

VOLUME 2: CONTRACT

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C.1 AGREEMENT AND CONTRACT DATA

C1.1 FORM OF OFFER AND ACCEPTANCE

OFFER

The Employer, identified in the Acceptance signature block, has solicited offers to enter a contract for the procurement of the **CONTRACT NO.: 691/11/22 REHABILITATION OF KLASIE HAVENGA STREET**

The Tenderer, identified in the offer signature block below, has examined the documents listed in the tender data and addenda thereto as listed in the tender schedules, and by submitting this offer has accepted the conditions of tender.

By the representative of the Tenderer, deemed to be duly authorized, signing this part of this form of offer and acceptance, the Tenderer offers to perform all of the obligations and liabilities of the Contractor under the contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the conditions of contract identified in the contract data.

THE OFFERED TOTAL OF THE PRICES INCLUSIVE OF VALUE ADDED TAX IS

.....
.....Rand (*In words*); R..... (*in figures*)

This offer may be accepted by the Employer by signing the acceptance part of this form of offer and acceptance and returning one copy of this document to the Tenderer before the end of the period of validity stated in the tender data, whereupon the Tenderer becomes the party named as the contractor in the conditions of contract identified in the contract data.

For the Tenderer:

.....

Signature

.....

Name

.....

Capacity

Name and Address of Organization:

.....

.....

.....

Signature and Name of Witness:

.....

Signature

.....

Name

.....

Date

ACCEPTANCE

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

The terms of the Contract are contained in

- Part C1 Agreements and Contract Data, (which include this Agreement)
- Part C2 Pricing Data
- Part C3 Scope of Work
- Part C4 Site Information

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

Deviations from and amendments to the documents listed in the Tender Data and any addenda thereto as 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 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.

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

Notwithstanding anything contained herein, this Agreement comes into effect on the date when the Tenderer receives one fully completed original copy of this Document, including the Schedule of Deviations (if any). Unless the Tenderer (now Contractor) within five working days of the date of such receipt notifies the Employer in writing of any reason why he cannot accept the contents of this Agreement, this Agreement shall constitute a binding contract between the parties.

For the Employer:

.....

Signature

.....

Name

.....

Capacity

Name and Address of Organization:

.....

.....

.....

Signature and Name of Witness:

.....

Signature

.....

Name

Date

SCHEDULE OF DEVIATIONS

Notes:

1. The extent of deviations from the Tender Documents issued by the Employer prior to the tender closing date is limited to those permitted in terms of the Conditions of Tender;
2. 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 becomes the subject of agreements reached during the process of Offer and Acceptance, the outcome of such Agreement shall be recorded here;
3. 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 shall also be recorded here; and
4. 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.

1. **Subject:**

Details:

2. **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**
..... **Name**
..... **Capacity**

For the Employer:

.....
.....
.....

**Name and Address of Organization:
Organization:**

.....
.....
.....

Name and Address of

.....
.....
.....

..... **Witness Signature**

..... **Witness 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 original copy of this Agreement, including the Schedule of Deviations (if any) today:

The.....(day) of.....(month) 20(year) at(place)

For the Contractor:

.....
Signature

.....
Name

.....
Capacity

Signature and Name of Witness:

.....
Signature

.....
Name

C1.2 CONTRACT DATA

C1.1.1 CONDITIONS OF CONTRACT

GENERAL CONDITIONS OF CONTRACT

The general conditions of contract for construction works third edition 2015 published by the South African Institution of Civil Engineering are applicable to this contract. Copies of these conditions of contract may be obtained from the South African Institution of Civil Engineering (Tel: 011-805 5947 and www.saice.org.za).

The general conditions of contract for construction works make several references to the contract data for specific data, which together with these 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.

Each item of data given below is cross-referenced to the clause in the general conditions of contract for construction works to which it mainly applies.

VARIATIONS TO THE GENERAL CONDITIONS OF CONTRACT

PART 1: DATA TO BE PROVIDED BY THE EMPLOYER

REF. CLAUSE NO.	DATA BY EMPLOYER	
1.1.1.13	The Defects Liability Period is: 12 months	
1.1.1.14	Due Completion Date: Three (3) months	
1.1.1.15	The Name of the Employer is:	
1.1.1.26	The Pricing Strategy is: Re-measurement	
1.2.1.2	The address of Employer:	
	<u>Physical:</u>	<u>Postal:</u>
	61 Martin Street	PO Box 191
	PONGOLA, 3170	PONGOLA, 3170
	Telephone No: (034) 413 1223	Fax No: (034) 271 6111
1.1.1.16	Name of Employer Agent: AFI Consult (Pty) Ltd	
1.2.1.2	Address of Employer Agent:	
	<u>Physical:</u>	<u>Postal:</u>
	161 West Street	P O Box 1368
	VRYHEID, 3100	VRYHEID, 3100
	Telephone No:(034) 981 3464	Fax No: N/a
	E-Mail: karel@aficonsult.co.za	

REF. CLAUSE NO.	DATA BY EMPLOYER
5.3.1	The documentation required before commencement with Works execution are:
	<ul style="list-style-type: none"> • Contract Surety, • Written acceptance of his/her appointment, • Insurance (Refer to Clause 8.6), • Initial programme (Refer to Clause 5.6), • Projected Cash Flow, • Workers Compensation Certificate, • Health & Safety Plan, and • Confirmation of Tax Clearance Certificate, ext.
5.3.2	The time to submit the documentation required before commencement with Works execution is: 14 Days
	Non-working days are: Saturdays and Sundays
5.8.1	The special non-working days are: Public holidays and the yearend break which commences on the first working day after 15 December and ends on the first Tuesday after 5 January of the next year.
5.13.1	The penalty for failing to complete the Works is: the lesser of R2500 or 1/20 of 1% of the offered total of prices excluding VAT per calendar day & R1,000.00 per working day for the Engineer.
5.16.3	The latent defect period is: one (1) years
	The percentage allowances to cover overhead charges:
6.5.1.2.3	<ul style="list-style-type: none"> • 10% of the gross remuneration of workmen and foremen actually engaged in the day work; and • 10% on the net cost of materials actually used.
6.8.2	Contract Price Adjustment will not be applicable.
6.10.1.5	The percentage advance on materials not yet built into the Permanent Works is: 80% provided a cession in favour of the Employer is provided from both the supplier and the Contractor.
6.10.3	The limit of retention money is: 5% of the offered total of prices excluding VAT.

8.6.1

INSURANCE EFFECTED BY THE CONTRACTOR

a) The Contractor and Sub-contractor shall where applicable provide as a minimum the following:

- i) Contract Works, SASRIA and Public Liability Insurance;
- ii) Insurance of Construction Plant and Equipment (including tools offices and other temporary structures and contents) and other things (except those intended for incorporation into the Works) brought onto the site for a sum sufficient to provide for their replacement;
- iii) Insurance in terms of the provisions of the Compensation for Occupational Injuries and Diseases Act (COID) Act No 130 of 1993;
- iii) Employers Common Law Liability Insurance with a limit of indemnity of not less than **R 1 000 000.00**;
- iv) Motor Vehicle Liability Insurance comprising (as a minimum) "balance of Third Party" Risks including Passenger Liability indemnity of not less than **R 1 000 000.00** (one million Rand) ; and
- v) Where the Contract involves manufacturing and/or fabrication of the Works or parts thereof at premises other than at the Contract Site the Contractor shall satisfy the Employer that all materials and equipment for incorporation in the Works are adequately insured during manufacture and/or fabrication. In the event of the Employer having an insurable interest in such Works during manufacture or fabrication then such interest shall be noted by the endorsement to the relevant Policies of Insurance. The Contractor shall within fourteen (14) days of commencement of the contract produce to the Employer the relevant Policies of Insurance. Notwithstanding anything elsewhere contained in this Contract without limiting the obligations liabilities or responsibilities of the Contractor in any way whatsoever (including but not limited to any requirement for the provision by the Contractor of any other insurances) the Employer may, on behalf of the Contractor, effect and maintain as appropriate in the joint names of the Employer the Contractor and where the relevant Sub-contractors the following insurances which are subject to the terms, limits, exceptions and conditions of the Policy.

CONTRACT WORKS AND SASRIA SPECIAL RISKSINSURANCE – which will provide cover against accidental physical loss or damage to the Works, Temporary Works and materials intended for incorporation in the Works.

PUBLIC LIABILITY Insurance – which will provide indemnity against legal liability in the event of accidental death of or injury to third persons and/or loss of or damage to third party property arising directly from the execution of the contract and occurring during the period of insurance with a limit of indemnity of **R 2 000 000.00** in respect of all claims arising from any one occurrence or series of occurrences consequent on or attributable to one source or original cause.

In the event of any occurrence which is likely to or could give rise to a claim under the insurances arranged by the Employer the Contractor shall:-

- (i) In addition to any statutory requirement or other requirements contained in the Contract immediately notify the Employer's Insurance Brokers or the Insurers by telephone, telefax giving the circumstances nature and an estimate of the loss or damage or liability;

	<p>(ii) Complete a claims advice form available from the insurance brokers to whom the form must be returned without delay; and</p> <p>(iii) Negotiate the settlement of claims with the Insurers through the Employer's/Contractor insurance brokers and shall when required to do so obtain the Employer's approval of such settlement.</p> <p>The Employer and Insurers shall have the right to make all and any queries on the site of the Works or elsewhere as to the cause and the results of any such occurrence and the Contractor shall co-operate in the carrying out of such enquiries.</p> <p>The Contractor will be liable for the amount of the deductible (First Amount Payable) in respect of any claim made by or against the Contractor or Sub-contractors under the insurance effected.</p> <p>Any amount which becomes payable to the Contractor or any of his Sub-contractors as a result of a claim under the Contract Works Insurance shall if required by the Employer be paid net of the deductible to the Employer who shall pay the Contractor from the proceeds of such payment upon rectification repair or reinstatement of the loss or damage but this provision shall not in any way affect the Contractor's obligations and liabilities or responsibilities in terms of the Contract.</p>
8.6.1.1.3	R Nil
10.5.3	The number of Adjudication Board Members to be appointed is: Nil

PART 2 : DATA TO BE PROVIDED BY CONTRACTOR

REF. CLAUSE No	DATA BY CONTRACTOR									
1.1.1.9	Name of Contractor:									
1.2.1.2	Address of Contractor:									
	Physical:	Postal:								
	E-mail:	Telephone No:								
		Fax No.:								
1.1.1.14	Time for achieving Practical Completion of the whole of the Works is:(Max Three (3) months)									
6.2.1	The security to be provided by the Contractor shall be one of the following: <i>VAT is to be excluded from the Contract Sum/ value of Works for calculating the percentages</i>									
	<table border="1"> <thead> <tr> <th>Type of Security</th><th>Contractor's choice Indicate "Yes" or No"</th></tr> </thead> <tbody> <tr> <td>Cash deposit of 10% of the Contract Sum</td><td></td></tr> <tr> <td>Performance guarantee of 10% of the Contract Sum</td><td></td></tr> <tr> <td>Retention of 15% of the value of the Works</td><td></td></tr> </tbody> </table>		Type of Security	Contractor's choice Indicate "Yes" or No"	Cash deposit of 10% of the Contract Sum		Performance guarantee of 10% of the Contract Sum		Retention of 15% of the value of the Works	
Type of Security	Contractor's choice Indicate "Yes" or No"									
Cash deposit of 10% of the Contract Sum										
Performance guarantee of 10% of the Contract Sum										
Retention of 15% of the value of the Works										

C1.3 AGREEMENT IN TERMS OF SECTION 37(2) OF THE OCCUPATIONAL HEALTH AND SAFETY ACT No. 85 OF 1993

THIS AGREEMENT is made between

(herein after called the Employer) of the one part, herein represented by:

.....
in his capacity as:

AND:

(hereinafter called the Contractor) of the other part, herein represented by.....

.....
in his capacity as:

duly authorized to sign on behalf of the Contractor.

WHEREAS the Contractor is the Mandatory of the Employer in consequence of an agreement between the Contractor and the Employer in respect of

CONTRACT NO: 691/11/22 REHABILITATION OF KLASIE HAVENGA STREET

For the construction, completion and maintenance of the works;

AND WHEREAS the Employer and the Contractor have agreed to enter into an agreement in terms of the provisions of Section 37(2) of the Occupational Health and Safety Act No 85 of 1993, as amended by OHSA Amendment Act No 181/1993 (hereinafter referred to as the Act);

NOW THEREFORE the parties agree as follows:

1. The Contractor undertakes to acquaint the appropriate officials and employees of the Contractor with all relevant provisions of the Act and the regulations promulgated in terms thereof.
2. The Contractor undertakes to fully comply with all relevant duties, obligations and prohibitions imposed in terms of the Act and Regulations: Provided that should the Employer have prescribed certain arrangements and procedures that same shall be observed and adhered to by the Contractor, his officials and employees. The Contractor shall bear the onus of acquainting himself/herself/itself with such arrangements and procedures.
3. The Contractor hereby accepts sole liability for such due compliance with the relevant duties, obligations, prohibitions, arrangements and procedures, if any, imposed by the Act and Regulations, and the Contractor expressly absolves the Employer and the Employer's Consulting Engineers from being obliged to comply with any of the aforesaid duties, obligations, prohibitions, arrangements and procedures in respect of the work included in the contract.
4. The Contractor agrees that any duly authorized officials of the Employer shall be entitled, although not obliged, to take such steps as may be necessary to ensure that the Contractor has complied with his undertakings as more fully set out in paragraphs 1 and 2 above, which steps may include, but shall not be limited to, the right to inspect any appropriate site or premises occupied by the Contractor, or to take such steps it may deem necessary to remedy the default of the Contractor at the cost of the Contractor.

5. The Contractor shall be obliged to report forthwith to the Employer any investigation, complaint or criminal charge which may arise as a consequence of the provisions of the Act and Regulations, pursuant to work performed in terms of this agreement, and shall, on written demand, provide full details in writing of such investigation, complaint or criminal charge.

Thus signed at for and on behalf of the **CONTRACTOR**

on this the day of 20.....

SIGNATURE:

NAME AND SURNAME:

CAPACITY:

WITNESSES: 1.

2.

Thus signed at for and on behalf of the **EMPLOYER** on this

the day of 20.....

SIGNATURE:

NAME AND SURNAME:

CAPACITY:

WITNESSES: 1.

2.

C.2 PRICING DATA

C.2.1 PRICING INSTRUCTIONS

1. General

The bill of quantities forms part of the contract documents and must be read and priced in conjunction with all the other documents comprising the contract documents, which include the conditions of tender, conditions of contract, the specifications (including the Project Specification) and the drawings.

2. Description of Items in the Schedule

The bill of quantities has been drawn up generally in accordance with the Civil Engineering Quantities 1990 issued by the SA Institution of Civil Engineers.

The short descriptions of the items in the bill of quantities are for identification purposes only and the measurement and payment clause of the standardized specifications and the particular specifications, read together with the relevant clauses of the project specification and directives on the drawings, set out what ancillary or associated work and activities are included in the rates for the operations specified.

3. Quantities Reflected in the Schedule

The quantities given in the bill of quantities are estimates only, and subject to re-measuring during the execution of the work. The Contractor shall obtain the Engineer's detailed instructions for all work before ordering any materials or executing work or making arrangements for it.

The works as finally completed in accordance with the contract shall be measured and paid for as specified in the bill of quantities and in accordance with the general and special conditions of contract, the specifications and project specifications and the drawings. Unless otherwise stated, items are measured net in accordance with the drawings, and no allowance has been made for waste.

The validity of the contract will in no way be affected by differences between the quantities in the bill of quantities and the quantities finally certified for payment.

4. Provisional Sums

Where provisional sums or prime cost sums are provided for items in the bill of quantities, payment for the work done under such items will be made in accordance with Clause 6.6 of the General Conditions of Contract 2015. The Employer reserves the right, during the execution of the works, to adjust the stated amounts upwards or downwards according to the work actually done under the item, or the item may be omitted altogether, without affecting the validity of the contract.

The Tenderer shall not under any circumstances whatsoever delete or amend any of the sums inserted in the "Amount" column of the bill of quantities and in the summary of the bill of quantities unless ordered or authorized in writing by the Employer before closure of tenders. Any unauthorized changes made by the Tenderer to provisional items in the schedule, or to the provisional percentages and sums in the summary of the bill of quantities, will be treated as arithmetical errors.

5. Pricing of the Bill of Quantities

The prices and rates to be inserted by the Tenderer in the bill of quantities shall be the full inclusive prices to be paid by the Employer for the work described under the several items, and shall include full compensation for all costs and expenses that may be required in and for the completion and maintenance during the defects liability period of all the work described and as shown on the drawings as well as all overheads, profits, incidentals and the cost of all general risks, liabilities and obligations set forth or implied in the documents on which the Tender is based.

Each item shall be priced and extended to the "Total" column by the Tenderer, with the exception of the items for which only rates are required, or items which already have prime cost or provisional sums affixed thereto. If the Contractor omits to price any items in the bill of quantities, then these items will be considered to have a nil rate or price.

All items for which terminology such as "inclusive" or "not applicable" have been added by the Tenderer will be regarded as having a nil rate which shall be valid irrespective of any change in quantities during the execution of the contract.

The Tenderer shall fill in rates for all items where the words "rate only" appears in the "Total" column. "Rate Only" items have been included where:

- (a) An alternative item or material is contemplated;
- (b) Variations of specified components in the make-up of a pay item may be expected; and
- (c) No work under the item is foreseen at tender stage but the possibility that such work may be required is not excluded.

For "Rate Only" items no quantities are given in the "Quantity" column, but the quoted rate shall apply in the event of work under this item being required. The Tenderer shall however note that in terms of the tender data the Tenderer may be asked to reconsider any such rates which the Employer may regard as unbalanced.

All rates and amounts quoted in the bill of quantities shall be in rand and cents and shall include all levies and taxes (other than VAT) VAT will be added in the summary of the bill of quantities.

6. Correction of Entries

Incorrect entries shall not be erased or obliterated with correction fluid but must be crossed out neatly. The correct figures must be entered above or adjacent to the deleted entry, and the alteration must be initialled by the Tenderer.

7. Arithmetical Errors

Arithmetical errors found in the bill of quantities as a result of faulty multiplication of addition, will be corrected by the Engineer at the tender evaluation stage, in accordance with the procedure set out in the tender data.

8. Monthly Payments

Unless otherwise specified in the specifications and project specifications, progress payments in interim certificates, referred to in Clause 6.10 of the General Conditions of Contract 2015 third addition, in respect of "sum" items in the bill of quantities shall be by means of interim progress instalments assessed by the Engineer and based on the measure in which the work actually carried out relates to the extent of the work to be done by the Contractor.

9. Units of Measurement

The units of measurement described in the bill of quantities are metric units for which the standard international abbreviations are used. Non-standard abbreviations which may appear in the bill of quantities are as follows:

No.	=	Number	PC Sum	=	Prime Cost Sum
%	=	Percentage	P Sum	=	Provisional Sum

10. Labour Intensive Construction (EPWP)

Those parts of the works to be constructed using labour-intensive methods are marked in the bill of quantities with the letters LI in a separate column 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 deviation from the contract.

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. Any non-payment for such works shall not relieve the Contractor in any way from his obligations either in contract or in delict.

11. Product Names or Similar Approved

Wherever reference has been made to product names, it also includes all similar Employer's approved product names. Should alternative products be included, all relevant information to be supplied for approval by the Employer.

C2.2 BILL OF QUANTITIES

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C.3 SCOPE OF WORK

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PART C3.1: DESCRIPTION OF WORK

1. DESCRIPTION OF WORK

1.1 Employer's Objective

The Employer's objective is to provide the local community with improved stormwater drainage and mitigate stormwater damage.

1.2 Overview of Work

Ncotshane Stormwater Drainage - RDP Housing project forms part of Ncotshane Stormwater master plan and critical stormwater areas as identified for urgent intervention.

The current scope is in providing a temporary to intermediate stormwater drainage solution for the management of stormwater drainage and ponding runoff within the residential area of Ncotshane, Area 5 more specifically the RDP housing section.

1.3 Extent of Work

The current identified scope of the works can amongst other aspects be summarised as follow:

- a) Creation of approximately 146 yard low points for stormwater drainage,
- b) Construction of related roadbed layer and compaction at 146 yards,
- c) Lowering of existing services, i.e. water and sewer reticulation network/piping,
- d) Box excavation activities for creation of approximately 1500m of road low points for drainage,
- e) Related roadbed layer and compaction for creation of temporary road surface,
- f) Construction of related stormwater infrastructure as may be required,
- g) Defect liability period of 12 calendar months, and
- h) Miscellaneous items.

1.4 Location of Work

Project 5 RDP Housing is situated in Ward 10, positioned South Eastern section of Ncotshane A and is located approximately 5km North from Pongola CBD in Kwa-Zulu Natal at the co-ordinates:

- 27°20'15.03"S
- 31°35'01.70"E

Ncotshane can be accessed via the N2, Naude Street, Nuwe Republiek Street, Klasie Hafvanga Street and an unnamed surfaced road. The main access to Ncotshane is located at:

- 27°20'15.03"S
- 31°35'01.70"E

1.5 Temporary Work

The following items shall form the majority of temporary works required under this Contract, however, shall not be limited to such, and might be expanded or changed by the Engineer should circumstances on site valid such decisions. These works will be as follows:

- a) Clearing site and surroundings to create accessible working areas as required,
- b) Provide temporary fencing around Contractor's camp site and Engineer's site office,
- c) Provide Contractor's Camp site and Engineer's site office, furnished as specified,
- d) Provide site and administrative personnel, including security staff etc. as required or instructed;
- e) Setting out of the works by a registered professional surveyor,
- f) Monitor and report levels as construction progresses; Managed all site staff, CLO and local labourers, plant, equipment and materials etc.,

- g) Managed all required quality control procedures as specified and as instructed by Engineer;
- h) Clean, scrape, fill, maintain etc. new temporary gravel roads for accommodation of traffic through and passing the construction activities,
- i) Provision and properly install temporary culvert sections to control and direct stormwater away from construction activities and to protect temporary by-pass roads,
- j) Grubbing bushes, vegetation and grass at existing culvert in- and outlet structures and Cleaning out inside existing stormwater structures,
- k) Provide sufficient temporary road traffic sign boards, barricading, lighting, etc. as specified or instructed and as may be required,
- l) Provide all personnel, equipment, clothing, accessories etc. in order to adhere to the OHS Act,
- m) Attend official Site Meetings scheduled and chaired by the Engineer, and managed sufficient additional meetings on site with all personnel and CLO to ensure compliance with the OHS Act and to ensure progress on site according to the accepted Construction programme,
- n) Co-ordinate Local Contractors/SMME's/suppliers for achieving project set Local Content targets, including monthly reporting, and
- o) Co-ordinate EPWP activities for achieving project set EPWP targets, including monthly reporting and management.

2. DRAWINGS (Only for Bid Purposes)

The drawings bound into **Section C.5** shall form part of the bid documentation.

3. PROCUREMENT

3.1 Preferential Procurement Procedures

The works shall be executed in accordance with the conditions attached to preferences granted in accordance with the preferencing schedule.

3.2 Scope of Mandatory Subcontract Work

Any portions of the works that the Primary Contractor intends to subcontract shall only be subcontracted to CIDB registered Contractors in accordance with the subcontracting procedures described hereunder. The **maximum portion** of the works that might be subcontracted out is **50%**. All subcontractors shall be approved in writing by the Engineer before the Primary Contractor may engage such party on this project.

Competitive bids shall be invited in respect of each of the above portions of the works in accordance with the relevant provisions of the latest edition of the CIDB Standard for Uniformity in Construction Procurement. The contract data in the associated procurement documents shall be based on the use of CIDB Standard subcontract (labour only), SAFCEC general conditions of subcontract (2004 edition) (select appropriate option), with minimal project specific variations and amendments that do not change their intended usage.

The Employer together with the Contractor shall evaluate the bids received in accordance with the provisions of the standard conditions of bid contained in Annexure F of the standard for uniformity in construction procurement. The evaluation panel shall comprise equal representatives from the Employer and from the Contractor.

The Contractor shall without delay enter into contract with the successful bidding subcontractor based on their accepted bid submission. The Contractor shall remain responsible for providing the subcontracted portion of the works as if the work had not been subcontracted.

4. CONSTRUCTION

4.1 Applicable National and International Standards

The SANS 1200 specifications shall be applicable as national specifications for construction work.

4.2 Particular / Generic Specifications

All the Particular Specifications are included in **Section C.3.3 B2** of this document.

4.3 Labour Intensive Competencies of Supervisory and Management Staff

See Part A: Project Specifications includes Section “**PS.4 GENERIC LABOUR-INTENSIVE SPECIFICATION (EPWP)**”, and

See Project Specifications are included in **Section C3.3.** as “**PART PA: EPWP ALIGNMENT (PROVISION OF STRUCTURED TRAINING)**”

4.4 Employment of Unskilled and Semi-Skilled Workers in Labour-Intensive Works

See Part A: Project Specifications includes Section “**PS.4 GENERIC LABOUR-INTENSIVE SPECIFICATION (EPWP)**”, and

See Project Specifications are included in **Section C3.3.** as “**PART PA: EPWP ALIGNMENT (PROVISION OF STRUCTURED TRAINING)**”

4.5 Certification by Recognized Bodies

No certified bodies are stated by Employer to manage accredited training.

4.6 Plant and Materials Provided by the Employer

The Employer will not make any plant equipment, or materials available for the Contractor.

4.7 Services and Facilities Provided by the Employer

No services or facilities shall be provided by the Employer on site, or for the proper execution of the project. Any and all services and facilities required for the execution of the Works, inclusive of water, electricity, sanitation, telecommunication, housing, offices and storage facilities etc. shall be provided and / or arranged by the Contractor on own expenses with the local Authorities and Community as and when needed.

4.8 Plant and Equipment

The plant and equipment used on the site shall not be inferior to that described in the Schedule of Plant and Equipment.

5. MANAGEMENT ON SITE

The management of the site shall be in accordance with the provisions of the SANS 1200 Standard Specifications, obtainable from the South African Institution of Civil Engineering.

5.1 Recording of Weather

The Contractor shall erect an effective rainfall gauge on the site and record the daily rainfall figures in the Site Dairy book. Such book shall be handed to the employer's representative for his signature no later than 12 days after rain that is considered to justify an Extension of time occurs.

