical Supply as per the load demand requirements stated (1 MVA)

As for the external electrical ACSA network, it receives its supply from two distinct Eskom substations. Presently, the configuration indicates that the Airfranc Substation (S/S) and the 2 Alpha S/S are both powered by the Eskom Belhar S/S. The 2 Alpha S/S serves multiple services through a medium voltage (MV) ring. This ring is interconnected with the Alpha S/S at its other endpoint. It's imperative to maintain an open point within this ring to ensure the separation of the two Eskom supply substations. In terms of distribution, Development Precinct 3 will be provisioned from the Airfranc S/S.

Street lighting will be provided along the access and internal roads to CTIA Precinct 3. The level and type of lighting will be in keeping with that typically encountered in an industrial development.

Changes to Scope of Work

It is a condition of this contract that the employer reserves the right to limit the total expenditure on the Works due to possible budget constraints. Should the tender sum exceed the budgeted amount, the scope of the works may be reduced at any time before or during the contract period to ensure that the final contract amount does not exceed the budgeted amount. Refer to Scope of Works C3.

LOCATION OF THE WORKS

The site is situated on the eastern side of ACSA's property boundary and is bordered by Symphony Way and Stellenbosch Arterial Road. Location of the site is shown on the Layout Plan (Drawing No. AA207300-100 Rev E). The contractor's site camp will be located within the new Precinct 3 development and shall be indicated at the site clarification meeting.

MISCELLANEOUS MATTERS

Health and safety requirements

The requirements with regard to the Occupational Health and Safety Act (Act 85 of 1993) and the Construction Regulations are contained in Section C3.6.1 of the ACSA specifications and will be strictly enforced.

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

Environmental requirements

The contractor shall take particular note of the environmental requirements contained in Section C3.6.2 of the ACSA specifications. Should the contractor fail to comply in all respects the Employer's Agent will not hesitate to apply the penalty provided in the CEMP.

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

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

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

Quality and process control

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

LABORATORY TESTING

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

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

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

3.2 ENGINEERING

C3.2.1 DESIGN SERVICES

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

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

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

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

C3.2.2 DRAWINGS

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

DRAWING No.	DESCRIPTION
AA207300-100	Road Layout REV E
AA207300-100-01	External Road Sidewalk REV D
AA207300-101	Road Long section REV D
AA207300-102	Sewer and Water Layout REV E
AA207300-103	Sewer Long Sections 1 REV D
AA207300-103-01	Sewer Long Sections 2 REV D
AA207300-104	Sewer Pump Station REV C
AA207300-105	Stormwater Layout REV G
AA207300-105-01	External Stormwater Layout REV D
AA207300-106	Stormwater Long Sections REV F
AA207300-107	Stormwater Long Sections REV F
AA207300-107-01	Stormwater Long Sections REV C
AA207300-108	Stormwater Pond Detail REV E
AA207300-109	Combined Services Layout REV F
AA207300-110	Earthworks Layout REV C
AA207300-D1	Typical Contract Nameboard
STANDARD DETAILS	
SW1.1	Sub-Surface Drain Main Line
SW2.2A	Stormwater Manhole without access shaft
SW2.2B	Stormwater Manhole without access shaft
SW2.4	Ductile Iron Manhole Cover and Frame, with concrete infill

SW3.1	Stormwater Catchpit, Type A, Double Kerb & Grid Inlet Combination
SW9	Typical Stormwater Headwall
SW-05-01	Box culvert inlet and outlet details
SW-05-02	Box Culvert inlet and outlet reinforcement
W1	Valve Chamber
W2	Hydrant Chamber
W3	Typical Water Connection
W-10-01	Typical Detail of thrust block for bends
W-10-02	Typical Detail of thrust block for 90-degree bends
W4A	Typical water meter chamber
W4B	Typical water meter chamber
W-02-02	Typical detail of air valve chamber
S2	Sewer manhole
G01-01	Typical detail of double junction box
RD1.1	Barrier Kerbs and Channels

Standard drawings are contained along with the above list of drawings. The reduced drawings that form part of the tender documents shall be used for tender purposes only.
The Contractor shall not use the drawings for any purpose other than the execution of the works.

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

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

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

C3.3 PROCUREMENT

C3.3.1 PREFERENTIAL PROCUREMENT PROCEDURES

The Works shall be executed in accordance with the requirements specified in Section T1.2, Tender Data (Clause F3.11) and submitted by the Contractor in his Returnable Schedules.

C3.3.2 SUBCONTRACTING

The Employer shall stipulate in the tender data that the contractor shall provide a minimum Contract Participation Goal (CPG) of **30%** of the total project value and develop targeted enterprises in the two agreed developmental areas.

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

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

Competence Criteria for an Enterprise Development Co-ordinator

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

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

C3.4 CONSTRUCTION

PART A: SPECIFICATIONS

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

Standard Specifications

Where reference is made to the standard specifications in this contract, it shall mean the ***Standard and Particular Specifications, referred in PS 11 and PS 12***.

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

Applicable National and International Standards

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

- COTO
- SANS (SABS)

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

Project Specifications

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

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

(a) Specifications for health and safety bound in Section C3.6.1: Occupational Health and Safety Specifications
(b) Specifications for environmental management bound in Section C3.5.2: ACSA Construction Environmental Management Plan
(c) Specifications for subcontractor development bound in Section C3.5.3: Transformation Specification

C3.5 PROJECT SPECIFICATIONS

SCOPE

This project specification is set out in two portions. Portion 1 covers a general description of the project, the facilities available and the requirements to be met. Portion 2 covers variations and additions to standardised or particular specifications that are applicable to the contract.

The numbering method in portion 2 of this project specification deviates as follows from the method suggested in the Code of Practice SABS 0120.

Each clause with the prefix PS shall refer to the congruent clause in the appropriate section of the standardised or particular specification. Such clause shall either substitute, or supplement, or amend the clause with the same number. Where there is no such congruent clause in the standardised or particular specification, the PS clause shall be a new clause in the project specification. Any clause that is referred to in the standardised specification will also include the appropriate project specification.

It is to be noted that the SABS 1200 specifications have been replaced by the SANS 1200 specifications. Therefore, all references to SABS 1200 in this document, are to be read as reference to SANS 1200. This is included in the Schedule of Quantities.

Please also note that the latest general conditions of contract refer to the Employers Agent instead of the Engineer. Therefore, all references to the Engineer in this document, are to be read as references to the Employers Agent.

STATUS

Should any requirement or provision of the Project Specification, conflict with any requirement of the standard specification, particular specification or any drawing or site instruction, the order of precedence, unless otherwise specified, is:

- Site Instructions
- Drawings
- Project Specifications
- Particular Specifications
- SANS Standardised Specifications

C3.5.1 PORTION 1: THE WORKS

PS 1 GENERAL DESCRIPTION OF CONTRACT

The contract involves the implementation of road infrastructure, civil engineering services, and electrical provisions for ACSA. This project is situated within approximately 22 hectares of recently designated mixed-use industrial land owned by ACSA. The development is positioned to the northeast of the airport, and access is established via Symphony Way.

Internal:

The primary aim of this project is to establish the necessary infrastructure for supporting the approved subdivision. This entails conducting extensive bulk earthworks to shape industrial erven, implementing sewer systems including a sewer pump station, managing stormwater including stormwater ponds and pumps, establishing water reticulation, installing ducts. There will be a public access road that will provide entry to Precinct 3 development along Symphony Way. It will extend into Precinct 3, forming a central public road running east-west, facilitating access to the industrial/warehouse areas and allowing for potential future access to the south and the north. A private road will begin at the internal T-intersection of Rudder Road and Seaplane Way (internal Precinct 3 road names), extending toward a possible guardhouse. Initially, the road reserve leading to the guardhouse will be 28.1 meters wide, accommodating two lanes for incoming traffic and two lanes for outgoing traffic. Subsequently, beyond the guardhouse, the road reserve will narrow to 20 meters, providing one lane in each direction. These roads will be surfaced with asphalt and bordered by concrete kerbs, acting as an effective edge restraint. Surfaced asphalt sidewalks will also be constructed on both sides on the road.

External:

This contract entails several external upgrades, which include the installation of traffic signals and lane widening at the intersection of Symphony Way and Baleles Road. A new sidewalk also needs to be constructed from Stellenbosch Arterial and Symphony Way intersection towards the site entrance. Additionally, there's a requirement to upgrade the traffic signal lane configuration settings at the Symphony Way and Stellenbosch Arterial intersection. A Provisional Sum has been allocated in this Bill of Quantities (BOQ) for this section of work.

Due to the absence of gravity stormwater pond outlets, the ponds will be pumped dry during off-peak hours. The outlet pipe will be laid from the southern pond along the ACSA boundary wall towards Erica Drive and discharge into the municipality's stormwater system on Stellenbosch Arterial Road. This pipe system will include a rising main, necessitating horizontal directional drilling beneath Stellenbosch Arterial Road to connect with the municipal stormwater system. A Provisional Sum has been allocated in this Bill of Quantities (BOQ) for the construction of the external stormwater pipe system.

An external new bulk sewer will be installed from the Precinct 3 site entrance road to connect with the municipal system on Baleles Road. This installation will include a 160mm gravity main, and horizontal directional drilling will be employed to pass under

Symphony Way towards Baleles Road. A Provisional Sum allowance is provided for the installation of a 160mm diameter pipe.

The external connection point for the bulk water main is situated within the Delft area, east of the Baleles intersection. The housing development adjacent to this location also necessitates an external water connection along the same route. They have similarly designed their own connection. Whichever of these two developments materializes first will be responsible for constructing the bulk water main. A Provisional Sum has been allocated in this Bill of Quantities (BOQ) to account for this potential expense.

As for the external electrical ACSA network, it receives its supply from two distinct Eskom substations. Presently, the configuration indicates that the Airfranc Substation (S/S) and the 2 Alpha S/S are both powered by the Eskom Belhar S/S. The 2 Alpha S/S serves multiple services through a medium voltage (MV) ring. This ring is interconnected with the Alpha S/S at its other endpoint. It's imperative to maintain an open point within this ring to ensure the separation of the two Eskom supply substations. In terms of distribution, Development Precinct 3 will be provisioned from the Airfranc S/S. A Provisional Sum allowance is provided for the installation of the electrical cable.

PS 2 **DESCRIPTION OF THE SITE AND ACCESS**

The site is situated in the northeastern vicinity of the airport, and its entrance is accessible from Symphony Way. It is bordered by the new proposed housing development to the south, a conservation area to the north, the Airport to the west, and Delft to the east.

It's important to highlight that an environmentally sensitive wetland and conservation area adjoin the site. During construction, this area is designated as a no-go zone to protect its ecological integrity. Machinery and materials are strictly prohibited within this region.

Previous earthworks on the site have resulted in a relatively flat area at a lower than ideal level in relation to the levels of the surrounding areas. As a result, substantial bulk earthworks are required as part of this project in order to enable and accommodate the design requirements for the roads and various services.

The site is designed to have a high point in the middle which will drain towards the north and southern end respectively.

Access to the site is via Symphony Way. The proposed development's location is visually represented in the figure provided below:

The operation of construction vehicles on existing roads or streets, or on streets which have been completed to the level of subbase or base or bituminous surface treatment, shall be limited to traffic with an axle load not exceeding that allowed by the Road Traffic Ordinance of the authority concerned, or any amendment thereof. Hauling is strictly forbidden on sections of streets that have been completed as described above.

The Contractor shall make use of temporary haul roads, or where not practically possible, program his work in such a manner that the haulage of materials shall be restricted to that required for the particular section of street. No additional payment shall be made for the use of temporary hauls roads and all relevant costs shall deem to be covered by the appropriate rates.

The Contractor must note that no additional payment will be made for the construction of temporary access roads to the construction site, borrow-areas or to the spoil sites, except for payment made under payment item A 8.3.2.2 of SABS 1200 A.

If the Contractor does make use of existing streets for the hauling of materials to or from the site, he shall be held responsible to clear any spillage caused by his activities on or near the roads by whatever means necessary, within two (2) days after such spillage has occurred. No additional payment will be made for the clearance of spillage and all relevant costs shall deem to be covered under the relevant items.

PS 3 NATURE OF GROUND AND SUBSOIL CONDITIONS ON SITE

A Geotechnical Investigation was done in February 2023 which is enclosed to this document. Contractors need to familiarize themselves with the site conditions.

The subsurface conditions must have been investigated by the Contractor before tendering.

It is the Contractor's responsibility to supply and deliver all materials that comply with the minimum standards as well as for the building and maintaining of access roads to the works on site, haul areas or dumping sites. No additional payment will be applicable to the above-mentioned other than the relevant items in the schedule of quantities.

PS 4 DETAILS OF THE CONTRACT

PS 4.1 MAIN CONTRACT

Work included in this contract involves the following construction:

a) Bulk Earthworks
b) Layerworks to roads;
c) Asphalt surfaced roads with some concrete pavers at roundabouts.
d) Concrete kerbs and channels
e) Block paved sidewalks
f) Stormwater pipes and channels, stormwater manholes, catchpits, headwalls;
g) Subsoil drainage;
h) Stormwater ponds and channels with gabions;
i) Sewer mains, sewer manholes and precinct connections;
j) Water reticulation system with valves & fire-hydrants, and precinct connections;
k) Cable ducts and drawpits for Telecommunication,
l) Cable duct crossings for Electrical and Irrigation;

PS 4.2 SUB-CONTRACTORS

The following work will be carried out by the nominated subcontractors, procured by tender once the main contractor is appointed:

- Electrical
- Mechanical

The appointment of the nominated subcontractor shall be subject to the final written approval of both the Airports Company South Africa (ACSA) and the appointed Engineer. No subcontractor shall be deemed approved on the project without this dual consent. ACSA and the appointed Engineer reserve the right to assess the qualifications, experience, and compliance of the nominated subcontractor with the project requirements prior to granting approval.

Provisional Sums are all allowed for these as well as an item for mark-up on each.

Where in the documentation mention is made to nominated subcontractors", it is used interchangeably with "selected subcontractors" and the definition of "nominated" is deemed to be the same as "selected"

PS 4.3 OTHER CONTRACTORS

There will be separate contracts awarded for irrigation, landscaping, fencing/security and other. The subphases of many of those contracts will also need to be completed simultaneously to this one.

As such, all these contracts will overlap this civils contract to varying extents.

This civils contractor must accommodate all other contractors on and adjacent to the site, and plan /programme and co-ordinate all activities accordingly, and allow for such in their rates.

PS 5 CONSTRUCTION PROGRAM AND METHODS

Upon contract award, the Contractor is required to collaborate with the Health & Safety consultant and provide the necessary information for the application of the Department of Labour Works Permit. It is anticipated that obtaining this permit might take approximately one month. During this period, the Contractor

must furnish various contract administrative information, apply for wayleaves, and prepare for the commencement of work immediately upon receiving the permit.

The construction area is adjacent to and within the environmentally sensitive no-go zone on the site. The Contractor must carefully plan activities and scheduling around this area. No additional payment will be provided for this adjustment, as it is expected to be encompassed within the relevant items.

Construction methods must prioritize safety and ensure no risk to property or lives. The Employer assumes no responsibility for work conducted beyond the site boundaries without the Engineer's explicit approval. The Contractor is solely responsible for communication and coordination with the Local Authority regarding the finalization and approval of the construction program.

