



GAUTENG PROVINCE
ROADS AND TRANSPORT
REPUBLIC OF SOUTH AFRICA

TENDER NO. DRT 26/07/2019

FOR

CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD), UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71 (PITTS AVENUE)

**PROCUREMENT DOCUMENT
(BASED ON GCC2015 THIRD EDITION)**

VOLUME 3

NOVEMBER 2020

ISSUED BY



GAUTENG PROVINCE
ROADS AND TRANSPORT
REPUBLIC OF SOUTH AFRICA

**Gauteng Province Roads and Transport,
Private Bag X83
Marshalltown
2107**

PREPARED BY:



**Building C
Knightsbridge
33 Sloane Street
Bryanston
2191
Tel: +27 (11) 361 1300**

Tenderer's Name:

Address

.....

Tel No **Fax**

CIDB Registration No.

B-BBEE Status Level

Total Financial Offer Including VAT R

Amount in words

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LIST OF CONTRACT DOCUMENTS

The following documents form part of this contract:

- Volume 1:** The General Conditions of Contract for Construction Works (2015, 3rd Edition) published by the South African Institution of Civil Engineering, which the contractor shall purchase himself. (See note 1 below).
- Volume 2:** The COLTO Standard Specifications for Road and Bridge Works for State Road Authorities (1998 edition), issued by the Committee of Land Transport Officials which the tenderer shall purchase himself. (See Note 2 below).
- Volume 3:** The Project Document, containing the tender notice, Conditions of Tender, Tender Data, Returnable Schedules, general and particular conditions of contract, project specifications, Pricing Schedule, Form of offer and Site Information is issued by the Employer (see note 3 below). The Employer's Form of Acceptance and any correspondence from the selected tenderer, performance security-demand guarantee and all addenda issued during the period of tender will also form part of this volume once a successful tenderer has been appointed.
- Volume 4:** The road works drawings (electronic copy).

Notes to tenderer:

1. Volume 1 is obtainable from South African Institution of Civil Engineering (SAICE), Private Bag X200, Halfway House, 1685. Tel: (011) 805-5947/48/53, Fax: (011) 805-5971, email: civilinfo@saice.org.za.
2. Volume 2 is obtainable from SAICE.
3. Volume 3 is issued at tender stage and contains the following files:
 - The full Project Document
 - The Returnable Forms
 - The Pricing Data

At contract stage Volume 3 will be a bound signed paper copy containing the following documents:

- Returnable Schedules relevant to the project
 - Agreements and Contract Data
 - Pricing Data
 - Scope of Work
 - Site Information
 - Annexures* Download from:
https://www.dropbox.com/s/jf651b298ab0qxf/DRT26-07-2019_Part%20C5_Annexures.zip?dl=0
4. Volume 4 is issued at tender stage (electronic copy)
Download from:
https://www.dropbox.com/s/ej3daj5dcnmhsrt/DRT26-07-2019_Volume%204_Tender%20Drawings.zip?dl=0

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THE TENDER

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T1.1 TENDER NOTICE AND INVITATION TO TENDER

Bidders must refer to the “**Tender Notice and Invitation to Tender**” as published and comply with all the requirements outlined in therein. Failure to comply with these requirements will result in bidders being disqualified.

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T1.2 TENDER DATA

The conditions of tender are the Standard conditions of tender as contained in the South African National Standard for Construction procurement Part 3, Edition 1, 2015 (SANS 10845-3:2015).

The Standard Conditions of Tender make several references to the tender data for details that apply specifically to this tender. The tender data shall have precedence in the interpretation of any ambiguity of inconsistency between it and the Standard Conditions of Tender.

Each item of data given below is cross-referenced to the Clause in the Standard Conditions of Tender to which it mainly applies.

Clause number	Data
3.1	<p>The Employer is Gauteng Province Roads and Transport, Roads Branch. The Employer's domicilium citandi et executandi (permanent physical business address) is:</p> <p>Life Centre Building 45 Commissioner Street Marshalltown, Johannesburg, 2001</p>
3.2	<p>The documents listed below will form part of this contract.</p> <p>The tender documents issued by the Employer comprise Volume 3 and 4. The Employer does not supply Volumes 1, 2 and 2A. Tenderers are to acquire their own copies of these documents.</p> <p>Volume 1: The General Conditions of Contract for Construction Works (2015, 3rd Edition) published by the South African Institution of Civil Engineering, is 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)</p> <p>Volume 2: The COLTO Standard Specifications for Roads and Bridge Works for State Road Authorities 1998, prepared by the Committee of Land Transport Officials, which the tenderer shall obtain from the South African Institution of Civil Engineering.</p> <p>Volume 2A: Supplementary notes to tenderers and supplementary specifications and supplementary forms for State Road Authorities in respect of the employment of emerging contractors and engagement of labour.</p> <p>Volume 3: Project Document issued by the employer consists of the following:</p> <p>The Tender</p> <p><i>Part T1: Tendering Procedures</i></p> <p>T1.1 Tender notice and invitation to Tender</p> <p>T1.2 Tender data</p> <p><i>Part T2: Returnable Documents</i></p> <p>T2.1 Returnable schedules for Tender evaluation</p> <p>T2.2 Other documents required for Tender evaluation</p> <p>T2.3 Returnable Schedules that will be incorporated into the Contract</p>

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Clause number	Data
	<p>The Contract</p> <p><i>Part C1: Agreements and contract data</i></p> <p>C1.1 Form of offer and acceptance</p> <p>C1.2 Agreement in terms of OHS Act</p> <p>C1.3 Form of Guarantee</p> <p>C1.4 Contract Data</p> <p><i>Part C2: Pricing data</i></p> <p>C2.1 Pricing instructions</p> <p>C2.2 Bills of Quantities</p> <p><i>Part C3: Scope of Works</i></p> <p>C3.1 Description of Work</p> <p>C3.2 Engineering</p> <p>C3.3 Procurement, Local Labour and Training</p> <p>C3.4 Construction</p> <p>C3.5 Management</p> <p><i>Part C4: Site Information</i></p> <p>C4.1 Extract from the Transport Infrastructure Act 2001 (Act No 8 of 2001)</p> <p>C4.2 Site Information - General</p> <p>C4.3 Locality Plan</p> <p><i>Part C5: ANNEXURES:</i></p> <p>Annexure A – Environmental Authorisation</p> <p>Annexure B – Water Use License</p> <p>Annexure C – Environmental Management Plan</p> <p>Annexure D – Geotechnical Report</p> <p>Annexure E – Baseline Risk Assessment</p> <p>Annexure F – Health and Safety Specification</p> <p>Annexure G – COVID 19 Construction Site Management Procedures</p> <p>Volume 4: The drawings : Issued in electronic (PDF) format for tender purposes.</p>
3.4	<p>The employer's agent is:</p> <p>Name : WSP Group Africa (Pty) Ltd</p> <p>Address : Building C, Knightsbridge 33 Sloane Street Bryanston 2191</p> <p>Tel : +27 (11) 361 1300</p> <p>e-mail : K73@wsp.com</p>

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Clause number	Data
4.1.1	Bidders must refer to the “ Tender Notice and Invitation to Tender ” as published and comply with all the requirements outlined in therein. Failure to comply with these requirements will result in bidders being disqualified.
4.2	The Employer will not compensate the tenderer for any costs incurred in the preparation and submission of a tender offer, including the costs of attending the site visit and clarification meeting(s) and any testing necessary to demonstrate that aspects of the offer complies with requirements.
4.6	Failure to apply instructions contained in addenda may render a tenderer’s offer non-responsive in terms of Condition of Tender 5.8.
4.7	<p>The arrangements for a compulsory site briefing are outlined in the published “Tender Notice and Invitation to Tender”</p> <p>The onus rests with the tenderer to ensure that the person attending the compulsory site briefing on its behalf is appropriately qualified to understand all directives and clarifications given at that meeting.</p> <p>The compulsory site briefing meeting shall start strictly at the time advertised. Only then will the Employer’s Representative circulate the attendance register for completion by those present. During this time latecomers may enter and complete the register. On completion by all present the Employer’s Representative will:</p> <p>(a) read out from the collected lists calling for confirmation that all have signed; (b) close the door and not allow any latecomers to enter.</p> <p>The signature on the attendance register shall be considered proof that the tenderer attended the whole compulsory site briefing and was able to hear and understand all directives and clarifications given at the meeting. Tenderers should complete the attendance register neatly and legible. The Department cannot be held responsible for the failure of communication delivery due poorly and incorrectly written information on the attendance register by tenderers.</p> <p>Tenderers must sign the attendance register in the name of the tendering, entity. Addenda will be issued to and tenders will be received only from those tendering entities appearing on the attendance list.</p>
4.11	The Procurement document as issued shall NOT be taken apart for purpose of submitting the Tender.
4.12	Alternative tender offers will not be considered.
4.13.1	Submit one (1) tender only , either as single entity or as a JV / Consortium.
4.13.4	The tenderer is required to comply and submit the documents outlined in the published “ Tender Notice and Invitation to Tender ”.

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Clause number	Data
4.13.5	<p>The employer's address for delivery of tender offers and identification details to be shown on each tender offer package are:</p> <p>Location of tender box: GROUND FLOOR, LIFE CENTRE BUILDING, 45 COMMISSIONER STREET, MARSHALLTOWN, JOHANNESBURG.</p> <p>Identification details: TENDER No. DRT 26/07/2019 : CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD), UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71 (PITTS AVENUE)</p> <p>It is in the tenderer's interest to ensure that the delivery of the tender offer is recorded in the Employer's tenders received register.</p>
4.15	Closing date and time for submission of tender offers is as published in the " Tender Notice and Invitation to Tender ".
4.16	The tender offer's validity period is 90 days .
4.18.1	Any additional information requested under this clause must be provided within the time frame stated in the request.
4.20	The Tenderer is required to submit with this tender a Letter of Intent from an approved, Guarantor undertaking to provide the guarantees in the format included herewith (Form T2.2 G).
5.4	The time and location for opening of tender offers is directly after the tender closing as outlined in the published " Tender Notice and Invitation to Tender "
5.5	A two-envelope procedure will not be followed.
5.7	In the event of disqualification, the Employer may, at its sole discretion, impose a specified period during which tender offers will not be accepted from the offending tenderer and report same to CIDB and National Treasury.
5.9	<p>The tenderer is required to submit balanced unit rates for rate only items in the pricing schedule. The rates submitted for these items will be taken into account in the evaluation of tenders.</p> <p>Tenderers will not be afforded the opportunity to accept corrected total of prices if errors or omissions are identified during the tender evaluation.</p> <p>Tenderers will be expected to confirm tender offer as tendered and correct the errors as specified in the Clause 5.9 d) and e), or the tender will be rejected.</p>
5.11.1	General

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Clause number	Data
	<p>Gauteng Roads and Transport, Roads Branch is committed to transformation, employment equity and staff advancement, and to supporting black economic empowerment. The primary criteria in selection, apart from costs, will be the degree to which the tenderer can demonstrate appropriate knowledge and expertise. A further consideration will naturally be the equity profile of the tenderer in management, ownership and implementation.</p> <p>The tender evaluation will be in accordance with the criteria published in the “Tender Notice and Invitation to Tender”</p> <p>The procedure for the evaluation of responsive tenders is Method 3.</p>
5.11.2	<p>Method 1: Financial offer</p> <p>This method shall not apply to this tender.</p>
5.11.3	<p>Method 2: Financial offer and quality</p> <p>This method shall not apply to this tender.</p>
5.11.4	<p>Method 3: Financial offer and preference</p> <p>Method 3 shall apply to this tender. Refer to Tender Data items 5.11.7, 5.11.8 and 5.11.9.</p>
5.11.5	<p>Method 4: Financial offer, quality and preference</p> <p>This method shall not apply to this tender.</p>
5.11.7	<p>Scoring financial offers</p> <p>Score the financial offers using the following formula:</p> $N_{FO} = W_1 \times A$ <p>N_{FO} is the number of tender evaluation points awarded for the financial offer;</p> <p>W_1 is the maximum possible number of tender evaluation points awarded for the financial offer:</p> <ul style="list-style-type: none"> - 90 where the financial value inclusive of VAT of all responsive tenders received have a value in excess of R 50 000 000,00 - 80 where the financial value inclusive of VAT of one or more responsive tenders received equals or is less than R 50 000 000,00. <p>A The value of A will be calculated utilizing the following formula:</p> $A = (1 - (P - P_m) / P_m)$ <p>Where:</p> <p>P is the comparative offer of the tender offer under consideration; and</p> <p>P_m is the comparative offer of the most favorable comparative offer.</p> <p>In the event that the calculated value is negative, the allocated score shall be 0.</p>
5.11.8	<p>Scoring preferences</p>