5.2 Unauthorised Persons

The Contractor shall always keep unauthorized persons from the works. Under no circumstances may any portion of the Works where construction activities are in progress, or the Contractor's Camp Site, be left unattended. Sufficient warning sign boards, shall be provided and erected at the Contractor's Camp Site, prohibited unauthorised entry. A Site visitor's register shall be kept by the Contractor and shall be completed by all visitors to the site, which shall amongst others include the Employer and Engineer and all representatives of the latter.

C3.2 STANDARD SPECIFICATIONS

C3.2.1 Work Specifications

The standard specifications on which this contract is based are the following **SANS 1200** Standardized Specifications:

SANS 1200 A :	General
SANS 1200 AB :	Engineer Office
SANS 1200 C :	Site Clearance
SANS 1200 D :	Earthworks
SANS 1200 DB :	Earthworks (Pipe Trenches)
SANS 1200 DM :	Earthworks
SANS 1200 G :	Concrete Structural
SANS 1200 LB :	Bedding (Pipes)
SANS 1200 LC :	Cable Ducts
SANS 1200 LE :	Stormwater Drainage
SANS 1200 ME :	Sub-Base
SANS 1200 MF :	Base
SANS 1200 MH :	Asphalt Base and Surfacing
SANS 1200 MK :	Kerbing and Channelling
SANS 1200 MM :	Ancillary Roadworks

Variations and additions to the standard specifications are detailed in C3.3 Project Specification. The standard specifications on which this contract is based are the **SABS 1200 Standard Specifications**.

The following SANS specifications are also referred to in this document and the Contractor is advised to obtain them from Standards South Africa (a division of SABS) in Pretoria.

SANS 10396: 2003:	Implementing Preferential Construction Procurement Policies using Targeted Procurement Procedures.
SANS 1914-1 to 6 (2002):	Targeted Construction Procurement.
SANS 1921 – 1 (2004):	Construction and Management Requirements for Work Contracts Part 1: General Engineering and Construction Works and where accommodation of traffic is involved.
SANS 1921-2 (2004):	Construction and Management Requirements for Work Contracts Part 2: Accommodation of Traffic on Public Roads Occupied by the Contractor.

C3.3 PROJECT SPECIFICATIONS

STATUS

The Project Specification, consisting of two parts, forms an integral part of the contract and supplements the Standard Specifications.

Part A: Contains a general description of the works, the site and the requirements to be met.

Part B: Contains variations, amendments and additions to the Standardized Specifications and, if applicable, the Particular Specifications.

In the event of any discrepancy between a part or parts of the Standardized or Particular Specifications and the Project Specification, the Project Specification shall take precedence. In the event of a discrepancy between the Specifications, (including the Project Specifications) and the drawings and / or the Bill of Quantities, the discrepancy shall be resolved by the Engineer before the execution of the work under the relevant item.

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

PART A: GENERAL

PART A: GENERAL

PS.1 PROJECT DESCRIPTION

Ncotshane Stormwater Drainage - RDP Housing project forms part of Ncotshane Stormwater master plan and critical stormwater areas as identified for urgent intervention.

The current scope is in providing a temporary to intermediate stormwater drainage solution for the management of stormwater drainage and ponding runoff within the residential area of Ncotshane, Area 5 more specifically the RDP housing section.

Main Scope of Work

The current identified scope of the works can amongst other aspects be summarised as follow:

- a) Creation of approximately 146 yard low points for stormwater drainage,
- b) Construction of related roadbed layer and compaction at 146 yards,
- c) Lowering of existing services, i.e. water and sewer reticulation network/piping,
- d) Box excavation activities for creation of approximately 1500m of road low points for drainage,
- e) Related roadbed layer and compaction for creation of temporary road surface,
- f) Construction of related stormwater infrastructure as may be required,
- g) Defect liability period of 12 calendar months, and
- h) Miscellaneous items.

Temporary Works

The following items shall form the majority of temporary works required under this Contract, however, shall not be limited to such, and might be expanded or changed by the Engineer should circumstances on site valid such decisions. These works will be as follows:

- a) Clearing site and surroundings to create accessible working areas as required,
- b) Provide temporary fencing around Contractor's camp site and Engineer's site office,
- c) Provide Contractor's Camp site and Engineer's site office, furnished as specified,
- d) Provide site and administrative personnel, including security staff etc. as required or instructed;
- e) Setting out of the works by a registered professional surveyor,
- f) Monitor and report levels as construction progresses; Managed all site staff, CLO and local labourers, plant, equipment and materials etc.,
- g) Managed all required quality control procedures as specified and as instructed by Engineer;
- h) Clean, scrape, fill, maintain etc. new temporary gravel roads for accommodation of traffic through and passing the construction activities,
- i) Provision and properly install temporary culvert sections to control and direct stormwater away from construction activities and to protect temporary by-pass roads,
- j) Grubbing bushes, vegetation and grass at existing culvert in- and outlet structures and Cleaning out inside existing stormwater structures,
- k) Provide sufficient temporary road traffic sign boards, barricading, lighting, etc. as specified or instructed and as may be required,
- l) Provide all personnel, equipment, clothing, accessories etc. in order to adhere to the OHS Act,
- m) Attend official Site Meetings scheduled and chaired by the Engineer, and managed sufficient additional meetings on site with all personnel and CLO to ensure compliance with the OHS Act and to ensure progress on site according to the accepted Construction

- programme,
- n) Co-ordinate Local Contractors/SMME's/suppliers for achieving project set Local Content targets, including monthly reporting, and
 - o) Co-ordinate EPWP activities for achieving project set EPWP targets, including monthly reporting and management.

PS.2 DESCRIPTION OF SITE AND ACCESS

PS.2.1 Location of Site

The site is located approximately 5km North from Pongola CBD in Kwa-Zulu Natal, within the jurisdiction of uPhongolo Municipality.

The project is located as shown on the locality plan bound into this document in **Section C4** of the Site Information.

The site shall not only include the proclaimed road reserve but shall be Extended in the broader sense to take account of all areas occupied by the Contractor, be it deliberate or unintentional, in the execution of the contract.

Incidental intrusion into private or tribal property outside the road reserve shall not be permitted without the owner's written authority. Any such agreement reached with a private or tribal landowner (occupier) shall include the provision that any material or equipment on that site shall remain the exclusive property of the Employer in terms of the contract.

PS.2.2 Access to Site

Pongola is located approximately 103km South-East from Mkhondo (Piet Retief). The site can be accessed from the N2 national road.

With Ncotshane that can be accessed via the N2, Naude Street, Nuwe Republiek Street, Klasie Havanga Street and an unnamed surfaced road. The main access to Ncotshane is located at:

- 27°20'56.16" S
- 31°35'33.87" E

The contractor shall be responsible for the maintenance and reinstatement of damage caused by him or his agents/deliveries to vehicular access tracks and rights of way. No damage to fauna and flora located outside the limits of the road reserve will be permitted on the contract.

The contractor shall take cognisance of the aforementioned items concerning roads and tracks and allow for any costs in his bid under the relevant section in the Bill of Quantities.

PS.2.3 Nature of the Ground and Subsoil Conditions

PS 2.3.1 Character of Strata and Materials on Site

Tenderers shall be deemed to have fully satisfied themselves as to the Geological, Environmental and Cultural Resource conditions that pertain to the site of the works before submitting their tenders, as required by clause 4.7 of the conditions of contract.

PS 2.3.2 Excavate Ability and Contractors Liability

Tenderers shall be deemed to have fully satisfied themselves as to the Geological, Environmental and Cultural Resource conditions that pertain to the site of the works before submitting their tenders, as required by clause 4.7 of the conditions of contract.

PS.3 CONSTRUCTION AND MANAGEMENT REQUIREMENTS

PS.3.1 General

The Contractor is referred to SANS 1921: 2004 parts 1, 2 and 3: Construction and management requirements for works contracts. These specifications shall be applicable to the contract under consideration and the Contractor shall comply with all requirements relevant to the project.

Certain aspects however require further attention as described hereafter.

A quality control system – refer proposed job card in the annexures – will be implemented and the Contractor will be required to comply with this process.

The Contractor shall exercise due diligence and care in constructing the Works, in order to ensure that no damage is caused to public or private property or to the property of the Municipality and that danger to persons, fauna, flora and livestock are limited to the extent that is reasonably possible.

The Contractor shall indemnify the Municipality against any and all claims that may arise from his construction of the Works, as required by the Conditions of Contract. It is the responsibility of the tenderers to acquaint themselves of the geology and soil conditions of the site before submitting a tender.

PS 3.2 Responsibilities for Design and Construction

Engineer

The Engineer responsible for the design in accordance with the specification is: Mr BC Lundie of AFI Consult (Pty) Ltd.

Contractor

The Contractor responsible for construction will be the successful appointed bidder.

PS.3.3 Employment of Labour (Manufacturing and Installation Stage)

It is the intention that this contract should make the maximum possible use of the labour force available from within the target community and which is at present underemployed.

To this end it will be expected of the Contractor to employ and train labour on this contract.

The Contractor shall fill in the forms relating to key personnel and state how many key personnel he intends to employ in the various categories. The numbers stated in the above form will be strictly controlled during the contract period and any increase in numbers shall be subject to the approval of the Engineer.

It is a condition of contract that the data sheets detailing the employment of human resources, expenditure and employment of SMMES as detailed in the tables below be submitted together with the monthly certificate timeously to the Engineer by the 1st of each month.

The definition of youth is being determined by age up to and including 35 years.

The unit of measurement is person days being the total number of persons in that category multiplied by the number of days worked by each person respectively.

Labour Return: (Current Month)

	Total		Adults				Youth (<35 yrs.)				Disabled			
			Women		Men		Female		Male		Female		Male	
	Persons	Person days	Persons	Person days	Persons	Person days	Persons	Person days	Persons	Person days	Persons	Person days	Persons	Person days
Clerical	0	0												
Labourers	0	0												
Managerial	0	0												
Semi-skilled	0	0												
Skilled	0	0												
Supervisor	0	0												
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Expenditure

(All excl. VAT)

	Previous Total	This Cert	Total to Date
Value paid to locally sourced labour resources			R -
Amount paid for accredited training			R -
Amount paid for non-accredited training			R -

SMME Schedule

Name of SMME	SMME Information		Project Information			
	No of Permanent Employees	Turnover previous 12 months	Total person days to date	Amount paid to SMME	Person days locally sourced	Total value of work

The data sheets must be submitted monthly irrespective of whether or not a payment certificate is submitted in terms of the latest cash flow.

PS.3.4 Manufacturing and Construction Programme

a) Programme

The Contractor shall include with his bid a preliminary programme on the prescribed form to be completed by all Bidders. The programme shall be in the form of a simplified bar chart with sufficient details to show clearly how the works will be performed within the time for completion as stated in the Contract Data.

Bidders may submit bids for an alternative Time for Completion in addition to a bid based on the specified Time for Completion. Each such alternative bid shall include a preliminary programme similar to the programme above for the execution of the works, and shall motivate his proposal clearly by stating all the financial implications of the alternative completion time.

The Contractor shall be deemed to have allowed fully in his bid rates and prices as well as in his programme for all possible delays due to normal adverse weather conditions and special non-working days as specified in the Special Conditions of Contract, in the Project Specifications and in the Contract Data.

The following constraints shall be taken into account in preparing the preliminary construction programme which must be submitted with the Bid. These same constraints shall apply to the final construction programme:

- i. The Contract time is **3 months**. Plant and personnel requirements to complete the project in **3 months** must be incorporated in the Bid.
- ii. A high standard of traffic accommodation
- iii. The relocation of services where encountered.
- iv. Ancillary works by Emerging Contractors

b) Programme in terms of Clause 5.6 of the General Conditions of Contract

It is essential that the manufacturing programme, which shall conform in all respects to Clause 5.6 of the general conditions of contract, be furnished within the time stated in the contract data. The preliminary programme to be submitted with the tender shall be used as basis for this programme. The Contractor's attention is also drawn to clause 5.6.1 of the General Conditions of Contract 2015, Third Edition.

The programme shall take cognisance of the health and safety requirements noted in within this project specifications and in particular that teams must be resourced and managed to ensure that pits are not left open for more than 48hours before the super-structure is installed.

PS.3.5 Drawings *(Read with SANS 1921 – 1: 2004 clauses 4.1.7; 4.1.11 and 4.1.12)*

The reduced layout drawings which form part of the tender documents shall be used for tendering purposes only.

The Contractor shall be supplied with three (3) complete paper copies of the construction drawings free of charge. The Contractor shall at his own expense produce there from all further paper prints required for the construction of the work.

At the completion of the contract, the Contractor shall submit to the Engineer all drawings, provided or made, during the contract period.

Any information which the Contractor has control over and which is required by the resident Engineer to complete the as-built drawings shall be made available to the resident Engineer before the completion certificate is issued.

Only written dimensions may be used. Dimensions are not to be scaled from drawings unless ordered by the Engineer. The Engineer will supply all figures / dimensions which are not shown on the drawings. The levels or dimensions given on the drawings are subject to confirmation on

site. The Contractor shall submit all levels and dimensions to the Engineer for confirmation before he commences with any structural construction work. The Contractor shall also check all clearances which are given on the drawings and inform the Engineer of any conflicting dimensions.

Any destination names on road signs which may be indicated on the drawings are subject to confirmation by the Engineer before these signs are manufactured.

PS.3.6 Quality Assurance (QA) *(Read with SANS 1921 – 1: 2004 clause 4.4)*

The Contractor will be solely responsible for the production of work that complies with the specifications to the satisfaction of the Engineer. To this end it will be the full responsibility of the Contractor to institute an appropriate quality assurance (QA) system on site. The Engineer will audit the Contractor's quality assurance (QA) system on a regular basis to verify that adequate independent checks and tests are being carried out and to ensure that the Contractor's own control is sufficient to identify any possible quality problems which could cause a delay or failure.

The Contractor shall ensure that efficient supervisory staff, the required transport, instruments, equipment and tools are available to control the quality of his own workmanship in accordance with his QA-system. His attention is drawn to the fact that it is not the duty of the Engineer or the Engineer's representative to act as foreman or surveyor.

PS.3.7 Management and Disposal of Water *(Read with SANS 1921 - 1: 2004 clause 4.6)*

The Contractor shall pay special attention to the management and disposal of water and stormwater on the site. It is essential that all completed works or parts thereof are kept dry and properly drained. Claims for delay and for repair of damage caused to the works as a result of the Contractor's failure to properly manage rain and surface water, will not be considered.

PS.3.8 Earthworks *(Read with SANS 1921 - 1: 2004 clause 4.10)*

3.8.1 Borrow Pits and Spoil Areas

The Contractor shall be permitted to use only those borrow pits approved by the Employer/Engineer.

The spoil sites shall be determined on site in conjunction with the Engineer, the PLC, and the local communities. The Contractor shall be permitted to use only those spoil areas approved by the Engineer.

Should the Contractor wish to use any other tip area for the disposal of soil, rubble, vegetation, etc., its use shall be subject to the approval of the Engineer and the landowner.

PS.3.9 Testing *(Read with SANS 1921 – 1: 2004 clause 4.11)*

3.9.1 Process Control

The Contractor shall arrange for all tests required for process control to be done by an accredited laboratory acceptable to and approved by the Engineer.

The Contractor may establish his own laboratory on site or he may employ the services of an independent commercial laboratory. Whatever method is used, the Contractor must submit the results of tests carried out on materials and workmanship when submitting work for acceptance by the Engineer. The costs for these tests shall be deemed to be included in the relevant rates and no additional payment will be made for testing as required.

3.9.2 Acceptance Control

The process control test results submitted by the Contractor for approval of materials and workmanship may be used by the Engineer for acceptance control. However, before accepting any work, the Engineer may have further control tests carried out by a laboratory of his choice.

The cost of such additional tests will be covered by a provisional sum provided in the schedule of quantities, but tests that failed to confirm compliance with the specifications, will be for the account of the Contractor.

PS.3.10 Site Establishment (*Read with SANS 1921 - 1: 2004 clause 4.14*)

3.10.1 a) Water and Electricity

The Contractor shall make his own arrangements concerning the supply of electrical power and all other services. No direct payment shall be made for the provision of electrical and other services. The cost thereof shall be deemed to be included in the rates and amounts bid for the various items of work for which these services are required.

All water required for construction purposes is to be sourced by the Contractor and is to be allowed for in his rates.

3.10.2 b) Location of Site Office

A chosen site shall be subject to the approval of the Engineer, the local Tribal Authorities and the Project Liaison Committee (PLC). Possible locations for a campsite shall be pointed out at the Site inspection. The Contractor shall conform to all local authority, environmental and industrial regulations.

No employees except for security guards will be allowed to sleep or be accommodated on the site in urban areas.

No housing is available for the Contractor's employees and the Contractor shall make his own arrangements to house his employees and to transport them to site. No informal housing or squatting will be allowed.

The contractor is to provide adequate sanitary and waste facilities for his staff and is to ensure that the camp is kept clean and neat at all times. No littering is to take place at either the camp or on the site.

The site is to be left in a neat, landscaped condition without any improvements on completion of the contract and final retention will not be released until such time as this condition has been complied with.

The Contractor shall provide security watchmen for the contract as he deems fit at no Extra cost for the Employer. The Contractor must ensure that all his employees as well as the employees of his subcontractors are able to identify themselves as members of the construction team.

3.10.3 c) Telephone

The contractor shall make his own arrangements in this regard. Cellular phone coverage is available in the area as there are no normal land line facilities provided by Telkom.

PS.3.11 Survey Beacons (*Read with SANS 1921 - 1: 2004 clause 4.15*)

The Contractor shall take special precautions to protect all permanent survey beacons or pegs such as bench-marks, stand boundary pegs and trigonometric beacons, regardless whether such beacons or pegs were placed before or during the execution of the Contract. If any such beacons or pegs have been disturbed by the Contractor or his employees, the Contractor shall have them replaced by a registered land surveyor at his own cost.

PS.3.12 Existing Services (*Read with SANS 1921 - 1: 2004 clause 4.17*)

The Contractor shall make himself acquainted with the position of all existing services before any excavation or other work likely to affect the existing services is commenced.

The Contractor will be held responsible for any damage to known existing services caused by or arising out of his operations and any damage shall be made good at his own expense. Damage to unknown services shall be repaired as soon as possible and liability shall be determined on site when such damage should occur.

Prior to commencing construction activities in a particular area, the Contractor shall also diligently enquire of local landowners as to whether there are any other known services which have not been shown on the drawings but which may be affected by the construction activities in that area, and any such services shall be brought to the attention of the Engineer immediately.

The Contractor shall take note of the requirements of clause 1202 of the standard specifications regarding services.

PS.3.13 Health and Safety (*Read with SANS 1921 - 1: 2004 clause 4.18*)

3.13.1 General Statement

The Works will be constructed in an area inhabited by people including many children.

It is a requirement of this contract that the Contractor shall provide a safe and healthy working environment and to direct all his activities in such a manner that his employees and any other persons, who may be directly affected by his activities, are not exposed to hazards to their health and safety. To this end the Contractor shall assume full responsibility to conform to all the provisions of the Occupational Health and Safety Act No 85 and Amendment Act No 181 of 1993, and the OHS Act 1993 Construction Regulations 2003 issued on 18 July 2003 by the Department of Labour.

For the purpose of this contract the Contractor is required to confirm his status as mandatory and employer in his own right for the execution of the contract by entering into an agreement with the Employer in terms of the Occupational Health and Safety Act in the form as included in the tender document under the relevant Particular Specification section.

3.13.2 Health and Safety Specifications and Plans

a) Employer's Health and Safety Specification

The Employer's Health and Safety Specification will be included in the tender documents as part of the Project Specifications.

b) Tenderer's Health and Safety Plan

The Tenderer shall submit with his tender his own documented Health and Safety Plan he proposes to implement for the execution of the work under the contract. His Health and Safety Plan must at least cover the following

- (i) A proper risk assessment of the works, risk items, work methods and procedures in terms of Regulations 7 to 28;
- (ii) Pro-active identification of potential hazards and unsafe working conditions;
- (iii) Provision of a safe working environment and equipment;
- (iv) Statements of methods to ensure the health and safety of subcontractors, employees and visitors to the site, including safety training in hazards and risk areas (*Regulation 5*);
- (v) Monitoring health and safety on the site of works on a regular basis, and keeping of records and registers as provided for in the construction regulations;
- (vi) Details of the Construction Supervisor, the Construction Safety Officers and other competent persons he intends to appoint for the construction works in terms of regulation 6 and other applicable regulations; and
- (vii) Details of methods to ensure that his Health and Safety Plan is carried out effectively in accordance with the Construction Regulations 2003.

The Contractor's Health and Safety Plan will be subject to approval by the Employer, or amendment if necessary, before commencement of construction work. The Contractor will not be allowed to commence work, or his work will be suspended if he had already commenced work, before he has obtained the Employer's written approval of his Health and Safety Plan.

Time lost due to delayed commencement or suspension of the work as a result of the Contractor's failure to obtain approval for his safety plan, shall not be used as a reason to claim for Extension of time or standing time and related costs.

3.13.3 Cost of Compliance with the OHSA Construction Regulations

The rates and prices tendered by the Contractor shall be deemed to include all costs for conforming to the requirements of the Act, the Construction Regulations and the Employer's Health and Safety Specification as applicable to this contract.

Should the Contractor fail to comply with the provisions of the Construction Regulations, he will be liable for penalties as provided in the Construction Regulations and in the Employer's Health and Safety Specification.

The Contractor's failure to comply will also be recorded on the uPhongolo Municipal data base and will affect the award of adjudication points to the Contractor on future work tendered for.

3.13.4 Requirements for Accommodation of Traffic (Read with SANS 1921 - 2: 2004)

3.13.4.1 General

The Contractor will be responsible for the safe and easy passage of public traffic past and on sections of roads of which he has occupation or where work has to be done near traffic.

The travelling public shall have the right of way on public roads, and the Contractor shall make use of approved methods to control the movement of his equipment and vehicles so as not to constitute a hazard on the road.

Accommodation of traffic, where applicable shall comply with SANS 1921-2: 2004: Construction and Management Requirements for Works Contracts, Part 2: Accommodation of Traffic on Public Roads occupied by the Contractor. The Contractor shall obtain this specification from Standards South Africa if accommodation of traffic will be involved on any part of the construction works.

3.13.4.2 Basic Requirements

The travelling public shall have the right of way on public roads, and the Contractor shall make use of approved methods to control the movement of his equipment and vehicles so as not to constitute a hazard on the road.

The Contractor shall ensure that all road signs, barricades, delineators, flagmen and speed controls are effective, and that courtesy is extended to the public at all times.

Failure to maintain road signs, warning signs or flicker lights, etc, in a good condition shall constitute ample reason for the Engineer to suspend the work until the road signs, etc, have been repaired to his satisfaction.

The Contractor may not commence constructional activities affecting existing roads before adequate provision has been made to accommodate traffic in accordance with the requirements of this document and the South African Road Traffic Signs Manual.

The Contractor shall construct and maintain all temporary drainage works necessary for temporary deviations (If required).

The Contractor shall provide and grant access to persons whose properties fall within or adjoin the area in which he is working.

3.13.4.3 Payment

The Contractor's tendered rates for the relevant items in the Bill of Quantities shall include full compensation for all possible additional costs which may arise from this, and no claims for Extra payment due to inconvenience as a result of the modus operandi will be considered.

PS.3.14 Management of Environment (*Read with SANS 1921 - 1: 2004 clause 4.19*)

Respect for the environment is an important aspect of this contract and the Contractor shall pay special attention to the following:

a) Natural Vegetation

The Contractor shall confine his operation to the limits of his construction site and the road reserve areas for the purpose of constructing the works and where applicable detours, shall be sited in consultation with the Engineer and the local communities.

Only trees and shrubs directly affected by the works and such others as the Engineer may direct, in writing shall be cut down and stumped.

The natural vegetation, grassing and other plants shall not be disturbed other than in areas where it is essential for the execution of the work or where directed by the Engineer.

b) Fires

The Contractor shall comply with the statutory and local fire regulations. He shall also take all necessary precautions to prevent any fires. In the event of fire, the Contractor shall take active steps to limit and extinguish the fire and shall accept full responsibility for damages and claims resulting from such fires which may have been caused by him or his employees.

c) Environmental Management Plan

In addition to the above all requirements according to the Environmental Management Plan as detailed in the Particular Specifications as attached within the bid document, will be adhered to.

PS.3.15 Drawings of Record

Any information in the possession of the Contractor, which is necessary for the Engineer's Representative to complete his "drawings of record", must be submitted to the Engineer's Representative before a final payment certificate and a certificate of completion will be issued.

PS.3.16 Abnormal Climatic Conditions

Extensions of time in respect of Clause 5.12 of the GCC (2015) in respect of abnormal rainfall shall be calculated using the following formula for each calendar month or part thereof:

$$V = (N_w - N_n) + \frac{R_w}{R_n}$$

Where:

V = Extension of time in calendar days in respect of the calendar month under consideration.

N_w = Actual number of days during the calendar month on which a rainfall of 10mm or more is recorded.

Nn = Average number of days, as derived from existing rainfall records, on which a rainfall of 10mm or more has been recorded for the calendar month.
Rw = Actual rainfall recorded for the calendar month.
Rn = Average rainfall for the calendar month under consideration as determined from existing rainfall records.

A delay caused by inclement weather conditions will be regarded as a delay only if, in the opinion of the Engineer, all progress on an item or items of work on the critical path of the working programme of the contractor has been brought to a halt. 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 rainy weather, for which he will not receive any extension of time, where "n" equals days. 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.

If Nw for any month is smaller than Nn the formula to be used shall be:

$$V^1 = (Nn - Nw)$$

The total extension of time for completion shall be the sum of the values of V minus the sum of the values of V¹.

Total extension of time = V - V¹.

The following are the most reliable values of Nn and Rn available and shall be used unless other values are mutually agreed upon beforehand:

Source of information : Weather Bureau
Rainfall Station : Pongola Magistrate (Station Nr 0410 203)
Period : 1938 – 1999

MONTH	Nn (days)	Rn (mm)
January	1,3	96,2
February	0,9	97,2
March	1,1	72,6
April	0,7	31,8
May	0,3	23,1
June	0,4	11,5
July	0,1	11,2
August	0,2	13,4
September	0,5	25,6
October	1,2	72,1
November	1,3	96,7
December	1,2	96,9
TOTAL	9,2	648,2

Rainfall gauging will be taken and recorded by the Contractor at his site office and agreed with the Engineer daily.

Should an extension of time be granted by the Engineer the Contractor shall be reimbursed for his time related preliminary and general items contained in the schedule of quantities. The amount of reimbursement shall be calculated as follows:

No. of days extension of time granted

Total number of working days in the Contract X Total for time related General Items

PS.4 GENERIC LABOUR-INTENSIVE SPECIFICATION (EPWP)

PS.4.1 Scope

This specification establishes general requirements for activities which are to be executed by hand involving the following:

- a) Trenches having a depth of less than 1.5 metres;
- b) Storm water drainage; and
- c) Low-volume roads and sidewalks.