The Contractor is also responsible for engaging with the Community to coordinate the construction schedule within the existing settlement. No extra compensation will be granted for this interaction, as it is deemed to be covered by the relevant items.

Before commencing operations that involve crossing existing structures, walls, or areas, the Contractor must capture sufficient photographs and provide them to the Engineer. This process will not be remunerated separately and should be accounted for within the preliminary and general items.

The preparation and any subsequent adjustments to the construction program during the project's duration will be the Contractor's responsibility, and these costs will not be accounted for elsewhere in this contract.

PS 6 WAYLEAVES

The Contractor shall be responsible for obtaining all of the necessary wayleaves, permissions or permits applicable to working near any existing services or other infrastructure on Site, and the time that it takes to obtain these. He shall also ensure that any wayleaves, permissions or permits obtained by the Employer's Agent prior to the award of the contract are transferred into the Contractor's name.

The Contractor shall abide by any conditions imposed by such wayleaves, permissions or permits. Provisional sums are allowed for any specific financial conditions such as deposits and special exploratory site investigations required to locate services by the respective authorities.

The Contractor shall ensure that all wayleaves, permissions and permits are kept on site and are available for inspection by the relevant service authorities on demand.

PS 7 SITE FACILITIES AVAILABLE

PS 7.1 SOURCES OF WATER SUPPLY AND POWER SUPPLY

Arrangements for water and electrical supply for construction purposes must be made by the Contractor with the authorities and allowed for in the rates. Any extension of time due to delays resulting from these facilities will not be granted. Water for concrete will have to be clean water according to SABS specifications.

PS 7.2 LOCATION OF CAMP AND DEPOT

The Contractor is to point out possible sites for the camp and depot at tender

inspection or handover, for approval by the employer which will be based on areas least likely to be utilized by the end-users during the course of construction, and most practical for construction.

PS 7.3 HOUSING FOR CONTRACTOR'S EMPLOYEES

No housing is available for the Contractor's employees, and the Contractor shall make his own arrangements for housing his employees or transporting them to and from the site. The Contractor is in all respects responsible for the housing and transporting of his employees, and for the arrangement thereof, and no extension of time due to any delays resulting from this, will be granted.

PS 8 SITE FACILITIES REQUIRED

No housing is required for the Engineer. Other facilities such as an office, telephone, nameboard, survey equipment, etc. required for the Engineer, are described under the relevant sections.

PS 9 FEATURES REQUIRING SPECIAL ATTENTION

PS 9.1 SAFETY REGULATIONS

Both the "Factories, Machinery and Building Work Act (Act 22 of 1941) and the "Machinery and Occupational Safety Act (Act 6 of 1983)" must, wherever they appear in the SABS 1200 standardised specifications, be substituted by the "Occupational Health and Safety Act (Act 85 of 1993)".

Furthermore, all aspects of the Health & Safety Specification shall be complied with. A Health & Safety consultant appointed by the Employer will monitor this.

PS 9.2 PROTECTION OF THE ENVIRONMENT

All aspects of the Construction Environmental Management Plan must be complied with. An ECO appointed by the Employer will monitor this.

PS 9.3 SURVEY BEACONS

Survey pegs / benchmarks as set out by the Employer's Land Surveyor will be indicated to the Contractor, and the Contractor may set out more of his own as required. The Contractor shall be solely responsible for the protection of survey pegs. The Contractor's attention is specifically drawn to the requirements of SABS specification 1200 A: General, clause 5.1 survey, in this respect.

The Contractor shall point out to the Engineer any discrepancies in the provided benchmarks as they relate to each other and levels and co-ordinates on the drawings.

PS 9.4 "AS BUILT" DRAWINGS

As the work progresses, the Contractor shall keep full records of all amendments to and deviations from the drawings as issued to the Contractor at the start of the contract, for which purpose the Contractor shall receive a separate complete set of drawings from the Engineer. The Contractor with his payment certificate, to the Engineer, must submit information monthly. The true positions, invert levels and ground levels of all services, road centre-lines and edges, kerbs & Channels, and finished earthwork levels shall be provided.

The completion certificates for each section shall only be issued after the Engineer has received a properly completed set of "**as-built**" drawings from the Contractor. This is to be compiled by means of a full topographical survey and drawing at the end of each section of the works. No separate payment shall be made for this service, as all costs related thereto shall be deemed to be included in the related items.

PS 9.5 FINISHING AND TIDYING

Progressive and systematic finishing and tidying will form an essential part of this contract. Under no circumstances shall spoil, rubble, materials, equipment or

unfinished operations be allowed to accumulate unnecessarily and in the event of this occurring the Engineer shall have the right to withhold payment for as long as necessary in respect of the relevant works in the area(s) concerned.

PS 9.6 **DUST CONTROL**

The Contractor is responsible for dust control and is liable for all claims that may result from dust nuisance on all parts of the site and at all times from the date of handing over of the site to the completion date of the contract. No payment regarding the above-mentioned will be made and all costs shall be deemed to be covered by the tendered rates.

Should straw stabilisation be required, the Contractor shall programme his activities such that straw stabilisation is done immediately after the earthworks have been completed.

PS 9.7 **ABLUTION AND TOILET FACILITIES**

The Contractor shall provide ablution facilities for all personnel employed on the Site, including shelter, toilets and washing facilities. Washing, whether of the person or of personal effects, defecating and urinating are strictly prohibited other than at the facilities provided.

Toilet facilities provided by the Contractor shall occur in a ratio of not less than 1 toilet per 30 workers (1:15 is preferred) for each sex. Toilet facilities shall be located within the Contractor's camp, but also at work areas remote from the camp, all to the satisfaction of the Employer's Agent. All portable toilets shall be adequately secured to the ground to prevent them toppling over as a result of wind or any other cause.

The Contractor shall ensure that the entrances to these toilets are adequately screened from view, that they are maintained in a hygienic state, serviced regularly, that no spillage occurs when they are cleaned and that contents are removed from Site. Toilets shall also be emptied before any temporary site closure for a period exceeding one week. Discharge of waste from toilets into the environment and burial of waste is strictly prohibited. The Contractor shall provide toilet paper at all times.

No ablution facilities shall be located closer than 50m to any water body.

PS 10 **EXTENSION OF TIME RESULTING FROM ABNORMAL CLIMATIC CONDITIONS**

The Contractor shall make allowance for the average rainfall and windy conditions that may exist during the contract period. This allowance must be showed at the end of the program. All necessary steps shall be taken to proceed with the works despite inclement weather. The Contractor shall however record all rainy and windy periods which adversely affect the contract. Extension of time in terms of clause 5.12.2.2 of the General Conditions of Contract, arising from abnormal climatic conditions, shall be applied as follows:

Delays on working days only (based on a five-day working week) will be taken into account for the extension of time, but the Contractor shall make provision in his programme of work for an expected delay of "n" working days caused by normal inclement weather, for which he will not receive any extension of time. The value of "n" for this contract shall be based on the loss of 32 working days per annum due to inclement weather.

Extension of time during working days will be granted to the degree to which actual delays, as defined above, exceed the number of "n" working days as mentioned above.

When considering extension of time for abnormal climatic conditions, the effect of the loss of 32 working days per annum due to normal inclement weather shall be taken cumulatively over the whole contract period.

For portions of less than one year the appropriate number of days of normal inclement weather will be determined on a pro rata basis based on the following table:

MONTH	NUMBER OF NORMAL INCLEMENT WEATHER DAYS EXPECTED
January	1
February	1
March	2
April	3
May	4
June	4
July	4
August	4
September	3
October	3
November	2
December	1
Total	32

Should the Contractor wish to submit a claim for extension of time for the completion of the works due to the works being delayed by reason of exceptionally inclement weather he shall do so in writing and with the following details:

1. The times work was stopped and recommenced.
2. A motivation for the reasons construction could not continue, with reference to the agreed construction programme activities.
3. A report on active resources on site at the time of the disruption, which shall be certified by the Engineer's site representative or Clerk-of-Works.
4. The circumstances surrounding any instruction by a third party to stop work due to inclement weather (i.e. Industrial Council/Safety Officer, etc.).

The Contractor shall submit to the Engineer claims for all time lost due to inclement weather within 1 working day of the claim day, duly certified by the Engineer's representative or Clerk-of-Works, as the case may be. A record of inclement weather will be kept and recorded at site meetings on a regular basis. Only when all parts of the contract have been handed over will claims, if any, be considered for exceptionally inclement weather. The onus is on the Contractor to prove these claims.

The delays granted, in terms of this clause, shall not automatically result in an overall extension of time being granted for completion of the works unless the

effect is clearly applicable to the critical path of the agreed construction programme.

PS 11 APPLICABLE STANDARDISED SPECIFICATIONS

Although not bound in nor issued with this document, the following standardised specifications shall form part of the contract and, notwithstanding the provisions of subclause 2.2 of SABS 1200 A, the editions specified below shall apply:

SABS 1200 A - 1986 GENERAL
SABS 1200 AB - 1986 ENGINEER'S OFFICE
SABS 1200 C - 1980 SITE CLEARANCE (as amended 1982)
SABS 1200 D - 1988 EARTHWORKS (as amended 1990)
SABS 1200 DB - 1989 EARTHWORKS (PIPE TRENCHES)
SABS 1200 DK - 1996 GABIONS AND PITCHING (first revision)
SABS 1200 DM - 1981 EARTHWORKS (ROADS, SUBGRADE)
SABS 1200 L - 1983 MEDIUM PRESSURE PIPELINES
SABS 1200 LB - 1983 BEDDING (PIPES)
SABS 1200 LC - 1981 CABLE DUCTS
SABS 1200 LD - 1982 SEWERS
SABS 1200 LE - 1982 STORMWATER
SABS 1200 LF - 1983 ERF CONNECTIONS (WATER)
SABS 1200 M - 1996 ROADS (GENERAL) (first revision)
SABS 1200 ME - 1981 SUBBASE
SABS 1200 MF - 1981 BASE
SABS 1200 MJ - 1984 SEGMENTED PAVING
SABS 1200 MK - 1983 KERBING AND CHANNELLING
SABS 1200 MM - 1984 ANCILLARY ROADWORKS

PS 12 PARTICULAR SPECIFICATIONS

Although not bound in nor issued with this document, the following Particular Specifications shall form part of the contract:

- From STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE WORKS (COLTO (1998) SERIES 4000 ASPHALT PAVEMENTS & SEALS):
    - Section 4100: Prime Coat
    - Section 4200: Asphalt base and Surfacing
- Environmental Management Specification (CEMP)
- Health and Safety Specification

C.3.5.2 PORTION 2: VARIATIONS AND ADDITIONS TO STANDARDISED OR PARTICULAR SPECIFICATIONS

Departures from and/or additions to specifications listed in Portion 1 are set out on the following pages in accordance with the numbering system of the standardized or particular specification.

VARIATIONS AND ADDITIONS TO SABS 1200 SPECIFICATIONS

SABS 1200 A: GENERAL

A 3 MATERIALS

PS A 3.1 QUALITY

Substitute the second sentence of the first paragraph of A 3.1 with the following:

Materials shall bear the official mark of the appropriate standard.

Substitute the second paragraph with the following:

The Contractor is responsible for the cost of all testing to ascertain that the materials do comply with the specified minimum requirements of the relative materials and no additional payment will be made for such testing.

The Contractor shall inform the Engineer of any control testing to be done at least 48 hours before such tests are required and must allow in his program for the time necessary for the tests and the processing of the results thereof.

A 5 CONSTRUCTION

A 5.1 SURVEY

PS A 5.1.1 Setting Out of The Works

Substitute the first sentence in A 5.1.1 with the following:

Setting out of the works is the sole responsibility of the Contractor and shall be done from survey pegs along the street reserve boundaries and from bench marks as indicated on the drawings. The Contractor shall, within two (2) weeks after the site has been handed over to him, ascertain himself of the correctness of all pegs and bench marks. Any discrepancy shall immediately be reported in writing to the Engineer. Any costs or subsequent costs arising from discrepancies which had not been reported to the Engineer within the aforementioned period, shall be the sole responsibility of the Contractor.

PS A 5.2 WATCHING, BARRICADING, LIGHTING AND TRAFFIC CROSSINGS

Add the following to A 5.2:

The crossing of existing roads with services must be done in half widths.

PS A 5.4 PROTECTION OF OVERHEAD AND UNDERGROUND SERVICES

Add the following to A 5.4:

The Contractor shall as soon as possible after handing over of the site, commence with the detection to existing services, continue with it without interruption and finalise it at least 7 days before excavation starts at that particular section.

A 7 TESTING

PS A 7.4 STATISTICAL ANALYSIS OF CONTROL TESTS

Substitute A 7.4 with the following:

Test results shall not be evaluated by statistical methods. All results shall comply with the specified minimum requirements of the materials concerned.

A 8 MEASUREMENT AND PAYMENT

A 8.2 PAYMENT

PS A 8.2.5 Adjusted Payment for Time-related Items

The payment to the Contractor for time-related items shall be adjusted in accordance with the following formula in the event of the contract being extended by means of a variation order:

$$\text{Sum of Tendered amounts for time-related items} \times \frac{\text{Extended contract period as authorised by variation order.....}}{\text{Tendered contract period}}$$

The above-mentioned adjustment of the payment for time-related items shall be made in the Completion Payment Certificate and shall be the only payment for additional time-related costs.

PS A 8.7 DAYWORK

Replace A 8.7 with the following:

Daywork will be paid according to the percentage allowance method, calculated as per the appropriate clauses in the general conditions of contract, and using the percentage stipulated in the Contract Data.

A 8.8 TEMPORARY WORKS

PS A 8.8.2 Accommodation Of Traffic ..... Unit : Sum

Add the following to A 8.8.2:

The rate shall cover all costs pertaining to the provision, erection, moving, re-erection and maintenance of all temporary barricades, road signs, lights, flagmen, etc. as required, for the guarding and protection of the works, for the maintenance of existing access roads to the site of the works, borrow pits or spoil sites, as well as for the later cleaning and tidying up thereof, for making the necessary traffic arrangements and arrangements with regard to the moving and/or re-erection of existing traffic signs, as well as all other costs to accommodate the traffic during construction. The rate shall also cover all costs pertaining to the adherence of the requirements of the South Africa Road Traffic Sign Manual pertaining to this.

Should bypasses or detours require to be constructed on instruction from the Engineer, the construction and removal thereof will be paid for separately under the relevant items.

PS A 8.8.4 Existing Services

Add the following to A 8.8.4:

Where the Contractor is responsible for the cost of repairs carried out by the Employer or others, the costs will be recovered by means of a deduction from the Contractor's monthly payment certificate. The Employer will attend to the payment of monies due to others.

PS A 8.8.5 **Cost Of Survey In Terms Of The Land Survey Act ..... Unit : Sum**

Substitute A 8.8.5 with the following:

The sum shall cover the cost of all labour, plant and material required for the searching and compilation of a list, all in accordance with the requirements as set out in clause A 5.1.2.