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Clause number	Data
	<p>Up to 100 minus W_1 tender evaluation points will be awarded to tenderers who submit responsive tenders and who are found to be eligible for the preference claimed.</p> <p>Points are based on a tenderer's scorecard measured in terms of the Broad-Based Black Economic Empowerment Act (B-BBEE, Act 53 of 2003) as Amended by the Broad-Based Black Economic Empowerment Amendment Act, 2013 (Act 46 of 2013) and the Regulations (2017) to the Preferential Procurement Policy Framework Act (PPPFA, Act 5 of 2000).</p> <p>In terms of Preferential Procurement Regulation of January 2017, the department will be applying the 90/10 preference point system. The B-BBEE Act requires that tenderers submit original and valid B-BBEE Status Level Verification Certificates or certified copies thereof to substantiate their B-BBEE rating claims.</p> <p>Eligibility for preference points is subject to the following conditions:</p> <ul style="list-style-type: none"> • A tenderer's scorecard shall be measured in terms the latest amended Construction Sector Code in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act, (Act No. 53 of 2003) as amended by the B-BBEE Act 46 of 2013 as issued by the Department of Trade and Industry; and • The Scorecard shall be submitted as a certificate attached to Returnable Schedule Form T2.1 H (SBD 6.1); and • The certificate shall: <ul style="list-style-type: none"> - be an original or an original certified copy of the original; and - have been issued by a verification agency accredited by the South African National Accreditation System (SANAS); or - be in the form of a sworn affidavit or a certificate issued by the Companies and Intellectual Property Commission in the case of an Exempted Micro Enterprise (EME) or Qualifying Small Enterprise (QSE); and • The Verification Certificate must be valid at the tender closing date; and • The date of issue of the certificate must be less than twelve (12) months prior to the tender closing date; and • Compliance with any other information requested to be attached to Returnable Schedule Form T2.1 H (SBD 6.1); • In the event of a Joint Venture (JV), a project specific consolidated B-BBEE Verification Certificate in the name of the JV shall be submitted, as well as a valid B-BBEE Verification Certificate for each member of the JV; and • A tenderer may not be awarded points for B-BBEE status level of contributor if the tender documents indicate that the tenderer intends subcontracting more than 25% of the value of the contract to any other person not qualifying for at least the points that the tenderer qualifies for, unless the intended subcontractor is an EME that has the capability to execute the subcontract.
5.13	<p>The conditions stated in Clauses 5.13(a) to (f) of the Conditions of Tender as well as the following additional Clauses 5.13(g) to (p) shall be applied as objective criteria in terms of Section 2(1)(f) of the Preferential Procurement Policy Framework Act, 2000 and as compelling and justifiable reasons in terms of Conditions of Tender, Clause 5.13:</p>

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	<p>g) the Tenderer is registered with the Construction Industry Development Board in an appropriate contractor grading designation;</p> <p>i) the Tenderer or any of its directors is not listed in the Register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector;</p> <p>j) the Tenderer has not over the last five years failed to satisfactorily perform a contract for the Employer and has been issued with a written notice to this effect, and has not abused the Employer's Supply Chain Management System;</p> <p>k) the Tenderer submits a Tax Compliance Status PIN</p> <p>l) the Tenderer is registered on the National Centralised Supplier Database (CSD).</p> <p>m) the Tenderer has completed the compulsory Enterprise Questionnaire and there are no conflicts of interest which may impact on the Tenderer's ability to perform the contract in the best interests of the Employer or potentially compromise the tender process. Persons in the employ of the State are not permitted to submit tenders or participate in the contract;</p> <p>n) the Tenderer is registered and in good standing with the Compensation Fund or with a licensed Compensation Insurer; and</p> <p>o) the Employer is reasonably satisfied that the Tenderer has, in terms of the Construction Regulations 2014 and the OHS Act 1993 issued, the necessary competencies and resources to carry out the works safely</p> <p>p) the Employer is reasonably satisfied that the Tenderer has properly and comprehensively completed the information required in the Project Document and the Addenda, and has, inter alia properly completed the offer in the "Form of Offer and Acceptance" and the Bill of Quantities.</p> <p>In addition to the requirements under paragraph (b) of the Conditions of Tender, in the event that a due diligence is performed as part of the tender evaluation, the due diligence report will be used to evaluate the tenderer's ability to perform the contract as stated in sub-clause (b).</p>
5.17	The number of paper copies of signed contract to be provided by the Employer is one (1) .
5.19	All bidder requests shall be in writing.
Additional conditions of tender clauses:	
Clause number	Data
3.7	<p>Jurisdiction</p> <p>Unless stated otherwise in the Tender Data, each tenderer and the Employer undertake to accept the jurisdiction of the law courts of the Republic of South Africa.</p>

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T2.1 A CERTIFICATE OF ATTENDANCE AT CLARIFICATION MEETING

This is to certify that

.....(Tenderer)

of

.....(address)

was represented by the person(s) named below at the Compulsory meeting held for all tenderers at

.....(location) on.....(date), starting at.....

We acknowledge that the purpose of the meeting was to acquaint ourselves with the site of the works and / or matters incidental to doing the work specified in the tender documents in order for us to take account of everything necessary when compiling our rates and prices included in the tender.

Particulars of person(s) attending the meeting:

Name Signature.....

Capacity.....

Name..... Signature.....

Capacity.....

Attendance of the above persons at the meeting is confirmed by the employer's representative/ employer's agent, namely:

Name..... Signature.....

Capacity..... Date & Time.....

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T2.1 B CERTIFICATE OF AUTHORITY

Indicate the status of the tenderer by ticking the appropriate box hereunder. The tenderer must complete the certificate set out below for the relevant category.

A Company	B Partnership	C Joint Venture	D Sole Proprietor	E Close Corporation
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

A. Certificate for company

I,....., chairperson of the board of directors of hereby confirm that by resolution of the board (copy attached) taken on20...., Mr/Mrs.....acting in the capacity of.....was authorised to sign all documents in connection with this tender and any contract resulting from it on behalf of the company.

As witness

1.....
.....
Chairman

2.....
.....
Date

B. Certificate of partnership

We, the undersigned, being the key partners in the business trading as hereby authorise Mr/Mrs....., acting in the capacity of.....to sign all documents in connection with the tender for Contract.....and any contract resulting from it on our behalf.

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NAME	ADDRESS	SIGNATURE	DATE

NOTE: This certificate is to be completed and signed by all of the key partners upon whom rests the direction of the affairs of the Partnership as a whole.

C. Certificate for Joint Venture

We, the undersigned, are submitting this tender offer in Joint Venture and hereby authorise Mr/Mrs....., authorised signatory of the company,

acting in the capacity of lead partner, to sign all documents in connection with the tender offer for Contract.....and any other contract resulting from it on our behalf.

This authorisation is evidenced by the attached power of attorney signed by legally authorised signatories of all the partners to the Joint Venture.

NAME OF FIRM	ADDRESS	AUTHORISING SIGNATURE, NAME & CAPACITY
Lead partner		

D. Certificate for sole proprietor

I,, hereby confirm that I am the sole owner of the business trading as.....

As Witness:

1.....
Signature: Sole owner

2.....
Date

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E. Certificate for Close Corporation

We, the undersigned, being the key members in the business trading as.....hereby authorise Mr/Mrs.....

Acting in the capacity of....., to sign all documents in connection with the tender for Contract.....and any contract resulting from it on our behalf.

NAME	ADDRESS	SIGNATURE	DATE

NOTE: This certificate is to be complete and signed by all the key members upon whom rests the direction of the affairs of the Close Corporation as a whole

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T2.1 C SCHEDULE OF PROPOSED SUBCONTRACTORS

- The Bidder must sub-contract a minimum of 30% of the contract price. However, some items (such as provisional sums, prime cost amounts and VAT, as allowed in terms of National Treasury directives and/or guidelines) may be excluded, in order to assess the financial reward that flows to each party as contemplated in terms of S.9(2) of the PPR 2017.
- The Bidder must attach (as part of the submission) the sub-contractor’s valid original or valid certified copy of a sworn affidavit commissioned by a Commissioner of Oaths or B-BBEE status level certificate from a SANAS accredited agency.
- Those sub-contractors who will be involved in the execution of construction works must be registered with the CIDB and the value of their sub-contracts must be in line with their respective CIDB grading (proof of CIDB grading or CRS number to be attached for each sub-contractor).

In completing this form, the bidders MUST note that a minimum of 30% sub-contracting will be evaluated as part of the mandatory criteria as outlined in the published Tender Notice and Invitation to Tender.

No	Name and address of proposed Subcontractor	Company Registration No	B-BBEE Status Level	CIDB Registration Number	Description of Work to be executed by Subcontractor	Value of the proposed Subcontract (Excl VAT)
1						
2						
3						
4						

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	Name and address of proposed Subcontractor	Company Registration No	B-BBEE Status Level	CIDB Registration Number	Description of Work to be executed by Subcontractor	Value of the proposed Subcontract (Excl VAT)
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						

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	Name and address of proposed Subcontractor	Company Registration No	B-BBEE Status Level	CIDB Registration Number	Description of Work to be executed by Subcontractor	Value of the proposed Subcontract (Excl VAT)
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						

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A	Sum of intended Sub-contracts (Excluding VAT)	(Sum of above)				R
B	Total Tender Sum from the Summary of Schedules (Excluding VAT)					R
C	Less Total of Provisional Sums and PC Sums included in the Tender (Excluding VAT)					R28 130 000.00
D	Tender Sum for calculating preferential procurement target (Excluding VAT)	(B - C) =				R
E	Percentage (%) of contract Tenderer intends to subcontract (Minimum 30%)	(A / D) =				%

Signed..... Date.....

Name..... Position.....

Tenderer.....

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T2.1 D SCHEDULE OF PLANT AND EQUIPMENT

The following are lists of major items of relevant equipment that I/we presently own or lease and will have available for this contract or will acquire or hire for this contract is my/our tender is accepted.

(a) Details of major equipment that is owned by and immediately available for this contract.

QTY	Description, size, capacity, etc.

Attach additional pages if more space is required.

(b) Details of major equipment that will be hired, or acquired for this contract if my/our tender is acceptable

QTY	Description, size, capacity, etc.

Attach additional pages if more space is required

Note:

Quality points will be awarded for the tenderer’s plant and equipment as described in Clause No. 5.11.9 of the Tender Data. The tenderer can qualify for a maximum of 15 points.

Signed..... Date.....

Name..... Position.....

Tenderer.....

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T2.1 E SCHEDULE OF RECENTLY COMPLETED AND CURRENT CONTRACTS

- (i) List not more than seven contracts completed since the year 2000.
- (ii) If Quality Points are to be claimed, clearly number and attach to this page, certified copies of Certificates of Completion for projects that are relevant and similar to the project that is the subject of this tender. Write the attached certificates' numbers in the last column of the table below.

Contract title:	Employer (name) & Place (town)	Reference person Name & Tel	Contract Amount (R million)	Contract Period (months)	Date of Completion*	Cert of Completion's No
1.		Name				
		Tel				
2.		Name				
		Tel				
3.		Name				
		Tel				
4.		Name				
		Tel				
5.		Name				

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Contract title:	Employer (name) & Place (town)	Reference person Name & Tel	Contract Amount (R million)	Contract Period (months)	Date of Completion*	Cert of Completion's No
		Tel				

(iii) **List all current contracts that are not complete at the time of tender preparation**

Project:	Employer (name) Place (town)	Reference person's Name & Tel	Contract Amount (R million)	Contract Period (months)	Date of Commencement & Expected Completion*
1.					
2.					
3.					
4.					
5.					
6.					

Note:

Quality points will be awarded for the tenderer's experience as described in Clause No. 5.11.9 of the Tender Data. The tenderer can qualify for a maximum of 40 points.

Signed..... Date

Name..... Position.....

Tenderer.....

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T2.1 F RECORD OF ADDENDA TO TENDER DOCUMENTS

We confirm that the following communications received from the employer before the submission of this tender offer, amending the tender documents, have been taken into account in this tender offer:

Attach copies of all Addenda received to this page.

	Date	Title of Details
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Attach additional pages if more space is required.

Signed..... Date

Name..... Position.....

Tenderer.....

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T2.1 G DEVIATIONS OR QUALIFICATIONS BY THE TENDERER

Note: Tenderers will be declared to be non-responsive should any proposed deviation or qualification, save for where alternative tender offers are permitted in terms of the Tender Data, in the employer's opinion:

- a) detrimentally affect the scope, quality, or performance of the works, services or supply identified in the Scope of Work,
- b) change the employer's or the tenderer's risks and responsibilities under the contract, or
- c) affect the competitive position of other tenderers presenting responsive tenders, if it were to be rectified.

Note that only those deviations or qualifications that are recorded in the Schedule of Deviations will form part of the contract, as comprehensively stated in the Form of Offer and Acceptance (Part C1).