PS.4.2 Precedence

Where this specification conflicts with any other standard or specification referred to in the Scope of Works to this Contract, the requirements of this specification shall prevail.

PS.4.3 Hand Excavate Able Material

Hands excavate able material is material:

- a) Granular Materials
 - i. Whose consistency when profiled may in terms of table 1 be classified as very loose, loose, medium dense, or dense; or
 - ii. Where the material is a gravel having a maximum particle size of 10mm and contains no cobbles or isolated boulders, no more than 15 blows of a dynamic cone penetrometer is required to penetrate 100mm.
- b) Cohesive Materials
 - i. Whose consistency when profiled may in terms of table 1 be classified as very soft, soft, firm, stiff and stiff / very stiff; or
 - ii. Where the material is a gravel having a maximum particle size of 10mm and contains no cobbles or isolated boulders, no more than 8 blows of a dynamic cone penetrometer is required to penetrate 100mm.

Note: 1) A boulder, a cobble and gravel is material with a particle size greater than 200mm, between 60 and 200mm.
2) A dynamic cone penetrometer is an instrument used to measure the insitu shear resistance of a soil comprising a drop weight of approximately 10 kg which falls through a height of 400mm and drives a cone having a maximum diameter of 20mm (cone angle of 60° with respect to the horizontal) into the material being used.

PS.4.4 Trench Excavation

All hand excavate-able material in trenches having a depth of less than 1,5 metres shall be excavated by hand.

PS.4.5 Compaction of Backfilling to Trenches (Areas not Subject to Traffic)

Backfilling to trenches shall be placed in layers of thickness (before compaction) not exceeding 100mm. Each layer shall be compacted using hand stampers:

- a) To 90% Proctor density;
- b) Such that in excess of 5 blows of a dynamic come penetrometer (DCP) is required to penetrate 100 mm of the backfill, provided that backfill does not comprise more than 10% gravel of size less than 10mm and contains no isolated boulders; or

- c) Such that the density of the compacted trench backfill is not less than that of the surrounding undisturbed soil when tested comparatively with a DCP.

PS.4.6 Excavation

All hand excavate-able material including topsoil classified as hand excavate-able shall be excavated by hand. Harder material may be loosened by mechanical means prior to excavation by hand.

The excavation of any material which presents the possibility of danger or injury to workers shall not be excavated by hand.

Table 1: Consistency of Materials When Profiled

GRANULAR MATERIALS		COHESIVE MATERIALS	
CONSISTENCY	DESCRIPTION	CONSISTENCY	DESCRIPTION
Very loose	Crumbles very easily when scraped with a geological pick	Very soft	Geological pick head can easily be pushed in as far as the shaft of the handle.
Loose	Small resistance to penetration by sharp end of a geological pick.	Soft	Easily dented by thumb; sharp end of a geological pick can be pushed in 30-40 mm; can be moulded by fingers with some pressure.
Medium dense	Considerable resistance to penetration by sharp end of a geological pick.	Firm	Indented by thumb with effort; sharp end of geological pick can be pushed in up to 10 mm; very difficult to mould with fingers; can just be penetrated with an ordinary hand spade.
Dense	Very high resistance to penetration by the sharp end of geological pick; requires many blows for excavation.	Stiff	Can be indented by thumbnail; slight indentation produced by pushing geological pick point into soil; cannot be moulded by fingers.
Very dense	High resistance to repeated blows of a geological pick.	Very stiff	Indented by thumbnail with difficulty; slight indentation produced by blow of a geological pick point.

PS.4.7 Clearing and Grubbing

Grass and small bushes shall be cleared by hand.

PS.4.8 Shaping

All shaping shall be undertaken by hand.

PS.4.9 Loading

All loading shall be done by hand, regardless of the method of haulage.

PS.4.10 Haul

Excavation material shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150 m.

PS.4.11 Offloading

All material, however transported, is to be off-loaded by hand, unless tipper-trucks are utilized

for haulage.

PS.4.12 Spreading

All material shall be spread by hand.

PS.4.13 Compaction

Small areas may be compacted by hand provided that the specified compaction is achieved.

PS.4.14 Grassing

All grassing shall be undertaken by sprigging, sodding, or seeding by hand.

PS.4.15 Stone Pitching and Rubble Concrete Masonry

All stone required for stone pitching and rubble concrete masonry, whether grouted or dry, must be collected, loaded, off loaded and placed by hand.

Sand and stone shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150m.

Grout shall be mixed and placed by hand.

PS.4.16 Manufactured Elements

Elements manufactured or designed by the Contractor, such as manhole rings and cover slabs, precast concrete planks and pipes, masonry units and edge beams shall not individually, have a mass of more than 320kg. In addition, the items shall be large enough so that four workers can conveniently and simultaneously acquire a proper handhold on them.

PS.4.17 Construction

PS.4.17.1 Applicable National and International Standards

The SANS 1200 Specifications shall be applicable as national specifications for construction work.

PS.4.17.2 Particular / Generic Specifications

All the Particular Specifications are included in this document.

PS.4.17.3 Labour Intensive Competencies of Supervisory and Management Staff

Contractors have a minimum CIDB grading as required by the tender eligibility and higher shall only engage supervisory and management staff in labour intensive works who have either completed, or for the period 1 April 2004 to 30 June 2006, are registered for training towards, the skills programme outlined in Table 1.

The managing principal of the contractor, namely, a sole proprietor, the senior partner, the managing director or managing member of a close corporation, as relevant, having a contractor grading designation of 1CE, 2CE, 3CE and 4CE shall have personally completed, or for the period 1 April 2004 to 30 June 2006 be registered on a skills programme for the NQF level 2.

All other site supervisory staff in the employ of such contractors must have completed, or for the period 1 April 2004 to 30 June 2006 be registered for a skills programme, for the NQF level 2-unit standards or NQF level 4-unit standards.

Table 1: Skills Programme for Supervisory and Management Staff

Personnel	NQF Level	Unit Standard Titles	Skills Programme Description
Team Leader / Supervisor	2	Apply labour intensive construction systems and techniques to work activities.	This unit standard must be completed, and
		Use labour intensive construction methods to construct and maintain roads and storm water drainage.	} any one of these 3 unit standards
		Use labour intensive construction methods to construct and maintain water and sanitation services.	
		Use labour intensive construction methods to construct, repair and maintain structures.	
Foreman / Supervisor	4	Implement labour intensive construction systems and techniques.	This unit standard must be completed, and
		Use labour intensive construction methods to construct and maintain roads and storm water drainage.	} any one of these 3 unit standards.
		Use labour intensive construction methods to construct and maintain water and sanitation services.	
		Use labour intensive construction methods to construct, repair and maintain structures.	
Site Agent / Manager (i.e. the Contractor's most senior representative that is resident on the site)	5	Manage labour intensive construction processes.	Skills programme against this single unit standard.

PS.4.18 Employment of Unskilled and Semi-Skilled Workers in Labour-Intensive Works

PS.4.18.1 Requirements for the Sourcing and Engagement of Labour.

- 4.18.1.1 Unskilled and semi-skilled labour required for the execution of all labour-intensive works shall be engaged strictly in accordance with prevailing legislation and SANS 1914-5, Participation of Targeted Labour.
- 4.18.1.2 The rate of pay set for the EPWP will be per task or per day as per the minimum daily wage as defined by applicable law at time of Contract signing date.
- 4.18.1.3 Tasks established by the contractor must be such that:
- The average worker completes 5 tasks per week in 40 hours or less; and
 - The weakest worker completes 5 tasks per week in 55 hours or less.
- 4.18.1.4 The contractor must revise the time taken to complete a task whenever it is established that the time taken to complete a weekly task is not within the requirements of 4.18.1.3.
- 4.18.1.5 The Contractor shall, through all available community structures, inform the local community of the labour-intensive works and the employment opportunities presented thereby.

Preference must be given to people with previous practical experience in construction and / or who come from households:

- Where the head of the household has less than a primary school education;
 - That has less than one full time person earning an income;
 - Where subsistence agriculture is the source of income; and
 - Those that are not in receipt of any social security pension income.
- 4.18.1.6 The Contractor shall endeavour to ensure that the expenditure on the employment of temporary workers is in the following proportions:
- 60 % women;
 - 20% youth who are between the ages of 18 and 25; and

- c) 2% on persons with disabilities.

PS.4.18.2 Specific Provisions Pertaining to SANS 1914-5

PS.4.18.2.1 Definitions

Targeted Labour:

Unemployed persons who are employed as local labour on the project.

PS.4.18.2.2 Contract Participation Goals

- 4.18.2.2.1 There is no specified contract participation goal for the contract. The contract participation goal shall be measured in the performance of the contract to enable the employment provided to targeted labour to be quantified.
- 4.18.2.2.2 The wages and allowances used to calculate the contract participation goal shall, with respect to both time-rated and task rated workers, comprise all wages paid, and any training allowance paid in respect of agreed training programmes.

PS.4.18.2.3 Terms and Conditions for the Engagement of Targeted Labour

Further to the provisions of clause 3.3.2 of SANS 1914-5, written contracts shall be entered with targeted labour.

PS.4.18.2.4 Variations to SANS 1914-5

- 4.18.2.4.1 The definition for net amount shall be amended as follows:

Financial value of the contract upon completion, exclusive of any value added tax or sales tax which the law requires the employer to pay the contractor.

- 4.18.2.4.2 The schedule referred to in 5.2 shall in addition reflect the status of targeted labour as women, youth and persons with disabilities and the number of days of formal training provided to targeted labour.

PS.4.18.2.5 Training of Targeted Labour

- 4.18.2.5.1 The contractor shall provide all the necessary on-the-job training to targeted labour to enable such labour to master the basic work techniques required to undertake the work in accordance with the requirements of the contract in a manner that does not compromise worker health and safety.

PS.4.19 Certification by Recognized Bodies

No certified bodies are stated by Employer to manage accredited training.

PS.4.20 Plant and Materials Provided by the Employer

The Employer will not make any plant, equipment or materials available for the Contractor.

PS.4.21 Services and Facilities Provided by the Employer

No services or facilities shall be provided by the Employer on site, or for the proper execution of the project. Any and all services and facilities required for the execution of the Works, inclusive of water, electricity, sanitation, telecommunication, housing, offices and storage facilities etc. shall be provided and / or arranged by the Contractor on own expenses with the local Authorities and Community as and when needed.

PS.4.22 Plant and Equipment

The plant and equipment used on the site shall not be inferior to that described in the Schedule of Plant and Equipment.

PS.4.23 Management on Site

The management of the site shall be in accordance with the provisions of the SANS 1200 Standard Specifications, obtainable from the South African Institution of Civil Engineering.

PS.4.24 Applicable Labour Law (Standard Conditions of Employment)

The Ministerial Determination 4: Expanded Public Works Programmes, issued in terms of the Basic Conditions of Employment act of 1997 by the Minister of Labour in Government Notice NR347 of 4 May 2012, as reproduced below, shall apply to works described in the scope of work as being labour intensive and which are undertaken by unskilled or semi-skilled workers. An EPWP contract shall be signed between the contractor and the EPWP participant using the template appended. The contracts shall expire on earlier of (i) 31 March, (ii) at the end of the project; or (iii) completion of the works allocated.

PS.4.24.1 Introduction

This document contains the standard terms and conditions for workers employed in elementary occupations on an Expanded Public Works Programme (EPWP). These terms and conditions do NOT apply to persons employed in the supervision and management of an EPWP.

In this document –

- a) “department” means any department of the State, implementing agent or contractor;
- b) “employer” means any department, implementing agency or contractor that hires workers to work in elementary occupations on an EPWP;
- c) “worker” means any person working in an elementary occupation on a EPWP;
- d) “elementary occupation” means any occupation involving unskilled or semi- skilled work;
- e) “management” means any person employed by a department or implementing agency to administer or execute an EPWP;
- f) “task” means a fixed quantity of work;
- g) “task-based work” means work in which a worker is paid a fixed rate for performing a task;
- h) “task-rated worker” means a worker paid based on the number of tasks completed; and
- i) “time-rated worker” means a worker paid on the basis of the length of time worked.

PS.4.24.2 Terms of Work

- a) Workers on an EPWP are employed on a temporary basis or contract basis.

PS.4.24.3 Normal Hours of Work

- a) An employer may not set tasks or hours of work that require a worker to work–
 - i) More than forty hours in any week;
 - ii) On more than five days in any week; and
 - iii) for more than eight hours on any day.
- b) An employer and worker may agree that a worker will work four days per week. The worker may then work up to ten hours per day.
- c) A task-rated worker may not work more than a total of 55 hours in any week to complete the tasks allocated (based on a 40-hour week) to that worker.

PS.4.24.4 Meal Breaks

- a) A worker may not work for more than five hours without taking a meal break of at least thirty minutes duration.
- b) An employer and worker may agree on longer meal breaks.
- c) A worker may not work during a meal break. However, an employer may require a worker to perform duties during a meal break if those duties cannot be left unattended and cannot be performed by another worker. An employer must take reasonable steps to ensure that a worker is relieved of his or her duties during the meal break.
- d) A worker is not entitled to payment for the period of a meal break. However, a worker who is paid based on time worked must be paid if the worker is required to work or to be available for work during the meal break.

PS.4.24.5 Special Conditions for Security Guards

- a) A security guard may work up to 55 hours per week and up to eleven hours per day.
- b) A security guard who works more than ten hours per day must have a meal break of at least one hour or two breaks of at least 30 minutes each.

PS.4.24.6 Daily Rest Period

Every worker is entitled to a daily rest period of at least twelve consecutive hours. The daily rest period is measured from the time the worker ends work on one day until the time the worker starts work on the next day.

PS.4.24.7 Weekly Rest Period

Every worker must have two days off every week. A worker may only work on their day off to perform work which must be done without delay and cannot be performed by workers during their ordinary hours of work ("emergency work").

PS.4.24.8 Sick Leave

- a) Only workers who work for more than 24 hours have the right to claim sick pay in terms of this clause;
- b) A worker who is unable to work on account of illness or injury is entitled to claim one day's paid sick leave for every full month that the worker has worked in terms of a contract;
- c) A worker may accumulate a maximum of twelve days' sick leave in a year;
- d) Accumulated sick leave may not be transferred from one contract to another contract;
- e) An employer must pay a task-rated worker the worker's daily task rate for a day's sick leave;
- f) An employer must pay a time-rated worker the worker's daily rate of pay for a day's sick leave;
- g) An employer must pay a worker sick pay on the worker's usual payday;
- h) Before paying sick-pay, an employer may require a worker to produce a certificate stating that the worker was unable to work on account of sickness or injury if the worker is –
 - i. absent from work for more than two consecutive days; or
 - ii. absent from work on more than two occasions in any eight-week period.
- i) A medical certificate must be issued and signed by a medical practitioner, a qualified nurse or a clinic staff member authorized to issue medical certificates indicating the duration and reason for incapacity; and
- j) A worker is not entitled to paid sick leave for a work-related injury or occupational disease for which the worker can claim compensation under the Compensation for Occupational Injuries and Diseases Act.

PS.4.24.9 Maternity Leave

- a) A worker may take up to four consecutive months' unpaid maternity leave;
- b) A worker is not entitled to any payment or employment-related benefits during maternity leave;
- c) A worker must give her employer reasonable notice of when she will start maternity leave and when she will return to work;
- d) A worker is not required to take the full period of maternity leave. However, a worker may not work for four weeks before the expected date of birth of her child or for six weeks after the birth of her child, unless a medical practitioner, midwife or qualified nurse certifies that she is fit to do so;
- e) A worker may begin maternity leave –
Four weeks before the expected date of birth; or
- f) On an earlier date –
 - i. If a medical practitioner, midwife, or certified nurse certifies that it is necessary for the health of the worker or that of her unborn child; or
 - ii. If agreed to between employer and worker; or
 - iii. On a later date, if a medical practitioner, midwife or certified nurse has certified that the worker is able to continue to work without endangering her health.
- g) A worker who has a miscarriage during the third trimester of pregnancy or bears a stillborn child may take maternity leave for up to six weeks after the miscarriage or stillbirth.

PS.4.24.10 Family Responsibility Leave

Workers, who work for at least four days per week, are entitled to three days paid family responsibility leave each year in the following circumstances –

- a) When the employee's child is born;
- b) When the employee's child is sick;
- c) In the event of a death of –
 - i. The employee's spouse or life partner; or
 - ii. The employee's parent, adoptive parent, grandparent, child, adopted child, grandchild or sibling.

PS.4.24.11 Statement of Conditions

An employer must give a worker a statement containing the following details at the start of employment –

- a) The employer's name and address and the name of the EPWP;
- b) The tasks or job that the worker is to perform;
- c) The period for which the worker is hired or, if this is not certain, the expected duration of the contract;
- d) The worker's rate of pay and how this is to be calculated;
- e) The training that the worker will receive during the EPWP;
- f) An employer must ensure that these terms are explained in a suitable language to any employee who is unable to read the statement; or
- g) An employer must supply each worker with a copy of these conditions of employment.

PS.4.24.12 Keeping Records

Every employer must keep a written record of at least the following –

- a) The worker's name and position;
- b) Certified ID copies of all locally employed labour;
- c) Signed Contracts between the employer and the EPWP Participants;

- d) Attendance Registers for the EPWP Participants;
- e) Monthly Reporting Template as per EPWP requirements;
- f) In the case of a task-rated worker, the number of tasks completed by the worker;
- g) In the case of a time-rated worker, the time worked by the worker;
- h) Proof of payments made to each worker; and
- i) The employer must keep this record for a period of at least three years after the completion of the EPWP.

PS.4.24.13 Payment

- a) An employer must pay all wages at least monthly in cash or by cheque or into a bank account;
- b) A worker may not be paid less than the minimum EPWP wage rate per day or per task. This will be adjusted annually on the 1st of November in-line with inflation (available CPI as provided by Stats SA six (6) weeks before implementation);
- c) A task-rated worker will only be paid for tasks that have been completed;
- d) An employer must pay a task-rated worker within five weeks of the work being completed and the work having been approved by the manager or the contractor having submitted an invoice to the employer;
- e) A time-rated worker will be paid at the end of each month;
- f) Payment must be made in cash, by cheque or by direct deposit into a bank account designated by the worker;
- g) Payment in cash or by cheque must take place –
 - i. At the workplace or at a place agreed to by the worker;
 - ii. During the worker's working hours or within fifteen minutes of the start or finish of work; and
 - iii. In a sealed envelope which becomes the property of the worker.
- h) An employer must give a worker the following information in writing –
 - i. The period for which payment is made;
 - ii. The numbers of tasks completed, or hours worked;
 - iii. The worker's earnings;
 - iv. Any money deducted from the payment; and
 - v. The actual amount paid to the worker.
- i) If the worker is paid in cash or by cheque, this information must be recorded on the envelope and the worker must acknowledge receipt of payment by signing for it;
- j) If a worker's employment is terminated, the employer must pay all monies owing to that worker within one month of the termination of employment.

PS.4.24.14 Deductions

- a) An employer may not deduct money from a worker's payment unless the deduction is required in terms of a law;
- b) An employer must deduct and pay to the SA Revenue Services any income tax that the worker is required to pay;
- c) An employer who deducts money from a worker's pay for payment to another person must pay the money to that person within the time period and other requirements specified in the agreement law, court order or arbitration award concerned;
- d) An employer may not require or allow a worker to –
 - i. Repay any payment except an overpayment previously made by the employer by mistake;
 - ii. State that the worker received a greater amount of money than the employer actually paid to the worker; or
 - iii. Pay the employer or any other person for having been employed.

PS.4.24.15 Health and Safety

- a) Employers must take all reasonable steps to ensure that the working environment is healthy and safe.
- b) A worker must –
 - i. Work in a way that does not endanger his/her health and safety or that of any other person;
 - ii. Obey any health and safety instruction;
 - iii. Obey all health and safety rules of the EPWP;
 - iv. Use any personal protective equipment or clothing issued by the employer; and
 - v. Report any accident, near-miss incident or dangerous behavior by another person to their employer or manager.

PS.4.24.16 Compensation for Injuries and Diseases

- a) It is the responsibility of the employers (other than a contractor) to arrange for all persons employed on an EPWP to be covered in terms of the Compensation for Occupational Injuries and Diseases Act, 130 of 1993;
- b) A worker must report any work-related injury or occupational disease to their employer or manager;
- c) The employer must report the accident or disease to the Compensation Commissioner; and
- d) An employer must pay a worker who is unable to work because of an injury caused by an accident at work 75% of their earnings for up to three months. The employer will be refunded this amount by the Compensation Commissioner. This does NOT apply to injuries caused by accidents outside the workplace such as road accidents or accidents at home.

PS.4.24.17 Termination

- a) The employer may terminate the employment of a worker for good cause after following a fair procedure;
- b) A worker will not receive severance pay on termination;
- c) A worker is not required to give notice to terminate employment. However, a worker who wishes to resign should advise the employer in advance to allow the employer to find a replacement;
- d) A worker who is absent for more than three consecutive days without informing the employer of an intention to return to work will have terminated the contract. However, the worker may be re-engaged if a position becomes available; and
- e) A worker who does not attend required training events, without good reason, will have terminated the contract. However, the worker may be re-engaged if a position becomes available.

PS.4.24.18 Certificate of Service

On termination of employment, a worker is entitled to a certificate stating –

- a) The worker's full name;
- b) The name and address of the employer;
- c) The EPWP on which the worker worked;
- d) The work performed by the worker;
- e) Any training received by the worker as part of the EPWP;
- f) The period for which the worker worked on the EPWP; and
- g) Any other information agreed on by the employer and worker.

PS.4.24.19 Contractor's Default in Payment to Labourers and Employees

- a) Any dispute between the Contractor and labourers, regarding delayed payment or default in payment of fair wages, if not resolved immediately may compel the Employer to intervene; and
- b) The Employer may, upon the Contractor defaulting payment, pay the moneys due to the workers not honored in time, out of any moneys due or which may become due to the Contractor under the Contract.

PS.4.24.20 Provision of Hand Tools

The Contractor shall provide his labour force with hand tools of adequate quality, sufficient in numbers and make the necessary provisions to maintain the tools in good and safe working conditions

PS.4.24.21 Reporting

The Contractor shall submit monthly returns/reports as specified below:

- a) Signed Master rolls/pay sheets of temporary workers and permanent staff detailing the number, category, gender, rate of pay and daily attendance;
- b) Certified ID copies of all locally employed labour;
- c) Signed Contracts between the employer and the EPWP Participants;
- d) Attendance Registers for the EPWP Participants;
- e) Monthly Reporting Template as per EPWP requirements;
- f) Plant utilization returns; and
- g) Progress report detailing production output compared to the program of works.

PART B: AMENDMENTS AND PARTICULAR SPECIFICATIONS

INTRODUCTION

In certain clauses in the standard specifications, allowance is made for a choice to be specified in the project specifications between alternative materials or methods of construction, and for additional requirements to be specified to suit a particular contract.

Details of such alternative or additional requirements applicable to this contract are contained in Part B1 of the project specifications.

The number of each clause and each payment item in this part of the project specifications is prefixed "PS" and numbered sequentially followed by a number corresponding to the relevant clause or payment item in the standard specification in parentheses.

New clauses and payment items not covered by clauses or items in the standard specifications have also been included.

Additional specifications are also included in Part B2 and are prefixed "P" and numbered alphabetically.

PART B1: AMENDMENTS TO THE STANDARD SPECIFICATIONS

PS PROJECT SPECIFICATIONS RELATING TO THE STANDARD SPECIFICATIONS AND OTHER ADDITIONAL SPECIFICATIONS

This portion of the Project Specifications deals with matters relating to the Standard Specifications.

Where reference is made in the Standard Specifications to the Project Specifications, this portion shall include the relevant information pertaining thereto, (e.g. the requirements where a choice of materials or construction methods is provided for in the Standard Specifications).

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

The number of each clause and each payment item in this portion of the Project Specifications consists of the prefix PS followed by a number corresponding to the number of the relevant clause or payment item in the Standard Specifications. The item number of any new clause or payment item (that does not form part of an existing clause or a payment item in the Standard Specifications) is also prefixed by "PS" followed by a new number. The new numbers follow on the last clause or item number used in the relevant section of the Standard Specifications.

Where, in the Schedule of Quantities, an item from a particular section of the Standard Specifications is used in another section, the item number of the source section is retained but prefixed by the number of the section where the item is used, (e.g. Item 61.03 used in Sect. 22, will be 22/61.03 which means that the provisions of Section 61 in respect of that item remain valid although the item is used in Section 22). This applies to new items introduced in the Project Specifications for a specific section but used in another section.

PSA GENERAL (SABS 1200 A)

PSA 3.1 Quality of Samples

All materials used shall be suitable for the purposes for which they are intended. Materials shall comply with the requirements of the South African Bureau of Standards, where such standards are available.

PSA 5 CONSTRUCTION

PSA 5.1 Setting out of the work and protection of beacons (Sub-clause 5.1)

The Contractor shall be responsible for the true and proper setting out of the Works from existing basic control points, reference pegs or benchmarks shown on the Drawings or indicated by the Engineer's representative on site and shall ensure the correct location of the Works in relation to such points. The Contractor has to ascertain himself of the correctness of the pegs and benchmarks in the field. Any discrepancy shall be immediately reported to the Engineer. Any costs arising from failure to do so, shall be the responsibility of the Contractor. The Engineer may alter any part of the works to suit local conditions if necessary. No claim for incorrect setting out will be considered.

PSA 5.1.1 Services (Sub-clause 5.2)

The drawings show the approximate location of the known services, based on available information. All excavations to expose existing known services shall be excavated by hand in all materials by the contractor. Any existing service in the road reserve or municipal servitude that is damaged as a result of negligence by the contractor will be repaired by the contractor to the satisfaction of the Engineer at his own cost.

PSA 5.2 Watching Barricading, lighting and traffic crossings, (Clause 5.2)

All open excavations shall be properly demarcated with reflective tape, white drums and any other requirements that the Local Authority has. For safety reasons the contractor may not have more than 200m of trenching open at a specific time, in one working area for one labour team. Clause PS 16 shall also apply.

PSA 5.3 Protection of Structures (Clause 5.3)

The contractor must contact house owners at least two days prior to working in close proximity to existing buildings and to inspect buildings before and after work had been completed.