PS A 8.8.7 **PROVISION OF SERCURITY**

The rate shall cover whatever security the contractor requires

The minimum requirement is**:**

- 24-hour armed guards at contractor's camp and at work locations
- Armed response

VARIATIONS AND ADDITIONS TO SABS 1200 SPECIFICATIONS

SABS 1200 AB: ENGINEER'S OFFICE

AB 3 MATERIALS

PS AB 3.1 NAMEBOARDS

Substitute "South African Institution of Civil Engineers" in the first paragraph of AB 3.1 with "South African Association of Consulting Engineers".

PS AB 3.2 OFFICE BUILDINGS

A furnished container office and facilities are required for the full-time Resident Engineer, as described in this clause. The Contractor shall also provide a facility at his office for site meetings, and make his facilities available for use by the Engineer when visiting the site.

AB 4 PLANT

PS AB 4.1 TELEPHONE

Substitute AB 4.1 with the following:

A separate telephone for the Engineer is not required. The Contractor must provide an internet connection to the full-time Resident Engineer - with unlimited data.

AB 5 CONSTRUCTION

PS AB 5.1 NAMEBOARDS

Add the following to AB 5.1:

The nameboards shall be erected within one month after receipt of the letter of acceptance and shall be placed at the position indicated by the Engineer, and kept in good repair for the duration of the contract and the defects liability period. Any damage to these boards shall be repaired within fourteen days of a written instruction issued by the Engineer. No payment shall be made in terms of the contract prior to the erection of the nameboards.

The Contractor will be permitted to erect a maximum of two of his own nameboards, in positions approved by the Engineer. The Engineer reserves the right to order the removal of these boards if they are not kept in good repair.

PS AB 5.5 SURVEY ASSISTANTS

Substitute "two or more suitably educated survey labourers" in the first sentence of AB 5.5 with "two semi-skilled labourers."

PS AB 5.6 **SURVEY EQUIPMENT**

The Contractor shall provide the following tested and approved survey equipment on site for the duration of the contract and for the use of the Engineer whenever needed:

a) one tachometer capable of reading to minimum 20 seconds and maximum 6 seconds of arc, plus tripod;

b) one automatic level plus tripod;

c) two tachometer staffs and one level staff, all graduated metrically; and

d) one 5 m and one 100 m tape measure.

The above-mentioned equipment may by arrangement be shared between the Contractor and the Engineer's representative.

The Contractor shall keep the equipment continuously insured against any loss, damage or breakage, and he shall indemnify the Engineer and the Employer against any claims in this regard.

The Contractor shall maintain the equipment in good working order and keep it clean throughout the contract period.

AB 8 **MEASUREMENT AND PAYMENT**

AB 8.2 **PAYMENT**

PS AB 8.2.2 **Telephone, Survey Assistants And Survey Equipment**

No payment shall be made for the telephone, survey assistants or survey equipment and all costs shall be deemed to be covered by the rates tendered for the Contractor's facilities.

VARIATIONS AND ADDITIONS TO SABS 1200 SPECIFICATIONS

SABS 1200 C: SITE CLEARANCE

C 3 MATERIAL

PS C 3.1 DISPOSAL OF MATERIAL

Substitute the first sentence of C 3.1 with the following:

Material obtained from clearing and grubbing and demolition structures shall be disposed of at a dump site procured by the Contractor.

C 5 CONSTRUCTION

PS C 5.1 AREAS TO BE CLEARED AND GRUBBED

Substitute the first sentence of C 5.1 with the following:

Unless otherwise indicated by the Engineer, clearing and grubbing are limited to the street reserves or such wider area as is necessitated by the street prism, borrow pits, areas for earthworks and a 3 m wide strip for pipelines not in street reserves. No trees are to be removed. The Contractor may proceed with clearing and grubbing after the handing over of the site. Measurement and payment for clearing and grubbing shall only occur for areas as required in writing by the Engineer.

Substitute the last paragraph with the following:

The Contractor shall program his work in such a manner that reclearing will not be necessary. The cost of reclearing shall be borne by the Contractor.

C 5.2 CUTTING OF TREES

C 5.2.3 Preservation Of Trees

PS C 5.2.3.2 Individual trees

Add the following to C 5.2.3.2:

Trees outside area for earthworks, street, channel and pipeline routes must be left standing and undamaged, except where otherwise ordered, in writing, by the Engineer.

A penalty of R6000-00 per tree for trees damaged and/or removed will be charged.

C 8 MEASUREMENT AND PAYMENT

C 8.2 SCHEDULED ITEMS

PS C 8.2.7 **Dismantle And Remove Pipelines, Electricity Transmission Lines, Cables etc. ..... Unit : m**

Add the following to C 8.2.7:

Existing pipelines, cables, etc shall only be dismantled subject to written instruction by the Engineer. Excavation and backfilling shall be measured in the appropriate items of SABS 1200 DB : Earthworks (pipe trenches).

PS C 8.2.8 **Removal of structures.....Unit : Sum**

The cost shall cover the breaking down of the structure, including underground foundations; the loading, removal, transport and disposal at approved dump sites. The rate should also include the dumping fee.

VARIATIONS AND ADDITIONS TO SABS 1200 SPECIFICATIONS

SABS 1200 D : EARTHWORKS

D 2 INTERPRETATIONS

PS D 2.3 DEFINITIONS

Add the following to D 2.3:

Sand (cohesionless and non-cohesive)

For the purposes of the compaction requirements, a non-plastic material of which not less than 95 % by mass passes a sieve of nominal aperture size 4,75 mm, and not more than 10 % passes a sieve of nominal aperture size 0,075 mm.

D 3 MATERIALS

D 3.3 SELECTION

PS D 3.3.1 General

Substitute the second paragraph of D 3.3.1 with the following:

The Contractor shall deal selectively with material from general excavation. Any imported material in road reserves that do not comply with the minimum requirements for the respective layers, shall be removed and replaced with suitable material, all at the Contractor's expense.

The Contractor shall deal in such a way with materials from all excavations for streets, channels or pipe trenches to ensure that usable material is not contaminated with unsuitable material. If usable material is contaminated, such contaminated material shall be removed and replaced with suitable material, all at the Contractor's expense. No additional payment shall be made in respect of this and all relevant costs shall be deemed to be included in the tendered rates.

All unsuitable material shall be removed prior to importing fill material to such areas.

PS D 3.4 MATERIAL FOR SUBSOIL DRAINAGE

PS D 3.4.1 Pipes

Pipes for subsoil drainage shall be uPVC pipes complying with the requirements of SABS 791, but shall be perforated or slotted.

The size of perforations in perforated pipes shall in all cases be 8 mm in diameter ± 1,5 mm and the number of perforations per metre shall be not less than 26 for 110 mm pipes and 52 for 160 mm pipes. Perforations shall be spaced in two rows for 110 mm pipes and in three rows for 160 mm pipes.

Slotted pipes shall have a slot width of 8 mm ± 1,5 mm. The arrangement of slots shall be subject to the Engineer's approval, but the total slot area shall be not less than that presented for perforations.

Pipes without slots or perforations required for conveying ground water from the subsoil drainage proper to the point of discharge, shall be uPVC pipes as specified above.

PS D 3.4.2 **Crushed-stone**

Crushed-stone in subsoil drains shall be 19 mm single-sized stone complying with the grading requirements of stone for concrete in SABS 1083.

PS D 3.4.3 **Geotextile Blanket**

The geotextile blanket around subsoil drains shall comply with the requirements of PS DK 3.1.4.

PS D 3.4.4 **Sand**

Sand in subsoil drains shall comply with the requirements of PS D 2.3.

D 4 **PLANT**

PS D 4.5 **AVOIDING QUAGMIRE CONDITIONS**

In order to prevent quagmire conditions occurring in the excavations, relatively static plant such as back-actors shall be used combined with hand trimming to complete the excavation to final level. Should the Contractor allow quagmire conditions to develop, he shall, at his own expense, take such steps to rectify the conditions as the Engineer may order.

D 5 **CONSTRUCTION**

D 5.1 **PRECAUTIONS**

PS D 5.1.2 **Existing Services**

PS D 5.1.2.2 **Detection, location and exposure**

Add the following to D 5.1.2.2:

If existing services are not shown on the drawings but the existence thereof can be reasonably expected, the Contractor shall, in conjunction with all relevant authorities, determine the exact depth and location of such services before the commencement of construction. After locating the exact position of services, whether indicated on the drawings or not, such services shall be deemed to be known services and the Contractor shall be liable for all costs and subsequent costs arising from the damage thereof as a result of the Contractor's activities. These services must also be indicated on the "As Built" drawings.

PS D 5.1.2.3 **Protection Of Cables**

Substitute "estimated position" in the second sentence of D 5.1.2.3 with "actual or exposed position".

PS D 5.1.4 **Nuisance**

PS D 5.1.4.1 **Dust nuisance**

Add the following to D 5.1.4.1:

The Contractor is responsible for dust control and is liable for all claims that may result from dust nuisance on all parts of the site and at all times from the date of handing over of the site to the completion date of the contract. No payment regarding the above-mentioned will be made and all costs shall be deemed to be covered by the tendered rates.

Should straw stabilisation be required, the Contractor shall programme his activities such that straw stabilisation is done immediately after the earthworks have been completed.

PS D 5.1.6 **Road Traffic Control**

Add the following to D 5.1.6:

a) Sufficient road signs must be erected in such a way that motorists will be warned in time of works, eg. at the closing of a street sufficient signs to direct traffic must be erected at the preceding intersection.

b) Bypasses and/or road signs shall be provided and/or erected at all locations where the free flow of traffic is obstructed and shall be approved by the Engineer before the commencement of construction. Where main roads are crossed, detours and temporary traffic signs must be provided as shown on the attached drawings.

c) Where a trench crosses a street or any place where a trench crosses the direction of traffic flow, drums must be placed in the street and not just along the sides of the street with danger tape in between.

d) Danger tape must be put up between drums and tied around the drums.

e) Drums may not be filled with stones. The spacing of drums must be in such a way (maximum 5 m) that they are visible from all directions.

f) Sufficient safety measures must be utilised for pedestrians.

D 5.2 **METHODS AND PROCEDURES**

D 5.2.1 **Site Preparation**

PS D 5.2.1.2 **Conservation of topsoil**

Add the following to D 5.2.1.2:

Removal of topsoil shall only occur in areas as approved, in writing, by the Engineer. The topsoil shall be conserved for use elsewhere.

D 5.2.2 **Excavation**

PS D 5.2.2.1 **Excavations for general earthworks and for structures**

Add the following to D 5.2.2.1:

Strip foundations and encasement of pipes shall be cast directly against excavated surfaces.

Materials under foundations and floors of structures which are regarded by the Engineer as unsuitable for the bearing of such structures shall be removed to the depths and widths ordered. The excavated voids shall then be filled with sand compacted to 100 % of MAASHTO density, to the underside of such foundation or floors, unless a soil cement mixture in terms of PS D 5.2.3.2 is ordered by the Engineer.

PS D 5.2.2.3 **Disposal**

Substitute the second sentence of D 5.2.2.3 with the following:

Suitable surplus material from excavations shall be utilised as fill material where filling is required of which the positions and levels are shown on the drawings, and should be placed, spread, shaped to the specified levels and compacted to 93% (100% for sand) of Mod AASHTO density.

All surplus and unsuitable material shall be disposed of at an approved dump/spoil site off the site. The Contractor shall be responsible for acquiring a dump/spoil site for this purpose and all costs incurred, including transport to, and royalties (if applicable), shall be borne by the Contractor.

PS D 5.2.2.4 **Excavation by hand around existing services**

Where hand excavation is required around existing services it shall be done within 3,0 m above and on both sides of cables and within 300 mm above and on both sides of pipes, as well as underneath the services.

PS D 5.2.3.1 **Embankments**

Add the following to D 5.2.3.1:

Embankments of ponds and terraces shall be constructed of approved material from excavations and shall be compacted to 95 % of the standard Proctor density, in layers not exceeding 150 mm in depth.

PS D 5.2.3.2 **Backfilling of trenches and backfilling against structures**

Add the following to D 5.2.3.2:

Backfilling around structures shall be compacted to 95 % (100 % for sand) of MAASHTO density.

When specified or ordered by the Engineer the backfilling against structures shall be done using a mixture of soil cement. The mixture shall contain 5 % cement and just sufficient water for it to be placed and compacted like ordinary backfilling material.

D 5.2.4 **Finishing**

PS D 5.2.4.1 **Final grading**

Add the following to D 5.2.4.1:

Embankments shall be trimmed to an even grade of 1 in 2.

PS D 5.2.4.2 **Top soiling**

Add the following to D 5.2.4.2:

Topsoil shall be placed on the sides and on the tops of embankments and other terraces where no paving is specified, or in areas where directed by the Engineer.

PS D 5.2.4.6 **Straw stabilisation**

Areas where surplus/excavated material is filled/spoiled, shall if required by the Engineer, be stabilised once the placing and compaction of such material has be completed. Straw shall be evenly spread at an application rate of one bale of straw (mass ± 50kg) per m². The straw shall be mixed into the top 150mm layer by means of a rotavator or other approved equipment until a homogeneous mixture is obtained.

PS D 5.2.5 **Transport for Earthworks**

PS D 5.2.5.1 **Freehaul**

Replace 5.2.5.1 with:

All haul of material imported from commercial sources or from areas within the boundaries of the works will be regarded as freehaul.

PS D 5.2.5.2 **Overhaul**

No unlimited overhaul or long overhaul will be applicable to this contract.

D6 **TOLERANCES**

PS D 6.1 **POSITION, MEASURE, LEVES, ETC**

Add the following to D6.1:

Degree of accuracy II will apply to this contract

D 8 MEASUREMENT AND PAYMENT

D 8.3 SCHEDULED ITEMS

PS D 8.3.2 **Bulk Excavation**

The rate for cut to spoil shall also include all costs for transporting (limited and long overhaul) as well ss dumping fees (royalties).

a) Excavate in all materials and use for embankment or backfill or dispose, as ordered.....Unit : m^3

Add the following to D 8.3.2(a):

There will also be distinguished between the different types of fill and backfill as well as the different densities to which each will be compacted.

D 8.3.8 **Existing Services**

PS D 8.3.8.1 **c) Excavate by hand in soft material to expose service ..... Unit : m^3 or day work**

Where hand excavation around existing services do occur it shall be measured within 3 m above and on both sides of cables, and within 500 mm above and on both sides of pipes, as well as all excavations underneath the services.

VARIATIONS AND ADDITIONS TO SABS 1200 SPECIFICATIONS

SABS 1200 DB : EARTHWORKS (PIPE TRENCHES)

DB 1 **SCOPE**

Add the following to DB 1.1:

This specification additionally covers the excavation for cable trenches.

PS DB 2.2 **APPLICATION**

Substitute "pipe trenches" with "pipe and cable trenches" in DB 2.2.

DB 3 **MATERIALS**

PS DB 3.5 **BACKFILL MATERIALS**

a) Substitute "from trenches" in DB 3.5(a) with "from trenches, channel or street excavations".

Add the following to DB 3.5(b):

c) All pipe trenches in street reserves shall be classified as areas subject to loads from road traffic.

d) All pipe trenches underlying or adjacent to the carriageway shall be backfilled with sand complying with the requirements for A3 materials, as specified in PS D 3.4.