PAGE	DESCRIPTION

SIGNED ON BEHALF OF TENDERER:

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T2.1 H (SBD 6.1) - PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2017

This preference form must form part of all tenders invited. It contains general information and serves as a claim form for preference points for Broad-Based Black Economic Empowerment (B-BBEE) Status Level of Contribution.

NB: BEFORE COMPLETING THIS FORM, TENDERERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF B-BBEE, AS PRESCRIBED IN THE PREFERENTIAL PROCUREMENT REGULATIONS, 2017.

1. GENERAL CONDITIONS

1.1 The following preference point systems are applicable to all tenders:

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

1.2 The value of this tender is estimated to exceed R50 000 000 (all applicable taxes included) and therefore the **90/10** system shall be applicable.

1.3 Preference points for this bid shall be awarded for:

- (a) Price; and
- (b) B-BBEE Status Level of Contribution.

1.4 The maximum points for this bid are allocated as follows:

	POINTS
PRICE	90
B-BBEE STATUS LEVEL OF CONTRIBUTOR	10
Total points for Price and B-BBEE must not exceed	100

1.5 Failure on the part of a bidder to submit proof of B-BBEE Status level of contributor together with the bid, will be interpreted to mean that preference points for B-BBEE status level of contribution are not claimed.

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

2. DEFINITIONS

- (a) **“B-BBEE”** means broad-based black economic empowerment as defined in section 1 of the Broad-Based Black Economic Empowerment Act;
- (b) **“B-BBEE status level of contributor”** means the B-BBEE status of an entity in terms of a code of good practice on black economic empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;
- (c) **“bid”** means a written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of goods or services, through price quotations, advertised competitive bidding processes or proposals;
- (d) **“Broad-Based Black Economic Empowerment Act”** means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);
- (e) **“EME”** means an Exempted Micro Enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9 (1) of the Broad-Based Black Economic Empowerment Act;
- (f) **“functionality”** means the ability of a tenderer to provide goods or services in accordance with specifications as set out in the tender documents.
- (g) **“prices”** includes all applicable taxes less all unconditional discounts;
- (h) **“proof of B-BBEE status level of contributor”** means:
- B-BBEE Status level certificate issued by an authorized body or person;
 - A sworn affidavit as prescribed by the B-BBEE Codes of Good Practice;
 - Any other requirement prescribed in terms of the B-BBEE Act;
- (i) **“QSE”** means a qualifying small business enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9 (1) of the Broad-Based Black Economic Empowerment Act;
- (j) **“rand value”** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;

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3. POINTS AWARDED FOR PRICE

3.1 THE 80/20 OR 90/10 PREFERENCE POINT SYSTEMS

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

$$\begin{array}{ccc}
 \mathbf{80/20} & \mathbf{or} & \mathbf{90/10} \\
 P_s = 80 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right) & \mathbf{or} & P_s = 90 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right)
 \end{array}$$

Where

Ps = Points scored for price of bid under consideration

Pt = Price of bid under consideration

Pmin = Price of lowest acceptable bid

4. POINTS AWARDED FOR B-BBEE STATUS LEVEL OF CONTRIBUTOR

4.1 In terms of Regulation 6 (2) and 7 (2) of the Preferential Procurement Regulations, preference points must be awarded to a bidder for attaining the B-BBEE status level of contribution in accordance with the table below:

B-BBEE Status Level of Contributor	Number of points (90/10 system)	Number of points (80/20 system)
1	10	20
2	9	18
3	6	14
4	5	12
5	4	8
6	3	6
7	2	4
8	1	2
Non-compliant contributor	0	0

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5. BID DECLARATION

5.1 Bidders who claim points in respect of B-BBEE Status Level of Contribution must complete the following:

6. B-BBEE STATUS LEVEL OF CONTRIBUTOR CLAIMED IN TERMS OF PARAGRAPHS 1.4 AND 4.1

6.1 B-BBEE Status Level of Contributor: = (maximum of 10 or 20 points)
(Points claimed in respect of paragraph 7.1 must be in accordance with the table reflected in paragraph 4.1 and must be substantiated by relevant proof of B-BBEE status level of contributor.)

7. SUB-CONTRACTING

(N.B In completing this section of this form, the Tenderers MUST note that a minimum of 40% will be subcontracted, of which 30 % will be evaluated as part of the mandatory prequalification criteria as contain on the tender notice.)

7.1 Will any portion of the contract be sub-contracted?

(Tick applicable box)

YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
-----	--------------------------	----	--------------------------

7.1.1 If yes, indicate:

- i) What percentage of the contract will be subcontracted.....%
- ii) The name of the sub-contractor.....
- iii) The B-BBEE status level of the sub-contractor.....
- iv) Whether the sub-contractor is an EME or QSE

(Tick applicable box)

YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
-----	--------------------------	----	--------------------------

v) Specify, by ticking the appropriate box, if subcontracting with an enterprise in terms of Preferential Procurement Regulations,2017:

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Designated Group: An EME or QSE which is at least 51% owned by:	EME	QSE
	√	√
Black people		
Black people who are youth		
Black people who are women		
Black people with disabilities		
Black people living in rural or underdeveloped areas or townships		
Cooperative owned by black people		
Black people who are military veterans		
OR		
Any EME		
Any QSE		

8. DECLARATION WITH REGARD TO COMPANY/FIRM

8.1 Name of company/firm:.....

8.2 VAT registration number:.....

8.3 Company registration number:.....

8.4 TYPE OF COMPANY/ FIRM

- Partnership/Joint Venture / Consortium
- One person business/sole propriety
- Close corporation
- Company
- (Pty) Limited

[TICK APPLICABLE BOX]

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8.5 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

.....

8.6 COMPANY CLASSIFICATION

- Manufacturer
- Supplier
- Professional service provider
- Other service providers, e.g. transporter, etc.

[TICK APPLICABLE BOX]

8.7 Total number of years the company/firm has been in business:.....

8.8 I/we, the undersigned, who is / are duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the B-BBE status level of contributor indicated in paragraphs 1.4 and 6.1 of the foregoing certificate, qualifies the company/ firm for the preference(s) shown and I / we acknowledge that:

- i) The information furnished is true and correct;
- ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
- iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 6.1, the contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct;
- iv) If the B-BBEE status level of contributor has been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the purchaser may, in addition to any other remedy it may have –
 - (a) disqualify the person from the bidding process;
 - (b) recover costs, losses or damages it has incurred or suffered as a result of that person’s conduct;

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- (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
- (d) recommend that the bidder or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted by the National Treasury from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and
- (e) forward the matter for criminal prosecution.

WITNESSES

1.

2.

.....

SIGNATURE(S) OF BIDDERS(S)

DATE:

ADDRESS

.....

.....

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T2.1 | COMPULSORY TRAINING PROGRAMME

Set out the details of the proposed training for Local Labourers and QSEs and EMEs in the schedules below:

A: TRAINING OF LOCAL LABOURERS OF THE CONTRACTOR'S AND HIS SUB-CONTRACTOR'S WORKFORCES					
NO. OF LABOURERS	TYPE OF WORK	SKILLS REQUIRED FOR THE TYPE OF WORK	DURATION OF TRAINING (PERSON-DAYS)	ESTIMATED COST	
TOTAL ESTIMATED COST					
B: TRAINING OF LOCAL QSE & EME CONTRACTORS					
LIST OF COURSES FOR BUSINESS DEVELOPMENT SKILLS	LIST OF COURSES FOR MANAGEMENT SKILLS	LIST OF OTHER COURSES (SPECIFY)	ACCREDITED INSTITUTIONS THAT WILL PRESENT THE COURSES	DURATION OF EACH COURSE (DAYS)	ESTIMATED COST
TOTAL ESTIMATED COST					

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T2.1 J QUALITY MANAGEMENT QUESTIONNAIRE

1. Does the Tenderer have a quality management system which is certified in terms of the ISO 9001 : 2000

YES	NO
-----	----

2. If "yes", tenderer to supply brief summary of structure of system.

3. If "no", does the tenderer intend to apply for certification and by when?

YES	NO
-----	----

Date :

If the tenderer does not intend to apply for certification he shall submit details of the quality management system presently in place.

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CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD), UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71 (PITTS AVENUE)

T2.1 K OCCUPATIONAL HEALTH AND SAFETY QUESTIONNAIRE

1.	Does your company have an updated copy of the Occupational Health and Safety Act and the relevant Regulations, (Act 85, of 1993) readily available?	YES/NO
2.	Have you and your supervisors received any training on the requirements of the Act and the relevant regulations? If YES, please provide proof.	YES/NO Attach Proof
3.	Are you, your supervisors and permanent employees aware, informed, instructed or trained in your respective legal liabilities with regard to Occupational Health and Safety Legal Liabilities? If YES, please provide explanatory proof.	YES/NO Attach information
4.	How do you ensure that the requirements of the Occupational Health and Safety Act are complied with by yourself and every person in your employment? Provide an overview	Attach information
5.	Have you identified as far as reasonably practical all Health and Safety hazards and assessed all associated risks related to your activities and work environment? If YES, please provide evidence.	YES/NO Attach information
6.	If YES, how and what reasonably practical steps do you take to eliminate or mitigate the hazards and associated risks identified? How do you provide and maintain Health and Safety in your work environment for your employees and persons other than those in your employment that may be directly affected by your activities?	Attach information
7.	Do you provide for and maintain systems of work, plant and machinery that, as far as is reasonable practical, are safe and without risk to health? If so, what are they? Please provide evidence	YES/NO Attach information
8.	Do you have a clearly defined scope of authority for your organization, including all supervisors and employees? If YES, please provide a copy of the latest valid organogram and scope of authority (Submit proof).	YES/NO Attach information
9.	Do you have a first aid and emergency procedure or standard and trained first aid employees? If YES, please provide evidence	YES/NO Attach information
10.	Do you provide your employees with personal protective equipment and facilities? If yes, please attach a list of PPE per occupation	YES/NO Attach information

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11.	Do you assess the OH&S Performance of any potential sub-contractor? If YES provide a copy of a sub-contractor assessment.	YES/NO Attach information
12.	Who is responsible and accountable for the Occupational Health and Safety of your employees and those persons other than your employees that may be affected by your activities?	Attach information
13.	Please list three (3) recent similar projects and references with regard to your company's safety performance?	Attach information
14.	Please advise us of the following with regard to your company's current Workers Compensation Policy: -Name of insurer: -Policy Number: -Insurance premium as a percentage of payroll: -Attach a letter of good standing from your insurer.	Attach information
15.	Are records of your Workers Compensation premiums over the last year available to us upon request?	YES/NO
16.	Does your company have a Safety, Health & Environmental (SHE) policy? If YES, please provide an overview	YES/NO Attach information
17.	Does your company have a recognized/auditable Health and Safety management system? If YES, please provide an overview.	YES/NO Attach information
18.	Do you have active Health and Safety Representatives & Committees in place for each project? If YES, please provide copies of the latest minutes.	YES/NO Attach information
19.	Does your company conduct: a) Annual medical examinations? b) Entry and exit medical examinations?	YES/NO YES/NO
20.	* Does your company keep records for the measurement of Health and Safety performance? * If YES, what indicators are used for this performance measurement? * Please provide copies of the Health and Safety incident register (synopsis) for the past 12 month period. (Refer Annexure A). * Provide the number of employees per month as well as the number of man-hours worked per month for the last 12 months. (Refer Annexure B).	YES/NO Attach information Attach information Attach information
21.	Does your company set Health and Safety targets and objectives?	YES/NO

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	If so, what are they for the current year and indicate how they compare with the previous year	Attach information
22.	Has your Health and Safety system been assessed/ audited by an independent party? If YES, please provide a copy of the latest valid assessment/audit for a construction site. (Submit proof).	YES/NO
23.	Does your company employ permanent Health and Safety Officers and or a health and Safety Manager/Co-ordinator?	YES/NO
24.	Does your company carry out training for personnel in Health and Safety related issues pertaining to your area of capability? If YES, please attach the Health and Safety training requirements for all job categories.	YES/NO Attach information
25.	Does executive management attend health and Safety meetings and carry out executive management safety audits?	YES/NO
26.	Was a health risk assessment done to identify and evaluate health risks due to the potential exposure in conducting their work?	YES/NO

Note:

The information provided by you will be deemed as privileged information and will only be used in the selection process to determine the successful contractors and or sub-contractors.

Agreement:

I declare that all information provided in the health and safety selection criteria questionnaire, are accurate and true. I do realise that the information given by me will be verified and false information will lead to automatic disqualification.

Signed..... Date

Name..... Position.....

Tenderer.....

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T2.1 L KEY PERSONNEL

In terms of the Project Specification and the Conditions of Tender, unskilled workers may only be brought in from outside the local community if such personnel are not available locally.

The Tenderer shall list below the personnel which he intends to utilise on the Works, including key personnel which may have to be brought in from outside if not available locally.