PSA 5.4 PROTECTION OF OVERHEAD AND UNDERGROUND SERVICES

REPLACE THE HEADING AND THE CONTENTS OF SUBCLAUSE 5.4 WITH THE FOLLOWING:

PSA 5.4 LOCATION AND PROTECTION OF EXISTING SERVICES

PSA 5.4.1 LOCATION OF EXISTING SERVICES

Before commencing with any work in an area, the Contractor shall ascertain the presence and actual position of all services which can reasonably be expected by an experienced and competent Contractor to be present on, under, over or within the site.

Without in any way limiting its liability in terms of the Conditions of Contract in relation to damage to property and interference with services, the Contractor shall, in collaboration with the Engineer, obtain the most up-to-date plans as are available, showing the positions of services existing in the

area where it intends to work. Neither the Employer nor the Engineer offer any warranty as to the accuracy or completeness of such plans and because services can often not be reliably located from plans, the Contractor shall ascertain the actual location of services depicted on such plans by means of careful inspection of Site and the provision and utilisation of suitable detecting and testing equipment.

Thereafter, the Contractor shall, by the use of appropriate methodologies carefully expose the services at such positions as are agreed to by the Engineer, for the purposes of verifying the exact location and position of the services. Where the exposure of existing services involves excavation to expose underground services, the further requirements of Sub-clauses 4.4 and 5.1.2.2 of SABS 1200D (as amended) shall apply.

The aforesaid procedure shall also be followed in respect of services not shown on the plans but which may reasonably be anticipated by an experienced Contractor to be present or potentially present on the site.

All services, the positions of which have been determined as aforesaid at the critical points, shall henceforth be designated as 'Known Services' and their positions shall be indicated by the Contractor on a separate set of Drawings, a copy of which shall be furnished to the Engineer without delay.

As soon as any service which has not been identified and located as described above is encountered on, under, over or within the Site, it shall henceforth be deemed to be a Known Service and the aforesaid provisions pertaining to locating, verifying and recording its position on the balance of the Site shall apply. The Contractor shall notify the Engineer immediately any such service is encountered or discovered on the Site.

Whilst it is in possession of the Site, the Contractor shall be liable for all loss of or damage as may occur to:

- a) Known Services, anywhere along the entire lengths of their routes, as may reasonably be deduced from the actual locations at which their positions were verified as aforesaid, due cognisance being taken of such deviations in line and level which may reasonably be anticipated ; and
- b) any other service which ought reasonably to have been a Known Service in accordance with the provisions of this clause ;

as well as for consequential damage, whether caused directly by the Contractor's operations or by the lack of proper protection ;

Provided always that the Contractor will not be held liable in respect of damages occurring to services not being Known Services.

No separate payment will be made to the Contractor in respect of its costs of providing, holding available on the Site and utilising the said detecting and testing equipment, nor for any costs incurred in preparing and submitting to the Engineer, the Drawings as aforesaid and these costs shall be deemed included in the Contractor's other bid rates and prices included in the Contract. Payment to the Contractor's in respect of exposing services at the positions agreed by the Engineer and as described above will be made under the payment items (if any) as may be provided therefore in the respective sections of the Specifications pertaining to the type of work involved.

PSA 5.4.2 PROTECTION DURING CONSTRUCTION

The Contractor shall take all reasonable precautions and arrange its operations in such a manner as to prevent damage occurring to all Known Services during the period which the Contractor has occupation and/or possession of the Site

Services left exposed shall be suitably protected from damage and in such a manner as will eliminate any danger arising there from for the public and/or workmen, all in accordance with the requirements of the prevailing legislation and related regulations.

PSA 5.4.3 ALTERATIONS AND REPAIRS TO EXISTING SERVICES

Unless the contrary is clearly specified in the Contract or ordered by the Engineer, the Contractor shall not carry out alterations to existing services. When any such alterations become necessary, the Contractor shall promptly inform the Engineer, who will either make arrangements for such work to be executed by the owner of the service, or instruct the Contractor to make such arrangements himself.

Should damage occur to any existing services, the Contractor shall immediately inform the Engineer, or when this is not possible, the relevant authority, and obtain instructions as to who should carry out repairs. In urgent cases the Contractor shall take appropriate steps to minimise damage to and interruption of the service. No repairs of telecommunication cables or electric power lines and cables shall be attempted by the Contractor.

The Employer will accept no liability for damages due to a delay in having alterations or repairs affected by the respective service owners.

The Contractor shall provide all reasonable opportunity, access and assistance to persons carrying out alterations or repairs of existing services."

PSA 5.7 Safety (Clause 5.7)

Add the following:

- a) The Contractor shall at all times observe adequate safety precautions on Site to ensure the safety of his own staff as well as that of the public and other persons engaged in or about the Works. In this respect, he shall observe all laws, ordinances and regulations pertaining to his work.
- b) The Contractor's attention is specifically drawn to the following Acts, and particularly to the relevant regulations under each Act, copies of which shall at all times be kept by him on the Site:
 - i. The Factories, Machinery and Building Work Act (Act 22 of 1941)
 - ii. The Explosives Act (Act 26 of 1956)
 - iii. The Mines and Works Act (Act 27 of 1956)
 - iv. The Occupational Health and Safety Act (Act 85 of 1993)
- c) The Contractor is also required to comply with the safety precautions set out in the following publications, copies of which shall also be kept by him on the Site:
 - i. The Code of Practice relating to the safety of men in civil Engineering inspection pits and small – diameter vertical shafts. (Transactions of the South African Institution of Civil Employer's Agents, Vol. 2, No. 11, November 1960, obtaining from the Secretary, S.A. Institution of Civil Employer's Agents, PO Box 93495, Yeoville, 2143).
- d) The Contractor shall provide suitable and safe access by way of ladders, gangways, etc. to all parts of the Works as may be required for construction purposes or for inspection by the Employer's Agent or the authorised Inspectors in terms of the above-mentioned Acts.
- e) All precautions shall be taken to protect workmen against falling material and/or objects and other dangers whilst they are carrying out their duties. Trenches shall in every way be made and kept safe for persons working therein.

- f) All persons working, inspecting or supervising in places where falling material and/or objects could be encountered shall be provided by the Contractor with hard hats (which have not expired) of a type approved by the Inspector of Mines, the use of which shall be strictly enforced.
- g) The Contractor shall provide a properly equipped first-aid box, which shall be accessible at all times.
- h) Where adequate safety precautions are not being observed, the Employer's Agent may order the Contractor to comply with minimum safety requirements at the latter's expense. Compliance with such order will not absolve the Contractor from any of his responsibilities and obligations under the Contract.
- i) The Contractor shall display on a prominent place the following emergency information:
 - i. Local Police: Telephone number
 - ii. Local Ambulance: Telephone number
 - iii. Local Fire Brigade: Telephone number
 - iv. Nearest Doctor
 - v. Name
 - vi. Telephone number (office hours)
 - vii. Telephone number (after hours)
 - viii. Consulting room street address

PSA 6.2 Degree of accuracy (Sub-clause 6.2)

Degree of Accuracy shall apply to all components of the Works except where otherwise specified in the Schedule of Quantities and/or Drawings and provided that the minimum permissible deviation given for an element will prevail where more than one deviation can be interpreted in Clause 6.2.3(d).

PSA 7 Testing (Sub-clause 7)

The onus rests on the Contractor to produce work, which conforms in quality and accuracy of detail to the requirements of the Specifications and Drawings and the Contractor must at his own expense, institute a quality control system and provide experienced engineers, foremen, surveyors, materials technicians and other technical staff, together with all instruments and equipment, to ensure adequate supervision and positive control of the works.

The cost of the all supervision and process control, including testing, so carried out by the Contractor, shall be deemed to be included in the rates rendered for the related items of work.

The Contractor's attention is drawn to the provisions of the various sections of the Specifications regarding the minimum frequency of the testing that will be required for process control. The Contractor shall at his own discretion increase the frequency where necessary to ensure adequate control.

The Contractor shall submit to the Engineer the results of all relevant tests, measurements and levels indicating compliance with the specifications on completion of every part of the work for examination.

Should the results of any of these tests fall below the required standards as specified in the specifications, the cost of any additional tests required by the Engineer will be to the account of the Contractor.

PSA 7.2 Laboratory (Sub-Clause 5.2)

A Laboratory for the use of the Engineer's representative is not required on site. A commercial laboratory approved by the Engineer and appointed by the Contractor shall do all acceptance

control tests required in terms of the Contract. All tests must be done according to the tests prescribed in the SABS 1200 under the relevant sections.

PSA 7.4 Statistical Analysis of Control Tests (Sub-Clause 7.4)

Statistical control methods will not be applied under this contract. All compaction will be done as specified, especially on layers for road works, where the % and compaction will be the minimum allowed for any single test. Compaction tests will be submitted to the Engineer on intervals as requested by the Engineer.

PSA 8 MEASUREMENT AND PAYMENT

PSA 8.2.1 Fixed-Charge and Value-Related Items (Sub-Clauses 8.2.1. and 8.3)

The tendered sums for the fixed-charge and value related items in the P&G Section of the schedule of quantities shall not be subject to any variation if the actual value of the work done exceeds or falls short of the accepted tendered amount within the limit stated in Clause 6.11 of the general conditions of contract, or if extension of time for the completion of the works is granted.

Payment for fixed-charged and value-related items will be done in three separate payments as follow:

- a) 40% Of total cost after the Contractor has stabilised and equipped the site office and after the Engineer is satisfied that a substantial start of the actual construction work has been made;
- b) 40% of total cost after 50% of the actual work (excluding material on site) has been completed and approved by the Engineer; and
- c) 20% of total cost on issue of practical completion certificate by Engineer, according to the guidelines of the GCC.

PSA 8.2.2 Time Related Items

The tendered amount for a time-related item will be increased if an extension of time for the completion of the works is awarded on the condition that the activity related to the item tendered for must be sustained during the extended period.

The ratio between the increased amount for a time-related item and the tendered amount must be the same as the ratio between the extension of the time period for the completion of the work and the original time period allowed for completion of the works.

If the works is completed before the end of the original time period allowed for completion of the works, the tendered amount of a time related item that is influenced by the earlier completion would be reduced similarly.

PSA 8.3 SCHEDULED FIXED-CHARGE AND VALUE-RELATED CHARGE

ADD THE FOLLOWING SUBCLAUSES TO CLAUSE 8.3

PSA8.3.2.1 Facilities for Engineer (Fixed Charge Items)

The Contractor to provide one furnished site office for the use of the Engineer and his representative sage to the requirements of SABS 1200 AB 3.2 or similar approved.

A monthly time-related provisional sum has been included in the schedule of quantities to cover the rental costs of accommodation for the resident Engineer. These amounts shall be payable by the Contractor to the Engineer according to the provisional sums allowed and upon receipt of a tax invoice for such amounts.

a) Cellular Telephone

No cellular telephone has to be provided for the resident Engineer for the duration of the contract. Measurement and payment shall only be made for the relevant time related item.

b) Name Board

Two name boards will be ordered by the Contractor according to the Engineer's specifications, complete with dimensions, wording and specifications as prescribed, within one month from the commencement date. The Contractor shall be responsible to transport the name board to site and to erect it at the indicated position on suitable supporting posts. The Contractor shall remove the name board completely from site after construction is completed, before the last payment certificate shall be approved.

PSA 8.3.3.1 Notice and Warning to ConsumersUnit: Sum

The sum shall cover the full compensation and cost of supply and delivery of the notices and warnings to customers at least 3 days before a shutdown or interruption of services is to take place in each section of work.

PSA 8.3.3.2 b) Compile and Submit Health and Safety Plan

The lump sum tendered shall include full compensation for the provision and maintenance of a Health and Safety Plan, risk assessment, permit applications and notifications as called for in the Act and Regulations.

Eighty percent (80%) of this amount will be paid when an approved Health and Safety Plan has been achieved. A further 10% will be paid when the value of work certified by the Employer's Agent exceeds one half of the tender price and the remaining 10% will be payable upon issue of a completion certificate.

PSA 8.3.3.2c) Implement Health & Safety Plan

The amount tendered shall include full compensation for the compliance with the approved H&S Plan and inter alia for the following:

- a) Provision and maintenance of Health & Safety File;
- b) Provision of construction supervisors and safety officers;
- c) Health and Safety training for employees and subs;
- d) Provision of protective clothing;
- e) Provision of safety fences, signs, and barricades; and
- f) Scheduling of monthly safety meetings and providing monthly reports accordingly, etc.

PSA 8.4 SCHEDULED TIME-RELATED ITEMS

ADD THE FOLLOWING SUBCLAUSES TO CLAUSE 8.4.

PSA 8.4.2 Operation and Maintenance of facilities on site for the duration of construction, except where otherwise stated

The bid sums for the fixed-charge and value related items in the P&G Section of the Schedule of Quantities shall not be subject to any variation if the actual value of the work done exceeds or falls short of the accepted bid amount within the limit stated in Clause 53 of the General Conditions of Contract.

PSA 8.4.2.1 Facilities for Engineer (Time Related Items).....Unit: Provisional Sum/Month

a) Cellular Telephone

No cellular telephone has to be provided for the duration of the contract. However, the contractor is responsible for costs up to R900.00/month all-inclusive.

b) Name Boards

The amount of name board as specified in the bill of quantities shall be maintained for the duration of the contract.

c) Survey Assistants and Materials

The Contractor shall provide the following survey equipment on the site from the commencement to the completion of the works, which shall also be for the use of the Engineer and his representatives:

- i. 1 x 100m steel measuring tape;
- ii. Steel pegs, shovels, picks etc. which the Engineers representative may require during the contract;
- iii. 1 Theodolite with tripod and 5m staff; and
- iv. One complete Troxler test unit, with proof of recent calibration.

d) Hotel or other accommodation or office required for the Engineer's representative

These items will include the cost of rented office accommodation and the provision of telecommunication facilities to the Engineer. The Contractor will be responsible for this prime cost items to the amount of R6,000.00 per month. These services will be provided to the Contractor by the Engineer and will be billed in advance. These items will include all overhead costs, maintenance and insurance with respect to the provision of office accommodation and cellular- and landline telecommunication facilities. This item shall be payable to the Engineer prior to certification of the second construction payment certificate.

e) Administrative assistance to the Contractor

This item will entail the pension of administrative assistance to the Contractor by the Engineer and will include assistance relating to the:

- i. Calculation and determination of project quantities;
- ii. Compilation of construction payment certificates; and
- iii. Copy and submission of construction payment certificate.

The Contractor will be responsible for this prime cost item to the amount of R5,000.00 per month. This item will be billed in advance and will be payable to the Engineer prior to certification of the second construction payment certificate. This item will include all computer related / electronic work, facsimiles, printing and copying as well as travelling and time based work in this instance.

f) Health and Safety Inspections on Site

This item will include the provision of health and safety inspections on site by Health & Safety Officer under the auspices of the Engineer. The Health and Safety Officer will ensure compliance of the Contractor with the OHS Act and he will have the authority to stop construction work on site, the Contractor will be responsible for this prime cost item to the amount of R1,500.00 per month. This service will be billed in advance and the item shall be payable to the Engineer prior to certification of the second construction payment certificate.

g) Environmental Management Plan Audits

This item will include the provision of Environmental Management Plan (EMP) Audits on site by a Environmental Control Officer (ECO) under the auspices of the Engineer. The ECO will monitor compliance of the Contractor with the EMP and will be responsible for this prime cost item to the amount of R2,500.00 per month. This service will be billed in advance and the item shall be payable to the Engineer prior to certification of the second construction payment certificate.

PSA 8.4.6 Additional Obligations

PSA 8.4.6.1 Security services costs.....Unit: Month

The sum shall cover the full compensation and all costs for a sufficient 24 hour guarded services for the duration of the contract.

PSA 8.7 DAYWORKS

ADD THE FOLLOWING NEW CLAUSES:

PSA 8.7.1 Scope

This section covers the method of measurement and payment for work carried out on a day work basis.

PSA 8.7.1.1 General Requirements

Work will be classified as day work only if the Employer's Agent considers no other rate in the Bill of Quantities appropriate for payment purposes.

An instruction regarding all work to be carried out under day work in terms of Clause 6.5 of the General Conditions of Contract 2015 will be issued at the discretion of the Employer's Agent. Some or all of the items priced under day work in the Bill of Quantities may possibly not be required for this Contract.

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

PSA 8.7.1.2 Measurement and Payment - Day works

The day work rates submitted for vehicles and construction equipment, in the Bill of Quantities shall be a hire charge for the use of the vehicle and driver or constructional plant/equipment and operator (excluding VAT) and shall apply only to vehicles and construction equipment approved in writing by the Employer's Agent. The rate shall include for maintenance, fuels and oils and other operating costs, establishment, insurance and other contingency costs relating to the running of the vehicle, plant or equipment.

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

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

The ten percent allowed for overheads etc. as per Clause 6.5.1.2.3 of the General Conditions of Contract 2015 shall include full compensation for all administrative costs, supervision, overheads, liabilities and obligations related to the running of the vehicles, constructional plant and equipment. The tendered percentage shall also include for profit and shall be subject to the Contract Price Adjustment factor laid down in the Contract Data.

PSA 9.1 Submit detail As-built drawings of existing services and adjustments to Construction Drawings

The Contractor will be responsible for the submission of all as-built drawings of all existing services intersecting pipeline trenches as well as any applicable adjustments to the construction drawings. The lump sum tendered shall include full compensation for all information in the possession of the contractor as required above in order to complete the as-built drawings must be submitted to the Engineer's representative before a certificate of completion will be issued for the works.

PSA 9.2 Detailed setting out of the work

The Contractor will ensure that all the works is set out from existing survey beacons by a registered Surveyor. The sum tendered shall be regarded as inclusive of all related survey work on site.

The Engineer will provide survey beacons (of adequate type and in sufficient quantity) as bench marks. From information provided on drawings issued by the Engineer, the Contractor shall be responsible to provide all positions and levels, of all intermediate points required for proper control of the works. As bench marks may be disturbed during the execution of the works, all levels and setting out pegs shall be referred to at least two bench marks. The Contractor will ensure that all works are set out from existing survey beacons by a professional registered Land Surveyor. The setting out data, including the elevation (obtain x, y, z coordinates) from these pegs shall be submitted to the Engineer evaluate final natural ground levels (NGL) prior to the commencement of excavations. In the case of deviation from the original pipe route for whatever reason, the contractor will at his own cost survey the new proposed route, and submit the data to the Engineer for approval.

Preservation and replacement of beacons and pegs will be subject to the Land Survey Act, 1927 (Act No 9 of 1927).

PSA 9.3 Provision of realistic construction programme

The lump sum tendered shall include full compensation for the compilation and submission of a realistic construction programme for approval by the Engineer:

- a) Within the stated period after appointment;
- b) Before commencement with any construction activities; and
- c) As and when so required / instructed by the Engineer.

PSAB ENGINEER'S OFFICE

PSAB 3.2 Office Buildings

See PSA 8.3.2.1 (a). The Contractor shall further ensure that adequate site meeting facilities are available and that the Engineer's representative has full use of the Contractors ablution and other facilities.

PSAB 5.5 Survey Equipment

The Contractor shall provide the necessary survey equipment for his own survey requirements on site. The Engineer's Representative will make use of the Contractor's survey equipment and assistants when required. The Contractor shall make allowance for such usage in his bid rates.

PSC SITE CLEARANCE (SABS 1200C)

PSC 3.1 Disposal of Material

Add the following:

"The Contractor shall obtain his own dumping sites for the disposal of material and all transport costs shall be included in the rates tendered for site clearance."

PSC 5 CONSTRUCTION

PSC 5.2 CUTTING OF TREES

PSC 5.2.3 Preservation of Trees

PSC 5.2.3.2 Individual Trees

REPLACE THE LAST SENTENCE WITH THE FOLLOWING:

"An amount of R1,000.00 will be deducted from moneys due to the Contractor as a penalty for every tree that is damaged or removed unnecessarily."

PSC 5.5 Re-Clearing of Vegetation

ADD THE FOLLOWING:

"When areas have to be re-cleared on the written instructions of the Engineer, such re-clearing shall be carried out at the Contractor's own cost and the Contractor is therefore advised not to clear the areas too soon."

PSC 8 MEASUREMENT AND PAYMENT

PSC 8.2.1 Clear and Grub.....Unit: m and m²

REPLACE THE FIRST LINE WITH THE FOLLOWING:

"The area designated by the Engineer to be cleared and grubbed will be measured in square metre to the nearest square metre or,"

PSD EARTHWORKS (SABS 1200 D)

PSD 2 INTERPRETATIONS

PSD 2.1 Supporting Specifications

Replace sub-clause 2.1.2 with the following:

"PSD 2.1.2 Any of the other SABS 1200 specifications may form part of the contract documents."

PSD 2. DEFINITIONS

Replace the word and the definition for "borrow" with the following:

"Borrow Material: Material, other than material obtained from excavations required for the works, obtained from sources such as borrow pits or the authorised widening of excavations.

'Borrow' shall have a corresponding meaning."

Replace the definition for "Specified density" with the following:

"Specified Density : The specified dry density expressed as a percentage of modified AASHTO dry density."

Replace the definition for "stockpile" with the following:

"Stockpile (verb) : The process of selecting and, when necessary, loading, transporting and off-loading material in a designated area for later use for a specific purpose."

Add the following definitions:

"Commercial Source: A source of material provided by the Contractor, not the Employer, and including any borrow pit, provided by the Contractor.

Fill: An embankment or terrace constructed of material obtained from excavations or borrow pits. In roads it includes the earthworks up to the underside of the selected subgrade level.

Fill (material): Material used for the construction of an embankment or terrace.

Roadbed: The natural in situ material on which the fill, or in the absence of fill, the pavement layers, are constructed."

PSD 3 MATERIALS

PSD 3.1 CLASSIFICATION FOR EXCAVATION PURPOSES

PSD 3.1.1 Method of Classifying

ADD THE FOLLOWING:

"The classification of material other than 'soft excavation' shall be agreed upon before excavation may commence.

The Contractor shall immediately inform the Engineer if and when the nature of the material being excavated changes to such an Extent that a new classification is warranted for further excavation. Failure on the part of the Contractor to advise the Engineer in good time shall entitle the Engineer

to reclassify, at his discretion, such excavated material."

PSD 3.1.2 Classes of Excavation

Refer to PSDB 3.1

PSD 3.2.3 Material Suitable for Backfill or Fill Against Structures

Replace the contents of this sub-clause with the following:

"Material used for backfill behind structures shall generally be the material excavated, subject to the following conditions:

- a) The material shall not contain an excessive number of stones retained on a 50 mm sieve;
- b) The material shall not contain large clay lumps that do not break up under the action of the compaction equipment; and
- c) The liquid limit of the material shall not exceed 40, neither shall the PI exceed 18."

PSD 3.3.3 Selection in Borrow Pits and Excavations

Approval of a borrow area for a certain purpose does not necessarily mean that all the material in that area is suitable for the specified purpose. What it does mean is that the borrow area contains some suitable material. The onus shall rest on the Contractor to ensure that only material that is indeed suitable is removed and used for the specified purpose.

When the Contractor has to select excavated material for a specific purpose, the above provisions relating to borrow areas shall apply *mutatis mutandis* to excavations.

The Contractor shall not waste or contaminate material that has been selected for a specific purpose."

PSD 4 PLANT

PSD 4.4 DETECTORS

REPLACE THE CONTENTS OF SUBCLAUSE 4.4 WITH THE FOLLOWING:

"The Contractor shall, for the purposes of detecting and locating underground services, at its own cost, provide and use detecting equipment which is suitable for the detection of underground cables and pipes."

PSD 5 CONSTRUCTION

PSD 5.1 PRECAUTIONS

PSD 5.1.1 Safety

PSD 5.1.1.1 Barricading and Lighting

REPLACE "Machinery and Occupational Safety Act, 1983 (Act 6 of 1983)" WITH "Occupational Health and Safety Act No 85, 1993 (Act 85 of 1993) and particularly to Sections 8, 9 and 37 and The Construction Regulations (2003)".

PSD 5.1.1.2 Safeguarding of Excavations

REPLACE "Machinery and Occupational Safety Act, 1983 (Act 6 of 1983)" WITH "Occupational Health and Safety Act No 85, 1993 (Act 85 of 1993) and particularly to Sections 8, 9 and 37 and

The Construction Regulations (2003)".

PSD 5.1.1.3 Explosives

REPLACE THE CONTENTS OF THIS SUB-CLAUSE WITH THE FOLLOWING:

"The use of explosives is prohibited on this project."

PSD 5.1.2 Existing Services

PSD 5.1.2.2 Detection, Location and Exposure

Replace the contents of sub-clause 5.1.2.2 with the following:

"The exposure by the Contractor of underground services, as required in terms of Sub-clause 5.4 of SABS 1200 A (as amended) shall be carried out by careful hand excavation at such positions and to such dimensions as are agreed to by the Engineer.

Unless otherwise instructed or agreed by the Engineer, no service shall be left exposed after its exact position has been determined and all excavations carried out for the purposes of exposing underground services shall be promptly backfilled and compacted to the following densities:

- a) In roadways : 93% Mod AASHTO density ; and
- b) In all other areas : 90% Mod AASHTO density.

PSD 5.1.2.3 Protection of Cables

Replace sub-clause 5.1.2.3 with the following:

"5.1.2.3 Protection during construction

Further to the requirements of Sub-clause 5.4.2 of SABS 1200A (as amended), major excavating equipment and other plant shall not be operated dangerously close to known services.

Where necessary, excavation in close proximity to known services shall be carefully carried out with suitable hand tools, excluding picks wherever their use could damage the services. No additional payment will apply to such more difficult work.

Should any service not being a known service be discovered or encountered during the course of the contract, the Contractor shall, in addition to complying with the requirements of sub-clause 5.4.2 of SABS 1200A (as amended), immediately notify the Engineer thereof and implement such measures as will prevent damage of such service or, if it was damaged in the course of discovery, will prevent and minimise the occurrence of any further damage occurring."

PSD 5.1.2.4 Negligence

Delete sub-clause 5.1.2.4.

PSD 5.1.3 Stormwater and Groundwater

ADD THE FOLLOWING:

"The Contractor shall, where applicable and at the earliest practicable opportunity, install the permanent drainage specified or shown on the Drawings and shall at his own cost provide the temporary drainage required to protect the Works."

PSD 5.1.5 Reinstatement and Maintenance of Roads

ADD THE FOLLOWING:

"Where crossings have been made, the roads shall be reinstated in accordance with the details specified in Sub-clause 5.9 of SABS 1200DB."

PSD 5.1.6 Road Traffic Control

DELETE THE SECOND SENTENCE OF SUBCLAUSE 5.1.6.