DB 3.6 **MATERIALS FOR REINSTATEMENT OF ROADS AND PAVED AREAS**

PS DB 3.6.1 **Subbase And Base**

Substitute DB 3.6.1 with the following:

Where trenches cross or run adjacent to surfaced roads and paved areas of which the surfaces are scheduled to be reinstated, the material excavated from the existing base and/or subbase pavement layer(s) shall be set aside and used in the reconstruction of the subbase layer. Where applicable new material complying with the requirements of SABS 1200 MF shall be used in the reconstruction of the base layer. Any shortfall in material for the reconstruction of the subbase layer shall be made up by the use of material complying with the requirements of SABS 1200 ME.

DB 4 **PLANT**

PS DB 4.1 **EXCAVATION EQUIPMENT**

Add the following to DB 4.1:

All excavations exceeding the specified widths, shall be backfilled with approved selected material. No payment shall be made for this and all relevant costs shall be deemed to be included in the tendered rates.

DB 5 **CONSTRUCTION**

PS DB 5.2 **MINIMUM BASE WIDTHS SPECIFIED**

Substitute paragraph (b) of DB 5.2 with the following:

The minimum base width for all pipes with a diameter less than 125 mm shall be 600 mm plus the outside diameter of the pipes, irrespective of the depth at which they are laid, except for subsurface drains where the width shall be 400 mm and for house water connections where the width shall be 300 mm.

The base width of box culverts shall be the net width of the in situ cast bottom slab or the net width of the precast bottom slab plus 100 mm.

A bedding is required for all pipes with a diameter less than 125 mm, except for subsurface drains.

The minimum base width for Telkom ducts shall be 500 mm.

The minimum base width for electric cable trenches shall be 500 mm. Where more than one cable is installed in the same trench, the base width shall become 300 mm plus the distances specified between the centre lines of the cables (50 mm minimum).

PS DB 5.4 **EXCAVATION**

Add the following to DB 5.4:

Excavation and backfilling of pipe trenches on sidewalks in existing areas shall be done in such a way as to ensure the least possible disruption to the public and entrances to properties. No additional payment shall be made for this and all relevant costs shall be deemed to be included in the tendered rates. Electric cable trenches shall be dug in lengths as requested by the electrical contractor."

The provisions of PS D 5.2.2.4 shall apply mutatis mutandis for hand excavation.

DB 5.5 **TRENCH BOTTOM**

Replace "90%" in the second paragraph of DB 5.5 with "93% (100% for sand)".

DB 5.6 **BACKFILLING**

PS DB 5.6.2 **Material For Backfilling**

Substitute "from trench excavations" in the first paragraph of DB 5.6.2 with "from trench, channel or street excavations".

PS DB 5.6.3 **Disposal Of Soft Excavation Material**

Add the following to DB 5.6.3:

All surplus and unsuitable material as described in DB 5.6.3 shall be disposed of at the spoil site, (as described in PS D 5.2.2.3) and levelled.

PS DB 5.6.8 **Transport for earthworks**

Add to DB 5.6.8

The requirements of PS D 5.2.5.1 and PS D5.2.5.2 shall apply mutatis mutandis.

DB 5.7 **COMPACTION**

PS DB 5.7.2 **Areas Subject To Traffic Loads**

Add the following to DB 5.7.2:

All pipe trenches that fall in the street reserves will be regarded as areas subject to traffic loads.

Sand backfilling shall be compacted to 100 % of MAASHTO density.

DB 5.9 **REINSTATEMENT OF SURFACE**

PS DB 5.9.4 **Bitumen Roads : Subbase And Base**

Add the following to DB 5.9.4:

Any additional imported material required for the reinstatement of selected layers, subbase or base shall comply with the requirements of the relevant standardised and/or project specifications.

PS DB 5.9.5.1 **Bitumen Roads : Surfacing**

Add the following to DB 5.9.5.1:

The thickness of the asphalt shall be 40 mm for all streets except if specified otherwise.

DB 8 **MEASUREMENT AND PAYMENT**

PS DB 8.1 **BASIC PRINCIPLES**

Add the following to DB 8.1.2(b):

The depth of electric cable trenches is as indicated on the relevant drawings.

DB 8.2 **COMPUTATION OF QUANTITIES**

PS DB 8.2.4 **Shoring**

Add the following to DB 8.2.4:

Shoring will only be measured and paid for if instructed by and written approval is given by the Engineer before it is installed, for specific instances due to space constraints.

DB 8.3 **SCHEDULED ITEMS**

PS DB 8.3.2 **Excavation**

PS DB 8.3.2 **a) Excavate in all materials for trenches, backfill, compact and dispose of surplus material ..... Unit : m**

Add the following to D 8.3.2(a):

The depth of excavation in street reserves shall be measured from the final finished level.

In cases where services lay parallel to steep slopes, the depth of the excavation will be measured along the centre of the trench (on the route of the service).

The rate for excavation for subsurface drains shall cover the cost of excavation and spoil of surplus material within 1,0 km.

The rate shall also provide for the fact that the excavation width in sand will be wider than normal and that fast excavation and backfill will reduce ground water seepage.

No additional payment will be made for control of water in the excavations, nor for shoring, and thus the rate must also allow for all costs pertaining to these aspects.

PS DB 8.3.2 **c) Excavate unsuitable material from trench bottom ..... Unit : m^3**

Delete "and the disposal" in the heading of DB 8.3.2(c) and in the last paragraph.

DB 8.3.3 **Excavation Ancillaries**

PS DB 8.3.3.1 **Make up deficiency in backfill material (provisional) ..... Unit : m^3**

Add the following to DB 8.3.3.1:

d) Stockpile .....Unit : m^3

Add the following to the last paragraph of DB 8.3.3.1:

No payment will be made for the transport of material from commercial sources or sources outside the site that the Contractor has selected.

The volume for this item will be measured as per the standard vertical sides of the SABS 1200 DB drawing, and the rate should allow for the fact that the actual trench may be wider.

PS DB 8.3.3.3 **Compaction in road reserves ..... Unit : m^3**

Add the following to DB 8.3.3.3:

This item is only applicable to the backfill above the bedding and fill blanket.

DB 8.3.5 **Existing Services That Intersect Or Adjoin A Pipe Trench**

PS DB 8.3.5 **a) Services that intersect a trench ..... Unit : No**

Add the following to DB 8.3.5(a):

Existing services with a depth of cover exceeding 300 mm, measured from the bottom of excavation to the top of the existing service shall not be measured and paid for. There will be distinguished between existing trunk services and existing erf connection.

The rate shall also allow for the following costs:

i) Sufficient photo's have to be taken of existing services and handed over to the Engineer before they are being crossed, if there is a possibility of a difference in opinion over the condition of those services, especially on private property.

ii) If such a service is damaged, it has to be repaired to its original condition or if possible, to a standard agreed to in writing with the relevant owner. This agreement has to be approved by the Engineer.

iii) If such a service is removed, it has to be replaced as per original.

PS DB 8.3.5 **b) Services that adjoin a trench ..... Unit : No or m**

Add the following to DB 8.3.5 (b):

The unit "number" will only be used for services such as poles and trees.

No payment will be made for overhead services that do not rest directly on the ground except where allowance is made for this in the schedule of quantities.

Existing services that rest directly on the ground e.g. poles, trees, walls and structures are handled in the same way as underground services, but the axis of the service will be determined as follows:

The vertical axis is defined as the nearest side or corner of the existing structure to the excavation, measured at the point where the structure and natural ground level intersect.

The horizontal axis will be at the point where the structure and the natural ground level intersects. In this instance, where the excavation falls above the 45° line but

within 1,0 meter horizontally from the structure, the service will also be measured as adjoining.

If the structure, according to the above-mentioned, does not qualify as an adjoining service but the foundation of the structure is such that if a 45° line drawn from the nearest bottom corner thereof cuts through the excavation, the structure will be measured as an adjoining service if approved by the Engineer.

There will be distinguished between existing trunk services and existing erf connection.

VARIATIONS AND ADDITIONS TO SABS 1200 SPECIFICATIONS

SABS 1200 DK : GABIONS AND PITCHING

DK 3 **MATERIALS**

DK 3.1 **GABIONS**

PS DK 3.1.4 **Geotextile**

Substitute DK 3.1.4 with the following:

a) **Composition and manufacture**

The geotextile shall be manufactured from a synthetic polymer processed into a permeable, homogeneous sheet. Due to the temperature and moisture susceptibility of polyamide, this synthetic product is not considered acceptable.

b) **Classification**

Geotextiles are classified in three grades according to the mechanical properties and the minimum required water-percolation rate. The mechanical properties are specified in terms of its penetration load and puncture resistance.

The geotextile for subsurface drainage shall comply to grade 2 or grade 3 as specified in the schedule of quantities or shown on the drawings. Only non-woven geotextiles complying to the requirements of grade 1 and with a minimum mass of 320 gram per square metre, as determined in accordance with test method 3.4 of SABS 0221, shall be considered for river protection works or filter backing for the protection of earthworks against erosion.

The standard atmosphere for testing and the preconditioning atmosphere for all geotextile tests (SABS tests and others) shall have a relative humidity in the range of 0 to 80 per cent and a temperature in the range of 15 °C to 35 °C.

c) **Penetration load**

The penetration load at rupture shall be measured in accordance with test method 3.5 of SABS 0221. The penetration load of the geotextile at rupture shall comply with the following specification:

GRADE	PENETRATION MINIMUM
1	3 800 N
2	2 400 N
3	1 600 N

d) **Puncture resistance**

The resistance of a geotextile to puncture is the average diameter of the hole formed when a 45° cone with a mass of 1 kg is dropped through 500 mm onto the geotextile fixed in the holding device and shall be determined in accordance with the test method given in the CPA : Roads and Traffic Administration Branch's March 1990 edition of Standard Project Specification, Volume 4, Section 8100. A copy of the test method for scrutiny is also available at the Engineer's office. The puncture resistance of the geotextile shall comply with the following specification:

GRADE	PUNCTURE RESISTANCE MAXIMUM
1	14 mm
2	26 mm
3	32 mm

e) **Water percolation**

The water percolation shall be measured in accordance with the permeability test method 3.7 of SABS 0221. The water percolation of the geotextile shall comply with the following specification:

GRADE	WATER PERCOLATION MINIMUM
1	20 l / m^2/s
2	20 l / m^2/s
3	20 l / m^2/s

f) **Durability**

The geotextile is required to comply with the following specification:

i) **Resistance to chemical attack**

The geotextile shall withstand the level of aggressiveness of the soil and ground water given below without any significant loss of its strength and hydraulic properties during its design life of 25 years.

Soil and ground water with a pH in the range of 4 to 12 (pH to be determined by method A20, TMH1, 1990).

Soil (as paste) and ground water containing salts with a conductance of up to 1,0 S/m (conductivity to be determined by method A21T, TMH1, 1990).

ii) **Resistance to ultra violet light**

The geotextile shall maintain at least 80 % of its original strength after direct exposure of 1 500 hours of sunlight.

iii) **Resistance to rot**

The geotextile shall be totally rot-proof and shall not support the growth of algae.

g) **Functional evaluation**

Functional evaluation of a geotextile which complies with the classification specification shall be done on the basis of the permeability test in accordance with the test method given in CPA : Roads and Traffic Administration Branch's March 1990 edition of Standard Project Specification, Volume 4, clause B 8117. A copy of the test method for scrutiny is also available at the Engineer's office. The test is conducted on the geotextile in combination with the soil sample obtained from the site where the geotextile is required. The permeability coefficient K_{400} of the geotextile-soil system shall be classified according to the following specification:

SOIL	P (%)	P ≤ 1,0	1,0 < P ≤ 7,0	7,0 < P ≤ 50	P > 50
	D10(mm)	D10 ≥ 0,150	0,095≤ D10<0,150	0,007≤ D10<0,095	D10 < 0,007
K_{400}	HIGH	K400 ≥ 46	K400 ≥ 19	K400 ≥ 9	K400 ≥ 6
	MEDIUM	15 ≤ K400 < 46	6 ≤ K400 < 19	3 ≤ K400 < 9	2 ≤ K400 < 6

K_{400} = permeability coefficient after 400 hours of testing expressed as a percentage of the permeability coefficient at the start of the test.

P = percentage passing through the 0,075 mm sieve.

D_{10} = the diameter of the grain size, such that 10 per cent by mass is smaller.

The geotextile-soil system shall fall in either the medium or high range of K_{400}. In general, the geotextile with the highest value of K_{400} will be specified for use with the particular geotextile-soil combination. However, if more than one geotextile-soil combination fall in the high range of K_{400}, then the cheaper geotextile shall be specified unless actual performance in the field indicates otherwise. (**NOTE:** Transportation must also be included in the cost, if applicable.)

In the case where several geotextiles fall in the medium or high ranges and no one geotextile has the highest value of K_{400} for all the geotextile-soil combinations tested for the particular site or group of sites, then it may be expedient to use one geotextile for all or most of the sites. In the latter case the cheapest geotextile shall be selected which meets all the specified requirements unless actual performance in the field indicates otherwise.

In addition to the above specification, the following requirement to prevent excessive piping shall also apply: discolouration of the water shall not be visually discernible for longer than eight hours after the start of the test.

All test results shall be submitted to the engineer for final approval of the geotextile or geotextiles selected for a site or several sites.

DK 5 **CONSTRUCTION**

PS DK 5.3.1 **GENERAL**

Replace "at least 90%" with at least 93% (100% for sand)".

VARIATIONS AND ADDITIONS TO SABS 1200 SPECIFICATIONS

SABS 1200 DM : EARTHWORKS (ROADS, SUBGRADE)

DM 3 MATERIALS

PS DM 3.1 CLASSIFICATION FOR EXCAVATION PURPOSES

Add the following to DM 3.1:

All in situ pavement material shall be classified as soft material for excavation purposes.

DM 3.2 CLASSIFICATION FOR PLACING PURPOSES

PS DM 3.2.3 Selected Layers

Substitute DM 3.2.3 with the following:

Materials used for selected layers shall comply with the requirements of standard specification 1200 M.

All imported material underlying the subbase or base of the final road prism, whichever may be applicable, that does not comply with the requirements for lower selected layer or upper selected layer in the respective depth categories, shall be removed and replaced with material complying with the requirements of selected layers.

Where required for drainage purposes, the Engineer may instruct that free-draining sand be used in the selected layers. The same specification as above will shall apply, except the grading requirements.

DM 4 PLANT

PS DM 4.2 PLANT FOR TREATMENT BELOW SELECTED LAYER

PS DM 4.2.1 Pneumatic-Tyred Roller

Pneumatic-tyred rollers shall be of the self-propelled type that is equipped with smooth pneumatic-tyred wheels of the same diameter. The mass of the roller shall be at least 10 tons. All wheels must bear the same mass.

The rollers must be equipped with devices that will be able to keep the wheels wet and clean during operation.

The wheels of the roller shall be arranged in such a way that one pass with the roller will cover the whole width of the machine. The roller must be able to take a tyre pressure of 600 kPa and the minimum allowed working tyre pressure shall be 450 kPa. The maximum difference in pressure between any two wheels shall not be greater than 35 kPa.

DM 5 **CONSTRUCTION**

DM 5.1 **PRECAUTIONS**

PS DM 5.1.2 **Accommodation Of Traffic**

Add the following to DM 5.1.2:

Bypasses shall be constructed and road signs erected where the free flow of public traffic is restricted. Such bypasses and road signs shall be in accordance with the "CSRA-CUTA : Road Traffic Signs Sub-committee; Road Signs Note no 13, the SA Road Traffic Signs Manual" and shall be approved by the Engineer before the commencement of construction.