Category of employee	Number of persons			
	Personnel, part of the Contractor's organisation		Personnel to be contracted if not available within the employ of the company	
# Contract Manager				
# Site Agent				
# Safety Officer				
Site technicians (quality control officers included)				
# Foremen				
Technicians, surveyors, etc				
Artisans and other skilled workers				
Plant operators				
Unskilled workers				
Others:				
.....
.....
.....
.....
.....

Notes: The categories marked are Key Personnel

Note:

The tenderer need to complete T2.3 B (B1 and B2 forms) for the key personnel. The form shall be used to provide evidence of the relevant experience of the key staff in the organogram and allocation of quality points (maximum 25 points) as described in Clause No. 5.11.9 of the Tender Data.

SIGNATURE:

DATE:

(of person authorised to sign on behalf of Tenderer)

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T2.1 M COMPULSORY ENTERPRISE QUESTIONNAIRE

The following particulars must be furnished. In the **case of a joint venture separate** enterprise questionnaires in respect of each partner must be completed and submitted.

Section 1 : Name of enterprise :

Section 2 : VAT registration number, if any :

Section 3 : CIDB registration number:

Section 4 : Particulars of sole proprietors and partners in partnerships

Name*	Identity Number*	Personal income tax number*

*Complete only if sole proprietor or partnership and attach separate page if or than 3 partners

Section 5 : Particulars of companies and close corporations

Company registration number :

Close corporation number :

Tax reference number :

Section 6 : Record of service of the state

Indicate by marking the relevant boxes with a cross, if any sole proprietor, partner in a partnership or director, manager, principal shareholder or stakeholder in a company or close corporation is currently or has been within the last 12 months in the service of any of the following :

- | | |
|--|---|
| <input type="checkbox"/> A member of any municipal council | <input type="checkbox"/> an employee of any provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act 1 of 1999) |
| <input type="checkbox"/> A member of any provincial legislature | <input type="checkbox"/> A member of an accounting authority of any national or provincial public entity |
| <input type="checkbox"/> A member of the National Assembly or the National Council of Province | <input type="checkbox"/> An employee of Parliament or a provincial legislature |
| <input type="checkbox"/> A member of the Board of Directors of any Municipal entity | |
| <input type="checkbox"/> An official of any municipality or municipal Entity | |

If any of the above boxes are marked, disclose the following :

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Name of sole proprietor, partner, director, manager, principal shareholder or stakeholder	Name of institution, public office, board or organ of state and position held	Status of service (tick appropriate column)	
		Current	Within last 12 months

* Insert separate page if necessary

Section 7 : Record of spouses, children and parent in the service of the state

Indicate by marking the relevant boxes with a cross, if any sole proprietor, partner in a partnership or director, manager, principal shareholder or stakeholder in a company or close corporation is currently or has been within the last 12 months in the service of any of the following :

- | | |
|---|---|
| <input type="checkbox"/> A member of any municipal council | <input type="checkbox"/> an employee of any provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act 1 of 1999) |
| <input type="checkbox"/> A member of any provincial legislature | <input type="checkbox"/> A member of an accounting authority of any national or provincial public entity |
| <input type="checkbox"/> A member of the National Assembly or the National Council of Provinces | <input type="checkbox"/> An employee of Parliament or a provincial legislature |
| <input type="checkbox"/> A member of the Board of Directors of any Municipal entity. | |
| <input type="checkbox"/> An official of any municipality or municipal Entity | |

If any of the above are marked, disclose the following:

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Name of spouse, child or parent	Name of institution, public office, board or organ of state and position held	Status of service (tick appropriate column)	
		Current	Within last 12 months

* Insert separate page if necessary

The undersigned, who warrants that he/she is duly authorised to do son on behalf of the enterprise :

- i. Authorizes the Employer to use the entity's Tax Compliance Status PIN and CSD Supplier number to confirm that my/our tax matters are in order;
- ii. Confirms that neither the name of the enterprise or the name of any partner manager, director or other person, who wholly or partly exercise, or may exercise, control over the enterprise, appears on the Register of Tender Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act of 2001;
- iii. Confirms that no partner, member, director or other person who wholly or partly exercises, or may exercise, control over the enterprise, has within the last five years been convicted of fraud or corruption;
- iv. Confirms that I / we are not associated, linked or involved with any other tendering entities submitting tender offers and have no other relationship with any of the tenderers, or those responsible for compiling the scope of work, that could cause, or be interpreted as, a conflict of interest;
- v. Confirm that the contents of this questionnaire are within my personal knowledge and are to the best of my belief both true and correct.

Signed..... Date

Name..... Position.....

Enterprise Name.....

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T2.2 OTHER RETURNABLE SCHEDULES REQUIRED FOR EVALUATION

T2.2 A	TAX COMPLIANCE STATUS PIN FOR TENDERS.....	T-43
T2.2 B	CONSTRUCTION INDUSTRIES DEVELOPMENT BOARD REGISTRATION	T-44
T2.2 C	COMMISSIONER OF OATHS CERTIFICATION.....	T-45
T2.2 D	(SBD 4)-DECLARATION OF INTEREST	T-46
T2.2 E	(SBD 9)-CERTIFICATE OF INDEPENDENT BID DETERMINATION	T-50
T2.2 F	(SBD 8)-DECLARATION OF TENDERER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES	T-53
T2.2 G	FORM OF INTENT TO PROVIDE A GUARANTEE	T-55
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T2.2 A TAX COMPLIANCE STATUS PIN FOR TENDERS

Tax Compliance Status PIN for Tenders

The tenderer is to affix to this page:

A Tax Compliance Status PIN that will grant a third party access to the bidder's Tax Compliance Status.

Note:

Bidders must submit their SARS TCS PIN number and CSD Supplier number with their bid in order that the bidder's Tax Compliance Status can be verified. Should a bidder not be Tax Compliant at the time of verification, the bidder will be notified in writing of their non-compliant tax status and be requested to remediate their tax status within seven (7) working days. Failure to provide written proof of tax status remediation, within seven (7) working days of notification, will result in the rejection of the bid submitted by the Bidder.

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T2.2 B CONSTRUCTION INDUSTRIES DEVELOPMENT BOARD REGISTRATION

The tenderer is to affix to this page:

- Written proof of his **Category 9CE** registration with the CIDB

Or

- Written proof of his application to the CIDB for registration as a contractor in the category listed above

The tenderer further more need to provide the same proof as stated above for each sub-contractor listed in Form 2.1 C.

Note:

Failure to affix such documentation as prescribed to this page shall result in this tender not being further considered for the award of the contract.

Should this tender be considered for award of the contract, based on proof of submission of application for registration in the appropriate category with the CIDB, and should proof of such subsequent registration not be forthcoming to the employer by the time of award of the contract, then this tender will no longer be considered for the award of the contract

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T2.2 C COMMISSIONER OF OATHS CERTIFICATION

SIGNATURE

DULY AUTHORISED TO SIGN

ON BEHALF OF

ADDRESS

.....

.....

.....

TELEPHONE NO.

DATE

COMMISSIONER OF OATHS:

SIGNATURE:

DATE:

STAMP:

MUST BE DATE STAMPED AND SIGNED BY A COMMISSIONER OF OATHS

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SBD 4

T2.2 D (SBD 4)-DECLARATION OF INTEREST

1. Any legal person, including persons employed by the state¹, or persons having a kinship with persons employed by the state, including a blood relationship, may make an offer or offers in terms of this invitation to bid (includes a price quotation, advertised competitive bid, limited bid or proposal). In view of possible allegations of favouritism, should the resulting bid, or part thereof, be awarded to persons employed by the state, or to persons connected with or related to them, it is required that the bidder or his/her authorised representative declare his/her position in relation to the evaluating/adjudicating authority where-

- the bidder is employed by the state; and/or
- the legal person on whose behalf the bidding document is signed, has a relationship with persons/a person who are/is involved in the evaluation and or adjudication of the bid(s), or where it is known that such a relationship exists between the person or persons for or on whose behalf the declarant acts and persons who are involved with the evaluation and or adjudication of the bid.

2. In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.

2.1 Full Name of bidder or his or her representative:

2.2 Identity Number:

2.3 Position occupied in the Company (director, trustee, shareholder²):

2.4 Company Registration Number:

2.5 Tax Reference Number:

2.6 VAT Registration Number:

2.6.1 The names of all directors / trustees / shareholders / members, their individual identity numbers, tax reference numbers and, if applicable, employee / persal numbers must be indicated in paragraph 3 below.

¹"State" means –

- (a) any national or provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No. 1 of 1999);
- (b) any municipality or municipal entity;
- (c) provincial legislature;
- (d) national Assembly or the national Council of provinces; or
- (e) Parliament.

²"Shareholder" means a person who owns shares in the company and is actively involved in the management of the enterprise or business and exercises control over the enterprise.

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2.7 Are you or any person connected with the bidder presently employed by the state? **YES / NO**

2.7.1 If so, furnish the following particulars:

Name of person / director / trustee / shareholder/ member:
 Name of state institution at which you or the person connected to the bidder is employed:
 Position occupied in the state institution:

Any other particulars:

2.7.2 If you are presently employed by the state, did you obtain the appropriate authority to undertake remunerative work outside employment in the public sector? **YES / NO**

2.7.2.1 If yes, did you attached proof of such authority to the bid document? **YES / NO**

(Note: Failure to submit proof of such authority, where applicable, may result in the disqualification of the bid.

2.7.2.2 If no, furnish reasons for non-submission of such proof:

2.8 Did you or your spouse, or any of the company's directors / trustees / shareholders / members or their spouses conduct business with the state in the previous twelve months? **YES / NO**

2.8.1 If so, furnish particulars:

2.9 Do you, or any person connected with the bidder, have any relationship (family, friend, other) with a person employed by the state and who may be involved with the evaluation and or adjudication of this bid? **YES / NO**

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2.9.1 If so, furnish particulars.

.....

2.10 Are you, or any person connected with the bidder, aware of any relationship (family, friend, other) between any other bidder and any person employed by the state who may be involved with the evaluation and or adjudication of this bid?

YES / NO

2.10.1 If so, furnish particulars.

.....

2.11 Do you or any of the directors / trustees / shareholders / members of the company have any interest in any other related companies whether or not they are bidding for this contract?

YES/NO

2.11.1 If so, furnish particulars:

.....

3. FULL DETAILS OF DIRECTORS / TRUSTEES / MEMBERS / SHAREHOLDERS.

Full Name	Identity Number	Personal Tax Reference Number	State Employee Number / Persal Number

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--	--	--	--

4. DECLARATION

I, THE UNDERSIGNED (NAME).....

CERTIFY THAT THE INFORMATION FURNISHED IN PARAGRAPHS 2 and 3 ABOVE IS CORRECT.

I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME IN TERMS OF PARAGRAPH 23 OF THE GENERAL CONDITIONS OF CONTRACT SHOULD THIS DECLARATION PROVE TO BE FALSE.

.....

Signature

.....

Date

.....

Position

.....

Name of bidder

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SBD 9

T2.2 E (SBD 9)-CERTIFICATE OF INDEPENDENT BID DETERMINATION

- 1 This Standard Bidding Document (SBD) must form part of all bids¹ invited.
- 2 Section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by, firms, or a decision by an association of firms, if it is between parties in a horizontal relationship and if it involves collusive bidding (or bid rigging).² Collusive bidding is a *pe se* prohibition meaning that it cannot be justified under any grounds.
- 3 Treasury Regulation 16A9 prescribes that accounting officers and accounting authorities must take all reasonable steps to prevent abuse of the supply chain management system and authorizes accounting officers and accounting authorities to:
 - a. disregard the bid of any bidder if that bidder, or any of its directors have abused the institution's supply chain management system and or committed fraud or any other improper conduct in relation to such system.
 - b. cancel a contract awarded to a supplier of goods and services if the supplier committed any corrupt or fraudulent act during the bidding process or the execution of that contract.
- 4 This SBD serves as a certificate of declaration that would be used by institutions to ensure that, when bids are considered, reasonable steps are taken to prevent any form of bid-rigging. .
- 5 In order to give effect to the above, the attached Certificate of Bid Determination (SBD 9) must be completed and submitted with the bid:

¹ Includes price quotations, advertised competitive bids, limited bids and proposals.

² Bid rigging (or collusive bidding) occurs when businesses, that would otherwise be expected to compete, secretly conspire to raise prices or lower the quality of goods and / or services for purchasers who wish to acquire goods and / or services through a bidding process. Bid rigging is, therefore, an agreement between competitors not to compete.