PSD 5.2 METHODS AND PROCEDURES

PSD 5.2.2 Excavation

PSD 5.2.2.1 Excavation for General Earthworks and for Structures

REPLACE THE FIRST SENTENCE OF PARAGRAPH (e) WITH THE FOLLOWING:

"Where excavations have been carried below the authorised levels, the Contractor shall backfill such excavations to the correct level with approved gravel compacted to 90% of modified AASHTO density or to the density of the surrounding material, whichever is the higher density.

Where excavations for structures have been carried out in hard material, the Engineer may direct that over-excavation be backfilled with weak concrete if there is a danger of settlement or differential settlement of the foundations.

Where the sides of excavations against which concrete is to be cast have been over-excavated or have collapsed partially, the Contractor shall re-trim the excavations if necessary and, unless other remedial measures are agreed to by the Engineer, shall cast the concrete for the structure, including the additional concrete that may be required as a result of the over-excavation or partial collapse.

The cost of the additional concrete or remedial measures shall be for the Contractor's account."

PSD 5.2.2.3 Disposal

REPLACE THE SECOND SENTENCE WITH THE FOLLOWING:

"The Contractor shall, provide all necessary spoil sites for the spoiling of all surplus and unsuitable materials and shall make the necessary arrangements with the owner of the site where the material is disposed of, and pay all charges and levies as may be applicable for the use of such spoil sites.

Every spoil site provided by the Contractor shall be approved by the local authority in whose area it is located, and the spoiling shall comply with the applicable statutory and municipal regulations as well as the requirements of the owner of the spoil site.

Payment to the Contractor in respect of locating and making arrangements for suitable spoil sites and spoiling material at such sites will be made in accordance with the provisions of Sub-clause PSC 3.1.

ADD THE FOLLOWING SUBCLAUSE IN SUBCLAUSE 5.2.2:

"PSD 5.2.2.4 Selection and Stockpiling

Approval or designation of the material in a particular borrow pit or excavation for a particular

purpose does not imply that all the material in the borrow pit or excavation is suitable for the particular purpose for which the said approval or designation relates, nor that all material in the borrow pit or source should be used for the particular purpose. The Contractor shall select suitable material from that borrow pit or source, discard unsuitable material and reserve material for other purposes as necessary.

The Contractor shall organise and carry out its operations in such a manner as will prevent the contamination of suitable embankment and backfill material with unsuitable materials. Any excavated material which becomes, in the Engineer's opinion, unsuitable for use in embankments or backfill as a result of contamination, shall be disposed of in a manner acceptable to the Engineer and shall replace by the Contractor with materials acceptable to the Engineer, all at the Contractor's cost.

When required, or when ordered by the Engineer, material shall be stockpiled for later use. The additional costs of stockpiling material shall be paid to the Contractor in accordance with the provisions of Sub-clause 8.3.11 of SABS 1200DM."

PSD 5.2.2.5 Utilization of Excavated Material

All excavated material and material obtained from any temporary work shall, in so far it is suitable, be utilized for backfill of trenches or embankments where applicable. Material unsuitable for use as backfill or in excess of the required quantity to complete the backfill shall be spoiled or utilized as directed by the Engineer. Excavated material may be stockpiled or used for temporary earth berms in order to control surface storm water or to prevent flooding of the construction site as applicable. However, any and all such temporary earthworks shall be removed, shaped, compacted, and treated etc. as specified and/or instructed by the Engineer on completion of the original Scope of Work.

PSD 5.2.2.6 Excavation Limits for Payment Purposes

For measurement and payment purposes, the limits of the excavations for structures shall be as shown on the drawings.

Where no excavation limits are shown on the drawings and the Engineer has decided that formwork has to be provided for the sides of a concrete member, the limits of the excavation for measurement and payment purposes shall be the vertical planes 0,5 m outside the perimeter of the concrete member for which the formwork is to be provided, and the founding level shown on the drawings.

PSD 5.2.2.8 Unsuitable Material

Any and all boulders, clay, logs, roots or any other unsuitable material identified during excavation, shall be transported and spoiled. Clause PSD 5.2.2.3 shall apply. Where in the opinion of the Engineer, any unsuitable material is encountered at foundation level, such material shall be removed up to a level indicated by the Engineer, and shall be replaced with suitable foundation fill or mass concrete as instructed or detailed, in accordance with the requirements of clause PSD 5.2.3.4 of this section.

PSD 5.2.5 Transport for Earthworks

REPLACE THE CONTENTS OF SUB-CLAUSE 5.2.5 WITH THE FOLLOWING:

"The transport of all excavated materials, materials imported from commercial sources or borrow pits, irrespective of the distance and source, shall be deemed to be free haul, the cost of which is included in the Contractor's bid rates and prices for the excavation of the materials. No separate compensation shall apply for the transportation of excavated materials.

PSD 7 TESTING

PSD 7.2 TAKING AND TESTING OF SAMPLES

Replace the contents of this sub-clause with the following:

"The Contractor shall arrange with the approved independent laboratory engaged by the Contractor, to carry out sufficient tests on a regular basis as agreed between it and the Engineer to determine whether the degree of compaction, and, where applicable, the quality of materials used, comply with the Specifications and shall submit the results of these tests to the Engineer in a form approved by him.

The compaction requirements for fills shall be deemed complied with when at least 75% of the dry-density tests on any lot show values equal to or above the specified density and when no single value is more than five percentage points below the specified value."

PSD 8 MEASUREMENT AND PAYMENT

PSD 8.3 SCHEDULED ITEMS

PSD 8.3.1 Site Preparation

REPLACE SUB-CLAUSES 8.3.1.1 AND 8.3.1.2 WITH THE FOLLOWING:

"Where Site preparation such as clearing, grubbing, the removal of large trees or the removal and stockpiling of topsoil is required, the provisions and scheduled items of SABS 1200 C shall apply."

PSD 8.3.6 Overhaul

DELETE SUB-CLAUSE 8.3.6.

PSDB EARTHWORKS (PIPE TRENCHES)

PSDB 3 MATERIALS

PSDB 3.1 Classes of Excavation

Replace clause DB 3.1 with the following:

Materials excavated from trenches will be classified as either soft and intermediate or hard material (rock) as follow:

a) Soft and intermediate excavation will be classified as soft excavation, as follow:

All material that can be removed by a back-acting excavator or with picks and shovels in the case of hand excavation.

b) Hard material / rock excavation:

Only material that cannot be removed without the use of explosives for blasting purposes, wedging and splitting or the use of pneumatic drillers. The removal of boulders, Class A and B shall be measured and paid separately from this item. This item shall be extra-over to all excavation.

All blasting must be approved by the Engineer in writing before commencement of such methods.

Restricted Excavations and Excavations for inter-connecting pipelines chambers as well as all excavations to exposing existing services shall be done by hand excavation methods by means of the employment of local labourers reside in the jurisdiction area of the local authority. Once the Contractor is of the opinion that material is too hard to excavate by hand, which shall include the use pneumatic tools, or once excavations exceed a depth of 2,0 m, the Contractor shall inform the Engineer's representative. Only after the Engineer's approval may other methods of excavation are used, which may amongst others include machine excavation or rock blasting as applicable.

Different rates for different excavation methods were allowed for. The rates for machine or hand excavation, where approved, shall be used for measurement and payment and shall not be an extra over item, while only the rate for blasting, the excavation of boulders and excavation by using pneumatic tools shall be measured and paid for as an extra over item to machine or hand excavation.

The Contractor shall obtain his own dumping sites for the disposal of material and all transport costs shall be included in the rates tendered for site clearance.

PSDB 3.5 Backfill Materials

ADD THE FOLLOWING PARAGRAPHS TO SUB-CLAUSE 3.5 :

"(c) Cement-stabilised backfilling

Backfilling shall, where directed by the Engineer, be stabilised with 5% cement. The aggregate shall consist of approved soil or gravel containing stones not bigger than 38 mm and with a plasticity index not exceeding 10.

The soil or gravel shall be mixed with 5% cement and shall be compacted in layers of 100 mm thick to 90% of modified AASHTO density.

PSDB 3.7 Selection

REPLACE THE WORDS "if he so wishes" IN THE FIRST LINE OF THE SECOND PARAGRAPH WITH THE WORDS "at his own cost".

PSDB 5 CONSTRUCTION

PSDB 5.1 PRECAUTIONS

PSDB 5.1.3 Accommodation of Traffic and Access to Properties

Replace the semi-colon and the word "and" at the end of subclause 5.1.3(a) with a full stop and replace item (b) with the following:

- (b) Where necessary to achieve compliance by the Contractor with his obligations to provide and maintain pedestrian and vehicular access to properties affected by the Works, the Contractor shall construct and maintain to the satisfaction of the Engineer, such temporary access roads around, and/or steel or timber bridges over excavations in roads, pavements, entrances or accesses to properties.

Temporary pedestrian access bridges shall be at least 1,2 m wide and temporary access bridges for vehicles shall be at least 3,6 m wide. All temporary access bridges shall be fitted with handrails as well as protective mesh fencing on both sides.

On completion of the work, the Contractor shall dismantle and remove all such temporary constructions and reinstate these areas to their former condition.

Except only where the Engineer has included in the Schedule of Quantities, particular payment items specifically therefore, the Contractor will not be paid directly for the construction and maintenance of temporary access roads and/or the provision and maintenance of bridges as aforementioned, and the costs thereof shall be deemed included in the Contractor's bid rates for excavation."

Add the following new subclause to subclause 5.1:

"PSDB 5.1.5 Removal of Existing Pipelines

Where existing pipes have to be removed, they shall be carefully opened up by machine excavation to 300 mm above the pipes after which the whole pipe shall be fully exposed by means of hand excavation. The excavation width shall comply with Sub-clause 8.2.3.

The pipes shall be removed from the trench in a manner approved by the Engineer, and brought to the surface for inspection by the Engineer.

Pipes that are declared suitable for re-use and pipes declared unfit for re-use shall be dealt with in accordance with the respective manner described in the specifications, or on the drawings or the Engineer's instructions, as relevant."

PSDB 5.2 Minimum Base Widths

Add the following after paragraph (b):

"The above is not applicable to trenches for subsurface drains.

Trenches for subsurface drains shall be excavated to the dimensions and gradients shown on the drawings or directed by the Engineer.

The specified width of trenches and the width of the excavation measured for payment shall not be less than 0,5 m, but the Contractor may reduce the actual width with the Engineer's

permission."

PSDB 5.4 EXCAVATION

ADD THE FOLLOWING:

"Except where otherwise specified, trenches shall be of such a depth that the minimum cover over the pipes shall be 700 mm except at road-crossings where the minimum cover shall be 1 000 mm."

PSDB 5.6 BACKFILL

PSDB 5.6.3 Disposal of soft excavation material

REPLACE THE WORDS "unless otherwise required in the project specification." AT THE END OF SUBCLAUSE 5.6.3 WITH :

"or to spoil in accordance with the requirements of Sub-clause PSD 5.2.2.3, as instructed by the Engineer."

ADD THE FOLLOWING NEW SUBCLAUSES IN CLAUSE 5 :

PSDB 8 MEASUREMENT AND PAYMENT

PSDB 8.3 SCHEDULED ITEMS

PSDB 8.3.2 Excavation:

- a) Excavate in all materials, for trenches, backfill compact and dispose of surplus material

REPLACE "of 1,0 m" IN THE FIRST SENTENCE OF 8.3.2(a) WITH :

"as specified in the Schedule of Quantities".

- b) Extra over item (a) above for:

ADD THE FOLLOWING AT THE END OF THE EXISTING SUB-ITEM 2:

"No payments will be made under sub-items (1) and (2) in respect of any materials measured and paid for under sub-item 3 below."

AND ADD THE FOLLOWING NEW SUB-ITEMS IN 8.3.2(b) :

"(3) Hand excavation where ordered by the Engineer in :

- a) Soft material Unit : m³
b) Intermediate material Unit : m³
c) Hard material Unit : m³

The unit of measurement shall be the cubic metre of material, measured in place according to the authorised dimensions, which was excavated by hand on the specific prior written instructions of the Engineer ; provided always that the Engineer's said instruction shall have stated that measurement and payment for such hand excavation will be in accordance with this item.

The bid rate shall include full compensation for the additional cost, effort and time resulting from excavating in the respective materials using hand methods only.

The Engineer shall not be obliged to authorise payment under this item in respect of any hand excavation carried out (whether ordered in writing or otherwise), which hand excavation was in any case necessary to achieve compliance by the Contractor of his obligations under the Contract to :

- (i) utilise construction appropriate to the nature of the specific parts of the Works and/or
- (ii) protect existing structures and/or services ; and/or
- (iii) comply with all prevailing legislation and regulations.

- (4) Backfill stabilised with 5% cement where directed
by the Engineer Unit : m³

The unit of measurement shall be the cubic metre of backfill material, measured in place after compaction according to the authorised dimensions, which was stabilised on the Engineer's instructions in accordance with Sub-clause PSDB 3.5(c).

The bid rate shall include full compensation for supplying the cement and for selecting, mixing, backfilling and compacting the stabilised material to 90% of modified AASHTO density.

ADD THE FOLLOWING SUB-ITEMS IN 8.3.2 AFTER SUB-ITEM 8.3.2(c):

- "(d) Excavate in all materials for stormwater inlet and outlet structures
and for manholes, catch pits, valve chambers and the like,
irrespective of depth and backfill around structures : Unit : m³

The unit of measurement shall be the cubic metre of material excavated, measured in place according to the authorised dimensions, and excluding the volume of material excavated and paid for under sub-item (a).

The bid rate shall include for the costs of excavating in all materials, backfilling, compacting, trimming and tidying of the final surface around the structure, disposing of surplus and unsuitable materials within the free haul distance and where applicable, selecting and keeping separate, excavated material suitable for use as backfill.

Measurement and payment shall be in accordance with the provisions of 8.3.2(b) of SABS 1200D (as amended)."

PSDB 8.3.3.4 Overhaul

REPLACE THE CONTENTS OF THIS ITEM WITH THE FOLLOWING:

"Measurement and payment shall be in accordance with sub-clause PSD 5.2.5."

PSDB 8.3.7 Accommodation of Traffic

REPLACE THE HEADING AND CONTENTS OF SUBCLAUSE 8.3.7 WITH THE FOLLOWING:

"Accommodation of Traffic.....Unit: Lump Sum

"The bid sum shall, (except where particular items are scheduled to cover particular costs) include full compensation for compliance with the requirements of 5.1.3 of SABS 1200DB (as

amended), including the construction and maintenance of bypasses and the use of existing roads as bypasses, during the construction period.

It shall also include full compensation for the provision, maintenance and removal of all traffic control measures, including temporary traffic signs, road markings, lighting, barricading, flagmen and, where necessary, communications equipment to regulate traffic, for the construction of temporary drainage works, for the maintenance of drainage works and arrangements for moving and subsequently reinstating services for the purposes of accommodating traffic, attending to traffic problems, and complying with the requirements of the Road Traffic Ordinance and the relevant local authorities.

The bid Lump Sum shall not be adjusted in the event of any Extension of time for completion being granted by the Engineer in accordance with Clause 45 of the Conditions of Contract.

Payment shall be made in equal monthly instalments over the entire period allowed for completion, provided that where any Extension of time for completion is granted, the amount which shall be payable under this item in any subsequent monthly payment certificate, shall be the outstanding unpaid amount of the Lump Sum, divided by the number of months remaining until the Due Completion Date of the Contract, as revised in accordance with the Conditions of Contract.."

PSDM EARTHWORKS (ROADS, SUBGRADE)

PSDM 3 MATERIALS

PSDM 3.2 CLASSIFICATION FOR PLACING PURPOSES

PSDM 3.2.3 Selected layer

REPLACE THE CONTENTS OF THIS SUBCLAUSE WITH THE FOLLOWING:

"The following requirements shall apply in respect of the selected layer:

- (a) Maximum particle size: 60% of compacted layer thickness
- (b) Unsterilized selected layer
 - (i) Selected layer

Minimum CBR at 93% of modified AASHTO density: 20

Maximum PI: 12 (the Engineer has the right to alter this requirement to 3 x the grading modulus + 10)

PSDM 5 CONSTRUCTION

PSDM 5.2 METHODS AND PROCEDURES

PSDM 5.2.3 Treatment of the road-bed

PSDM 5.2.3.2 Removal of unsuitable ground

REPLACE THE SECOND SENTENCE OF PARAGRAPH (a) WITH THE FOLLOWING:

"The excavated spaces shall then be backfilled with approved imported material compacted to the required density."

ADD THE FOLLOWING SENTENCE TO PARAGRAPH (b):

"Unsuitable excavated material will be paid for as cut to spoil."

PSDM 5.2.3.3 Treatment of Road-Bed

ADD THE FOLLOWING PARAGRAPH:

"(c) Three-pass roller compaction"

Any portion of the roadbed that is shown on the drawings or is specified or is directed by the Engineer to be given three-pass roller compaction because of its inadequate natural density, shall be prepared by shaping where necessary and compacting with a roller, complying with the requirements specified below.

Compaction shall comprise three passes with complete coverage by the wheels of the specified roller over every portion of the area that is being compacted. While it is not the intention that the Contractor should apply water to the roadbed for this type of compaction, and while no rigid moisture control will be exercised during compaction, the Contractor shall nevertheless satisfy the Engineer that everything is being done to take full advantage of favourable soil moisture conditions during the rainy season, and that such compaction is as far as possible carried out when the roadbed is neither

excessively dry nor excessively wet.

The Engineer has the authority to decide when conditions are favourable for compaction and where such compaction is to be carried out at any particular time and he has the right to instruct the Contractor to water the roadbed at the Contractor's expense when, in the opinion of the Engineer, the Contractor failed, neglected or refused to comply with these requirements.

The rollers to be used for roller-pass compaction shall conform to the following requirements:

Grid roller: The grid roller shall have a mass of not less than 13,5 t when ballasted, shall be loaded to this mass if required, and shall be moved at a speed of not less than 12 km/h.

Vibratory roller: The vibratory roller shall be capable of exerting a combined static and dynamic force of not less than 120 kN/m width for every metre of loose-layer thickness at an operating frequency not exceeding 25 Hz and shall move at a speed not exceeding 4 km/h."

PSDM 5.2.5 Selected Layer

REPLACE THE CONTENTS OF THIS SUBCLAUSE WITH THE FOLLOWING:

"Except with regard to density, the requirements of Sub-clause 5.2.4 shall apply. The degree of compaction shall be:

Selected layer : 93% of modified AASHTO density

PSDM 5.2.8 Transport

REPLACE THE CONTENTS OF THIS SUBCLAUSE WITH THE FOLLOWING:

"The provisions of Sub-clause PSD 5.2.5 of SABS 1200 D, as amended, shall apply."

PSDM 7 TESTING

PSDM 7.3 ROUTINE INSPECTION AND TESTING

REPLACE TABLE 2 AND THE CONTENTS OF SUBCLAUSE 7.3.2 WITH THE FOLLOWING:

"PSDM 7.3.2 The dry density requirements for a particular lot of selected layer or wearing course shall be deemed to be satisfied if the average density and the results of individual tests meet the requirements specified in table 2 below. Refer to Sub-clause PSD 7.2 for the requirements for fill.

TABLE 2 - DENSITIES

1	2	3	4	5
Layer	Specified density (% of modified AASHTO density)	Number of tests per lot	Average density %	Minimum density for any single test, %
Selected layer	93	3 and 4 5 6	93,1 93,4 93,6	89,4 89,2 89,0

PSDM 8 MEASUREMENT AND PAYMENT

PSDM 8.2 COMPUTATION OF QUANTITIES

REPLACE SUBCLAUSES 8.2.1 TO 8.2.3 (INCLUSIVE) WITH THE FOLLOWING:

"PSDM 8.2.1 The provisions of Sub-clause 8.2.1 of SABS 1200 D shall apply.

PSDM 8.2.2 The provisions of Sub-clause 8.2.2 of SABS 1200 D shall apply.

PSDM 8.2.3 The provisions of Sub-clause 8.2.2 of SABS 1200 D shall apply."

PSDM 8.2.5 Verifying Quantities

REPLACE THE FIRST SENTENCE WITH THE FOLLOWING:

"Before any earthworks are commenced but after completion of any site preparation, the Engineer will, upon a written request from the Contractor, provide cross-sections for the purpose of measurement of earthworks quantities."

PSDM 8.3 SCHEDULED ITEMS

PSDM 8.3.3 Treatment of Roadbed

a) Roadbed preparation and compaction of material to

ADD THE FOLLOWING:

"The unit of measurement shall be the cubic metre of material re-compacted as specified and the volume shall be determined from levelled cross-sections on which are superimposed the levels to which the roadbed is to be constructed.

When material is imported to make up the required volume, such material will be paid for as cut or borrow to fill as relevant."

PSDM 8.3.4 Cut to Fill, Borrow to Fill

REPLACE THE LAST SENTENCE OF THIS ITEM WITH THE FOLLOWING:

"The unit of measurement shall be the cubic metre of fill and the volume will be calculated in accordance with the authorised dimensions of the embankment and levelled cross-sections.

The bid rates shall include full compensation for excavating the material as if in soft material, for selecting, loading, transporting for the free-haul distance, for off-loading, watering, mixing and compacting the material as specified. Borrow to fill in this item relates to material from designated borrow areas (provided by the Employer).

Where it is required that material be obtained from commercial sources, payment for procuring the material will be made under item PSDM 8.3.17."

PSDM 8.3.5 Selected Layer Compacted to 93% of Modified AASHTO Maximum Density

REPLACE THE HEADING AND THE CONTENTS OF THIS ITEM WITH THE FOLLOWING:

"PSDM 8.3.5 Selected Layer Using Material from Designated Borrow Pits or Excavations:

(b) Compacted to 93% of modified AASHTO density.....Unit: m³

The unit of measurement shall be the cubic metre and the quantity will be calculated from the authorised dimensions of the compacted layer.

The bid rates shall include full compensation for excavating the material as if in soft material for loading, transporting for the free-haul distance, for off-loading, spreading, watering, mixing, breaking down and compacting the layer."

PSDM 8.3.6 Extra Over Items 8.3.4 and 8.3.5 for Excavating and Breaking Down Material In:

REPLACE THE HEADING OF THIS ITEM WITH THE FOLLOWING:

"PSDM 8.3.6 Extra Over Items 8.3.4, 8.3.5 and 8.3.16 for Excavating and Breakdown Material in"

REPLACE THE WORDS "items 8.3.4 and 8.3.5" WITH THE WORDS "items 8.3.4, 8.3.5 and 8.3.16".

PSDM 8.3.7 Cut to Spoil or Stockpile From

REPLACE THE HEADING WITH THE FOLLOWING:

"PSDM 8.3.7 Cut to spoil from"

PSDM 8.3.12 Overhaul:

REPLACE THIS ITEM WITH THE FOLLOWING:

"PSDM 8.3.12 Overhaul:"

Delete this item as no overhaul will be paid on material for the purposes of this contract and all the costs for transporting material shall be included in the applicable bid rates and amounts.

ADD THE FOLLOWING ITEMS:

PSDM 8.3.18 Final Finishing and Cleaning up of the Site of the Works..... Unit: Sum

The bid sum shall include full compensation for the clearing, disposal of material, finishing, tidying and all other work required to finish and clean up the Site of the Works and affected areas by removing excess earth, stones, boulders, debris and other waste material, by clearing stormwater inlets and outlets and pipe barrels, by clearing the surfacing of all dirt, mud and foreign material, and by neatly finishing off all junctions, intersections and kerbing.

All material resulting from the finishing operations shall be disposed of to a spoil site furnished by the Contractor.

The bid rate shall make provision for the reinstatement of existing driveways to their original condition where these have been affected by the Works, as these items will not be measured and paid for separately.

PSDM 8.3.19 Gravel shoulders:

(a) Fill compacted to 90% of modified AASHTO density and obtained from:

(i) Designated borrow pits Unit : m³

(ii) Commercial sources Unit : m³

- | | |
|---|-----------------------|
| (iii) Excavations | Unit : m ³ |
| (b) Scarify in situ material to a depth of 150 mm and compact to 90% of modified AASHTO density | Unit : m ³ |
| (c) Excavated material removed to spoil | Unit : m3 |

The tendered rates shall include full compensation for constructing the gravel shoulders to the profiles indicated either on the drawings or by the Engineer, for working in restricted areas, for using material classified as soft material with a maximum particle size of 60 mm, and for carrying out the work in accordance with the specifications.

Additional payment will be made under item PSDM 8.3.12 if overhaul is applicable to subitems (a)(i), (a)(iii) and (c) above."

PSG CONCRETE STRUCTURAL (SABS 1200 G)

PSG 2.3 Definitions

PSG 2.3(b) Quality

Recording of all quality control measures must be done on a daily basis in the site diary, information regarding batch no., position in structure and date casted, must be specified.

PSG 2.3(c) Strength (sub-clause 2.3(c))

The required concrete strength will be the strength specified. Cube tests shall be done and no test result less than 95% of specified 28 days concrete strength will be accepted. The maximum percentage of tests to fall below the specified level may be 5%.

PSG 3.2 CEMENT

PSG 3.2.1 Applicable Specifications

Portland blast furnace cement and rapid hardening cement shall not be used on the works.

Portland cement that conforms to SABS 471, with minimum 42.5 MPa strength shall be used for all in-situ cast works.

PSG 3.2.3 Storage of Cement

Replace this sub-clause with the following:

Cement which is stored on the site shall be kept under a cover that provides adequate protection against moisture and other factors that may aggravate deterioration.

Where the cement is supplied in bags, the bags shall be closely and neatly stacked to a height not exceeding 12 bags, and they shall be so arranged that they can be used in the order in which they were delivered to the site. Different brands and/or types of the same brand shall be stored separately.

The storage of cement in bulk in silos or similar containers shall be permitted, provided that the cement drawn for use is measured by mass and not by volume.

Cement shall not be kept in storage for longer than 6 weeks from the date of manufacture without the Engineer's permission. The Engineer may order the removal of cement, which is older than 6 weeks, from the site or the alteration of the design mix if he does allow its use. Alternatively, he may allow the cement to be used in concrete of less critical importance, as in blinding layers.

PSG 3.5 ADMIXTURES

PSG 3.5.1 Approval of Admixtures Required

Add the following paragraph to this sub-clause:

Admixtures shall comply with the requirements of ASTM C-154 or AASHTO M-154 and shall be of an approved brand or type.

PSG 3.5.2 Air-Entraining Agents

Add the following paragraph to this Sub-Clause:

Air-entraining agents shall comply with the requirements of ASTM C-260 or AASHTO M-194.