DM 5.2 **METHODS AND PROCEDURES**

DM 5.2.2 **Cut And Borrow**

PS DM 5.2.2.2 ..... **Dimensions of cuts**

Substitute "subbase" in the second paragraph of DM 5.2.2.2 with "subbase or selected layer, whichever may be applicable", and

Substitute "CBR of at least 7" with "CBR as applicable according to the provisions of PS DM 3.2.3".

PS DM 5.2.2.3 ..... **b) Cut to spoil**

Substitute DM 5.2.2.3(b) with the following:

All surplus and/or unsuitable material shall be removed from the site and disposed of at the spoil site (as described in PS D 5.2.2.3) and shall be shaped to establish a free draining surface.

PS DM 5.2.2.4 ..... **Temporary stockpiling of materials**

Add the following to DM 5.2.2.4:

The Contractor shall program the works in such a manner that suitable excavated material shall, if practically possible, be placed directly in the appropriate position to ensure that temporary stockpiling is limited to an absolute minimum. No payment shall be made for the temporary stockpiling of material where such material is to be used for backfilling of pipe trenches, except when so ordered in writing by the Engineer.

DM 5.2.3 **Treatment Of Road-bed**

PS DM 5.2.3.3 ..... **Treatment of road-bed**

a) Preparation and compaction of road bed.

Substitute the first paragraph of DM 5.2.3.3(a) with the following:

The road-bed shall be scarified to a depth of 150 mm, watered, shaped and compacted to 93 % of MAASHTO density (100 % for sand), except where otherwise ordered by the Engineer.

Any portion of the rod-bed that lies within the selected layers and that, with the exception of its density, complies with the requirements of selected layer material, shall be scarified to the necessary depth, watered, shaped and compacted to 93 % of MAASHTO density (100 % for sand) over the specified depth for selected layers.

In clay areas only excavation and shaping to the correct level will be necessary.

Add the following subclause:

(c) In situ preparation of road-bed with eight roller passes.

Any part of the road-bed that lies within the selected layer and which, regardless of its density, is suitable according to the Engineers opinion, can be used in situ if so instructed by the Engineer.

If due to the nature of material, the degree of compaction cannot be controlled by means of in situ density tests, the Engineer may instruct compaction to be done by eight roller passes as specified in PS DM 4.2. The Engineer may further request that the compaction effort be altered by increasing or reducing the number of passes and that payment be amended accordingly.

The surface of the road-bed shall be shaped true in respect of line and level within the tolerances as specified in clause 6. During the shaping of the road bed, all material that has to be removed and cannot be re-used, shall be disposed of and will be paid for under item PS DM 8.3.7. If necessary, additional material that has been approved by the Engineer shall be imported to meet the required levels.

No strict measurements in connection with soil moisture content will be applied by the Engineer during compaction. The Contractor must however convince the Engineer that all possible efforts have been made to utilise favourable soil moisture conditions. Compaction must be done during periods when the road-bed is not to wet or to dry. The Engineer has full authority to decide whenever conditions are favourable for compaction, and may at any stage instruct the Contractor to water the road-bed at the Contractors expense if he, in the Engineer's opinion, neglected to satisfy the above-mentioned requirements.

PS DM 5.2.5 **Selected Layer**

Add the following to DM 5.2.5:

Where the quality of the in-situ material that lies within the selected layers complies with the requirements of selected layer material, these areas will be treated as described in PS DM 5.2.3.3 (Treatment of road-bed)

The Engineer may, depending on the quality of the in-situ material, order the omission of one or both of the selected layers. To determine the amount of selected layers, if any, the Engineer may order the Contractor to dig test holes with maximum dimensions of 1,5 m x 1,5 m and 1,0 m deep at positions indicated by the Engineer, before construction commences. The Contractor must allow for this in his programming of works. The Contractor shall backfill all test holes with selected material and compact it to 95 % of MAASHTO density (100% for sand), after the Engineer has taken samples and profiled the holes.

PS DM 5.2.5.1 **Freehaul**

Replace 5.2.8.1 with:

All haul of material imported from commercial sources or from areas within the boundaries of the works will be regarded as freehaul.

PS D 5.2.5.2 **Overhaul**

Replace 5.2.8.2 with:

No unlimited overhaul or long overhaul will be applicable to this contract.

PS DM 5.2.9 **Shaping And Compacting Below Selected Layer**

Each portion of the road-bed below the selected layer which, by virtue of its inadequate natural density, is directed by the Engineer to be compacted by means of a pneumatic-tyred roller, shall be prepared by shaping where necessary, and each such portion shall be compacted by means of at least eight complete passes by a pneumatic-tyred roller. One pass shall consist of the complete area being systematically passed in the longitudinal direction so that each pass overlaps the previous by half.

DM 6 **TOLERANCES**

PS DM 6.5 **DIMENSIONS AND LEVEL CONTROL**

The Contractor shall submit to the Engineer, in a form acceptable to the Engineer, records of dimension and level control, prior to requesting the Engineer to carry out any routine inspections.

DM 7 **TESTING**

PS DM 7.2 **PROCESS CONTROL**

Amend table 1 of DM 7.2 as follows:

Substitute "2 000 m^2" with "1 500 m^2", "1 500 m^2" with "1 200 m^2 and "5 000 m^2" with "3 000 m^2".

DM 7.3 **ROUTINE INSPECTION AND TESTING**

Substitute DM 7.3.2 with the following:

No density shall be less than the specified minimum density for the relevant layer.

The cost of all routine testing done by the Engineer, and of which the results do not comply with the specified minimum requirement for the material, shall be borne by the Contractor and will be subtracted from the monthly payment certificates.

DM 8 **MEASUREMENT AND PAYMENT**

DM 8.3 **SCHEDULED ITEMS**

PS DM 8.3.3 **Preparation Of Road Bed**

Substitute DM 8.3.3(b)(1) and (2) with the following:

b) Preparation of in situ road-bed in:

1) Intermediate material Unit : m^3

2) Hard rock material Unit : m^3

Add the following subclauses:

(c) In situ preparation of road-bed with eight roller passes (pneumatic roller) ..... Unit : m^2

The unit of measurement is in square metres of road bed which has been treated with eight roller passes.

The rate shall cover the costs of shaping, watering and compacting all as specified in PS DM 5.2.3.3(c). The removal, disposal, transport and replacing of materials will be paid under the appropriate items.

(d) Variations in compaction effort (pneumatic roller) ..... Unit : m^2.pass

The unit of measurement is the surface on which the variation is applicable multiplied by the amount with which the compaction effort was reduced or increased as instructed by the Engineer.

If there is a change in compaction effort, as instructed by the Engineer, the Contractor will be paid as for the standard effort, except that the amount as calculated above will be subtracted or added in the appropriate item.

This rate shall include full compensation for supervision, labour, machines, construction equipment, fuel, material and additional costs necessary for the completion of the process.

PS DM 8.3.4 **Cut To Fill, Borrow To Fill ..... Unit : m^3**

Substitute "90 %" in DB 8.3.4 with "90 % (100 % for sand)" and "road prism" with "road prism and borrow pits".

Add the following:

Separate items will be scheduled for fill in the road prism, fill on spoil areas and fill on erven (where a minimum density for such spoil material is required by the Engineer) and fill from the road prism, fill from the site and fill from commercial sources.

The rate for fill from commercial sources shall, in addition to the requirements of DM 8.3.4, cover the cost of the location of the source, complying with all the applicable precaution as set out in DM 5.1, obtaining the material, selection and transport from the source to the point on the road where it is to be used.

PS DM 8.3.5 **Selected Layer Compacted To 93 % Of MAASHTO Density ..... Unit : m^3**

Substitute "93 % of MAASHTO density" in the heading of DM 8.3.5 with "93 % (100 % for sand) of MAASHTO density".

Add the following to DM 8.3.5:

Separate items will be scheduled for lower and upper selected layers as well as for material from the site of works and from commercial sources. The rate for selected layers from commercial sources shall, in addition to the provisions of DM 8.3.5, allow for locating the source, complying with all the applicable precautions as set out in DM 5.1, obtaining the material, selection and transport from the source to the point on the road where it is going to be used. No payment shall be made for the removal and replacement of unsuitable imported material.

Where the in-situ material is used as selected layer material, this is scheduled as a separate item under DM 8.3.3 (a) (Treatment of road-bed).

PS DM 8.3.7 **Cut To Spoil Or Stockpile From ..... Unit : m^3**

Add the following to DM 8.3.7:

Payment for temporary stockpiling shall be made under DM 8.3.11, only if so instructed in writing by the Engineer.

PS DM 8.3.17 **Trim, Shape And Compact Verges ..... Unit : m^2**

The area to be trimmed is the unsurfaced area from the back side of the kerbs to the boundary of the road reserve, or such wider area necessitated by the road prism.

Measurement and payment for the above shall be restricted to areas ordered in writing by the Engineer.

The rate shall cover the cost of trimming and shaping the verges to the lines, levels and dimensions as shown on the drawings, of acquiring additional material to compensate for any material lost due to weather or other reasons, and of the compaction of any loose or disturbed material to 90 % of MAASHTO density (100 % for sand).

PS DM 8.3.18 **Trial Holes ..... Unit : No**

The unit of measurement is the number of trial holes made at positions indicated by the Engineer.

The rate shall cover the cost of excavating to a depth of 1 m, as well as for backfilling with the excavated material, compacted to 93 % of MAASHTO density (100 % for sand). The rate shall also include the survey and booking to determine the position of existing services.

PS DM 8.3.19 **Removal Of Unsuitable Material ..... Unit : m^3**

The volume measured for payment is the volume of unsuitable material, removed on written instruction of the Engineer in accordance with clause DM 5.2.3.2, below the level of the initial road-bed.

The rate is extra-over Item PS DM 8.3.7 and covers all additional costs in respect of the removal and spoil of unsuitable material, as well as all additional costs in respect of the backfilling thereof. Payment for backfilling shall be made either under PS DM 8.3.4 or PS DM 8.3.5, whichever may be applicable.

Payment shall differentiate between the areas of the unsuitable material, as measured on the initial road-bed, in increments as scheduled.

PS DM 8.3.20 **Installation Of Reference Marks ..... Unit : No**

The quantity is the number of reference marks installed in streets on positions indicated by the Engineer.

The rate shall cover the cost of supplying, excavation, removal of surplus material, installation to the standards as shown on the drawings, backfilling with material that comply with the requirements of the relevant pavement layers, compacting to the specified minimum density for the relevant pavement layers and for the reinstatement of the bituminous surface with 30 mm asphalt.

PS DM 8.3.21 **Existing Services That Adjoin Excavation For Streets ..... Unit : m**

The provision of items DB 8.3.5(a) and DB 8.3.5(b) shall apply mutatis mutandis.

PS DM 8.3.22 **Existing Services Intersecting Excavation For Streets ..... Unit : No**

The quantity is the number of each service, as indicated in the schedule of quantities, that intersect the excavation for streets.

Separate items will be provided for the depth increments as scheduled.

The rate for the crossing of services below the level of the road-bed, measured to the top of the service, covers all additional costs in respect of excavation, irrespective of the method, the protection and ensuring of the continuous functioning thereof and the cost of all repair work and/or subsequent costs arising from damage to the service.

The rate for services that are not fully covered by the road-bed shall, in addition to the above-mentioned requirements, cover all additional costs in respect of excavation and backfilling with material as required for the relevant pavement layer as well as for compacting to the specified minimum density of the relevant pavement layer.

Services with a depth of cover of more than 500 mm shall not be measured and paid for.

VARIATIONS AND ADDITIONS TO SABS 1200 SPECIFICATIONS

SABS 1200 L : MEDIUM PRESSURE PIPELINES

L 3 **MATERIAL**

PS L 3.1 **GENERAL**

Substitute the first sentence of L 3.1 with the following:

Types and classes of pipes shall be as scheduled.

PS L 3.8 **JOINTING MATERIALS**

PS L 3.8.4 **Loose Flanges**

Substitute the first sentence of the last paragraph of L 3.8.4 with the following:

Bolts and nuts shall comply with the requirements of SABS 135.

PS L 3.9.5 **Joints, Bolts, Nuts and Washers**

Substitute L 3.9.5 with the following:

All joints, bolts, nuts and washers shall be cadmium-plated or stainless steel.

PS L 3.10 **VALVES**

PS L 3.10.1 **Gate Valves**

All gate valves shall comply with the requirements of SABS 664 and shall be suitable for a working pressure of 1,6 MPa. All gate valves must be supplied with a square spindle nut, suitable to be used with a valve key.

Gate valves shall have spigot ends unless shown differently on the drawings and shall open clockwise. The direction for opening and closing shall be permanently displayed on the valves. Valves shall have non-rising spindles.

Compression shut-off valves with rubber protected gate and smooth finish without recess inside, may be used.

All flanged gate valves shall be drilled according to SABS 1123 Table 1600/3. Pipes shall not be tested against a closed valve. Thrust blocks for test sections shall be approved by the Engineer prior to testing of pipes.

PS L 3.10.3 **Fire Hydrants**

Fire hydrants shall be of the screw-down underground type and shall be suitable for a working pressure of 1,6 MPa with a 65 mm inlet. The outlet shall be 63 mm dia gun-metal with London Vee screw thread with cap top and chain. It shall open clockwise with a square spindle nut of the same size that is specified for the gate valves.

The fire hydrant shall be bolted to the flanged branch of a cast iron hydrant tee.

L 3.11 MANHOLES AND SURFACE BOXES

PS L 3.11.4 Step Irons

Substitute L 3.11.4 with the following:

Step irons shall consist of polypropylene coated 12 mm high tensile steel such as Calcamite or similar. The installation of the step irons shall be in accordance with the specification of the manufacturer.

PS L 3.11.5 Manhole Covers and Frames

Add the following:

PS L 3.11.5.3 Type 3A (Bell Toby) cI cover and frame for valve chambers and Type 5 CI cover and frame for fire hydrant chambers shall be used.

The belltoby of the valves shall be painted blue wiyh 250mm wide blue strip on the kerb directly opposite the valve. The cover of the fire hydrant shall be painted yellow with standard FH marking as per SARTSM marked on the road surface directly opposite the hydrant.

L 4 PLANT

PS L 4.3 TESTING

Add the following to L 4.3

The Contractor must ensure that the test equipment is in good order and that it is calibrated.

L 5 CONSTRUCTION

L 5.1 LAYING

PS L 5.1.1 General

Add the following to L 5.1.1:

Where pipes are built into structures as indicated on the drawings, the length of pipe that is built in, must not exceed 600 mm.

In order to facilitate for movement between structures, a length of pipe of a minimum of 600 mm must be connected to the section that is built into the structure or to the pipe, as indicated on the drawings.

L 5.6 VALVE AND HYDRANT CHAMBERS

PS L 5.6.1 General

Substitute the first sentence of L 5.6.1 with the following:

The drawings of valve and hydrant chambers which are bound into the document shall supersede the corresponding drawings in the standard specification.

PS L 7 **TESTING**

PS L 7.3 **STANDARD HYDRAULIC PIPE TEST**

PS L 7.3.1 **Test pressure and time of test**

Add the following to L 7.3.1.1:

Pipes shall not be tested against isolating valves. Special blank flanges or end caps, fully anchored, shall be provided for testing.