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SBD 9 - CERTIFICATION OF INDEPENDENT BID DETERMINATION

I, the undersigned, in submitting the accompanying bid:

(Bid Number and Description)

in response to the invitation for the bid made by:

(Name of Institution)

do hereby make the following statements that I certify to be true and complete in every respect:

I certify, on behalf of: _____ that:

(Name of Bidder)

1. I have read and I understand the contents of this Certificate;
2. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect;
3. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;
4. Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign the bid, on behalf of the bidder;
5. For the purposes of this Certificate and the accompanying bid, I understand that the word "competitor" shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:
 - (a) has been requested to submit a bid in response to this bid invitation;
 - (b) could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and
 - (c) provides the same goods and services as the bidder and/or is in the same line of business as the bidder
6. The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However communication between partners in a joint venture or consortium³ will not be construed as collusive bidding.

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7. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
 - (a) prices;
 - (b) geographical area where product or service will be rendered (market allocation)
 - (c) methods, factors or formulas used to calculate prices;
 - (d) the intention or decision to submit or not to submit, a bid;
 - (e) the submission of a bid which does not meet the specifications and conditions of the bid;
or
 - (f) bidding with the intention not to win the bid.
8. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.
9. The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.
10. I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bidders and contracts, bidders that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

³ *Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.*

.....
Signature	Date
.....
Position	Name of Bidder

Js914w 2

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CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD), UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71 (PITTS AVENUE)

SBD 8

T2.2 F (SBD 8)-DECLARATION OF TENDERER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

- 1 This Standard Bidding Document must form part of all bids invited.
- 2 It serves as a declaration to be used by institutions in ensuring that when goods and services are being procured, all reasonable steps are taken to combat the abuse of the supply chain management system.
- 3 The bid of any bidder may be disregarded if that bidder, or any of its directors have -
 - a. abused the institution's supply chain management system;
 - b. committed fraud or any other improper conduct in relation to such system; or
 - c. failed to perform on any previous contract.
- 4 **In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.**

Item	Question	Yes	No
4.1	Is the bidder or any of its directors listed on the National Treasury's Database of Restricted Suppliers as companies or persons prohibited from doing business with the public sector? (Companies or persons who are listed on this Database were informed in writing of this restriction by the Accounting Officer/Authority of the institution that imposed the restriction after the <i>audi alteram partem</i> rule was applied). The Database of Restricted Suppliers now resides on the National Treasury's website(www.treasury.gov.za) and can be accessed by clicking on its link at the bottom of the home page.	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4.1.1	If so, furnish particulars:		
4.2	Is the bidder or any of its directors listed on the Register for Bid Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004)? The Register for Bid Defaulters can be accessed on the National Treasury's website (www.treasury.gov.za) by clicking on its link at the bottom of the home page.	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4.2.1	If so, furnish particulars:		

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4.3	Was the bidder or any of its directors convicted by a court of law (including a court outside of the Republic of South Africa) for fraud or corruption during the past five years?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4.3.1	If so, furnish particulars:		
4.4	Was any contract between the bidder and any organ of state terminated during the past five years on account of failure to perform on or comply with the contract?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4.4.1	If so, furnish particulars:		

CERTIFICATION

**I, THE UNDERSIGNED (FULL NAME).....
CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM IS TRUE AND CORRECT.**

I ACCEPT THAT, IN ADDITION TO CANCELLATION OF A CONTRACT, ACTION MAY BE TAKEN AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE.

.....
Signature

.....
Date

.....
Position

.....
Name of Bidder

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T2.2 G FORM OF INTENT TO PROVIDE A GUARANTEE

With reference to Clause 6.2 of the contact, The Tenderer **must attach hereto a letter from the bank or institution with whom he has made the necessary arrangements**, to the effect that the said bank or institution will be prepared to provide a completed performance guarantee in the format below, **without any amendments** when asked to do so. The Pro-forma below is for the tenderers use.

Employer' name and address: THE HEAD OF THE DEPARTMENT, DEPARTMENT OF ROADS AND TRANSPORT (ROADS BRANCH), GAUTENG PROVINCIAL GOVERNMENT, GROUND FLOOR, LIFE CENTRE BUILDING, 45 COMMISSIONER STREET, MARSHALLTOWN, JOHANNESBURG

Contract No: **DRT 26/07/2019**

Contract title: **CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD), UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71 (PITTS AVENUE)**

PRO FORMA PERFORMANCE GUARANTEE

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

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means:

Physical address:

"Employer" means:

"Contractor" means:

"Employer's Agent" means:
.....

"Works" means:

"Site" means:

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

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

Amount in words:

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

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Amount in words:

Type of Performance Guarantee: (Insert Variable or Fixed)

“Expiry Date” means: (Give date) or any other later date set by the Contractor and/or Employer provided such instruction is received prior to the Expiry Date as indicated here.

CONTRACT DETAILS

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

1. VARIABLE PERFORMANCE GUARANTEE

1.1 Where a Variable Performance Guarantee has been selected, the Guarantor's liability shall be limited during the following periods to diminishing amounts of the Guaranteed Sum as follows:

1.1.1 From and including the date of signing the Performance Guarantee up to and including the date of the interim payment certificate certifying, for the first time, more than 50% of the Contract Sum:

R.....

(Amount in words)

1.1.2 From the day following the date of the said interim payment certificate up to and including the Expiry Date, or the date of issue by the Employer's Agent of the Certificate of Completion of the Works, whichever occurs first:

R.....

(Amount in words)

1.2 The Employer's Agent and/or the Employer shall advise the Guarantor in writing of the date on which the interim payment certificate certifying, for the first time, more than 50% of the Contract Sum, has been issued and the date on which the Certificate of Completion of the Works has been issued.

2. FIXED PERFORMANCE GUARANTEE

2.1 Where a Fixed Performance Guarantee has been selected, the Guarantor's liability shall be limited to the amount of the Guaranteed Sum.

2.2 The Guarantor's period of liability shall be from and including the date on which the Performance Guarantee is signed, up to and including the Expiry Date, or the date of issue by the Employer's Agent of the Certificate of Completion of the Works, or the date of payment in full of the Guaranteed Sum, whichever occurs first.

2.3 The Employer's Agent and/or the Employer shall advise the Guarantor in writing of the date on which the Certificate of Completion of the Works has been issued.

3. CONDITIONS APPLICABLE TO VARIABLE AND FIXED PERFORMANCE GUARANTEES

3.1 The Guarantor hereby acknowledges that:

3.1.1 Any reference in this Performance Guarantee to the Contract is made for the purpose of convenience and shall not be construed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a suretyship.

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- 3.1.2 Its obligation under this Performance Guarantee is restricted to the payment of money.
- 3.2 Subject to the Guarantor's maximum liability referred to in 1.1 or 2.1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 3.2.1 to 3.2.3:
- 3.2.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Employer's Agent in an Interim or Final Payment Certificate has not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 3.2.2;
- 3.2.2 A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) days has elapsed since the first written demand in terms of 3.2.1 and the sum certified has still not been paid;
- 3.2.3 A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum certified in 3.2.
- 3.3 Subject to the Guarantor's maximum liability referred to in 1.1 or 2.1, the Guarantor undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Performance Guarantee, such demand stating that:
- 3.3.1 the Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 3.3; or
- 3.3.2 a provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Performance Guarantee is called up in terms of 3.3; and
- 3.3.3 the aforesaid written demand is accompanied by a copy of the notice of termination and/or the provisional/final sequestration and/or the provisional liquidation court order.
- 3.4 It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 3.2 and 3.3 shall not exceed the Guarantor's maximum liability in terms of 1.1 or 2.1.
- 3.5 Where the Guarantor has made payment in terms of 3.3, the Employer shall upon the date of issue of the Final Payment Certificate submit an expense account to the Guarantor showing how all monies received in terms of this Performance Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of this Performance Guarantee shall bear interest at the prime overdraft rate of the Employer's bank compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund.
- 3.6 Payment by the Guarantor in terms of 3.2 or 3.3 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.
- 3.7 Payment by the Guarantor in terms of 3.3 will only be made against the return of the original Performance Guarantee by the Employer.
- 3.8 The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may consider fit and the Guarantor shall not have the right to claim his release from this Performance Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.
- 3.9 The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.
- 3.10 This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 1.1.2 or 2.2, where after no claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.

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- 3.11 This Performance Guarantee, with the required demand notices in terms of 3.2 or 3.3, shall be regarded as a liquid document for the purposes of obtaining a court order.
- 3.12 Where this Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrates' Courts Act No 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.

Signed at

Date

Guarantor's signatory (1)

Capacity.....

Guarantor's signatory (2)

Capacity

Witness signatory (1)

Witness signatory (2)

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T2.2 H LETTER OF INTENT TO PROVIDE INSURANCE

The Tenderer must attach hereto a letter of intent to provide insurance

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T2.2 I TENDERER’S BANK DETAILS

Notes to tenderer:

1. The tenderer shall attach to this form a letter from the bank at which he declares he conducts his account. The contents of the bank’s letter must state the credit rating that it, in addition to the information required below, accords to the tenderer for the business envisaged by this tender. Failure to provide the required letter with the tender submission may render the tenderer’s offer non-responsive in terms of tender condition 5.8.
2. The tenderer’s banking details as they appear below shall be completed.
3. In the event that the tenderer is a joint venture enterprise, details of all the members of the joint venture shall be similarly provided and attached to this form.
4. Quality points will be awarded for the tenders bank rating described in Clause No 5.11.9 in the tender data. The tenderer can qualify for functionally points (maximum of 10 points) for a good credit rating.
5. The date on the bank rating must be less than 12 months from the date of the tender closure.

The tenderer shall provide the following:

- i) Name of Account Holder:.....
- ii) Account Number:
- iii) Bank name:.....
- iv) Branch Number:.....
- v) Bank and branch contact details.....
-

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T2.2 J SCHEDULE OF TENDERER’S LITAGTION HISTORY

Note to tenderer:

The tenderer shall list below details of any litigation with which the tenderer (including its directors, shareholders or other senior members in previous companies) has been involved with any organ of state or state department within the last ten years. The details must include the year, the litigating parties, the subject matter of the dispute, the value of any award or estimated award if the litigation is current and in whose favour the award, if any, was made.

Employer	Other litigating party	Dispute	Award value	Date resolved

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T2.2 K SCHEDULE OF TENDER COMPLIANCE

Note to tenderer:

This form has been created as an aid to ensure a tenderer's compliance with the completion of the returnable forms and schedules.

FORM NO / SBD NO	FORM DESCRIPTION	TICK IF COMPLETED
T2.1	RETURNABLE SCHEDULE REQUIRED FOR EVALUATION	
T2.1A	CERTIFICATE OF ATTENDANCE AT CLARIFICATION MEETING	
T2.1B	CERTIFICATE OF AUTHORITY	
T2.1C	SCHEDULE OF PROPOSED SUBCONTRACTORS	
T2.1D	SCHEDULE OF PLANT AND EQUIPMENT	
T2.1E	SCHEDULE OF RECENTLY COMPLETED AND CURRENT CONTRACTS	
T2.1F	RECORD OF ADDENDA TO TENDER DOCUMENTS	
T2.1G	DEVIATIONS OR QUALIFICATIONS BY TENDERER	
T2.1H / SBD6.1	PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2017	
T2.1I	DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT	N/A
T2.1J	COMPULSORY TRAINING PROGRAM	
T2.1K	QUALITY MANAGEMENT QUESTIONNAIRE	
T2.1L	OCCUPATIONAL HEALTH AND SAFETY QUESTIONNAIRE	
T2.1M	KEY PERSONNEL	
T2.1N / SBD4	COMPULSORY ENTERPRISE QUESTIONNAIRE	
T2.1O	PRICING SCHEDULE – FIRM PRICES	N/A
T2.1P	NATIONAL INDUSTRIAL PARTICIPATION PROGRAMME	N/A
T2.2	OTHER RETURNABLE SCHEDULES REQUIRED FOR EVALUATION	
T2.2A	TAX COMPLIANCE STATUS PIN	
T2.2B	CONSTRUCTION INDUSTRY DEVELOPMENT BOARD REGISTRATION	
T2.2C	COMMISSIONER OF OATHS CERTIFICATION	
T2.2D / SBD4	DECLARATION OF INTEREST	
T2.2E / SBD9	CERTIFICATE OF INDEPENDENT TENDER DETERMINATION	
T2.2F / SBD8	DECLARATION OF TENDERER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES	
T2.2G	FORM OF INTENT TO PROVIDE GUARANTEE	
T2.2H	LETTER OF INTENT TO PROVIDE INSURANCE	
T2.2I	TENDERER'S BANK DETAILS	
T2.2J	SCHEDULE OF TENDER'S LITIGATION HISTORY	
T2.2K	SCHEDULE OF TENDER COMPLIANCE	
T2.3	RETURNABLE SCHEDULES THAT WILL BE INCORPORATED INTO THE CONTRACT	
T2.3A	TENDERER'S EXPERIENCE	
T2.3B	ORGANOGRAM, CURRICULUM VITAE OF KEY PERSONNEL	
T2.3C	PROJECT PROGRAM AND METHOD STATEMENT	
T2.3D	RATES FOR SPECIAL MATERIALS	
C1.1 / SBD7	FORM OF OFFER	
C1.6	CONTRACT DATA – INFORMATION PROVIDED BY THE TENDERER	
C2.2 / SBD3	PRICING SCHEDULE	
C.2.3	SUMMARY OF PRICING SCHEDULE	

SIGNED BY TENDERER:

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T2.3 RETURNABLE SCHEDULES THAT WILL BE INCORPORATED INTO THE CONTRACT

T2.3 A	TENDERER'S EXPERIENCE	T-64
T2.3 B	ORGANOGRAM ,CURRICULUM VITAE OF KEY PERSONNEL	T-65
T2.3 C	PROJECT PROGRAMME AND METHOD STATEMENT	T-92
T2.3 D	RATES FOR SPECIAL MATERIALS	T-93

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T2.3 A TENDERER'S EXPERIENCE

Bidders must refer to the **Functionality Evaluation Requirements** as published in the "Tender Notice and Invitation to Tender". Failure to comply with these requirements will result in bidders being disqualified.