PSG 4 PLANT

PSG 4.5 Shuttering

PSG 4.5.1 Design

The shuttering must be designed and supplied by an approved supplier, in order to construct the new circular, cylindrical and conical infrastructure easily and correctly, within specified tolerances. Concrete must be easily poured into and compacted in the erected shuttering, and must be tied and supported well, in order to be able to resist the dead weight of the wet concrete and shuttering as well as the effects of wind force. Shuttering may only be removed after approval of the Engineer.

PSG 4.5.2 Finish

Add the following to this Sub-Clause:

All external corners shall be chamfered by the fixing of fillet strips into the corners of the formwork to form 25 mm x 25 mm chamfers, all at no extra payment.

PSG 4.5.3 Ties

Add the following to this Sub-Clause:

Only patented ties shall be used on water-retaining structures. These ties shall be approved by the Engineer. Tie holes shall be filled with an approved non-shrink epoxy grout.

PSG 5 CONSTRUCTION

PSG 5.1.3 Cover

Add the following to this Sub-Clause:

Unless otherwise shown on the drawings, minimum cover to reinforcement shall be as for "severe" conditions (minimum cover shall not be less than 40mm).

PSG 5.2.1 Classification of Finishes

Add the following Sub-Clause 5.2.1 (C)

Imperfections such as small fins, bulges, irregularities, surface honeycombing, and slight surface discolorations shall be made good and repaired by approved methods including rubbing down or grinding to the complete satisfaction of the Engineer. The finish of the concrete shall be accurate to degree of accuracy as defined in terms of Clause 6. (See also 5.5.10.3)

PSG 5.2.2 Preparation of Formwork

Add the following to this sub-clause:

The joints between continuous formwork elements shall be closely butted and, where necessary, if undue leakage is expected, the joints shall be caulked, taped or packed with a sealing gasket, all at no extra payment. Paper, cloth or similar materials shall not be used for this purpose.

PSG 5.5 Concrete

PSG 5.5.1.2 Consistency

Add the following under sub-clause 5.5.1.2(a):

The slump for concrete to be used in water retaining structures shall not be less than 30mm and not more than 60mm.

PSG 5.5.1.3 Workability

Add the following to this sub-clause:

The concrete mix to be used in water retaining structures shall have a water/cement ratio not exceeding 0,5.

PSG 5.5.1.5 Durability

Add the following to this sub-clause:

All water retaining structures shall be deemed to be exposed to severe conditions. The water/cement ratio shall be determined by the strength of concrete specified but shall not exceed 0,5, in order to ensure workability, water reducing admixtures of approved manufactures shall be used in preference to increasing the cement content.

PSG 5.5.1.7 Strength Concrete

Add the following to this sub-clause:

Unless specified differently the grade of concrete to be used shall be as follows:

- a) Grade 30/19: All reinforced concrete structures;
- b) Grade 20/20: All paving slabs and floor slabs;
- c) Grade 15/20: Unreinforced foundations and Pipe encasement;
- d) Grade 20/40: Mass concrete and concrete filling; and
- e) Grade 15/10: Screeds and benching.

PSG 5.5.10.4 Wood-Floated Finish

Where wood floating is specified or scheduled, the surface shall first be given a finish as specified in G 5.5.10.1 and after the concrete has hardened sufficiently, it shall be floated to uniform surface free from trowel marks. The screeded surface shall be wood-floated, either by hand or machine, only sufficiently to produce a uniform surface from screed marks.

PSG 5.5.10.5 Steel-Floated Finish

Where steel floating is specified or scheduled, the surface shall be treated as specified in PSG 5.5.10.4 except that, when the moisture film has disappeared and the concrete has hardened sufficiently to prevent laitance from being worked to the surface, the screened surface shall be steel-trowelled under the firm pressure to produce a dense, smooth, uniform surface free from trowel marks.

PSG 5.5.11 Watertight Concrete

Add the following to this sub-clause:

All structures shall be deemed to be water retaining unless otherwise specified.

PSG 5.5.13 Grouting

Add the following to this sub-clause:

PSG 5.5.13.1 Materials

a) Water

Water for grout shall comply with the requirements given in sub-clause 3.3 of SABS 1200G.

b) Aggregates

Notwithstanding the requirements of sub-clause 3.4.1 of SABS 1200 G, the grading of fine aggregate (sand) and coarse aggregate (stone or pea gravel) shall conform to the grading given in table 1 and 2, below.

c) Cement

Cement shall be ordinary Portland cement complying with SABS 471.

d) Admixtures

Admixtures shall comply with the requirements of sub-clause 3.5 of SABS 1200G and shall have a proven record of satisfactory performance under conditions encountered in the Republic of South Africa.

e) Proprietary grouting materials

Unless otherwise approved by the Engineer, proprietary grouting materials shall be obtained ready mixed in sealed pockets as supplied by the manufacturers.

TABLE 1 - SAND		TABLE 2 - STONE OR PEA GRAVEL	
1	2	1	2
Test sieve nominal aperture size, mm	% Passing (by mass)	Test sieve nominal aperture size, mm	% Passing (by mass)
9,75	100	9,5	100
4,75	95 - 100	4,74	95 - 100
1,18	45 - 65	2,36	0 - 5
0,3 (300 µm)	5 - 15		
0,15(150 µm)	0 - 5		

PSG 5.5.13.2 Preparation and Procedures

a) Before a machine or structural bedplate is placed on the concrete the following steps shall be carried out:

1. All defective concrete, laitance, dirt, oil, grease, and loose material shall be removed from the concrete foundation by bush-hammering, chipping, or other means until sound clean concrete is obtained. The surface of the foundation shall be scrubbed, but shall not be so rough as to interfere with proper placing of the grout. All foundation bolt sleeves shall be cut out, or cut off flush if the sleeves cannot be removed. The top of the foundation shall be re-shaped if necessary.

2. The underside of each steel base, particularly in the bearing areas, shall be cleaned and any burrs and ragged edges removed before the base is placed in its final location.
 3. All holding-down bolt sleeves shall be thoroughly cleaned of any materials that may prevent the grout from flowing freely to the bottom of the bolt sockets.
- b) The base shall be properly aligned and levelled and shall be maintained in that position during grouting.
- c) After the machine or structural bedplate has been placed the following precautions shall be observed:
1. Shimming shall be kept to a minimum. Steel plates shall be used for packing and shall be ground to the required thickness, where necessary.
 2. Before grouting starts all loose dirt, oil, grease, and other foreign matter on the surface of the foundation, the undersides of bedplates, and in the bolt holes shall be removed by means of compressed air or other approved measures. The surface of the foundation slab shall be thoroughly saturated with clean water, and all excess water shall be removed from the surface and the bolt holes just before the grout is placed.
 3. Grouting shall not be carried out until the alignment of all units to be grouted has been checked and approved by the Engineer.
 4. Special care shall be taken with grouting in hot or cold weather to ensure proper setting and gain of strength and, in the case of proprietary grouting materials, by having ice or hot water available, as the case may be, in accordance with the instructions of the manufacturer. Enclosures shall be provided for the grout such that, until it has set, its temperature will be in the range 15-27°C.

Shields to protect the grout from the sun and from hot winds shall be provided by the Contractor when so ordered.

PSG 5.5.13.3 Formwork

Formwork for grouting shall comply with the applicable requirements of sub-clause 5.2 of SABS 1200 G. Forms shall be caulked where necessary. Adequate clearance between forms and bedplates shall be provided to enable the grout to be worked into place.

PSG 5.5.13.4 Mixing (all free-flowing grouts except epoxy grouts)

The grout shall be mixed to a homogeneous uniform mixture and delivered ready for placing at a temperature between 15°C and 25°C.

Substantial materials and water shall be mixed in a mortar mixer for at least 3 min. For the converse, mixing thoroughly by hand will suffice for smaller tasks, nonetheless the entire mass shall be turned over enough times to ensure even distribution of its components.

Mixing shall be done as close as possible to the place where the grout will be placed. No surplus grout shall be mixed at any one time than that which can be placed in a period of 20 min.

After the grout has been mixed it shall not be re-tempered by the addition of water.

PSG 5.5.13.5 Grouting (all free-flowing grouts except epoxy grouts)

The grout shall be placed quickly and continuously to avoid the undesirable effects of over-working. (These effects are segregation, bleeding, and breaking-down of initial set) The method of placement shall be subject to approval. The means of placing the grout shall be such that the grout will completely fill the space to be grouted, will be thoroughly compacted, will be free of air pockets, and will have evenly distributed contact over an area in excess of 80% or, in the case of expanding grout, 95% of the bearing area of the item to be supported.

Wherever practical grout shall be placed from one side only and where this is not achievable, care shall be taken to ensure that any entrapped air is released.

After the grout has taken its initial set:

- a) The forms shall be removed;
- b) Excess grout shall be so cut away as to leave a smooth and neatly finished job;
- c) Except where the grout is intended to provide resistance to side thrust, all edges
- d) shall be trimmed at 45° to the vertical, from the bottom edge of the bedplate; and
- e) All excess grout on or about the bedplates shall be removed.

Damage to paintwork, if any, shall be repaired within 24 hours. Packing plates, shims, and other levelling devices shall remain in position.

PSG 5.5.13.6 Dry-packed grout (standard dry sand and cement grout)

Dry-packed grout shall have a minimum compressive strength at 28 days of 25 MPa. The quantity of water added after placing shall be kept to a minimum consistent with placing conditions, and the cement, sand and, where applicable, pea gravel proportions by mass shall be as follows:

- a) Where the clearance between bedplate and foundation is 25 mm or less: 1 part of Portland cement and 2 parts of sand; and
- b) Where the clearance exceeds 25 mm: 1 part of Portland cement, 1 part of sand, and 1 part of pea gravel.

Dry-packed grout shall be rammed by means of tamping rods against formwork placed along three sides of the bedplate.

PSG 5.5.13.7 Non-shrink grout with metallic aggregate

The manufacturer's instructions shall be observed when non-shrink grout with metallic aggregate is used. Where the clearance between the bedplate and the foundation is less than 50mm a sand-based mix shall be used. Where the clearance exceeds 50mm the Engineer may order a mix with a base of sand plus pea gravel to be used.

PSG 5.5.13.8 Expanding grout with powdered aluminium additive

The manufacturer's instructions shall be observed when an expanding grout with powdered aluminium additive is used. Where the clearance between the bedplate and the foundation is less than 25 mm, a sand-based mix shall be used. Where the clearance exceeds 25 mm the Engineer may order mix with a base of sand plus pea gravel to be used.

Each batch shall be mixed for at least 6 min. after the powdered aluminium has been added. Where a ready-mixed grout is used, the powdered aluminium shall be added at the placing site and the batch mixed as specified in PSG 9.4. Grout shall be placed within 45 minutes after the addition of the powdered aluminium.

The Contractor shall not use powdered aluminium additive when the ambient temperature is

below 5°C.

PSG 5.5.13.9 Epoxy grout (epoxy mortar type only)

The manufacturer's instructions shall be observed when an epoxy grout is used.

PSG 5.5.13.10 Testing (Clause 7)

The Contractor shall, where so ordered, carry out a site test for each grouting procedure and each grouting gang to be used. The tests shall be carried out on a dummy bedplate similar in configuration to that which is to be grouted, but not exceeding 1m in area unless otherwise ordered.

When the dummy bedplate is dismantled, the underside shall show a minimum grout contact area of 80% with reasonably even distribution of the grout over the surface grouted except that, in the case of expanding grout, the minimum grout contact area shall be 95%. The test shall show evidence of good workmanship and materials and the results shall be to the satisfaction of the Engineer.

The Contractor shall, when so ordered, make standard test cubes from various grout mixtures and subject them to compression tests to determine whether the specified strength has been achieved. Test procedures shall comply with the relevant requirements of Sub-Clause 7.2.1 to 7.2.3(f) SABS 1200 G.

PSG 5.5.16 NO-FINES CONCRETE

PSG 5.5.16.1 Materials

Cement, aggregate and water shall comply with the requirements of clause 3 of this section. Each size of aggregate shall be a single-sized aggregate graded in accordance with SABS 1083.

PSG 5.5.16.2 Classes of no-fines concrete

No fines concrete shall be classified by the prefix NF and the size of the aggregate to be used. Class NF 20 means a no-fines concrete with a 19 mm nominal size aggregate.

The volume of aggregate per 50 kg of cement for each class of no-fines concrete shall be as follows:

Class	Aggregate per 50 kg cement
NF 40	0,33 m ³
NF 20	0,30 m ³
NF 10	0,27 m ³

PSG 5.5.16.3 Batching and mixing

Cement shall be measured by mass or full bags of 50kg each and aggregate shall be measured by volume in approved measuring boxes or barrows.

The quantity of water added shall be just sufficient to form a smooth grout that will adhere to and completely coat each and every particle of aggregate and to be just wet enough to ensure that, at points of contact of the aggregate, the grout will run together to form a small fillet to bond the aggregate together. The mix shall contain no more than 20L of water per 50kg of cement.

Mixing shall be carried out in an approved batch-type mechanical mixer, but small quantities may be hand mixed.

PSG 5.5.16.4 Placing

No-fines concrete shall be placed in accordance with the procedure agreed on by the Engineer. It shall be placed in its final position within 30 minutes of mixing.

The no-fines concrete shall be worked sufficiently to ensure that it completely fills the space to be concreted and that adjacent aggregate particles are in contact with one another. Excessive tamping or ramming shall be avoided and under no circumstances may the no-fines concrete be vibrated.

PSG 5.5.16.5 Protection

All no-fines concrete shall be protected from the elements and loss of moisture. Protection against loss of moisture shall be accomplished in one or more of the following ways:

- a) Retaining formwork in place;
- b) Covering exposed surfaces with sacking or other approved material kept continuously wet;
- c) Covering exposed surfaces with plastic sheeting.

No-fines concrete placed during cold weather shall be adequately protected against frost for at least 3 days.

PSG 5.5.17 Joints in structures

PSG 5.5.17.1 Materials

a) General

All materials used in the forming, construction and sealing of permanent joints, as well as all proprietary or custom-built expansion-joint assemblies shall be subject to the approval of the Engineer. When required by the Engineer, the Contractor shall submit test certificates from an approved independent testing authority to show that the respective materials comply with the specified requirements, or a certificate from the patent holder or designer to certify that the manufactured item complies in all respects with relevant product specifications.

b) Joint filler

- i. Joint filler shall comply with the requirements of the following specifications:
 - American Association of State Highway Officials (A.A.S.H.O.) Standard Specification M153-54 Type I and III.
- ii. National Transport Commission "Standard Specification for Roads and Bridge Works".
- iii. Department of Public Works PW471 "Specification of Materials and Methods to be used" Section 3.13 Expansion Joints.
- iv. Joint fillers shall consist of closed cell expanded polyethylene with a density of not less than 100 kg/m³.

c) Sealants

Joint sealers shall consist of a two component polyurethane sealing compound complying with the requirements of SABS 1077.

Other sealants may be used if approved by the Engineer after submission of full specifications and information by the Contractor at tender stage.

d) Water stops

Water stops shall be of natural rubber, or plasticized, virgin, non-biodegradable PVC, and of the type specified or shown on the Drawings.

- i. Natural rubber water stops shall comply with the requirements of CKS 388.
- ii. Flexible polyvinyl chloride (PVC) rubber water stops shall comply with the requirements of CKS 389.

e) Accessory materials

i. Primers

When a primer is to be used in conjunction with the sealant, it shall be of the prescribed proprietary material.

ii. Adhesives

Adhesives used in conjunction with preformed seals shall be of a proven and approved type which is compatible with the material of the seal.

iii. Bond breakers

Polyethylene tape, coated papers, metal foils or similar material may be used where bond breakers are required.

iv. Back-up material

Back-up material shall consist of a compressible material of correct width and shape in order to ensure that it will be in approximately 50% compression after installation and that the sealant can be formed to the specified depth.

Back-up materials shall be compatible with the sealant used. Material containing bitumen or volatiles shall not be used with thermosetting chemically curing sealants.

f) Storage

All materials used in the forming, construction and sealing of permanent joints and all proprietary or custom built expansion-joint assemblies shall be stored off the ground under cover that provides adequate protection against sunlight, physical or chemical damage or other factors that may cause deterioration.

PSG 5.5.17.2 Filled Joints

Filled joints shall be accurately formed to the dimensions shown and with the filler material specified on the Drawings. The filler shall be secured in position so that it will not be displaced during or after concreting if the filler is to remain permanently in the joint.

Wherever polystyrene or a similar material which is susceptible to damage is used to form joints, it shall be lined with a hard surface on the side to be concreted. The hard surface shall be sufficiently resilient to ensure that the joint and surfaces can be formed free from defects.

PSG 5.5.17.3 Sealing of Joints

a) General

Sealed joints shall be made watertight over the full length of the joints, unless otherwise permitted by the Engineer, and the joint dimensions shall be as shown on the Drawings.

b) Preparation of joints

The reaming of joints by sawing or other means shall be undertaken when edge spilling or ravelling can be avoided and shall be subject to the Engineer's approval. After removal of the temporary filler material or the breaking-out of the excess concrete, the inside faces of the joint shall be wire-brushed or grit-blasted to removal all laitance and contaminants. Thereafter the joint shall be cleaned and blown out with compressed air to remove all traces of dust. Solvents shall not be used for removing contaminants from concrete and porous surfaces.

Care shall be taken to ensure that primers or adhesives are applied only to surfaces that are absolutely dry. The primer or adhesive shall be applied strictly in accordance with the manufacturer's instructions. Unless otherwise specified, the primer shall be applied within the temperature range of 10°C to 40°C and the sealant shall be applied after the curing period of the primer and within the period during which the primer remains active.

c) Sealants

Sealants shall be applied strictly in accordance with the manufacturer's instructions by a person skilled in the use of the particular type of sealant. The trapping of air and the formation of voids in the sealant shall be avoided. The sealant shall be finished to a neat appearance flush with the edges of the concrete or to the specified depth.

Thermoplastic hot-poured sealants shall not be poured into the joints when the temperature of the joint is below 10°C. The safe heating temperature shall not exceed the specified pouring temperature by more than 10°C.

Two-part thermosetting chemically curing sealants shall not be applied after expiry of the specified pot life period, which shall commence once the base and activator of the sealant have been combined.

d) Preformed compression seals

The seal shall be inserted and secured with a lubricant adhesive which covers both sides of the seal over the full area in contact with the inside faces of the joint. The lubricant adhesive shall be applied immediately before the seal is inserted.

The seal shall be installed in a compressed state, with the appropriate equipment, so that the seal will remain in compression even under the most adverse conditions. The final position of the seal shall be as shown on the Drawings or as directed by the Engineer.

Joints in seals shall be bonded or fused and shall be only at positions agreed on by the Engineer.

PSG 5.5.17.4 Installation of Expansion Joints

No expansion joint or part thereof shall be installed before the final surfacing levels have been established as based on a complete level survey of the contiguous surfaces. The survey shall be made before the kerbs, channels or bituminous surfacing is constructed.

PSG 6.3 CONCRETE ELEMENTS

Concrete elements shall be constructed and finished to the following tolerances:

01	Surface irregularities	5 mm
02	Cross section dimensions	± 5 mm
03	Level	± 5 mm
04	Top of walls	3 mm

PSLB BEDDING (PIPES) SABS 1200 LB

PSLB 3.1 Selected Granular Material

REPLACE THE CONTENTS OF THIS SUBCLAUSE WITH THE FOLLOWING:

"Selected granular material shall have a PI not exceeding 6 and shall be free from sharp-edged particles exceeding 19 mm."

PSLB 3.4 Selection

PSLB 3.4.1 Suitable Material Available From Trench Excavation

REPLACE THE WORDS "(but is not required)" IN THE FIFTH LINE WITH THE WORDS "(at his own cost)".

PSLB 8 MEASUREMENT AND PAYMENT

PSLB 8.1 PRINCIPLES

PSLB 8.1.5 DISPOSAL OF DISPLACED MATERIAL

REPLACE THE CONTENTS OF THIS SUBCLAUSE WITH THE FOLLOWING:

"Material displaced by the pipeline and by imported material from sources other than trench excavation, shall be disposed of at an approved site furnished by the Contractor. No haulage is payable for such material."

PSLB 8.1.6 FREE-HAUL

DELETE THE WORDS "of 0,5 km" IN THE FIRST LINE OF THIS SUBCLAUSE.

PSLB 8.2 SCHEDULED ITEMS

PSLB 8.2.2 SUPPLY ONLY OF BEDDING BY IMPORTATION

PSLB 8.2.2.2 FROM BORROW PITS

DELETE THE WORDS IN BRACKETS IN THE FIRST FOUR LINES.

ADD THE FOLLOWING:

"The opening up of borrow pits and the removal of overburden are paid for under item 8.3.4 of SABS 1200 D."

PSLC CABLE DUCTS SABS 1200 LC

PSLC 3 MATERIALS

PSLC 3.4 CABLE DUCT MARKER

ADD THE FOLLOWING:

"A cable duct marker shall consist of a 300 mm x 300 mm x 100 mm deep, class 20 MPa/19 mm concrete block, connected by means of a non-ferrous metal strip to a temporary plug to seal the end of the duct. The plug shall prevent moisture or soil from entering the duct. The metal strip shall be firmly connected to both the plug and the concrete block. The concrete block shall be positioned not further than 0,5 m horizontally from the end of the cable duct. The face of the concrete block shall be clearly marked "E" to indicate electricity cables."

PSLC 8 MEASUREMENT AND PAYMENT

PSL 8.2 SCHEDULED ITEMS

PSLC 8.2.5 Supply, lay, bed and prove duct)

REPLACE THE PAYMENT PARAGRAPH WITH THE FOLLOWING:

"Separate items are scheduled for each diameter of duct.

The rates shall cover the cost of providing all the materials and the cost of laying the ducts, installing the draw wire, jointing, bedding and providing all as specified."

PSLE STORMWATER DRAINAGE

PSLE 3 MATERIALS

PSLE 3.1 CULVERT UNITS AND PIPES

d) Skewed ends

ADD THE FOLLOWING:

"Skewed ends for pipe culverts may be cut on Site."

PSLE 3.4 MANHOLES, CATCHPITS, AND ACCESSORIES

PSLE 3.4.1 Bricks

ADD THE FOLLOWING:

"Bricks shall be engineering bricks complying with the requirements of SABS 227."

PSLE 5 Construction

PSLE 5.2 Bedding and Laying

PSLE 5.2.2 Pipe Culverts

ADD THE FOLLOWING:

"The class of bedding required for the various pipe culverts is shown on the Drawings."

PSME SUB-BASE

PSME 3 MATERIALS

PSME 3.2 PHYSICAL PROPERTIES

PSME 3.2.1 Sub-Base Material

REPLACE THE CONTENTS OF PARAGRAPH (a) WITH THE FOLLOWING:

"(a) The maximum particle dimension of the gravel shall not exceed 63 mm."

REPLACE THE CONTENTS OF PARAGRAPH (d) WITH THE FOLLOWING:

"(d) The CBR at specified density shall be 45 for unsterilized material as well as for stabilised material prior to stabilisation."

PSME 5 CONSTRUCTION

PSME 5.2 EXCAVATION

PSME 5.2.2 Borrow Pits

Insert the words "designated by the Engineer and" between the words "pits" and "established" in the first line.

PSME 5.7 TRANSPORT

REPLACE THE CONTENTS OF THIS CLAUSE WITH THE FOLLOWING:

"The provisions of Sub-clause PSD 5.2.5 of SABS 1200 D, as amended, shall apply."

PSME 8 MEASUREMENT AND PAYMENT

PSME 8.1 BASIC PRINCIPLES

INSERT A SEMI-COLON IN THE FIRST LINE OF PARAGRAPH (b) AFTER THE WORDS "will be paid for once only" AND DELETE THE REST OF THE PARAGRAPH.

AMEND PARAGRAPH (d) AS FOLLOWS:

"(d) that in the case of material from a commercial source or from borrow pits selected by the Contractor, no additional payment will be made for the class of excavation, method of processing (except stabilising), or overhaul."

PSME 8.3 SCHEDULED ITEMS

PSME 8.3.2 Construct the sub-base course with material from designated excavations

REPLACE THE CONTENTS OF SUBITEM (a) WITH THE FOLLOWING:

"The rate for (a) shall include full compensation for excavating and selecting sub-base material, for loading and transporting the material within the free-haul distance, and for either placing the material on the road or stockpiling the material for later use. When material is stockpiled, the rate shall include compensation for shaping and grading the stockpile so that it is free-draining."

PSME 8.3.9 Overhaul (Haul Exceeding 2 km):

REPLACE THIS ITEM WITH THE FOLLOWING:

"PSME 8.3.9 Overhaul (Haul Exceeding 2 km):"

Delete this item as no overhaul will be paid on material for the purposes of this contract and all the costs for transporting material shall be included in the applicable bid rates and amounts.

PSMF BASE

PSMF 3 MATERIALS

PSMF 3.3 PHYSICAL AND CHEMICAL PROPERTIES

PSMF 3.3.2 Graded Crushed Stone

REPLACE THE CONTENTS OF PARAGRAPH (a) WITH THE FOLLOWING:

"(a) The maximum particle dimension of the gravel shall not exceed 63 mm."

PSMF 5 CONSTRUCTION

PSMF 5.3 PROCESSING

REPLACE THIS SUBCLAUSE WITH THE FOLLOWING:

"PSMF 5.3 CHEMICAL MODIFICATION

The base material shall be prepared, broken down and spread. Road lime complying with the requirements of SABS 824 shall then be spread over the prepared base material at a rate of 3,0%. The materials shall then be mixed dry using road graders, ploughs and other suitable equipment until the lime is mixed thoroughly and uniformly with the base material. The mixed material shall then be watered, mixed and lightly compacted.

After 24 hours have elapsed the material shall be ripped, worked in the normal manner and compacted to 98% of modified AASHTO density."

PSMF 5.9 TRANSPORT

REPLACE THE CONTENTS OF THIS SUBCLAUSE WITH THE FOLLOWING:

"The provisions of Sub-clause PSD 5.2.5 of SABS 1200 D, as amended, shall apply."

PSMF 8 MEASUREMENT AND PAYMENT

PSMF 8.3 SCHEDULED ITEMS

PSMF 8.3.9 Overhaul:

REPLACE THIS ITEM WITH THE FOLLOWING:

"PSMF 8.3.9 Overhaul:"

Delete this item as no overhaul will be paid on material for the purposes of this contract and all the costs for transporting material shall be included in the applicable bid rates and amounts.