Substitute L 7.3.1.2 with the following:

The test pressure for field testing shall be 1,5 times the rated maximum working pressure of the pipe

Substitute L 7.3.1.3 with the following:

The test pressure applied according to L 7.3.1.2, must, with allowance for any level differences along the pipeline, be such that the pressure at any point in the pipeline will be at least 1,25 times and not more than 1,5 times the rated working pressure of the pipe.

PS L 8 **MEASUREMENT AND PAYMENT**

PS L 8.2 **SCHEDULED ITEMS**

PS L 8.2.3 **Extra-over 8.2.1 For The Supplying, Fixing And Bedding Of Valves ..... Unit : No**

Add the following to L 8.2.3:

Valves are measured and paid for per item, complete with the inclusion of the cutting of pipes, couplings, extra excavation and all extra material and labour that is required, including tees, fittings, isolating valves (e.g. under air valves), complete as shown on the drawings. Flanged distance pieces shall be included in the rate for fire hydrants. All valve chambers to be included in the rate.

PS L 8.2.11 **Anchor/Thrust Blocks And Pedestals ..... Unit : m^3**

Anchor and thrust blocks shall be measured per cubic metre concrete and the tendered rate shall include for all formwork and reinforcement (where specified) for the required dimensions.

PS L 8.2.13 **Valve And Hydrant Chambers, Etc ..... Unit : No**

Add the following to L 8.2.13:

The rate for scour-valve chambers must also cover the cost of the supply and installation of the scour outlet as described in PS L 3.10.4 and indicated on the drawings.

PS L 8.2.16 **Cut Into And Connect To Existing Mains ..... Unit : No**

The cutting into existing mains shall be measured by the number of each type and diameter of pipe cut into.

The tendered rate shall include full compensation for all arrangements with the relevant authorities, isolating the main, cutting into the main to accommodate the connecting fitting, dewatering, excavating, removing of excess material, taking steps to prevent the ingress of soil, stones and other material into the main as well as all material and labour to connect the pipe. The tendered rate does not include the specials and fittings, as these are measured separately.

VARIATIONS AND ADDITIONS TO SABS 1200 SPECIFICATIONS

SABS 1200 LB : BEDDING (PIPES)

LB 1 **SCOPE**

PS LB 1.1 **SCOPE**

Add the following to LB 1.1:

This specification also covers the bedding required for electric cables and cable ducts.

LB 3 **MATERIALS**

PS LB 3.1 **SELECTED GRANULAR MATERIAL**

Substitute LB 3.1 with the following:

Selected granular material shall be an aggregate, sand or granular material, all of a non-cohesive nature and free from any organic material, of which the grading analysis shows 100 % passing a 13,2 mm sieve and not more than 5 % passing a 0,075 mm sieve.

PS LB 3.2 **SELECTED FILL MATERIAL**

Substitute LB 3.2 with the following:

The requirements of PS LB 3.1 shall apply mutatis mutandis.

PS LB 3.3 **BEDDING**

Add the following to LB 3.3:

All pipes shall be classified as rigid pipes and shall be laid on a Class C bedding except water connections which shall be classified as flexible pipes. Cable bedding is specified separately.

PS LB 3.6 **POLYETHYLENE WARNING TAPE**

The danger tape shall be manufactured from Grade XJF 46/60 polyethylene at least 0,4 mm thick and with a nominal width of 230 mm, and which is completely impregnated with a light orange pigment reasonably matching colour no B26 of SABS 1091.

A black triangle and lighting flashes for electricity, as depicted on sign WW7 of SABS 1186, as well as the words "DANGER, GEVAAR, INGOSI" shall be printed clearly and permanently onto the tape. The whole pattern shall be repeated every 1 m.

The quality of all materials employed shall be such as to ensure the permanency of the tape under all environmental and soil conditions, as well as the stability of the orange pigmentation and the lettering and warning symbols.

LB 5 **CONSTRUCTION**

LB 5.1 **GENERAL**

PS LB 5.1.4 **Compacting**

Substitute "90 % of MAASHTO" in LB 5.1.4 with "93 % of MAASHTO (100 % for sand)".

LB 8 **MEASUREMENT AND PAYMENT**

LB 8.1 **PRINCIPLES**

PS LB 8.1.1 **Supply Of Bedding Materials Measured Separately**

Add the following to LB 8.1.1:

Payment for bedding material and selected fill material is only made if the selected trench-excavation material cannot be used in the same position as bedding material but has to be obtained from another part of the site of works or designated borrow pits, or from commercial sources.

PS LB 8.1.4 **Separate Items For Cradle And Blanket**

Substitute LB 8.1.4 with the following:

No distinction shall be made as regards material for the bedding cradle and selected fill blanket, and the material shall comply with the requirements for material for bedding cradle.

PS LB 8.1.5 **Disposal Of Displaced Material**

Add the following to LB 8.1.5:

Surplus displaced material shall be dumped and levelled at the spoil site.

LB 8.2 **SCHEDULED ITEMS**

PS LB 8.2.1 Provision of bedding from trench excavations……Unit : m^3

Add to LB 8.2.1

Transport of bedding within the boundaries of the site will be regarded as freehaul. No overhaul will be measured for this item.

VARIATIONS AND ADDITIONS TO SABS 1200 SPECIFICATIONS

SABS 1200 LC : CABLE DUCTS

LC 3 **MATERIALS**

PS LC 3.1 **DUCTS**

Add the following to LC 3.1:

Class 6 uPVC pipes (dia 110 mm or 160 mm) shall be used as ducts under streets.

PS LC 3.2 **BEDDING**

Substitute LC 3.2 with the following:

The provisions of SABS 1200 LB : Bedding (Pipes) and the relevant project specification shall apply mutatis mutandis and payment shall be made under the appropriate payment clauses of SABS 1200 LB.

PS LC 3.3 **BACKFILL**

Substitute LC 3.3 with the following:

The provisions of SABS 1200 DB : Earthworks (Pipe Trenches) and the relevant project specification shall apply mutatis mutandis and payment shall be made under the appropriate payment clauses of SABS 1200 DB.

PS LC 3.4 **CABLE DUCT MARKERS**

Add the following to LC 3.4:

Cable duct markers shall be provided as specified in PS LC 5.10.

LC 5 **CONSTRUCTION**

LC 5.1 **EXCAVATION OF TRENCHES**

PS LC 5.1.1 **Trench Widths And Depths**

Add the following to LC 5.1.1:

Trench widths shall be in accordance with the provisions of SABS 1200 DB : Earthworks (Pipe Trenches).

The minimum depth of cover over ducts shall be 600 mm from the final road level.

PS LC 5.2 **BEDDING AND COMPACTION OF BEDDING**

Substitute LC 5.2.1 and LC 5.2.2 with the following:

All ducts shall be laid on a Class B bedding according to the provisions of SABS 1200 LB : Bedding (Pipes). Backfilling shall be according to the provisions of SABS 1200 DB : Earthworks (Pipe Trenches).

PS LC 5.4 **BACKFILLING AND COMPACTION**

Add the following to LC 5.4:

Road crossings shall be backfilled with sand from designated borrow pits, the site or commercial sources, whichever is applicable, up to underneath the subbase, and compacted to a minimum of 100 % of MAASHTO density.

PS LC 5.8 **ROAD CROSSINGS**

Substitute "0,5 m" in the last sentence of LC 5.8 with "1,0 m" and add the following:

Ducts for road crossings shall be effectively sealed by means of end caps.

PS LC 5.10 **POSITION TO BE MARKED**

Add the following to LC 5.10:

The lettering height shall be at least 70 mm.

The positions of ducts shall be marked by means of incisions on top of the kerb. The dimensions of such incisions shall be at least 40 mm long, 3 mm wide and 5 mm deep and the spacing, where more than one incision is required, shall be 20 mm. Ducts for Telkom crossings and electrical crossings shall be marked with green and red painted incisions respectively.

The draw wire, as specified in LC 5.3.3, shall be secured to a 150 x 150 x 150 mm grade 20 MPa/19 mm concrete marker, which shall be installed with a depth of cover of 50-100 mm below the final level.

LC 7 **TESTING**

PS LC 7.2 **COMPACTION TESTS**

Substitute LC 7.2 with the following:

The Contractor shall, for at least one out of every five road crossings, submit density tests to the Engineer at his own expenses. The decision as to which road crossing densities shall be tested, rests with the Engineer. The Contractor shall, if such densities fail to meet the minimum requirements, prove at his expense that all the other densities do comply with the specified minimum requirements.

LC 8 **MEASUREMENT AND PAYMENT**

LC 8.2 **SCHEDULED ITEMS**

PS LC 8.2.5 **Supply, Lay, Bed And Prove Duct ..... Unit : m**

Substitute "GPO" in LC 8.2.5(a) with 'Telkom".

Add the following to LC 8.2.5(a):

The rates for the installation of Telkom distribution ducts parallel to streets shall first be submitted by the Employer to Telkom for approval. The installation of these ducts will only form part of this contract if approved by Telkom.

PS LC 8.2.8 **Cable Markers ..... Unit : No**

Substitute LC 8.2.8 with the following:

The rate shall also cover the cost of the end cap and the incisions, concrete marker and draw wire, as specified in PS LC 5.10.

VARIATIONS AND ADDITIONS TO SABS 1200 SPECIFICATIONS

SABS 1200 LD : SEWERS

LD 3 **MATERIALS**

PS LD 3.1 **PIPES, FITTINGS, AND PIPE JOINTS**

PS LD 3.1.3 **FC Pipes**

Add the following to LD 3.1.3:

Class 34 uPVC heavy duty pipes shall be used.

PS LD 3.5 **MANHOLES, CHAMBERS, ETC.**

PS LD 3.5.2 **Precast Concrete Sections**

Add the following to LD 3.5.2:

Where specified, precast concrete sections with an inside diameter of at least 1 000 mm shall be used for manholes.

Sectional spun concrete cylinders shall have been manufactured from dolomitic aggregate.

Where the angle between the inlet and outlet of the manhole deviates by more than 45 ° from the straight or where more then one inlet enter a manhole, the invert level of the outlet shall be 30 mm lower than the lowest inlet invert level.

PS LD 3.5.7 **Step Irons**

Substitute LD 3.5.7 with the following:

Step irons shall be installed in all manholes deeper than 1,2 m. Step irons shall consist of polypropylene coated 12 mm high tensile steel, such as Calcamite or similar. The installation of the step irons shall be in accordance with the specification of the manufacturer.

PS LD 3.5.10 **Sandtraps**

Sand traps shall be identical to manholes specified in PS LD 3.5.3 except that the diameter shall be 1 200 mm and the bottom will be 500 mm below the invert level and will have no benching.

LD 5 **CONSTRUCTION**

LD 5.4 **CONNECTIONS TO MANHOLES**

Add the following to LD 5.4:

If the gradient of a pipe is more than 1:10, a vertical bend shall be used to connect up to the manhole. The Contractor shall take care that no low point is formed in

the pipe as a result of the bend. If a pipe lies at a gradient of 1:10 (5,71°), a 11,25° bend cannot be used since a bend with an angle larger than the grade of the pipe will result in a low point. It is the responsibility of the Contractor to shorten the bend in order to create the required angle.

For pipes with a gradient of up to 1:10, the angle can be taken up by a joint in the manhole and if required, also by the joint between the short-length and first full pipe.

LD 5.6 MANHOLES, INSPECTION CHAMBERS, ETC

PS LD 5.6.1 General

Substitute LD 5.6.1(a) with the following:

1. Final cover levels of manholes in streets and paved areas shall be to the same level as the street or paved area.
2. On side walks, lawns and garden areas the cover level shall be 20 mm above the final ground level.
3. In midblock sewers it shall be 50 mm above ground level.
4. In the veld 100 mm above natural ground level.

If a manhole is positioned at a low point or in a hollow where stormwater infiltration may occur, the manhole cover level must be raised to a level to avoid the danger of infiltration, or to a level as agreed with the Engineer.

If the manhole needs to be raised with more than 300 mm, AC sections with the same diameter shall be installed and sealed with epoxy.

PS LD 5.6.2 Benching

Add the following to LD 5.6.2.3:

Benching for all manholes except those with sandtraps shall be in accordance with the relevant drawings.

PS LD 5.6.3 Step Irons

Add the following to LD 5.6.3:

Step irons shall only be installed in manholes deeper than 1,2 m.

In the case of sand traps the lowest step iron will be installed 300 mm above the floor of the manhole. An additional step iron shall be installed on the opposite side of the sand trap at the same level as the lowest step iron, as shown on the drawings.

PS LD 5.6.4 Brick Manholes

Add the following to LD 5.6.4.3:

Walls of brick manholes, as well as the extension of manholes above the concrete roof slab, shall be plastered internally and externally in order to waterproof the

manhole. Manholes shall not be extended above the concrete roof slab by more than 300 mm with brickwork.

If manhole covers are raised with bricks, a half-brick recess, as a foothold, shall be left directly above the concrete slab above the step irons.

LD 5.9 **CONNECTING SEWERS**

PS LD 5.9.1 **Location And Details**

Add the following to LD 5.9.1:

Erf connections shall be installed on the exact positions as indicated on the drawings and shall extend 1 m into the erf where it shall be blanked of with an end cap.

All connecting sewers shall be laid at a gradient of 1:60, except where otherwise ordered by the Engineer.

This excludes midblock sewers where connections on the topographical high side can be laid at steeper gradients to end at a minimum depth of 1,2 m or at such greater depth that any point on the erf is able to be connected.

LD 7 **TESTS**

PS LD 7.1 **GENERAL**

Add the following to LD 7.1.5:

All tests shall be repeated after the completion of backfilling of pipe trenches.

LD 8 **MEASUREMENT AND PAYMENT**

LD 8.2 **SCHEDULED ITEMS**

PS LD 8.2.2 **Extra-over Item 8.2.1 For Specials ..... Unit : No**

Add the following to LD 8.2.2:

The tendered rate for bends in mains shall include, over and above the cost of the material, the cost of the labour and cutting of the bends to the required angle, finishing of the cut edge and the painting thereof with bitumen.

The bends scheduled in the schedule of quantities are only measured according to standard sizes and the number of bends required. It remains the responsibility of the Contractor to cut the bends to the desired angle.

PS LD 8.2.3 **Manholes**

Add the following to LD 8.2.3:

PS LD 8.2.3.1 **Manholes ..... Unit : No**

Manholes shall be measured complete as indicated on the drawings and the rate shall be all inclusive for benching, step irons, type 2A CI cover and frame, and it shall make provision for all additional excavation and suitable backfilling (Imported if no suitable material is available on site).

The depth of manholes as mentioned in the schedule of quantities shall be measured from the final cover level to the outlet invert level (flow level).

Sandtraps shall be measured and payed for as for manholes. Separate items shall be scheduled for sandtraps.

PS LD 8.2.3.3 **New manholes on existing pipes ..... Unit : No**

The tendered rate shall be all inclusive for the handling of sewage flow, all excavation and backfilling, cutting of pipe and supply and installation of the new manhole, complete as described in LD 8.2.3.1, with finish and benching to accommodate the level difference of approximately 200 mm.