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Schedule of company's experience in road rehabilitation or construction

Contract Title	Employer Name	Reference Person (Name & Contact Number)	Contract Amount (R million)	Contract Period (months)	Date of Completion
1.					
2.					
3.					
4.					
5.					

Note:

Failure to submit required Completion Certificates in terms of the Tender Data will result in the tenderer getting zero points.

Completion certificates must be signed by all relevant parties. Certificate that is not signed by all relevant parties will result in the tenderer forfeiting points. Practical completion certificate will not be accepted.

Signed..... Date

Name..... Position.....

Tenderer.....

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Schedule of company's or outsourced company's experience in bridge construction

Contract Title	Employer Name	Reference Person (Name & Contact Number)	Contract Amount (R million)	Contract Period (months)	Bridge No.	Date of Completion
1.						
2.						
3.						
4.						
5.						

Note:

Failure to submit required Completion Certificates in terms of the Tender Data will result in the tenderer getting zero points.

Completion certificates must be signed by all relevant parties. Certificate that is not signed by all relevant parties will result in the tenderer forfeiting points. Practical completion certificate will not be accepted.

Signed..... Date

Name..... Position.....

Tenderer.....

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T2.3 B ORGANOGRAM , CURRICULUM VITAE OF KEY PERSONNEL

Bidders must refer to the **Functionality Evaluation Requirements** as published in the “Tender Notice and Invitation to Tender”. Failure to comply with these requirements will result in bidders being disqualified.

(i) FORM B1: CANDIDATE'S TECHNICAL/MANAGERIAL RECORD

NAME	DATE OF BIRTH	POSITION IN TEAM (NOTE 1)
		<i>Contract Manager (CM)</i>

Note:

- List only the projects completed in the last years that the tenderer considers relevant to the specified scope of works.
- Form to be completed per candidate per designated position in team.
- Tenderers to add additional copies of this form as necessary to their tender submissions

Technical/Managerial Experience

CLIENT & PROJECT No (NOTE 2)	PROJECT TYPE (NOTE 3)	RELEVANT EXPERIENCE STARTED (NOTE 4)	RELEVANT EXPERIENCE ENDED (NOTE 4)	VALUE (NOTE 5)	POSITION HELD (NOTE 6)	CONTACT PERSON AND POSITION (NOTE 7)	CONTACT No.

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Comments: _____

I declare that I have read and understand the meaning of the Note to tenderer on the next page and confirm by my signature hereto that the information provided herein is true, that the positions occupied, the projects reported and the corresponding responsibilities are truly my own experiences.

SIGNATURE BY CANDIDATE: SIGNED BY TENDERER:

DATE: DATE:

NB: KINDLY INITIAL THIS PAGE IN THE PRESENCE OF A COMMISSIONER OF OATHS / JUSTICE OF PEACE.

COMMISSIONER OF OATHS (Commissioner's stamp)

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Notes to Tenderer and compiler:

1. Select from the list of positions in the table below the proposed position that the candidate will hold in the tenderer's design or construction team. The same candidate may be proposed for more than 1 position simultaneously. If this is proposed and the evidence of the candidates' suitability is different for each position in the team then separate forms for each position must be completed. However, the same candidate may not be proposed for more than 1 position in the construction phase.
2. Use abbreviations and acronyms in Table but clarify in comments what they stand for.
3. Project type – select from the list in the table below. If the list, in the opinion of the tenderer, does not contain an appropriate match of the project being registered then select what is closest to it in the selection list and in the comment space provided clarify what its relevance is to the project tendered.
4. Year started – Design phase: for the relevant experience during the design phase, state the month and year of start and end (or current date if position is still occupied) of involvement in design
- Construction phase: for the relevant experience during the construction phase, state the month and year of start and end (or current date if position is still occupied) of involvement in construction. In the event that the project has been designed only or is still in the design phase clarify in the comments area that the project experience is for design only.
5. Value means the completed value of the works including all extra works, (including claims) contract price adjustment and VAT. If construction is not complete or is still in design phase insert the total value of construction (as before) followed by (E) showing it is the estimated value.
6. Select from the list in the table below the position held by the candidate.

If, in the opinion of the tenderer, there is no equivalent position, select what is closest to it in the selection list and, in the comment space provided clarify in what aspects it differs.
7. Give the name, position held and contact number of the responsible person acting for the listed client and who will be able to vouch for the accuracy of the information provided.

Positions (Notes 1 and 6)	Abbreviation	Project Type (Note3)	Abbreviation
Project leader	PL	Ad-Hoc Maintenance – Road Marking	MAM
Alternate project leader	APL	Ad-Hoc Maintenance – Road Signs	MAS
Design specialist – Geometric	DS (Geom)	Maintenance, Periodic – Reseal	MPS
Design Specialist - Bridges	DS (Bridge)	Maintenance, Periodic – Asphalt	MPA
Design specialist – Pavement	DS (Pave)	Maintenance, Special – reseal	MSS
Design Specialist – Traffic	DS (Traffic)	Maintenance, Special – Asphalt	MSA
Design Specialist – Other (Tenderer to specify)	DS (Specify)	Maintenance, Special – concrete	MSC
Contract engineer (the engineer construction phase) CE	CE	Maintenance, Special – structures	MSB
Alternate Contract Engineer	ACE	Maintenance, Special – geotechnical	MSG
Resident engineer	RE	Development, strengthening – reseal	DSS
Assistant resident engineer	ARE	Development, strengthening – asphalt	DSA
Senior Materials technician	SMT	Development, strengthening – concrete	DSC
Contracts manager	CM	Development, strengthening – geotechnical	DSG
Site agent	SA	Development, strengthening – structures	DSB
Project Engineer (Employer)	PE(E)	Development, Improvements – reseal	DIS
Route Manager	RM	Development, improvements – asphalt	DIA
Assistant Route Manager	ARM	Development, improvements – concrete	DIC
General Foreman	GF	Development, improvements – structures	DIB
Health and Safety	HS	Development, improvements – geotechnical	DIG
		Development, new – reseal	DNS
		Development, new – asphalt	DNA
		Development, new – concrete	DNC
		Development, new – bridges	DNB
		Development, new geotechnical	DNG
		Development, new geometrical incl Interchanges	DNI
		Other facility	DNG

TENDER NO. DRT 26/07/2019

CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD), UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71 (PITTS AVENUE)

(ii) FORM B1: CANDIDATE'S TECHNICAL/MANAGERIAL RECORD

NAME	DATE OF BIRTH	POSITION IN TEAM (NOTE 1)
		<i>Site Agent (SA)</i>

Note:

- List only the projects completed in the last years that the tenderer considers relevant to the specified scope of works.
- Form to be completed per candidate per designated position in team.
- Tenderers to add additional copies of this form as necessary to their tender submissions

Technical/Managerial Experience

CLIENT & PROJECT No (NOTE 2)	PROJECT TYPE (NOTE 3)	RELEVANT EXPERIENCE STARTED (NOTE 4)	RELEVANT EXPERIENCE ENDED (NOTE 4)	VALUE (NOTE 5)	POSITION HELD (NOTE 6)	CONTACT PERSON AND POSITION (NOTE 7)	CONTACT No.

TENDER NO. DRT 26/07/2019

CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD), UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71 (PITTS AVENUE)

Comments: _____

I declare that I have read and understand the meaning of the Note to tenderer on the next page and confirm by my signature hereto that the information provided herein is true, that the positions occupied, the projects reported and the corresponding responsibilities are truly my own experiences.

SIGNATURE BY CANDIDATE: SIGNED BY TENDERER:

DATE: DATE:

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COMMISSIONER OF OATHS (Commissioner's stamp)

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Notes to Tenderer and compiler:

1. Select from the list of positions in the table below the proposed position that the candidate will hold in the tenderer's design or construction team. The same candidate may be proposed for more than 1 position simultaneously. If this is proposed and the evidence of the candidates' suitability is different for each position in the team then separate forms for each position must be completed. However, the same candidate may not be proposed for more than 1 position in the construction phase.
2. Use abbreviations and acronyms in Table but clarify in comments what they stand for.
3. Project type – select from the list in the table below. If the list, in the opinion of the tenderer, does not contain an appropriate match of the project being registered then select what is closest to it in the selection list and in the comment space provided clarify what its relevance is to the project tendered.
4. Year started – Design phase: for the relevant experience during the design phase, state the month and year of start and end (or current date if position is still occupied) of involvement in design
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7. Give the name, position held and contact number of the responsible person acting for the listed client and who will be able to vouch for the accuracy of the information provided.

Positions (Notes 1 and 6)	Abbreviation	Project Type (Note3)	Abbreviation
Project leader	PL	Ad-Hoc Maintenance – Road Marking	MAM
Alternate project leader	APL	Ad-Hoc Maintenance – Road Signs	MAS
Design specialist – Geometric	DS (Geom)	Maintenance, Periodic – Reseal	MPS
Design Specialist - Bridges	DS (Bridge)	Maintenance, Periodic – Asphalt	MPA
Design specialist – Pavement	DS (Pave)	Maintenance, Special – reseal	MSS
Design Specialist – Traffic	DS (Traffic)	Maintenance, Special – Asphalt	MSA
Design Specialist – Other (Tenderer to specify)	DS (Specify)	Maintenance, Special – concrete	MSC
Contract engineer (the engineer construction phase) CE	CE	Maintenance, Special – structures	MSB
Alternate Contract Engineer	ACE	Maintenance, Special – geotechnical	MSG
Resident engineer	RE	Development, strengthening – reseal	DSS
Assistant resident engineer	ARE	Development, strengthening – asphalt	DSA
Senior Materials technician	SMT	Development, strengthening – concrete	DSC
Contracts manager	CM	Development, strengthening – geotechnical	DSG
Site agent	SA	Development, strengthening – structures	DSB
Project Engineer (Employer)	PE(E)	Development, Improvements – reseal	DIS
Route Manager	RM	Development, improvements – asphalt	DIA
Assistant Route Manager	ARM	Development, improvements – concrete	DIC
General Foreman	GF	Development, improvements – structures	DIB
Health and Safety	HS	Development, improvements – geotechnical	DIG
		Development, new – reseal	DNS
		Development, new – asphalt	DNA
		Development, new – concrete	DNC
		Development, new – bridges	DNB
		Development, new geotechnical	DNG
		Development, new geometrical incl Interchanges	DNI
		Other facility	DNG

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CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD), UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71 (PITTS AVENUE)

(iii) FORM B1: CANDIDATE'S TECHNICAL/MANAGERIAL RECORD

NAME	DATE OF BIRTH	POSITION IN TEAM (NOTE 1)
		<i>Foreman (F)</i>

Note:

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Technical/Managerial Experience

CLIENT & PROJECT No (NOTE 2)	PROJECT TYPE (NOTE 3)	RELEVANT EXPERIENCE STARTED (NOTE 4)	RELEVANT EXPERIENCE ENDED (NOTE 4)	VALUE (NOTE 5)	POSITION HELD (NOTE 6)	CONTACT PERSON AND POSITION (NOTE 7)	CONTACT No.

TENDER NO. DRT 26/07/2019

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Comments: _____

I declare that I have read and understand the meaning of the Note to tenderer on the next page and confirm by my signature hereto that the information provided herein is true, that the positions occupied, the projects reported and the corresponding responsibilities are truly my own experiences.