PSMH ASPHALT BASE AND SURFACING

PSMH 5 CONSTRUCTION

PSMH 5.5 DESIGN OF ASPHALT

PSMH 5.5.1 General

REPLACE THE CONTENTS WITH THE FOLLOWING:

"The design of the asphalt mixes shall be in accordance with the design guidelines of TRH 8."

PSMH 8 MEASUREMENT AND PAYMENT

PSMH 8.1 RATES OF APPLICATION AND BITUMINOUS BINDER CONTENT

PSMH 8.1.2 Prime

ADD THE FOLLOWING:

"The prime coat shall be E- prime, or similar approved, applied at a rate of 0,6 litre/m²."

PSMH 8.1.4 Tack Coat

REPLACE THE CONTENTS OF THIS SUBCLAUSE WITH THE FOLLOWING:

"The tack coat shall be a 30% spray grade emulsion applied at a rate of 0,55 litre/m²."

PSMK KERBING AND CHANNELLING

PSMK 3 MATERIALS

PSMK 3.1 CONCRETE

ADD THE FOLLOWING:

"The Contractor shall timorously submit the concrete mix design for cast-in-situ kerbing to the Engineer for approval and no kerbing shall be placed before the mix design has been approved."

PSMK 5 CONSTRUCTION

PSMK 5.11 TRANSITION SECTIONS AND INLET AND OUTLET STRUCTURES

DELETE THE WORDS "and with the requirements of the Project Specification" IN THE SECOND PARAGRAPH.

PSMK 7 TESTING

PSMK 7.2 CAST-IN-SITU AND EXTRUDED KERBING AND CHANNELLING

PSMK 7.2.1 GENERAL TESTS

DELETE THIS SUB-CLAUSE.

PSMK 7.2.2 ALTERNATIVE TESTS

REPLACE THE HEADING AND CONTENTS OF THIS SUB-CLAUSE WITH THE FOLLOWING:

"PSMK 7.2.2 TESTS

The Contractor shall carry out a minimum of one cube crushing tests per 500 m of kerbing or channel placed. The cost of such tests shall be deemed included in the rates bid for kerbing and channels.

One cube crushing test shall consist of a set of six cubes made with concrete taken from the mixer, the kerbing machine or from any part of the work as ordered.

If, after three cubes of any set of six cubes have been tested after 28 days in an approved laboratory, the average crushing strength is found to be more than 3MPa below the specified strength, the kerbing represented by the cubes will be rejected.

The Contractor may apply for resubmission of the rejected section on the basis of cores drilled from this section and tested for the estimated actual crushing strength in accordance with SABS method 865 (excluding appendix A). The cost of drilling and testing the cores is for the Contractor's account, regardless of the outcome of the tests on the cores. The number of cores required will be determined by the Engineer and the criterion for rejection or acceptance of the section represented by the cores shall be as specified above for cubes."

PSMK 7.3 RESPONSIBILITY FOR THE COST OF TESTING

DELETE THIS SUB-CLAUSE.

PSMK 8 MEASUREMENT AND PAYMENT

PSMK 8.2 SCHEDULED ITEMS

"PSMK 8.2.14 Remove existing kerbing and:

(a) Dispose of them off the SiteUnit : m

The tendered rates shall include full compensation for providing all labour and equipment, for excavations, for lifting the kerbs and, in the case of subitem (a), for loading and transporting the kerbs from the Site.

PSMM ANCILLARY ROADWORKS

PSMM 3 MATERIALS

PSMM 3.2 ROAD SIGNS

PSMM 3.2.2 Structural Steel

DELETE THE WORDS "except that they shall be of D-shape cross-section" IN THE FIRST PARAGRAPH.

ADD THE FOLLOWING:

"All steel sign supports shall be hot-dip zinc coated (galvanised)."

PSMM 3.2.8 Paints and Protective Coatings

PSMM 3.2.8.1 Structural Steel Sign Supports and Sign Face Frames

REPLACE THE CONTENTS OF THIS SUBCLAUSE WITH THE FOLLOWING:

"The sign supports and the backs of all road sign faces shall be painted grey. The colour code of the paint shall be code No D36 according to the CKS 279 classification.

Newly galvanised surfaces shall be thoroughly scrubbed down with an approved galvanised iron cleaner to remove all traces of the resinous protective coating. The surface shall be washed down and scrubbed to remove all traces of grease, oil, dirt, etc. Two coats of calcium plumbate primer shall be applied to a dry film thickness of not less than 0,028 mm. The undercoat shall follow within one week of the primer."

PSMM 8 MEASUREMENT AND PAYMENT

PSMM 8.3 SCHEDULED ITEMS FOR ROAD SIGNS

PSMM 8.3.1 Sign Faces with Painted or Galvanized Background, with Painted Symbols, Characters, Legend, and Borders, and with Signboard Constructed from:

REPLACE THE HEADING AND CONTENTS OF PARAGRAPH (a) WITH THE FOLLOWING:

Aluminium sheet (2,0 mm thick), 900mm Standard:.....Unit: number

- (i) R1.4 – Stop signboards
- (ii) R201 – 60km/h Speed limit signboards
- (iii) W116 – End of dual roadway signboards.
- (iv) W119 –Beginning of dual roadway signboards.
- (v) W302 - Stop Ahead signboards

The unit of measurement shall be per number of signboard supplied.

PART B2: PARTICULAR SPECIFICATIONS

- PA : EPWP ALIGNEMENT (PROVISION OF STRUCTURED TRAINING)**
- PB : OHSA 1993 HEALTH AND SAFETY SPECIFICATION**
- PC : ENVIROMENTAL MANAGEMENT SPECIFICATIONS**
- PD : JOINT VENTURE AGREEMENT SPECIFICATION**

PART PA: EPWP ALIGNMENT (PROVISION OF STRUCTURED TRAINING)

CONTENTS

- PA 1 SCOPE
- PA 2 GENERIC TRAINING
- PA 3 ENTREPRENEURIAL SKILLS TRAINING
- PA 4 INSERVICE TRAINING
- PA 5 MEASUREMENT AND PAYMENT

PA 1 SCOPE

This specification covers the requirements for the provision of structured training to be arranged by the contractor over the period of this contract.

PA 2 GENERIC TRAINING

PA 2.1 The contractor shall, from the commencement of the contract, implement a structured progressive training programme.

PA 2.2 The generic training will inter alia comprise, but not be limited to the following subjects:

Course Description	Estimated No. of Trainees	Estimated Duration (Days)
1. Road safety for construction workers		
2. Flagmen	
3. Concrete handling, placing and finishing	
4. Guardrails	
5. Bituminous road surfacing	

PA 2.3 Training shall be at or by an approved accredited organisation and shall be delivered by suitably qualified and experienced trainers.

PA 2.4 The tenderer shall provide with his tender full details of the structured training programme he intends to implement, which details shall include the following:

- a) The name of the training institution and programme
- b) The manner in which the training is to be delivered.
- c) The numbers and details of the trainers

Such details shall be entered on or attached returnable documents of this tender.

PA 2.5 The contractor shall be responsible for the provision of everything necessary for the delivery of the generic training programme, including the following:

- a) A suitable venue with sufficient furniture, lighting and power;

- b) All necessary stationery consumables and study material;
- c) Transport of the students; (as necessary)
- d) Payment of wage to all trainees during the classroom training at a rate equal to the minimum wage as set in the Ministerial Determination for the Expanded Public Works Programme on an annual basis;
- e) Relevant PPE required for the project works; and
- f) Additional supervision of learners during the practical learning stages of the works. (g) Wage for the learners during this stage of the training will be paid through the outputs.

PA 2.6 Generic training courses shall commence within one month of possession of site and be completed before the end of the contract period.

PA 2.7 The contractor's training programme shall be subject to the approval of the engineer, and the contractor shall if so instructed by the engineer alter or amend the programme and course content if a need is identified once the contract commences.

PA 2.8 The contractor shall keep comprehensive records of the training given to each student and whenever required shall provide copies of such records to the engineer. At the successful completion of each course each student shall be issued with a certificate indicating the course contents as proof of attendance and completion.

In addition to the above, a monthly return shall be submitted by the contractor.

PA 3 ENTREPRENEURIAL SKILLS TRAINING

PA 3.1 Small contractors and subcontractors will be entitled to receive a structured training programme, which will comprise both management skills as well as business development skills.

PA 3.2 The contractor shall closely monitor the performance of all small subcontractors in the execution of their contracts and shall identify all such subcontractors who, in his opinion, display the potential to benefit from structured training as may be provided for in the contract and where required by the engineer, shall make recommendations in this regard. The final list of candidates will be decided between the contractor and the engineer.

PA 3.3 The training will be delivered by trainers who are accredited by the Civil Engineering Training Scheme (CEITS) or other institutions recognised by the Department of Labour. Accredited training refers to both the trainers as well as to the training material.

PA 3.4 The contractor shall facilitate in the delivery thereof, by instructing and motivating the subcontractor regarding attendance and participation therein.

PA 3.5 The contractor shall further make all reasonable efforts to co-ordinate the programming of the subcontractor.

PA 3.6 The structured training will comprise out of the following as decided by the Employer:

Course Description	Estimated Duration (Days)
1. Basic Business Principles
2. Basic Supervision
3. Running A Business
4. Legal Principles
5. Achieving Standards

PA 3.7 The contractor shall provide with his tender, full details of the structured training programme, which he intends to implement, which details shall include the following:

- a) The name of the training institution and programme;
- b) The various aspects of each type of training comprised in the programme;
- c) The manner in which the training is to be delivered; and
- d) The numbers and details of the trainers to be utilised.

Such details of the proposed entrepreneurial training programme shall be entered on or attached returnable documentation of the forms to be completed by the tenderer.

PA 3.8 The contractor shall be responsible for the provision of everything necessary for the delivery of the entrepreneurial training programme, including the following:

- a) A suitably furnished venue (if required) with lighting and power;
- b) All necessary consumables, stationery and study material; and
- c) Transport of the subcontractors. (as necessary)

PA 3.9 All entrepreneurial training shall take place within normal working hours.

PA 3.10 The contractor's training programme shall be subject to the approval of the engineer, and the contractor shall if so instructed by the engineer alter or amend the programme and course content if a need is identified once the contract commences.

PA 3.11 The contractor shall keep comprehensive records of the training given to each subcontractor and whenever required shall provide copies of such records to the engineer. At the successful completion of each course each subcontractor shall be issued with a certificate indicating the course contents as proof of attendance and completion.

In addition to the above, a monthly return shall be submitted by the contractor.

PA 4. IN SERVICE TRAINING

PA 4.1 The contractor shall in addition to the structured (accredited) training as provided for in this document implement an in-service training programme, from the commencement of the contract, in which the various skills required for the execution and completion of the works are imparted to the labourers engaged thereon, in a programmed and progressive manner. Labourers shall be trained progressively throughout the duration of the contract, in the various stages of a particular type of work.

PA 4.1.1 Details of In-Service Training

- a) The contractor shall attach to applicable returnable form the basic details of his proposed in-

- service training programme, which details shall inter alia include the following:
- i. the details of training to be provided
 - ii. the manner in which the training is to be delivered
 - iii. the number and details of trainers to be utilised.
- b) The in-service training programme shall be submitted with the initial works programme. The progress in relation to this programme will be recorded monthly and attached to the site meeting minutes and payment certificate.
- c) The contractor shall provide on site, sufficient skilled and competent trainers to train all labourers engaged on the contract, in the various skills required for the execution and completion of the works.
- d) All labourers shall be remunerated in respect of all time spent undergoing training.
- e) Every worker engaged on the contract shall on the termination of his participation on the contract, be entitled to receive from the contractor, a certificate of service in which the following information shall be recorded:
- i. the name of the contractor;
 - ii. the name of the employee;
 - iii. the name of the project/contract;
 - iv. the nature of the work satisfactorily executed by the worker and the time spent thereon;
 - v. the nature and extent of training provided to the worker; and
 - vi. the dates of service.
- f) The cost of the above obligations shall be deemed to be covered by the sums and rates tendered for in relevant items within the bill of quantities. The performance of the contractor in providing in-service training, shall be taken into consideration should the contractor fail to reach his CPG at the completion of the project.

PA 4.1.2 Lead Time for Training

The training of labour as specified shall, as far as possible, take place before commencement of each activity and the contractor shall take into account in his programme the lead-time he requires for such training. All training herein specified shall be deemed to be a construction activity and a non-negotiable condition of the contract”.

All formal training is to be documented in terms of the National/Provincial submission forms, and accompanied by an attendance register for the applicable days.

PA 5 MEASUREMENT AND PAYMENT

PA 5.1 Provision for training

- (a) **Generic skills Provisional (list training courses):**Sum
- (b) **Entrepreneurial skills Provisional**.....Sum
- (c) **Handling cost and profit in respect of sub item**Percentage (%)
- (d) **Training Venue** (only if required) Lump Sum
- (e) **Transportation and accommodation** of workers for training where it is not possible to undertake the training in close proximity to the site (Provisional Sum) Sum

(f) Additional supervision during practical training Lump Sum

The prime cost sums are provided to cover the actual costs (including wages, tools and PPE) for attendance of accredited training courses as agreed with the engineer and shall be expended in accordance with the provisions of sub-clause 48(2) of the general conditions of contract. The tendered percentage in sub-item 4.1(c) is a percentage of the amount actually spent under sub-items 5.1(a) and (b) which shall include full compensation for the contractor's handling cost, profit, mentoring, record keeping, reporting and all other costs in connection therewith.

The lump sum tendered for 5.1(d) shall include full compensation for the provision of the training venue, for all necessary lighting, power, furniture, stationery, consumables and study material and for transportation of the students to and from the training venue. Payment of the lump sum will be made in two instalments as follows:

- a) The first instalment, 75% of the lump sum, will be paid after the contractor has met all his obligations regarding the provision of the training venue as specified.
- b) The second and final instalment, 25% of the lump sum, will be paid after the provision of all the accredited training as specified in the document.

The lump sum tendered for 5.1 (e) shall include full compensation for the provision of additional supervisory staff to manage the output generated from the learners during practical training.

PART PB: OHSA 1993 HEALTH AND SAFETY SPECIFICATION

PB 1 SCOPE

This specification covers the health and safety requirements to be met by the Contractor to ensure a continued safe and healthy environment for all workers, employees and subcontractors under his control and for all other persons entering the site of works.

This specification shall be read with the Occupational Health and Safety Act (Act No 85 and amendment Act No 181) 1993, and the corresponding Construction Regulations 2003, and all other safety codes and specifications referred to in the said Construction Regulations.

In terms of the OHSA Agreement in Section C1.2.4 of the Contract document, the status of the Contractor as mandatory to the Employer (client) is that of an employer in his own right, responsible to comply with all provisions of OHSA 1993 and the Construction Regulations 2003.

This safety specification and the Contractor's own Safety Plan as well as the Construction Regulations 2003, shall be displayed on site or made available for inspection by all workers, employees, inspectors and any other persons entering the site of works.

The following are possible risks associated with this project:

- a) Children and other uneducated people playing or entering dangerous work areas and the need to take pro-active steps to inform residents of the dangers and the adequately protect the works. The ISD consultant will assist the Contractor in communicating these issues to the target community however the responsibility for ensuring that adequate steps are taken in this regard remains that of the Contractor;
- b) Work at heights including the danger of falling from a height (E.g. whilst erecting steel portal) or heavy objects falling from above;
- c) Steps are to be taken to warn local residents of the dangers relating to the work especially in so far as children are concerned. The Employer will make the services of an ISD consultant available to the Contractor;
- d) All workmen are to be given proper training in the safe use of their tools, the tools used by others on the Contract and the dangers associated therewith;
- e) Dangers associated with the handling and lifting of heavy items; and
- f) The Contractor's plant shall be left in a safe and managed environment when not in use.

Additional risks may arise from specific methods of construction selected by the Contractor which are not necessary covered in the above.

PB 2 DEFINITIONS

For the purpose of this contract the following shall apply:

Employer where used in the contract documents and in this specification, means the Employer as defined in the General Conditions of Contract and it shall have the exact same meaning as **client** as defined in the Construction Regulations 2003. **Employer** and **client** is therefore interchangeable and shall be read in the context of the relevant document.

- a) **Contractor** wherever used in the contract documents and in this specification, shall have the same meaning as **Contractor** as defined in the General Conditions of Contract.

In this specification the terms **principal contractor** and **contractor** are replaced with **Contractor** and **subcontractor** respectively.

For the purpose of this contract the **Contractor** will, in terms of OHSA 1993, be the mandatory, without derogating from his status as an employer in his own right.

- b) “**Engineer**” and “**Employer Agent**” where used in this specification, means the Engineer as defined in the General Conditions of Contract. In terms of the Construction Regulations the Engineer may act as agent on behalf of the Employer (the client as defined in the Construction Regulations).

PB 3 TENDERS

The Contractor shall submit the following with his tender:

- a) a documented Health and Safety Plan as stipulated in Regulation 5 of the Construction Regulations. The Safety Plan must be based on the Construction Regulations 2003 and will be subject to approval by the Employer;
- b) a declaration to the effect that he has the competence and necessary resources to carry out the work safely in compliance with the Construction Regulations 2003;
- c) a declaration to the effect that he made provision in this tender for the cost of the health and safety measures envisaged in the Construction Regulations; and
- d) Failure to submit the foregoing with his tender, will lead to the conclusion that the Contractor will not be able to carry out the work under the contract safely in accordance with the Construction Regulations.

PB 4 NOTIFICATION OF COMMENCEMENT OF CONSTRUCTION WORK

After award of the contract, but before commencement of construction work, the Contractor shall, in terms of Regulation 3, notify the Provincial Director of the Department of Labour in writing if the following work is involved:

- a) The demolition of structures and dismantling of fixed plant of height of 3,0m or more;
- b) The use of explosives;
- c) Construction work that will exceed 30 days or 300 person-days;
- d) Excavation work deeper than 1,0m; or
- e) Working at a height greater than 3,0m above ground or landings

The notification must be done in the form of the pro forma included returnable documents, form W4 (Forms to be completed by Successful Tenderer) of the tender document.

A copy of the notification form must be kept on site, available for inspection by inspectors, Employer, Engineer, employees and persons on site.

PB 5 RISK ASSESSMENT

Before commencement of any construction work during the construction period, the Contractor shall have a risk assessment performed and recorded in writing by a competent person. (Refer Regulation 7 of the Construction Regulations 2003).

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

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

PB 6 APPOINTMENT OF EMPLOYEES AND SUBCONTRACTORS

PB 6.1 Health and Safety Plan

The Contractor shall appoint his employees and any subcontractors to be employed on the contract, in writing, and he shall provide them with a copy of his documented Health and Safety Plan, or relevant sections thereof. The Contractor shall ensure that all subcontractors and employees are committed to the implementation of his Safety Plan.

PB 6.2 Health and Safety Induction Training

The Contractor shall ensure that all employees under his control, including subcontractors and their employees, undergo a health and safety induction training course by a competent person before commencement of construction work.

No visitor or other person shall be allowed or permitted to enter the site of the works unless such person has undergone health and safety training pertaining to hazards prevalent on site.

The Contractor shall ensure that every employee on site shall at all times be in possession of proof of the health and safety induction training issued by a competent person prior to commencement of construction work.

PB 7 APPOINTMENT OF SAFETY PERSONNEL

PB 7.1 Construction Supervisor

The Contractor shall appoint a full-time Construction Supervisor with the duty of supervising the performance of the construction work.

He may also have to appoint one or more competent employees to assist the construction supervisor where justified by the scope and complexity of the works.

PB 7.2 Construction Safety Officer

Taking into consideration the size of the project and the hazards or dangers that can be expected, the Contractor shall appoint in writing a full-time or part-time **Construction Safety Officer** if so decided by the Inspector of the Department of Labour. The Safety Officer shall have the necessary competence and resources to perform his duties diligently.

Provision shall be made by the Contractor in his rates, to cover the cost of this dedicated construction safety officer appointed after award of the contract.

PB 7.3 Health and Safety Representative

In terms of **Section 17 and 18 of the Act (OHSA 1993)** the Contractor, being the employer in terms of the Act for the execution of the contract, shall appoint a **Health and Safety Representative** whenever he has more than 20 employees in his employment on the site of the works. The health and safety representative must be selected from employees who are employed in a full-time capacity at a specific workplace.

The number of health and safety representatives for a workplace shall be at least one for every 100 employees.

The function of health and safety representative(s) will be to review the effectiveness of health and safety measures, to identify potential hazards and major incidents, to examine causes of incidents (in collaboration with his employer, the Contractor), to investigate complaints by employees relating to health and safety at work, to make representations to the employer (Contractor) or inspector on general matters affecting the health and safety of employees, to inspect the workplace, plant, machinery etc. on a regular base, to participate in consultations

with inspectors and to attend meetings of the health and safety committee.

PB 7.4 Health and Safety Committee

In terms of Sections 17 and 18 of the Act (OHSA 1993) the Contractor (as employer), shall establish one or more health and safety committee(s) where there are two or more health and safety representatives at a workplace. The persons selected by the Contractor to serve on the committee shall be designated in writing.

The function of the health and safety committee shall be to hold meetings at regular intervals, but at least once every three months, to review the health and safety measures on the contract, to discuss incidents related to health and safety with the Contractor and the inspector, and to make recommendations regarding health and safety to the Contractor and to keep record of recommendations and reports made by the committee.

PB 7.5 Competent Persons

In accordance with the Construction Regulations the Contractor has to appoint in writing **competent persons** responsible for supervising construction work on each of the following work situations that may be expected on the site of the works.

- a) Risk assessment and induction training as described in Regulation 7 of the Construction Regulations;
- b) Fall protection as described in Regulation 8;
- c) Formwork and support work as described in Regulation 10;
- d) Excavation work as described in Regulation 11;
- e) Demolition work as described in Regulation 12;
- f) Scaffolding work as described in Regulation 14;
- g) Suspended platform operations as described in Regulation 15;
- h) Material hoists as described in Regulation 17;
- i) Batch plant operations as described in Regulation 18;
- j) Explosive powered tools as described in Regulation 19;
- k) Cranes as described in Regulation 20;
- l) Construction vehicle and mobile plant inspections on a daily basis by a
- m) competent person as described in Regulation 21(1);
- n) Control of all temporary electrical installation on the construction site as described in Regulation 22;
- o) Stacking and storage on construction sites as described in Regulation 26; and
- p) Inspections of fire equipment as described in Regulation 27.

A competent person may be appointed for more than one part of the construction work with the understanding that the person must be suitably qualified and able to supervise at the same time the construction work on all the work situations for which he has been appointed.

The appointment of competent persons to supervise parts of the construction work does not relieve the Contractor from any of his responsibilities to comply with **all** requirements of the Construction Regulations.

PB 8 RECORDS AND REGISTERS

In accordance with the Construction Regulations the Contractor is bound to keep records and registers related to health and safety on site for periodic inspection by inspectors, the Engineer, the Employer, trade union officials and subcontractors and employees. The following records and registers must be kept on site and shall be available for inspection at all times.

- a) A copy of the OHSA 1993 Construction Regulations 2003;
- b) A copy of this Health and Safety Specification;
- c) A copy of the Contractor's Health and Safety Plan (Regulation 4);

- d) A copy of the Notification of Construction Work (Regulation 3);
- e) A health and safety file in terms of Regulation 5(7) with inputs by the Construction Safety Officer (Regulation 6(7));
- f) A copy of the risk assessment described in Regulation 7;
- g) A full protection plan and the corresponding records of evaluation and training of employees working from elevated positions as described in Regulation 8;
- h) Drawings pertaining to the design of structures (Regulation 9(3)) and formwork and support work structures (Regulation 10(d)) must be kept on site;
- i) Pronouncement of the safety of excavations must be recorded in a register to be kept on site (Regulation 11(3)(h));
- j) A copy of the certificate of the system design for suspended platforms (Regulation 15(3));
- k) A notice must be affixed around the base towers of material hoists to indicate the maximum mass load, which may be carried at any one time by material hoists (Regulation 7(5));
- l) Maintenance records of material hoists and inspection results must be kept in a record book to be kept on site (Regulation 17(8));
- m) A record of any repairs to or maintenance of a batch plant must be kept on site (Regulations 18(9));
- n) A warning notice must be displayed in a conspicuous manner when and wherever an explosive powered tool is used (Regulation 19(2));
- o) A register for recording of findings by the competent person appointed to inspect construction vehicles and mobile plant (Regulation 21(1)(j)).

PB 9 CONTRACTORS RESPONSIBILITIES

For this contract the Contractor will be the mandatory of the Employer (Client), as defined in the Act (OHSA 1993), which means that the Contractor has the status of employer in his own right in respect of the contract.

The Contractor is therefore responsible for all the duties and obligations of an employer as set out in the Act (OHSA 1993) and the Construction Regulations 2003.

Before commencement of work under the contract, the Contractor shall enter into an agreement with the Employer (Client) to confirm his status as mandatory (employer) for the contract under consideration.

The Contractor's duties and responsibilities are clearly set out in the Construction Regulations 2003, and are not repeated in detail but some important aspects are highlighted hereafter, without relieving the Contractor of any of his duties and responsibilities in terms of the Construction Regulations.

a) Contractor's Position in Relation to the Employer (Client) (Regulation 4)

In accordance with Section 4 of the Regulations, the Contractor shall liaise closely with the Employer or the Engineer on behalf of the Employer, to ensure that all requirements of the Act and the Regulations are met and complied with.

b) The Principal Contractor and Contractor (Regulation 5)

The Contractor is in terms of the definition in Regulation 2(b) the equivalent of Principle Contractor as defined in the Construction Regulations, and he shall comply with all the provisions of Regulation 5.

Any subcontractors employed by the Contractor must be appointed in writing, setting out the terms of the appointment in respect of health and safety. An independent subcontractor shall however provide and demonstrate to the Contractor a suitable, acceptable and sufficiently documented health and safety plan before commencement

of the subcontract. In the absence of such a health and safety plan the subcontractor shall undertake in writing that he will comply with the Contractor's safety plan, the health and safety specifications of the Employer and the Construction Regulations 2003.

c) Supervision of Construction Work (Regulation 6)

The Contractor shall appoint the safety and other personnel and employees as required in terms of Regulation 6 and as set out in paragraph 7 above. Appointment of those personnel and employees does not relieve the Contractor from any of the obligations under Regulation 6.

d) Risk Assessment (Regulation 7)

The Contractor shall have the risk assessment made as set out in paragraph 7 above before commencement of the work and it must be available on site for inspection at all times. The Contractor shall consult with the health and safety committee or health and safety representative(s) etc. on a regular basis to ensure that all employees, including subcontractors under his control, are informed and trained by a competent person regarding health hazards and related work procedures.