PS LD 8.2.6 **Erf Connections ..... Unit : No**

Substitute LD 8.2.6 with the following:

Erf connections shall be laid up to 1,0 m within the erf boundary.

Erf connections shall be measured under the relevant items applicable to the main sewer line.

PS LD 8.2.7 **Encasing Of Pipes In Concrete ..... Unit : m^3**

Add the following to LD 8.2.7:

The tendered rate for the encasing of pipes in concrete applies for the railway crossing and shall be all inclusive for all additional labour to lay the sewer in the channel, encase it in concrete and shall include steel reinforcement, joints, etc.

PS LD 8.2.8 **Anchor Blocks ..... Unit : m^3**

Add the following to LD 8.2.8:

Payment for anchor blocks shall be made for pipes with gradients steeper than 1:10 and shall be measured in m^3.

PS LD 8.2.11 **Connection To Existing Sewers ..... Unit : No**

Add the following to LD 8.2.11:

Separate items will be scheduled for each diameter of connecting pipe.

The tendered rate shall include full compensation for connecting the proposed pipe, any additional channelling and benching associated with the connection, cutting the pipe to suit the connection, supplying and building in the short junction

pipe, extra couplings, dealing with existing flow, preventing foreign material from entering the sewer and making the connection.

The excavation for pipelines, pipes, backfilling and manholes shall be measured separately.

Where a direct connection is made to an existing pipe, the rate covers all labour involved in opening the existing pipe, the removal of the existing end cap and disconnection at the pipe.

VARIATIONS AND ADDITIONS TO SABS 1200 SPECIFICATIONS

SABS 1200 LE : STORMWATER DRAINAGE

LE 3 **MATERIALS**

LE 3.1 **CULVERT UNITS AND PIPES**

PS LE 3.1 d) **Skewed Ends**

Substitute LE 3.1(d) with the following:

Where pipe culverts are to be constructed with a skew angle of more than 20°, the skew ends shall be cut on site.

PS LE 3.1 f) **Materials For Subsurface Drains**

i) Pipes : Perforated or slotted uPVC pipes (normal duty) shall, before perforations or slots are provided, comply with the requirements of SABS 791.

The size of perforations in perforated pipes shall in all cases be 8 mm in diameter ± 1,5 mm and the number of perforations per metre shall be not less than 26 for 100 mm pipes and 52 for 150 mm pipes. Perforations shall be spaced in two rows for 100 mm pipes. The centre-lines of all perforations shall be contained within an arc of between 100° and 160°.

Slotted pipes shall have a slot width of 8 mm ± 1,5 mm. The arrangement of slots shall be subject to the Engineer's approval, but the total slot area shall be not less than that presented for perforations.

Pipes without slots or perforations required for conveying ground water from the subsoil drainage proper to the point of discharge, shall be unperforated uPVC pipes of the type specified above, or concrete pipes complying with the requirements of SABS 677.

ii) Geotextile : The provisions of PS DK 3.1.4 shall apply mutatis mutandis;

iii) Aggregate : The nominal size shall be 19 mm and the aggregate shall comply with the requirements of SABS 1083 for concrete aggregate;

iv) Filter sand : Sand obtained from approved commercial sources shall be clean, hard and durable and shall comply with the following grading requirements:

D15 : 0,2 mm to 0,4 mm
D85 : 1,2 mm to 4,7 mm

LE 3.4 **MANHOLES, CATCHPITS AND ACCESSORIES**

PS LE 3.4.3 **Manhole Covers, Grid Inlets, Etc.**

Substitute the last sentence in LE 3.4.3 with the following:

Covers and frames for manholes and grid inlets shall comply with the requirements of SABS 558 for Type 2A and Type 9D, respectively.

LE 5 **CONSTRUCTION**

LE 5.1 **TRENCH BOTTOM**

PS LE 5.1.3 **Unsuitable Founding Conditions**

Substitute "90 % of MAASHTO maximum density" in LE 5.1.3 with "90 % of MAASHTO maximum density (100 % for sand)".

LE 5.2 **BEDDING AND LAYING**

PS LE 5.2.2 **Pipe Culverts**

Add the following to LE 5.2.2:

All pipes shall be laid on a Class B bedding, as specified in SABS 1200 LB.

Delete "Ogee type pipes need not be wrapped but shall be laid with the spigot ends pointing downstream".

PS LE 5.2.4 **Pipes With Open Joints Laid With Geofabric Filter Wrapping**

Substitute LE 5.2.4 with the following:

Pipes shall not be laid with open joints.

LE 5.5 **CATCHPITS, MANHOLES, INLETS, AND OUTLET STRUCTURES**

PS LE 5.5.3 **Plaster**

Add the following to LE 5.5.3:

No plaster is required for manholes or inlets, except where otherwise shown on the drawings or ordered in writing by the Engineer.

PS LE 5.5.5 **Precast Manholes And PS LE 5.5.7 : Precast Inlet And Outlet Structures**

Substitute LE 5.5.5 and LE 5.5.7 with the following:

Manholes and inlet and outlet structures shall be constructed in accordance with the details as shown on the drawings.

LE 8 MEASUREMENT AND PAYMENT

LE 8.2 SCHEDULED ITEMS

PS LE 8.2.1 **Supply And Lay Concrete Pipe Culverts ..... Unit : m**

Add the following to LE 8.2.1:

The provisions of LE 8.2.1 shall apply mutatis mutandis to uPVC pipes.

PS LE 8.2.4 **Extra-over Items LE 8.2.1 And LE 8.2.2 For Cutting End Units For Culverts On Site ..... Unit : No**

Add the following to LE 8.2.4:

Payment shall be made only for skew cuts greater than 20° at manholes, kerb inlets and inlet and outlet structures.

PS LE 8.2.8 **Supply And Install Manholes, Catchpits, And The Like ..... Unit : No**

Substitute LE 8.2.8 with the following:

The unit of measurement shall be the number of each, in the depth increments as scheduled, fully installed in accordance with the details shown on the drawings.

The rate shall cover the cost of excavating and backfilling with approved selected material from site borrow pits, stockpile or commercial sources, compacted to 93 % of MAASHTO density (100 % for sand), supplying and installing of all material and accessories, the inlet kerbs and the channel adjacent thereto as well as for the removal and spoil of all surplus material. The rate shall also include the connection of pipes to manholes, catchpits, etc. and of building pipes into the walls of such structures, but not for the cutting of skewed ends.

PS LE 8.2.14 **Supply And Install Subsurface Drains According To Drawings ..... Unit : m**

The length shall be measured on the centre line of the completed subsurface drain.

The rate shall cover the cost of trench excavation, supplying, transporting, off-loading and installing all materials as well as for cutting, wasting, overlapping and installing of the materials where applicable.

PS LE 8.2.15 **Connecting Subsurface Drains To Manholes, Kerb Inlets, Etc ..... Unit : No**

The number is the number of subsurface drain pipes built in at manholes or kerb inlets.

The rate shall cover the cost of all labour, plant and materials necessary to connect the subsurface drain to manholes and/or kerb inlets, and making the structure watertight, all as shown on the drawings.

VARIATIONS AND ADDITIONS TO SABS 1200 SPECIFICATIONS

SABS 1200 LF : ERF CONNECTIONS (WATER)

LF 1 **SCOPE**

Add the following to LF 1.1:

The water connections shall include a stop valve sealed off one metre inside the erf boundary.

LF 3 **MATERIALS**

LF 3.1 **PIPES, FITTINGS AND COUPLINGS**

PS LF 3.1.4 **Polyethylene Pipes**

Substitute the second sentence of LF 3.1.4 with the following:

Type IV class 16 high density polyethylene pipes, with diameters as scheduled and shown on the drawings shall be used. PVC or nylon couplings and fittings similar to Plasson type shall be used.

PS LF 3.1.7 **Saddles**

Substitute LF 3.1.7 (b) with the following:

Saddles to have stainless steel bolts and nuts.

PS LF 3.4 **BEDDING**

Substitute LF 3.4 with the following:

The bedding shall be as specified in PS LB 3.1.

LF 5 **CONSTRUCTION**

LF 5.2 **LAYING FROM MAIN TO ERF**

PS LF 5.2.2 **Pipe Laying**

Add the following to LF 5.2.2:

Erf connection pipes shall be laid to a depth so that the top of the pipe is not less than 450 mm nor more than 600 mm below the final road surface or sidewalk level, with the provision that where construction traffic is liable to cross the connections the pipes shall have a cover of at least 450 mm.

Erf connections shall be bedded as for flexible pipes except that the selected fill blanket will not be required. The bedding thickness above and below the pipe shall be 100 mm.

Where the erf connections cross areas subject to traffic loads the trench shall be backfilled in accordance with the requirements of PS DB 3.5 and PS DB 5.7.2.

PS LF 5.2.3 **Service Connections**

PS LF 5.2.3.1 **General**

Add the following to LF 5.2.3.1:

The working pressure in the mains for determining the test pressure at which tests for erf connections shall be done will be as specified in PS L 7.3.1.

VARIATIONS AND ADDITIONS TO SABS 1200 SPECIFICATIONS

SABS 1200 M : ROADS (GENERAL)

M3 **MATERIAL**

PS M 3.2 **RESPONSIBILITY FOR LOCATION**

Add the following to M3.2:

The subbase and base layers of all streets shall be constructed with material from designated borrow areas or commercial sources. The Contractor is responsible for the selection of the material in the borrow areas and if the material in the paving layers do not comply with the minimum requirements it shall be removed and replaced with suitable material at the expense of the Contractor.

M 5 **CONSTRUCTION**

Add the following paragraph:

PS M 5.1 **SELECTION**

The Contractor shall deal selectively with material when existing streets are broken up in order that suitable material is not contaminated with unsuitable material. If suitable material is contaminated, the Contractor shall replace such contaminated material with suitable material, at his own expense.

M 6 **TOLERANCES**

PS M 6.3 **FREQUENCY OF CHECKS**

Add the following to M 6.3:

These checks shall be submitted to the Engineer for his approval.

M 7 **TESTING**

PS M 7.3 **ROUTINE INSPECTION AND TESTING**

Substitute M 7.3.3 with the following:

Statistical evaluation of test results shall not be applicable to this contract and all tests shall meet the specified minimum requirements for the specific material.

M 8 **MEASUREMENT AND PAYMENT**

Add the following to M 8.1:

The cost of all routine testing done by the Engineer, and of which the results do not comply with specified minimum requirements for the material, shall be borne by the Contractor.

These costs shall be deducted from the Contractor's monthly payment certificates.

VARIATIONS AND ADDITIONS TO SABS 1200 SPECIFICATIONS

SABS 1200 ME : SUBBASE

ME 3 **MATERIALS**

ME 3.2 **PHYSICAL PROPERTIES**

PS ME 3.2.1 **Subbase Material**

Substitute ME 3.2.1 with the following:

a) Materials of G5 quality for use in the unstabilised subbase shall comply with the requirements of SABS 1200 M 3.3.3.

b) Materials of G7 quality for use in the unstabilised subbase shall comply with the requirements as specified in SABS 1200 M 3.3.3, except that the maximum aggregate size after compaction shall not exceed 63 mm.

ME 3.3 **STABILISING AGENT**

PS ME 3.3.1 **General**

Substitute ME 3.3.1 with the following:

Where ionic stabilisation is required, the stabilising agent shall be approved by the Engineer, and the rate of application shall be 0,03 *l*/m^2 for layer thickness of 150 mm and 0,02 *l*/m^2 for layer thicknesses of 100 mm.

ME 5 **CONSTRUCTION**

ME 5.4 **PLACING AND COMPACTION**

PS ME 5.4.1 **Placing**

Substitute "the project specification" in the second paragraph of ME 5.4.1 with "ME 6.1.4".

PS ME 5.4.5 **Work In Restricted Areas**

No additional payment shall be made for work in restricted areas and any relevant costs shall be deemed to be included in the tendered rates.

ME 5.7 **TRANSPORT**

PS ME 5.7.1 **Free-haul**

Substitute ME 5.7.1 with the following:

An unlimited free-haul distance shall apply to subbase material.

ME 7 TESTING

ME 7.2 PROCESS CONTROL AND ROUTINE INSPECTION AND TESTING

PS ME 7.2.1 Process Control

Substitute "1 500 m^2" with "1 200 m^2" and "5 000 m^2" with "3 000 m^2" in Table 2 of ME 7.2.1.

PS ME 7.2.2 Routine Inspection And Testing

Substitute the second sentence of ME 7.2.2 with the following:

No density shall be less than the specified minimum density for the relevant layer.

ME 8 MEASUREMENT AND PAYMENT

PS ME 8.2 COMPUTATION OF QUANTITIES

Substitute ME 8.2 with the following:

Measurement and payment shall be to the exact dimensions as shown on the drawings.

VARIATIONS AND ADDITIONS TO SABS 1200 SPECIFICATIONS

SABS 1200 MF : BASE

MF 3 **MATERIALS**

MF 3.3 **PHYSICAL AND CHEMICAL PROPERTIES**

PS MF 3.3.3 **Graded Crushed Stone and Soil Fines**

Add the following:

No crushed rubble will be used as basecourse material.

MF 5.4 **PLACING AND COMPACTION OF A BASE OTHER THAN A WATER BOUND MACADAM BASE**

PS MF 5.4.6 **Work In Restricted Areas**

No additional payment shall be made for work in restricted areas and any relevant costs shall be deemed to be included in the tendered rates.

MF 5.9 **TRANSPORT**

PS MF 5.9.1 **Free-haul**

Substitute M 5.9.1 with the following:

An unlimited free-haul distance shall apply to basecourse material.

MF 6 **TOLERANCES**

MF 6.1 **DIMENSIONS, LEVELS, ETC**

PS MF 6.1.2 **Grade**

Add the following to MF 6.1.2:

In addition to the above-mentioned requirements the surface shall be of such a grade that all surface water shall drain freely to the adjacent kerbs and/or channels, and all subsequent costs to rectify the surface to comply hereto shall be borne by the Contractor.

MF 7 **TESTING**

PS MF 7.2 **PROCESS CONTROL**

Substitute "1 500 m^2" with "1 200 m^2", "1 500 m^3" with "1 200 m^3" and "5 000 m^2" with "3 000 m^2" in Table 3 of MF 7.2.

MF 7.3 **ROUTINE INSPECTION AND TESTING**

Substitute MF 7.3.2 with the following:

No density shall be less than the specified minimum density for the relevant layer.

MF 8 **MEASUREMENT AND PAYMENT**

PS MF 8.2 **COMPUTATION OF QUANTITIES**

Substitute MF 8.2 with the following:

PS ME 8.2 shall apply mutatis mutandis.

VARIATIONS AND ADDITIONS TO SABS 1200 SPECIFICATIONS

SABS 1200 MK : KERBING AND CHANNELLING

MK 3 **MATERIALS**

MK 3.2 **PRECAST KERBING AND CHANNELLING**

PS MK 3.2.3 **Strength**

Substitute MK 3.2.3 with the following:

Precast kerbs, edging and channels shall be of grade 20 MPa/19 mm concrete.

PS MK 3.9 **BEDDING MATERIAL**

Substitute MK 3.9 with the following:

The material on which concrete kerbs, channels and edging are bedded, shall be in accordance with the dimensions shown on the drawings and shall consist of a 1:3:6 concrete mix with a 6,7 mm single size coarse aggregate.