SIGNATURE BY CANDIDATE: SIGNED BY TENDERER:

DATE: DATE:

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Notes to Tenderer and compiler:

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Alternate project leader	APL	Ad-Hoc Maintenance – Road Signs	MAS
Design specialist – Geometric	DS (Geom)	Maintenance, Periodic – Reseal	MPS
Design Specialist - Bridges	DS (Bridge)	Maintenance, Periodic – Asphalt	MPA
Design specialist – Pavement	DS (Pave)	Maintenance, Special – reseal	MSS
Design Specialist – Traffic	DS (Traffic)	Maintenance, Special – Asphalt	MSA
Design Specialist – Other (Tenderer to specify)	DS (Specify)	Maintenance, Special – concrete	MSC
Contract engineer (the engineer construction phase) CE	CE	Maintenance, Special – structures	MSB
Alternate Contract Engineer	ACE	Maintenance, Special – geotechnical	MSG
Resident engineer	RE	Development, strengthening – reseal	DSS
Assistant resident engineer	ARE	Development, strengthening – asphalt	DSA
Senior Materials technician	SMT	Development, strengthening – concrete	DSC
Contracts manager	CM	Development, strengthening – geotechnical	DSG
Site agent	SA	Development, strengthening – structures	DSB
Project Engineer (Employer)	PE(E)	Development, Improvements – reseal	DIS
Route Manager	RM	Development, improvements – asphalt	DIA
Assistant Route Manager	ARM	Development, improvements – concrete	DIC
General Foreman	GF	Development, improvements – structures	DIB
Health and Safety	HS	Development, improvements – geotechnical	DIG
		Development, new – reseal	DNS
		Development, new – asphalt	DNA
		Development, new – concrete	DNC
		Development, new – bridges	DNB
		Development, new geotechnical	DNG
		Development, new geometrical incl Interchanges	DNI
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(iv) FORM B1: CANDIDATE'S TECHNICAL/MANAGERIAL RECORD

NAME	DATE OF BIRTH	POSITION IN TEAM (NOTE 1)
		<i>Safety Officer (SO)</i>

Note:

- List only the projects completed in the last years that the tenderer considers relevant to the specified scope of works.
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Technical/Managerial Experience

CLIENT & PROJECT No (NOTE 2)	PROJECT TYPE (NOTE 3)	RELEVANT EXPERIENCE STARTED (NOTE 4)	RELEVANT EXPERIENCE ENDED (NOTE 4)	VALUE (NOTE 5)	POSITION HELD (NOTE 6)	CONTACT PERSON AND POSITION (NOTE 7)	CONTACT No.

TENDER NO. DRT 26/07/2019

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Comments: _____

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Notes to Tenderer and compiler:

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Project leader	PL	Ad-Hoc Maintenance – Road Marking	MAM
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Design specialist – Geometric	DS (Geom)	Maintenance, Periodic – Reseal	MPS
Design Specialist - Bridges	DS (Bridge)	Maintenance, Periodic – Asphalt	MPA
Design specialist – Pavement	DS (Pave)	Maintenance, Special – reseal	MSS
Design Specialist – Traffic	DS (Traffic)	Maintenance, Special – Asphalt	MSA
Design Specialist – Other (Tenderer to specify)	DS (Specify)	Maintenance, Special – concrete	MSC
Contract engineer (the engineer construction phase) CE	CE	Maintenance, Special – structures	MSB
Alternate Contract Engineer	ACE	Maintenance, Special – geotechnical	MSG
Resident engineer	RE	Development, strengthening – reseal	DSS
Assistant resident engineer	ARE	Development, strengthening – asphalt	DSA
Senior Materials technician	SMT	Development, strengthening – concrete	DSC
Contracts manager	CM	Development, strengthening – geotechnical	DSG
Site agent	SA	Development, strengthening – structures	DSB
Project Engineer (Employer)	PE(E)	Development, Improvements – reseal	DIS
Route Manager	RM	Development, improvements – asphalt	DIA
Assistant Route Manager	ARM	Development, improvements – concrete	DIC
General Foreman	GF	Development, improvements – structures	DIB
Health and Safety	HS	Development, improvements – geotechnical	DIG
		Development, new – reseal	DNS
		Development, new – asphalt	DNA
		Development, new – concrete	DNC
		Development, new – bridges	DNB
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		Development, new geometrical incl Interchanges	DNI
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(v) FORM B2: CANDIDATE'S CONTINUING PROFESSIONAL DEVELOPMENT RECORD

Note: Tenderers to add additional copies of this form as necessary to their tender submissions

Personal Details of Candidate

Name	Position in team (Note 1)	Position in Company (Note 2)
	<i>Contract Manager (CM)</i>	

Registration with professional bodies

Professional registration body	ECSA (Note 3)	SACPCMP (Note 3)
Level of registration		
Registration number		
Date of registration		

Highest Engineering qualification	Institution	Date graduated
Initial relevant Tertiary Qualification	Institution	Date graduated

TENDER NO. DRT 26/07/2019

CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD), UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71 (PITTS AVENUE)

Continuing Professional Development (candidate to list 5 most recent courses that he/she considers relevant to the engineering field)

Course Type (Note 4)	Host Institute (Note 5)	Participation (Note 6)	Course Content	When held (Note 7)	Field Study (Note 8)

I declare that I have read and understand the meaning of the Note to tenderer on the next page and confirm by my signature hereto that the information provided herein is true, that the positions occupied, the projects reported and the corresponding responsibilities are truly my own experiences.

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(vi) FORM B2: CANDIDATE'S CONTINUING PROFESSIONAL DEVELOPMENT RECORD

Note: Tenderers to add additional copies of this form as necessary to their tender submissions

Personal Details of Candidate

Name	Position in team (Note 1)	Position in Company (Note 2)
	<i>Site Agent (SA)</i>	

Registration with professional bodies

Professional registration body	ECSA (Note 3)	SACPCMP (Note 3)
Level of registration		
Registration number		
Date of registration		

Highest Engineering qualification	Institution	Date graduated
Initial relevant Tertiary Qualification	Institution	Date graduated

TENDER NO. DRT 26/07/2019

CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD), UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71 (PITTS AVENUE)

Continuing Professional Development (candidate to list 5 most recent courses that he/she considers relevant to the engineering field)

Course Type (Note 4)	Host Institute (Note 5)	Participation (Note 6)	Course Content	When held (Note 7)	Field Study (Note 8)

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(vii) FORM B2: CANDIDATE'S CONTINUING PROFESSIONAL DEVELOPMENT RECORD

Note: Tenderers to add additional copies of this form as necessary to their tender submissions

Personal Details of Candidate

Name	Position in team (Note 1)	Position in Company (Note 2)
	<i>Foreman (F)</i>	

Registration with professional bodies

Professional registration body	ECSA (Note 3)	SACPCMP (Note 3)
Level of registration		
Registration number		
Date of registration		

Highest Engineering qualification	Institution	Date graduated
Initial relevant Tertiary Qualification	Institution	Date graduated

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(viii) FORM B2: CANDIDATE'S CONTINUING PROFESSIONAL DEVELOPMENT RECORD

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Personal Details of Candidate

Name	Position in team (Note 1)	Position in Company (Note 2)
	<i>Safety Officer (SO)</i>	

Registration with professional bodies

Professional registration body	ECSA (Note 3)	SACPCMP (Note 3)
Level of registration		
Registration number		
Date of registration		

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T2.3 C PROJECT PROGRAMME AND METHOD STATEMENT

Bidders must refer to the **Functionality Evaluation Requirements** as published in the “Tender Notice and Invitation to Tender”. Failure to comply with these requirements will result in bidders being disqualified.

TENDER NO. DRT 26/07/2019

CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD), UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71 (PITTS AVENUE)

T2.3 D RATES FOR SPECIAL MATERIALS

Only the bitumen content of products will be dealt with as a special material in terms of sub-clause 6.8.3 of the General Conditions of Contract. All bitumen products as indicated in the contract data must be stated in the list below. No additives or blending agents of non-bituminous content shall be considered as special materials.

The rates and prices for the special materials shall be furnished by the contractor, which rates and prices shall exclude VAT but shall include all other obligatory taxes and levies.

SPECIAL MATERIALS	UNIT *	RATE OR PRICE FOR THE BASE MONTH (Excl. VAT) (As stated on supplier's letter attached to this form)

* Indicate whether the material will be delivered in bulk or in containers.

When called upon to do so, the contractor shall substantiate the above rates or prices with acceptable documentary evidence from the applicable refinery supplying the bitumen.

SIGNED ON BEHALF OF TENDERER:

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THE CONTRACT

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C1.1 FORM OF OFFER AND ACCEPTANCE

OFFER

The Employer, identified in the Acceptance signature block, has solicited offers to enter into a contract in respect of the following works:

CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD), UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71 (PITTS AVENUE)

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

THE OFFERED TOTAL OF THE 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

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Name and address of organisation:

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

Signature and name of witness

.....

Signature

.....

Name

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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 1 Agreements and Contract Data, (which includes this Agreement)
- Part 2 Pricing Data
- Part 3 Scope of Work.
- Part 4 Site Information

and drawings and documents or parts thereof, which may be incorporated by reference into Parts 1 to 4 above.

Deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Tender Schedules as well as any changes to the terms of the Offer agreed by the Tenderer and the Employer during this process of offer and acceptance, are contained in 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 authorised 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 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,

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For the Employer:

.....
Signature

.....
Name

.....
Capacity

Name and address of organisation:

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

Signature and name of witness:

.....
Signature

.....
Name

Date

TENDER NO. DRT 26/07/2019

CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD), UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71 (PITTS AVENUE)

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 become 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,
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,

<u>Item:</u>	<u>Deviation:</u>

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 change to the terms of the offer agreed by the Tenderer and the Employer during this process of offer and acceptance.

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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:

For the Employer:

.....	Signature	.....
.....	Name	.....
.....	Capacity	.....

Name and address of organisation:

Name and address of organisation:

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

.....	Witness Signature
-------	-------------------	-------

.....	Witness Name
-------	--------------	-------

.....	Date
-------	------	-------

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C1.2 AGREEMENT IN TERMS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT NO. 85 OF 1993)

THIS AGREEMENT made at on this the day of in the year..... between THE DEPARTMENT OF ROADS AND TRANSPORT, Roads Branch (hereinafter called "the Employer") on the one part, herein represented by in his capacity as and delegate of the Employer

and.....
(hereinafter called "the Principal Contractor") of the other part, herein represented by in his capacity as

WHEREAS the Employer is desirous that certain works be constructed, viz **CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD), UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71 (PITTS AVENUE)**

and has accepted a tender by the Principal Contractor for the construction, completion & maintenance of such works and whereas the Employer and the Principal Contractor have agreed to certain arrangements and procedures to be followed in order to ensure compliance by the Principal Contractor with the provisions of the Occupational Health and Safety Act 1993 (Act 85 of 1993 and the Construction Regulation, 7 February 2014);

NOW THEREFORE THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. The Principal Contractor shall execute the work in accordance with the contract documents pertaining to this contract.
2. This Agreement shall hold good from its commencement date, which shall be the date of a written notice from the employer or Employer's Agent requiring him to commence the execution of the Works, to either:
 - a) the date of the final certificate issued in terms of clause 6.10 of the General Conditions of Contract for Construction Works 2015 (3rd Edition) as issued by the South African Institution of Civil Employer's Agent (hereinafter
 - b) referred to as "the GCC 2015"), as contained in the contract documents pertaining to this contract, or
 - c) the date of termination of the contract in terms of clauses 9.1, 9.2 or 9.3 of the GCC 2015

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3. The Principal Contractor declares himself to be conversant with the following:-
 - a) All the requirements, regulations and standards of the Occupational Health and Safety Act (Act 85 of 1993), hereinafter referred to as "The Act", together with its amendments and with special reference to the following Sections of The Act.
 - i) Section 8: General duties of employers to their employees.
 - ii) Section 9: General duties of employers and self-employed persons to persons other than employees.
 - iii) Section 37: Acts or omissions by employees or mandatories and
 - iv) Sub-section 37(2) relating to the purpose and meaning of this Agreement.
 - v) Construction Regulations 2014, and other safety regulations, as applicable.
 - b) The procedures and safety rules of the employer as pertaining to the Principal Contractor and to all his sub-contractors.
4. The Principal Contractor is responsible for the compliance with the Act by all his sub-contractors, whether or not selected and/or approved by the employer.
5. The Principal Contractor warrants that all his and his sub-contractors' employees are covered in terms of the Compensation for Occupational Injuries and Diseases Act 1993 which cover shall remain in force whilst any such employees are present on site. A letter of good standing from the Compensation Commissioner to this effect must be produced to the Employer upon signature of the agreement.
6. The Principal Contractor undertakes to ensure that he and/or his sub-contractors and/or their respective employees will at all times comply with the following conditions:
 - a) The Principal Contractor shall assume the responsibility in terms of Section 16.1 of the Occupational Health and Safety Act. The Principal Contractor shall not delegate any duty in terms of Section 16.2 of this Act without the prior written approval of the Employer. If the Principal Contractor obtains such approval and delegates any duty in terms of section 16.2 a copy of such written delegation shall immediately be forwarded to the Employer.
 - b) All incidents referred to in the Occupational Health and Safety Act shall be reported by the Principal Contractor to the Department of Labour as well as to the Employer. The Employer will further be provided with copies of all written documentation relating to any incident.
 - c) The Employer hereby obtains an interest in the issue of any formal enquiry conducted in terms of section 32 of the Occupational Health and Safety Act into any incident involving the Principal Contractor and/or his employees and/or his sub-contractors.