No subcontractor, employee or visitor shall be allowed to enter the site of works without prior health and safety induction training, all as specified in Regulation 7.

e) Fall Protection (Regulation 8)

Fall protection, if applicable to this contract shall comply in all respects with Regulation 8 of the Construction Regulations.

f) Structures (Regulation 9)

The Contractor will be liable for all claims arising from collapse or failure of structures if he failed to comply with all the specifications, project specifications and drawings related to the structures, unless it can be proved

That such collapse or failure can be attributed to faulty design or insufficient design standards on which the specifications and the drawings are based.

In addition the Contractor shall comply with all aspects of Regulation 9 of the Construction Regulations.

g) Formwork and Support Work (Regulation 10)

The Contractor will be responsible for the adequate design of all formwork and support structures by a competent person.

All drawings pertaining to formwork shall be kept on site and all equipment and materials used in formwork, shall be carefully examined and checked for suitability by a competent person.

The provisions of Regulation 10 of the Construction Regulations shall be followed in every detail.

h) Excavation Work (Regulation 11)

It is essential that the Contractor shall follow the instructions and precautions in the Standard Specifications and Project Specifications as well as the provisions of the Construction Regulations to the letter as unsafe excavations can be a major hazard on any construction site. The Contractor shall therefore ensure that all excavation work is carried out under the supervision of a competent person, that inspections are carried out by a Professional Engineer or Technologist, and that all work is done in such a manner that no hazards are created by unsafe excavations and working conditions.

Supervision by a competent person will not relieve the Contractor from any of his duties and responsibilities under Regulation 11 of the Construction Regulations.

i) Demolition Work (Regulation 12)

Whenever demolition work is included in a contract, the Contractor shall comply with all the requirements of Regulation 12 of the Construction Regulations. The fact that a competent person has to be appointed by the Contractor does not relieve the Contractor from any of his responsibilities in respect of safety of demolition work.

j) Tunnelling (Regulation 13)

The Contractor shall comply with Regulation 13 wherever tunnelling of any kind is involved.

k) Scaffolding (Regulation 14)

The Contractor shall ensure that all the provisions of Regulation 14 of the Construction Regulations are complied with. [Note: Reference in the Regulations to "Section 44 of the Act" should read "Section 43 of the Act"].

l) Suspended Platforms (Regulation 15)

Wherever suspended platforms will be necessary on any contract, the Contractor shall ensure that copies of the system design issued by a Professional Engineer are submitted to the Engineer for inspection and approval. The Contractor shall appoint competent persons as supervisors and competent scaffold erectors, operators and inspectors and ensure that all work related to suspended platforms are done in accordance with Regulation 15 of the Construction Regulations.

m) Boatswain's Chain (Regulation 16)

Where boatswain's chains are required on the construction site, the Contractor shall comply with Regulation 16.

n) Material Hoists (Regulation 17)

Wherever applicable, the Contractor shall comply with the provisions of Regulation 17 to the letter.

o) Batch Plants (Regulation 18)

Wherever applicable, the Contractor shall ensure that all lifting machines, lifting tackle, conveyors, etc. used in the operation of a batch plant shall comply with, and that all operators, supervisors and employees are strictly held to the provisions of Regulation 18. The Contractor shall ensure that the General Safety Regulations (Government Notice R1031 of 30 May 1986), the Driven Machinery Regulations (Government Notice R295 of 26/2/1988) and the Electrical Installation Regulations (Government Notice R2271 of 11/10/1995) are adhered to by all involved.

In terms of the Regulations, records of repairs and maintenance shall be kept on site.

p) Explosive Powered Tools (Regulation 19)

The Contractor shall ensure that, wherever explosive-powered tools are required to be used, all safety provisions of Regulation 19 are complied with.

It is especially important that warning notices are displayed and that the issue and return

of cartridges and spent cartridges be recorded in a register to be kept on site.

q) Cranes (Regulation 20)

Wherever the use of tower cranes becomes necessary, the provisions of Regulation 20 shall be complied with.

r) Construction Vehicles and Mobile Plant (Regulation 21)

The Contractor shall ensure that all construction vehicles and plant are in good working condition and safe for use, and that they are used in accordance with their design and intended use. The vehicles and plant shall only be operated by workers or operators who have received appropriate training, all in accordance with all the requirements of Regulation 21.

All vehicles and plant must be inspected on a daily basis, prior to use, by a competent person and the findings must be recorded in a register to be kept on site.

s) Electrical Installation and Machinery on Construction Sites (Regulation 22)

The Contractor shall comply with the Electrical Installation Regulations (Government Notice R2920 of 23 October 1992) and the Electrical Machinery Regulations (Government Notice R1953 of 12 August 1993). Before commencement of construction, the Contractor shall take adequate steps to ascertain the presence of, and guard against dangers and hazards due to electrical cables and apparatus under, over or on the site.

All temporary electrical installations on the site shall be under the control of a competent person, without relieving the Contractor of his responsibility for the health and safety of all workers and persons on site in terms of Regulation 22.

t) Use of Temporary Storage of Flammable Liquids on Construction (Regulation 23)

The Contractor shall comply with the provisions of the General Safety Regulations (Government Notice R1031 of 30 May 1986) and all the provisions of Regulation 23 of the Construction Regulations to ensure a safe and hazard-free environment to all workers and other persons on site.

u) Water Environments (Regulation 24)

Where construction work is done over or in close proximity to water, the provisions of Regulation 24 shall apply.

v) Housekeeping on Construction Sites (Regulation 25)

Housekeeping on all construction sites shall be in accordance with the provisions of the environment Regulations for workplaces (Government Notice R2281 of 16 October 1987) and all the provisions of Regulation 25 of the Construction Regulations.

w) Stacking and Storage on Construction Sites (Regulation 26)

The provisions for the stacking of articles contained in the General Safety Regulations (Government Notice R1031 of 30 May 1986) as well as all the provisions Regulation 26 of the Construction Regulations shall apply.

x) Fire Precautions on Construction Sites (Regulation 27)

The provisions of the Environmental Regulations for Workplaces (Government Notice R2281 of 16 October 1987) shall apply.

In addition the necessary precautions shall be taken to prevent the incidence of fires, to provide adequate and sufficient fire protection equipment, sirens, escape routes etc. all in accordance with Regulation 27 of the Construction Regulations.

y) Construction Welfare Facilities (Regulation 28)

The Contractor shall comply with the construction site provisions as in the Facilities Regulations (Government Notice R1593 of 12 August 1988) and the provisions of Regulation 28 of the Construction Regulations.

z) Non-compliance with the Construction Regulations 2003

The foregoing is a summary of parts of the Construction Regulations applicable to all construction projects.

The Contractor, as employer for the execution of the contract, shall ensure that all provisions of the Construction Regulations applicable to the contract under consideration are complied with to the letter.

Should the Contractor fail to comply with the provisions of the Regulations 3 to 28 as listed in Regulation 30, he will be guilty of an offence and will be liable, upon conviction, to the fines or imprisonment as set out in Regulation 30.

The Contractor is advised in his own interest to make a careful study of the Act and the Construction Regulations as ignorance of the Act and the Regulations will not be accepted in any proceedings related to non-conformance to the Act and the Regulations.

PB 10 MEASUREMENT AND PAYMENT

PB 10.1 Principles

It is a condition of this contract that Contractors, who submit tenders for this contract, shall make provision in their tenders for the cost of all health and safety measures during the construction process. All associated activities and expenditure are deemed to be included in the Contractor's tendered rates and prices.

a) Safety Personnel

The Construction Supervisor, the Construction Safety Officer, Health and Safety Representatives, Health and Safety Committee and Competent Persons referred to in clauses 7.1 to 7.5 shall be members of the Contractor's personnel, and no additional payment will be made for the appointment of such safety personnel.

b) Records and Registers

The keeping of health and safety-related records and registers as described in 8 is regarded as a normal duty of the Contractor for which no additional payment will be considered, and which is deemed to be included in the Contractor's tendered rates and prices.

PART C: ENVIRONMENTAL MANAGEMENT SPECIFICATION

PC.1 General

In order to ensure that the construction works is carried out in an environmentally sensitive matter, strict compliance to the Environmental Management Plan (EMP) guidelines is required. The purpose of the EMP is to:

- a) Encourage good management practices through planning and commitment to environmental issues.
- b) Provide rational and practical environmental guidelines to;
 - i. Minimise disturbance of the natural environment;
 - ii. Prevent pollution of land, air and water;
 - iii. Prevent soil erosion and facilitate re-vegetation.
- c) Adopt the best practicable means available to prevent or minimise adverse environmental impact;
- d) Develop waste management practices based on prevention, minimisation, recycling, treatment or disposal of wastes;
- e) Train employees and contractors with regard to environmental obligations.

PC.2 Training and Induction of Employees

The Contractor has a responsibility to ensure that all those people involved in the project are aware of and familiar with the environmental requirements for the project (this includes sub-contractors, casual labour, etc.). The CMP shall be part of the terms of reference for all contractors, sub-contractors and suppliers.

PC.3 Complaints Register and Environmental Incident Book

Any complaints received by the project team from the public will be recorded. The complaint should be brought to the attention of the site manager, who will respond.

The following information must be recorded:

- a) Time, date and nature of the complaint;
- b) Type of communication (telephone, letter etc.);
- c) Name, contact address and telephone number of the complainant;
- d) Response and investigation undertaken; and
- e) Actions taken and by whom.

All complaints received will be investigated and a response given to the complainant within 14 days.

All environmental incidents occurring on the site will be recorded. The following information will be provided:

- a) Time, date, location and nature of the incident;
- b) Actions taken and by whom.

PC.4 Site Cleanliness and Neatness

- a) Location of a construction camp is to be approved by the Engineer and is to be restored to its previous condition after completion of construction;
- b) The construction camp should preferably be fenced with a 1.8m bonnox fence or similar approved;
- c) All materials, equipment, plant and vehicles must be stored within the construction camp;
- d) A dedicated area must be made available for construction staff to change and store their personal belongings.

PC.5 Access

- a) Access to existing roads, schools, buildings, shops and residential properties must not be impeded during construction; and
- b) Access roads utilised by the Contractor must be maintained in good condition.

PC.6 Borrow Pits

- a) Mining authorisations (permits) for borrow pits must be obtained from the Department of Minerals and Energy (DME) in consultation with the Department of Water Affairs and Forestry (DWAF);
- b) Spoil dumps resulting from borrow pits must not interfere with any natural surface drainage;
- c) Borrow pits must be rehabilitated after use in accordance with the requirements of DME and DWAF.

PC.7 Dust Control / Air Quality

- a) Dust suppression measures must be implemented during construction by ensuring that all surfaces prone to dust generation are kept damp (e.g. use of water tanker);
- b) Ensure that vehicles and equipment are in good working conditions and that emissions are not excessive;
- c) Ensure that vehicles and equipment are in good working conditions and that emissions are not excessive;
- d) Special care must be taken in areas where the route passes close to schools and residential areas;
- e) The speed of construction vehicles must be reduced.

PC.8 Fauna

Contractor staff may not chase, catch or kill animals encountered during construction.

PC.9 Fire Prevention and Control

- a) Smoking is prohibited in the vicinity of flammable substances;
- b) The contractor must ensure that fire-fighting equipment is available on site, particularly where flammable substances are being stored or used, and that construction staff are aware of where it is kept and how it is operated;
- c) Fires started for comfort (warmth) are prohibited, due to the risk of veld fires and risk to adjacent property owner's lands.

PC.10 Grave Sites

Gravesites in close proximity to the road must not be disturbed during construction.

PC.11 Materials Handling and Spills Management

- a) Any hazardous materials to be used during construction (e.g. lime, fuel, paint, etc) are to be stored in a designated area at the campsite;
- b) The storage containers/facilities (including any diesel/petrol tanks) must be placed on an impermeable surface and surrounded by a bund wall, in order to ensure that accidental spillage does not pollute the environment;
- c) Workers must at all times be made aware of the health and safety risks associated with any hazardous substances used (e.g. smoking near fuel tanks), and must be provided with appropriate protective clothing/equipment in case of spillages or accidents;
- d) Ensure all staff and contractors undergo relevant training in the maintenance of equipment to prevent the accidental discharge or spill of fuel, oil, lubricants and other chemicals;
- e) Any spill of potentially hazardous materials must be cleaned up immediately (Potentially

- hazardous materials on site include paint, oil, grease, fuel, turpentine, etc.);
- f) The area of contaminated soil or spill must be deposited into the hazardous waste container(s);
- g) The contractor should keep Peat Sorb or a similar absorbent on site to clean up any spills. The absorbent must be stored in a designated area and be available for inspection;
- h) All spills are to be recorded in the environmental incident book.

PC.12 Noise

- a) Noise generating activities must be restricted to between 07h00 and 17h00 Monday to Friday, unless otherwise approved by the appropriate competent person in consultation with adjacent landowners/affected persons;
- b) All equipment, vehicles and machinery must be in good working condition and be equipped with sound mufflers if necessary;
- c) Construction staff must be trained and made aware of not creating unnecessary noise such as hooting and shouting.

PC.13 Pollution Control

- a) Soil and water pollution through usage of fuel, oil, paint, bitumen or other hazardous substances must be avoided;
- b) All construction vehicles are to be maintained in good working order so as to prevent soil or water pollution from oil, fuel or other leaks, and to reduce noise pollution.

PC.14 Rivers and Streams

- a) During construction of bridge structures, there must be no obstruction of the water flow of rivers and streams;
- b) Excavated material must not be stockpiled on or near riverbanks, in order to prevent sedimentation occurring;
- c) Erosion control measures must be employed both during and after construction;
- d) No impediments to natural surface water flow, other than approved erosion control measures, must occur.

PC.15 Safety

- a) Safety measures, such as detour signs, must be implemented during construction to ensure the safety of workers, pedestrians and drivers/passengers in vehicles in the vicinity of construction work;
- b) Special care must be taken in the vicinity of schools to ensure the safety of children wishing to cross the road under construction;
- c) The relevant signage (e.g. speed control signs) must be erected alongside the road during the operation phase in order to control traffic;
- d) Accommodation must be made for pedestrian pathways alongside the road during the construction and operation phases.

PC.16 Soil Management

- a) Stormwater drainage pipes must be installed alongside the road in all areas susceptible to soil erosion;
- b) Erosion should be minimised by the construction of meadow drains and the planting of indigenous vegetation on the side slopes and drains to reduce flow velocity of stormwater;
- c) Spoil from cuts may be used in existing erosion galleys;
- d) Stone pitching and gabions should be constructed at pipe culvert outlets.
- e) Accidental spills of contaminants onto the ground e.g. oil, concrete, fuel and chemicals should be removed together with the contaminated soil;
- f) If necessary an absorbent such as Peat Sorb should be used the aid in cleaning up the spill. The contaminated soil should be disposed of in an appropriate container, depending on its classification;

- g) Servicing and re-fuelling of vehicles must only be carried out at construction camp.

PC.17 Worker Conduct

Code of Conduct for Construction Personnel:

- a) Do not leave the construction site untidy and strewn with rubbish which will attract animal pests;
- b) Do not set fires;
- c) Do not cause any unnecessary, disturbing noise at the construction camp/site or at any designated worker collection/drop off points;
- d) Do not drive a construction-related vehicle under the influence of alcohol;
- e) Do not exceed the national speed limits on public roads or exceed the recommended speed limits on the site;
- f) Do not drive a vehicle which is generating excessive noise or gaseous pollution (noisy vehicles must be reported and repaired as soon as possible);
- g) Do not litter along the roadsides, including both the public and private roads;
- h) Do not pollute any water bodies (whether flowing or not);
- i) No member of the construction team is allowed to enter the areas outside the construction site.

PC.18 Traffic Disturbances and Diversions

- a) Any traffic diversions must be undertaken with the approval of all relevant authorities and in accordance with all relevant legislation;
- b) Wherever possible, traffic diversion must only take place on existing disturbed areas and remain within the existing road reserve;
- c) Traffic diversion routes must be rehabilitated after use.

PC.19 Vegetation

- a) Only vegetation falling directly on the route must be removed where necessary;
- b) Alien vegetation within the road reserve must be eradicated, and management measures must be implemented for future control of these species;
- c) Vegetation that has been removed from large areas (e.g. on traffic diversion routes) during construction must be replaced with indigenous vegetation after construction has been completed.

PC.20 Waste Management

- a) All general, non-hazardous waste must be placed in a skip container and disposed of at a registered waste disposal site;
- b) The contractor is to ensure that the portable toilet facilities at the campsite are properly maintained and in working order;
- c) No disposal, or leakage, of sewage must occur on or near the site;
- d) All hazardous waste (e.g. oil, paint, empty lime bags, contaminated wash water, etc) must be stored in leakproof containers and disposed of at a registered hazardous waste disposal site;
- e) The contents of waste storage containers must, under no circumstances, be emptied to the surrounding area. In general, littering, discarding or burying of any materials is not allowed on site or along the route;
- f) Adequate waste receptacles must be available at strategic points around the construction camp and site for all domestic refuse and to minimise the occurrence of littering;
- g) Concrete rubble must be collected and disposed of as directed by the Project Manager;
- h) Each working area must be cleared of litter and building waste (e.g. rubble, wood, concrete packets etc) on completion of the day's work;
- i) Any spill around the container(s) should be treated as per Section C11 and C16.

PART PD: JOINT VENTURE AGREEMENT SPECIFICATION

PD.1 CONDITION OF JOINT VENTURE AGREEMENT

It shall be a condition of this Bid that bids shall be accepted only from Bidders comprising a Joint Venture between an Established Contractor and an Emerging Contractor registered on the uPhongolo Municipality database, and that the value of work to be undertaken in terms of the Joint Venture by such an emerging contractor shall be not less than 30% of the Bid Sum including for contingencies, contract price adjustment and VAT.

PD.2 DEFINITIONS AND INTERPRETATIONS

The following words and expressions shall have the meanings indicated, except where the context otherwise requires.

Defined terms and words are, in general, signified in the text by the use of capital initial letters, but the absence of such letters does not necessarily signify that a term, or word, is not defined.

Unless the context clearly indicate a contrary intention, words importing the singular number shall include the plural and vice versa, and words importing any gender shall include the other genders, and words importing persons shall include corporate bodies and vice versa.

The following expressions shall have the meanings against each and cognate expressions shall bear corresponding meanings

a) Agreement

means the agreement between the Members of the Joint Venture and includes any relevant Documents prepared prior to the signing of the Agreement and appended thereto.

b) Management Committee

means the body established in terms of the Agreement to manage all aspects of the work of the Joint Venture in securing and executing the Contract and in meeting the provisions of the agreement.

c) Established Contractor

An established contractor shall mean a legally registered company that conducts its business as a contractor in the civil engineering construction sector and operated for more than 7 years in the specialist field of reinforced concrete and/or road layer works construction. It is a prerequisite that the established contractor be registered with the Construction Industry Development Board (CIDB) as a minimum designated 7CE graded contractor.

d) Emerging Contractor

An emerging contractor shall mean a legally registered company that conducts its business as a contractor in the civil engineering construction sector and which is registered on the database of the uPhongolo Local Municipality.

e) Open Joint Venture

Open joint venture shall mean the association between an established contractor and one or more emerging contractors under a joint venture agreement that clearly establishes the shareholding of each member of the joint venture. Equity shareholding is deemed to be the

split in financial earnings derived from certified works completed on this project. The joint venture agreement shall clearly set out the areas of work each member is expected to undertake and the income generated from that work. In the event of a necessary change to the agreed order of work then adjustments shall be made to the schedule of work for each member so that the original shareholding remains in place.

It is a minimum requirement that the work be split on an 80% / 20% basis between the established contractor and the Emerging Contractors.

PD.3 DUTIES OF THE ESTABLISHED CONTRACTOR

The duties of the established contractor shall be to:

- a) Provide mentorship and tutorship to his joint venture partner(s);
- b) Provide administrative support if needed;
- c) Supply any resources to complete the contract that his joint venture partner cannot provide cost effectively;
- d) Secure the required Performance Surety in the name of the joint venture;
- e) Secure adequate insurance cover for the cost of the works and public liability;
- f) Only the duty to mentor and tutor is intended to be a constant duty. The others are intended to be shared responsibilities for which the established contractor shall assume control only in the event of his joint venture partner's failure to meet its commitments. The joint venture agreement shall clearly set out each member's contribution towards the outcomes of the listed duties.

PD.4 JOINT VENTURE AGREEMENT

PD.4.1 Conditions of Pre-Contract Agreement

Each Bid for this contract shall be accompanied by a Pre-Contract Agreement which must be signed by all participants. Such an Agreement shall comprise of a comprehensive statement and **MUST** contain at least the following information:-

- a) The establishment of the Joint Venture;
- b) The name and address of the Joint Venture;
- c) The names and addresses of the companies forming the Joint Venture;
- d) The object of the Joint Venture;
- e) The Extent to which each Joint Venture party participated in the preparation of the Bid;
- f) The proportion of profits and losses to be borne by each party to the Joint Venture;
- g) The duration of the Agreement;
- h) The manner in which the costs of preparation of the Bid were shared between the Joint Venture parties;
- i) The proposed management structure for the Joint Venture;
- j) The participation of each party in arranging finance and resources both human and plant for the Joint Venture;
- k) The participation of each party in the provision of guarantees for the Joint Venture;
- l) The governing law for the Joint Venture;
- m) The Joint Venture Leader;
- n) A comprehensive listing and estimate of the work proposed to be undertaken by the Emerging Contractors Joint Venture participant;
- o) Any other information considered pertinent to the formation of the Joint Venture;
- p) A detailed plan indicating the proposed strategy the Established Contractor will undertake in providing the transfer of business, technical, financial and other skills to the joint venture partner.

PD.4.2 Formalization of the Joint Venture

On the award of the bid, the Joint Venture Agreement is to be formalised before commencement of the works.

PD.4.3 Nomination of Alternative Joint Venture Partner

If for some reason, the Emerging Contractor Joint Venture partner of the lowest acceptable joint venture wishes to withdraw from the joint venture agreement prior to award, the Established Contractor will be allowed the opportunity to nominate any other willing, registered Emerging Contractor from the uPhongolo Local Municipality's database, to fulfil the joint venture agreement. The nominated Emerging contractor will however be required to fulfil the joint venture agreement at the original bid rates.

PD.4.4 Management fee

The management fee charge by the lead partner to the joint venture shall not exceed 3% of the total contract revenue exclusive of value added tax. The management fee shall be deemed to be inclusive of all head office support and administration, audited management accounts and bid costs for the contract.

PD.4.5 Contract Management

The management of the Contract and the proper performance of the works shall be the responsibility of a management committee comprising of a minimum of one nominee from each party. The nominee of the joint venture leader shall chair the management committee and monthly meetings shall record and review among other issues the progress of the project and the monthly management accounts.

PD.4.6 Remuneration of Costs

The joint venture will reimburse each party for the provision of supervision, plant and equipment at the predetermined and agreed rates on a monthly basis. Plant and equipment owned by the joint venture partners shall have preference and the conditions of hire shall be predetermined prior to commencement of the contract. The payment of all other itemised costs such as diesel, materials, subcontractors and any Externally hired plant will be made through the joint venture account and shall not form part of the determination of the split of the profits made by the contract.

PD.4.7 Joint Venture Parties Responsibilities

Each party shall be responsible for compliance with the relevant legislation regarding compensation for occupation, injuries and diseases and for unemployment insurance in respect of its employees used in connection with the contract. Employer's common law liability insurance, motor vehicle liability insurance, contractor's equipment insurance, and such other insurances as is envisaged by the Contract in respect of all labour, motor vehicles, plant, equipment and materials supplied by it in connection with the execution of the Works.

Each party will provide the contract with the personnel and equipment / plant required to execute the works timeously and efficiently that they have available or would like to provide subject to agreement between the parties. The leader of the joint venture shall provide any and all performance bonds and guarantees, insurance requirements or performance obligations relating to the project at the cost of the joint venture.

The joint venture leader nominee shall be responsible and vested with the power to make decisions and bind the Joint Venture insofar as the Employer and other parties are concerned in relation to the Contract and the Works.

The management committee shall first consult with each other and agree on any intended actions to be taken by either party that may have an impact on the performance of the contract.

PD.4.8 Financial Administration

The joint venture shall maintain a banking account in the name of the Joint Venture and all revenue from the contract shall be deposited into the JV account. All cheques and other instruments drawn on that account shall be signed by a nominee from each party.

PD.5 ADJUDICATION OF BIDS

- a) Bids which **do not meet** the Joint Venture participation requirements stipulated above may not be considered for adjudication.
- b) Bids which **do meet** the Joint Venture participation requirements stipulated above shall be adjudicated in accordance with the provisions of the Bid Documents.
- c) It is a condition that valid Tax Clearance Certificates and CIDB Contractor Registration Numbers of all the **JV parties** must be submitted with the bid.

PART C4. SITE INFORMATION

The following site information is enclosed herewith:

C 4.1	LOCALITY PLAN
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C5. ANNEXURES

C.5.1 DRAWINGS

The drawings issued to tenders as part of the tender documents must be regarded as provisional and preliminary for the tenderer's benefit to generally assess the scope of work.

The work shall be carried out in accordance with the latest available revision of the drawings approved for construction.

At commencement of the contract, the Engineer shall deliver to the Contractor copies of the drawings and any instructions required for the commencement of the works. From time to time thereafter during the progress of the works, the Engineer may issue further drawings for construction purposes as may be necessary for adequate construction, completion and defects correction of the works.

All drawings and specifications and copies thereof remain the property of the Employer, and the Contractor shall return all drawings and copies thereof to the Employer at the completion of the contract.

The drawings listed in the table overleaf have been bound and issued as part of the tender document.

Tenderers are to ensure that they receive a complete set of the tender drawings and must immediately inform the Engineer of any drawings that are missing so that further copies can be issued.

LIST OF DRAWINGS ISSUED FOR TENDER

The following drawings are included with this document:

<u>Drawing Number</u>	<u>Description</u>
<u>Layout Drawings:</u>	
2020/03/06-L01	General Layout
<u>Longitudinal Drawings:</u>	
2020/03/06-L02	Typical Layout Plan
<u>Details Drawings:</u>	
2020/03/06-D01	Typical Road Layer Works and Specifications Details
2020/03/06-D02	Details of Construction Nameboard
2020/03/06-D03	Road Sign Erection Details and Road Signs
2020/03/06-D04	Details of Road Paint Markings
2020/03/06-D05	Accommodation for Traffic
2020/03/06-D06	Typical Pothole Repair Details