MK 5 **CONSTRUCTION**

PS MK 5.1 **EXCAVATION AND BEDDING**

Substitute "90 %" in MK 5.1 with "93 % (100 % for sand)".

PS MK 5.2 **PRECAST CONCRETE KERBING AND CHANNELLING**

Substitute the first sentence of MK 5.2 with the following:

Precast concrete kerbing and channelling shall be laid and bedded on a concrete bedding complying with the requirements of PS MK 3.9 and to the dimensions shown on the drawings.

PS MK 5.11 **TRANSITION SECTIONS AND INLET AND OUTLET STRUCTURES**

Substitute the first sentence of the second paragraph of MK 5.11 with the following:

Inlet and outlet structures shall be in accordance with the details shown on the drawings.

MK 8 **MEASUREMENT AND PAYMENT**

PS MK 8.1 **BASIC PRINCIPLES**

Substitute the second sentence of MK 8.1.1 with the following:

Deductions will be made for catchpits, etc.

Add the following to MK 8.1.1:

Payment shall include the provision of expansion joints as specified.

MK 8.2 **SCHEDULED ITEMS**

PS MK 8.2.14 **Street Name And Transition Kerbs ..... Unit : No**

The provisions of MK 8.2.1(b) shall apply mutatis mutandis.

VARIATIONS AND ADDITIONS TO SABS 1200 SPECIFICATIONS

SABS 1200 MM : ANCILLARY ROADWORKS

MM 3 **MATERIALS**

MM 3.2 **ROAD SIGNS**

PS MM 3.2.1 **General**

Add the following to MM 3.2.1:

All road signs and road markings shall be in accordance with the SA Road Traffic Signs Manual and as shown on the drawings.

No special breakaway devices are required.

PS MM 3.2.2 **Structural Steel**

Substitute the second paragraph of MM 3.2.2 with the following:

All structural steel, including steel tubes, shall have a hot-dip (galvanised) zinc coating that complies with the requirements of SABS 763 for coatings of type A1 or B1 articles, as applicable.

MM 5 **CONSTRUCTION**

MM 5.2 **ROAD SIGNS**

PS MM 5.2.1.6..... **Galvanising**

Substitute the second paragraph of MM 5.2.1.6 with the following:

Galvanised mild steel supports for road signs shall be painted in accordance with PS MM 5.2.2.4.

MM 5.2.2 **Painting**

PS MM 5.2.2.4.....**Painting of structural steelwork**

The provisions of MM 5.2.2.4 shall apply mutatis mutandis to the painting of galvanised surfaces, except for the following:

a) **Surface preparation**

Galvanised surfaces shall be thoroughly scrubbed down using an approved galvanised iron cleaning agent to remove all traces of the resin protective coating.

The surface shall be washed down and scrubbed to remove all traces of grease, oil, dirt, etc;

b) **Priming**

Two coats of calcium plumbate primer shall be applied to a dry film thickness of at least 25 microns. The undercoat shall follow within one week after the priming.

d) **Finishing coat**

The colour of the finishing coat shall be dark grey, as specified in MM 3.2.8.2.

PS MM 5.3.2 **Surface Preparation**

Substitute "48 h" in MM 5.3.2 with "7 days (168 h)".

MM 8 **MEASUREMENT AND PAYMENT**

PS MM 8.3.1 **Sign Faces With Painted Background And Symbols ..... Unit : m^2**

Add the following to MM 8.3.1:

No additional payment shall be made for the aluminium extrusions for road signs and all relevant costs shall be deemed to be covered by the tendered rates for such road signs.

MM 8.4 **SCHEDULED ITEMS FOR ROAD MARKINGS**

PS MM 8.4.1 **Non-reflectorised Paint Applied At Nominal Rate Of 0,42 ℓ/m^2 Unit : km or m^2**

Add the following to MH 8.4.1:

No additional measurement and payment shall be made for "(e) Traffic island markings" and payment shall be made under the appropriate rates of payment item MM 8.4.1.

PS MM 8.4.4 **Setting Out And Premarking ..... Unit : km, Sum or No**

Add the following to MM 8.4.4:

No additional payment shall be made for the premarking and/or dotting of lines or special markings and all relevant costs are deemed as covered by the tendered rates.

VARIATIONS AND ADDITIONS TO PARTICULAR SPECIFICATIONS

SECTION 4200: ASPHALT BASE AND SURFACING

1. B4203 COMPOSITION OF ASPHALT BASE AND SURFACING MIXTURES

In the fifth paragraph, delete "TRH 8" and replace with "Interim Guidelines for the Design of Hot-Mix Asphalt in South Africa and the design criteria specified in B4203 and where Reclaimed Asphalt (RA) is included this shall also include requirements of TRH21 : 2009.."

Add the following to this clause:

"The asphalt base shall consist of a continuously graded hot-mix asphalt, 26.5 mm max aggregate size as specified in Section 4200 and given in Table 4202/6 of the standard specifications. The binder shall consist of 50/70 penetration grade bitumen. All asphalt base shall incorporate the reconstitution of a minimum of the percentage indicated in the schedule of RA into the final mix

The asphalt surfacing shall consist of a continuously graded hot-mix asphalt (COLTO, medium grade) surfacing as specified in Section 4200 and given in Table 4202/7 of the standard specifications. The binder shall consist of either 50/70 penetration grade binder or A-E2 quality modified bitumen as specified. All asphalt surfacing shall incorporate the reconstitution of a minimum of the percentage indicated in the schedule of RA into the final mix

The nominal binder content for tender purposes all surfacing mixes shall be 5.5% (by mass).

The nominal binder content for all asphalt base (BTB) shall be 4.5% (by mass)

The active filler to be used for tender purposes shall consist of 1% hydrated lime.

The asphalt base and surfacing shall conform to the specifications outlined in table B4203/1.

The design of the asphalt base and surfacing mix shall be in accordance with the design criteria at 100% Marshall density (2 X 75 blows) given in the table below.

Additional joint permeability and other mix design criteria which are given below will also apply and the Contractor will be required to make provision in his tender prices for ensuring that the asphalt will comply with this criteria. Mix design proposals and parameters shall be finalised between the Contractor and the Engineer before commencement of paving work;

TABLE B4203/1

PROPERTY	CONTINUOUSLY GRADED ASPHALT SURFACING AND BASE	
	MINIMUM	MAXIMUM
Stability (kN)	8,0	15,0
Flow (mm)	2,0	4,0
Stability/flow (kN/mm)	2,5	-
Voids (%)	4.5 (4.0##)	5.5 (4.5##)
Air permeability (cm^3)	–	1×10^{-8}
Film thickness (µm)	7 (6,5##)	–
Immersion index (%)	80	–
VMA (%)	15	–
Average Micron strain deformation per cycle in the dynamic creep test in the 2000 – 3000 cycle range **(#)**	--	0.55
Indirect tensile strength at 25°C (kPa)	1 100 (1 000##)	-
Filler/bitumen ratio	1.3 (1.0##)	1.5 (1.7##)

PROPERTY	CONTINUOUSLY GRADED ASPHALT SURFACING AND BASE	
	MINIMUM	MAXIMUM
Modified Lottman Test @7% voids	0.80	
MMLS Rutting (100k repetitions, 93% RICE briquette, dry, 50°C, 7200rep/hr) **(#)**	--	2mm (Surfacing mixes) 2.3mm (Base mixes)
Voids in mix @ 300 gyrations of the Superpave Gyratory Compactor **(#)**	2.8% (Surfacing Mix's) 2.5% (Base Mix's)	-
(##) Asphalt Base		

Note : The properties to be tested and verified for the initial mix design for approval. Should the aggregates or binders change significantly through the duration of the contract the engineer may request retesting of some of the properties to verify the ongoing compliance.

B4204 PLANT AND EQUIPMENT

(a) Mixing plant

(iv) Recycling

Add the following:

"For the final BTB and surfacing mix the mixing and manufacturing process shall be in accordance with TRH21:2009. All RA reconstituted into the final BTB and surfacing mix used in this project, will be replaced with an equivalent quantity of RA generated in this project. This replacement RA will be supplied to the asphalt plant at no cost to the contractor or supplier (except any over haul as provided in the contract). It is the contractors and their suppliers responsibility however to manage and treat any RA provided.

Over and above maintaining records of the quantity of RAP provided and used the supplier will also be required to sign a declaration at the end of the construction project that an equivalent quantity (20% or otherwise agreed, of final BTB quantity 15% of the final surfacing quantity) of RA was utilized in the BTB and surfacing mixes provided for this project"

B4207 SPREADING THE MIXTURE

Add the following to sub-clause (a):

"Special precautions shall be taken by the Contractor to ensure that the temperature of the total mass of asphalt does not decrease by more than 15°C from point of dispatch to the point where it is to be paved. The use of thermal blankets is obligatory at all times.

The following paving restrictions will strictly apply:

- No paver stops will be allowed for reversing supply trucks
- Paver speed to be regulated to prevent supply related stops where practically possible,
- Leveling skid-beams (9m length at least with free wire between ends) or wire guide system to be used on both sides – no joint matchers except if agreed or instructed by the Engineer,
- Automatic auger feed control, which can keep the asphalt mount in-front of the screed constant, are required,
- No pneumatic rolling as breakdown rolling on the final surfacing layer.

In the case of non-appliance herewith the Engineer's personnel shall stop the paving operations. No paving will be allowed until such time as adherence to the specifications has been met by the contractor. Asphalt

paved after such instruction to stop paving shall be removed and re-executed.

B4208 JOINTS

Add the following to this clause:

"All asphalt joints shall be cut by a roller or milling machine (minimum 100mm in 2 x roller wheel cuts) in a straight line to the satisfaction of the Engineer and in accordance with the joint detail drawings attached; paving widths to be full half widths where practically possible. Where full half width paving is not possible, all joints shall be paved such that they do not fall anywhere in a lane or on a wheel track i.e. all longitudinal joints shall be on the centre line or yellow shoulder line. In the case of climbing lanes or widening areas e.g. bell mouths and turning lanes, a longitudinal joint will be allowed on the fast lane and climbing lane/widened area dividing line.

No saw-cutting will be allowed on newly placed asphalt.

Whenever the paver stops for more than 10 minutes and/or the un-compacted material already laid cools down to below compaction temperature (100°C), a joint shall be constructed as specified and all cooled un-compacted materials removed from the road up to a position where the completed compacting effort stopped. All unlaid asphalt that has cooled to below the specified spreading temperature (120°C for BTB and asphalt surfacing mixes) shall be removed from the paver and from the site.

The cost of all such joint construction activities (temporary and permanently, transverse and longitudinal joints) is to be included into the relevant asphalt layer rates. Transverse joint to be similarly cut-back and treated as specified for the longitudinal joints. Temporary transverse joints to be rolled smooth as to the Engineer's satisfaction.

The cut edges of all asphalt joints shall receive a coat of Viaseal (rubberized bitumen emulsion) or an approved equivalent before the adjacent asphalt is placed against it.

Add the following new clause:

"(a) Joints at the start and end of the Contract

At the start and end of the Contract, an overlay shall be neatly transitioned into the existing surfacing over a length of 15m. The existing asphalt shall be milled out to form a wedge, the depth of which shall be equal to the overlay which needs to be tied-in.

B4210 COMPACTION

Replace the sixth paragraph with the following:

"The sequence of rollers used in compaction is at the discretion of the Contractor provided the completed layers are compacted to a minimum of 93 percent of the theoretical maximum density, determined as described in TMH1, method C4 (Rice's density). In addition, hereto the compaction immediately adjacent to joints shall be done to ensure densities of not less than 2% of those specified (above) in the rest of the layers (including all hot and cold joints). Joint densities across the joint shall not have densities of less than 3% of the minimum specified layer density. A combination of Calibrated thin layer Nuclear Gauge testing and Marvel permeability testing (both methods to be calibrated versus asphalt cores densities), will be used to access and approve joint densities before covering thereof with consecutive layers. "

Replace subclause (e) with the following:

"In restricted areas, or on bridge decks, where the specified rollers cannot be used, compaction shall be carried out with hand operated mechanical compaction equipment or approved smaller vibratory rollers. The revised compaction procedure shall be predetermined and submitted to the Engineer for approval. No vibratory rollers to be used where services are located in close proximity (±3m) from where work is being

undertaken."

2. B4213 CONSTRUCTION TOLERANCES AND FINISH REQUIREMENTS

(a) Construction tolerances

(iii) Thickness

Replace the first paragraph and the specification below the first paragraph with the following:

"The thickness tolerance for asphalt surfacing shall be as follows:

- Average thickness less than the specified minimum thickness = 0 mm.
- Average thickness greater than specified minimum thickness = 5 mm

The thickness tolerance for asphalt base shall be as follows:

- Average thickness less than the specified minimum thickness = 0 mm
- Average thickness greater than the specified minimum thickness = 7 mm (base thickness <80 mm)
- Average thickness greater than specified minimum thickness = 10 mm (base thickness ≥ 80 mm)

Asphalt thickness shall be determined on a lot for lot basis. Lots shall not be combined to improve results. If the average thickness of a lot is greater than the specified minimum thickness plus the allowable tolerance, only the maximum tolerance thickness shall be paid for.

If the average thickness of a lot is less than the minimum specified thickness the lot shall be rejected and shall be replaced or repaired via approved remedial actions. The Employer reserves the right to reject any proposed remedial actions that are not deemed by him to be satisfactory and request that the thin asphalt be removed and replaced to the correct thickness."

Add the following new sub clause:

"(viii) Surface regularity at manholes and transverse joints

The maximum value of any irregularity when measured with a 3 m straight edge in any direction across at any manhole or manhole cover, belltoby, valve chamber or any service access point in the road and when measured across a transverse joint shall be 4 mm. Should the surface regularity tolerance not be met, the contractor is to mill out the full lane width for 10 m either side of the manhole or other regularity defect, reset the manhole or other service cover to the correct levels where necessary and repave the milled area using a mechanical paver at the contractor's cost."

B4214 QUALITY OF MATERIALS AND WORKMANSHIP

Add the following to this clause:

"Quality Control Scheme 1 given in Section 8200 will apply to the asphalt paved on this contract".

AIRPORTS COMPANY SOUTH AFRICA

CAPE TOWN INTERNATIONAL AIRPORT

TENDER NO.: CTIA 7691-2024/RFP

APPOINTMENT OF A CONTRACTOR FOR THE BULK SERVICES INSTALLATION AND ACCESS ROADS PROJECT AT CAPE TOWN INTERNATIONAL AIRPORT'S PRECINCT

C3.6 ACSA SPECIFICATIONS

The Specifications herein are Specifications prepared by the employer applicable to this contract.

Specifications are included as follows:

C3.6.1 Occupation Health and Safety Specifications
C3.6.2 ACSA Construction Environmental Management Plan
C3.6.3 Transformation Specification

AIRPORTS COMPANY SOUTH AFRICA

CAPE TOWN INTERNATIONAL AIRPORT

TENDER NO.: CTIA 7691/2024RFP

APPOINTMENT OF A CONTRACTOR FOR THE BULK SERVICES INSTALLATION AND ACCESS ROADS PROJECT AT CAPE TOWN INTERNATIONAL AIRPORT'S PRECINCT 3

C4. SITE INFORMATION

C4.1 Site Locality Plan
C4.2 Geotechnical Report