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In witness thereof the parties hereto have set their signatures hereon in the presence of the subscribing witnesses:

SIGNED FOR AND ON BEHALF OF THE EMPLOYER:.....

WITNESS: 1..... 2

NAME

(IN CAPITALS) 1..... 2

SIGNED FOR AND ON BEHALF OF THE CONTRACTOR:.....

WITNESS: 1..... 2

NAME

(IN CAPITALS) 1..... 2

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C1.3 PERFORMANCE GUARANTEE

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

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means:

Physical address:

"Employer" means:.....

"Contractor "means:

"Employer's Agent "means:.....

"Works" means:

"Site" means:

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

"Contract Sum" means: The accepted amount inclusive of tax of R Amount in words: "Guaranteed

Sum" means: The maximum aggregate amount of R Amount in words:

"Expiry Date" means:

CONTRACT DETAILS

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

PERFORMANCE GUARANTEE

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

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- 3.1 any reference in this Performance Guarantee to the Contract is made for the purpose of convenience and shall not be construed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a suretyship;
- 3.2 its obligation under this Performance Guarantee is restricted to the payment of money.
4. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 4.1 to 4.3:
 - 4.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Employer's Agent in an Interim or Final Payment Certificate has not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 4.2;
 - 4.2 A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) days has elapsed since the first written demand in terms of 4.1 and the sum certified has still not been paid;
 - 4.3 A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum certified in 4.
5. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Performance Guarantee, such demand stating that:
 - 5.1 the Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 5; or
 - 5.2 a provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Performance Guarantee is called up in terms of 5; and
 - 5.3 the aforesaid written demand is accompanied by a copy of the notice of termination and/or the provisional/final sequestration and/or the provisional liquidation court order.
6. It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 4 and 5 shall not exceed the Guarantor's maximum liability in terms of 1.
7. Where the Guarantor has made payment in terms of 5, the Employer shall upon the date of issue of the Final Payment Certificate submit an expense account to the Guarantor showing how all monies received in terms of this Performance Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of

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this Performance Guarantee shall bear interest at the prime overdraft rate of the Employer's bank compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund.

8. Payment by the Guarantor in terms of 4 or 5 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.
9. Payment by the Guarantor in terms of 5 will only be made against the return of the original Performance Guarantee by the Employer.
10. The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may deem fit and the Guarantor shall not have the right to claim his release from this Performance Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.
11. The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.
12. This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 2, where after no claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.
13. This Performance Guarantee, with the required demand notices in terms of 4 or 5, shall be regarded as a liquid document for the purposes of obtaining a court order.
14. Where this Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Courts Act No 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.

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Signed at

Date

Guarantor's signatory (1)

Capacity

Guarantor's signatory (2)

Capacity

Witness signatory (1)

Witness signatory (2)

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C1.4 CONTRACT DATA

C1.4.1 Conditions of Contract

The Conditions of Contract applicable are the General Conditions of Contract for Construction Works 3rd Edition (2015) published by the South African Institution of Civil Engineer's Agent, Private Bag X200, Halfway House, 1685

C1.4.2 Contract Specific Data

The following Contract Specific data, referring to the General Condition of Contract for Construction Works, 3rd Edition 2015 are applicable to this contract

Section 1: Data provided by the Employer

Clause	
1.1.1.5	The " Commencement date " shall be the date the Contractor is issued with a work permit and after the guarantees have been delivered.
1.1.1.15	The Employer is the Department of Roads and Transport, Roads Branch, Gauteng Provincial Government.
1.1.1.16	In this contract the Employers Agent is also referred to as the Employer's Agent. The Employer's Agent is WSP GROUP AFRICA (Pty) Ltd.
1.2.1	The employer's address for receipt of communication is: Telephone: 011 355 7050 Facsimile: 011 355 7003 Address: The Head of the Department Department of Roads and Transport Roads Branch Ground Floor Life Centre Building 45 Commissioner Street Johannesburg
1.2.1	The Employer's Agent's address for receipt of communication is: WSP Group Africa (Pty) Ltd Telephone: 011 361 1300 e-mail: K73@wsp.com Address: Building C Knightsbridge 33 Sloane Street Bryanston
2.5.1	No cession payments will be made.

Clause	
3.2.1	<p>The Employers Agent /Employer's Agent is required in terms of his appointment with the employer to obtain the following specific approvals from the Employer:</p> <p>Clauses 2.2.3, 3.2.2, 3.2.4, 4.4.2, 4.7, 5.7.3, 5.8.1, 5.11.1, 5.11.2, 5.12.4, 5.14, 5.16.1, 6.3.2, 6.4.1.4, 6.5, 6.6.1, 6.10.7, 6.11, 7.8.1 and 8.2.2.2</p>
3.2.3	<p>The Employer's Agent requires the Employer's approval in order to authorise any expenditure in excess of the Contract Sum.</p>
4.4.4	<p>The minimum Procurement requirements, regarding the portions of the Contract Price to be spent on sub-contractors and labour, are set out in clause C3.3 "Procurement" of the Scope of the Work.</p>
5.1.1.	<p>The non-working days are Sundays.</p> <p>The special non-working days are public holidays, Saturdays and Sundays and the annual SAFCEC shutdown periods. Written permission must be obtained to work during these days.</p> <p>The year-end break commences on 16 December 2021 and ends on 9 January 2022 and 16 December 2021 and ends 8 January 2022.</p>
5.3.1	<p>The Works are to be commenced within 14 days of the Commencement Date.</p>
5.5	<p>The Works shall be completed within twenty four (22) months, including the year-end break and special non-working days, as envisaged by the employer.</p>
5.6.1	<p>The Works programme is to be delivered within 14 days of the Commencement Date.</p>
5.13.1	<p>The penalty for delay is 1/30% of the contract price per calendar day or part thereof plus R20 000 per calendar day for all the Employer's Agent's costs including VAT as invoiced to the Employer for maintaining a presence on the site, from the day after the Due Completion Date up to and including the certified date of Practical Completion.</p>
5.16.3	<p>The latent defect Period is 10 years after the issue of Final Approval Certificate.</p>
6.2	<p>The Guarantee is to contain the same wording as the document included as the pro-forma referred to in Clause C1.3 in part C1 of the contract.</p> <p>The amount of the Guarantee is to be 10% of the Contract Price.</p> <p>The Guarantee (and Insurance) is to be delivered 14 days after the request to do so and the Form of Acceptance will not be signed before receipt of a Guarantee that is acceptable to the Employer. Failure to submit the guarantee within the 14 days will lead to the cancellation of the appointment.</p>
6.5.1	<p>Daywork allowances are set out in the dayworks schedule in section 1800 of the schedule of quantities.</p>
6.8.2	<p>The value of payment certificates is to be adjusted in accordance with the Contract Price Adjustment Schedule (GCC 2015, 3rd edition, page 86), where.</p> <p>The value of "x" is 0,15</p> <p>The values of the co-efficient are:</p>

Clause	
	<p>a = 0,25 b = 0,30 c = 0,35 d = 0,10</p> <p>“L” is the “Labour Index” and shall be the “Consumer Price Index” for the urban area specified in the Contract, as published in the Statistical Release P0141.1 in table 21 of Statistics South Africa.</p> <p>“P” is the “Plant Index” and shall be the “Civil Employer’s Agent Plant” index as published in the Statistical Release P0142.1 in table 16 of Statistics South Africa.</p> <p>“M” is the “Materials Index” and shall be the price index for “Civil Employer’s Agent (Materials)” as published in the Statistical Release P0142.1 in table 15 of Statistics South Africa.</p> <p>“F” is the “Fuel Index” and shall be the index for “Diesel oil” (Coast or Witwatersrand) as published in Statistical Release P0142.1 Table 16 of Statistics South Africa.</p> <p>The suffix “o” denotes the basic indices applicable to the base month, which shall be the month prior to the month in which the closing date for the tender falls.</p> <p>The suffix “t” denotes the current indices applicable to the month in which the last day of the period falls to which the relevant payment certificate relates.</p> <p>If any index relevant to any particular certificate is not known at the time when the certificate is prepared, the Employer’s Agent shall estimate the value of such index. Any correction, which may be necessary when the correct indices become known, shall be made by the Employer’s Agent in subsequent payment certificates.</p> <p>The site is located in the City of Johannesburg, Gauteng.</p> <p>The base month is one month prior to the closing date of the tender.</p>
6.8.3	<p>The following are special materials:</p> <p>Only the bitumen content of all bituminous products</p> <p>The rates and prices for the special materials shall be furnished by the contractor, which rates and prices ex refinery with the base date specified under 46.2 and shall exclude VAT but shall include all other obligatory taxes and levies on the basis specified in the contract price adjustment schedule (paragraph 4(i) and 4(ii)).</p>
6.10.1.5	<p>The percentage limit on materials not yet built into the Permanent Works is 80%.</p>
6.10.3	<p>The percentage retention is 10% of the work completed (excluding CPA and VAT).</p> <p>The limit of retention money is 5% of the tender sum (excluding CPA and VAT)</p> <p>A Retention Money Guarantee is not permitted.</p>
6.10.4	<p>The first payment certificate will only be processed after the completion of section 1400 in the Bill of Quantities, to the satisfaction of the Employer and/or the Employer’s Agent.</p> <p>The Minimum amount of interim payment certificates is R2 500 000</p>
7.8.1	<p>The Defects Liability Period is twelve (12) calendar months after final completion date.</p>

Clause	
8.6.1.3	The limit of the liability insurance required is R 50 000 000
8.6.1.5	The following additional and varied insurances are required: Not applicable.
10.4/10.5/10.6	Disputes are to be referred to Amicable Settlement .
10.7	Disputes are to be referred for final settlement to arbitration .
T2.1 M	<p>The additional Conditions of Contract are:</p> <p>Penalty for failure to comply with labour content and jobs created:</p> <p>Minimum Empowerment of Subcontractors and Females (MESF): MESF Penalty = Tender sum (excluding CPA & VAT) x (required MESF% - actual MESF %)</p> <p>Minimum Employment Creation (MEC): MEC Penalty = Tender sum (excluding CPA & VAT) x (required MEC % - actual MEC %)</p> <p>Geographical area for labour recruitment: in Ward 132 (Midrand)</p>

Section 2: Data provided by the Contractor

Clause	
1.1.1.9	The Contractor is
1.2.1	The Contractor's address for receipt of communication is: Contact Person: Telephone: Facsimile: e-mail:..... Address:.....
6.5.1	The percentage allowances to cover all charges for dayworks that cannot be paid for by using Section 1800 "Dayworks" in the Bill of Quantities%.
6.8.3	The rates for special materials , exclusive of Value Added Tax is to be completed in Schedule T2.3 C.
5.5.1	The Works shall be completed within months as proposed by the contractor

C1.4.3 Variations to the General Conditions of Contract

The following amendments of the General Conditions of Contract 2015 apply to this contract. The headings in these Special Conditions of Contract shall not be deemed to be part thereof nor be taken into consideration in the interpretation or construction thereof or of the Contract.

1.1 DEFINITIONS

1.1.1.2 "Bill of Quantities" and "Schedule of Quantities" shall have the same meaning.

1.1.1.15 "Employer" means the **Gauteng Department of Roads and Transport** represented by the Head of Department and/or such other person or persons duly authorised by the Employer in writing.

1.1.1.16 "Employer's Agent" means **WSP Group Africa (Pty) Ltd** as represented by a Director, Principal Associate or other person duly authorised thereto by WSP Group Africa.

3. Employer's Agent

3.1.1 In this contract the Employers Agent is also referred to as the Engineer.

3.2.2 Employer's Agent to consult with contractor and Employer

Replace the word "Employers Agent" in the last sentence with the word "Employer".

3.3.6 *Add the following to Sub clause 3.3.6:*

"The time limit for referring the matter to the Employer's Agent by the Contractor shall be fourteen (14) days after the decision in question was given by the Employer's Agent's Representative."

Add the following:

"3.3.7 Authority of the Employer

Notwithstanding any provisions to the contrary in the Contract, the Employer shall have the right to reverse and, should he deem it necessary, to amend any certificate, direction, decision or valuation of the Employer's Agent and to issue a new one, and such certificate, direction, decision or valuation shall for the purpose of the Contract be deemed to be issued by the Employer's Agent, provided that the Contractor shall be remunerated in the normal manner for work executed in good faith in terms of an instruction issued by the Employer's Agent and which has subsequently been rescinded."

4. CONTRACTORS' GENERAL OBLIGATIONS

4.1 EXTENT OF OBLIGATIONS AND LIABILITY

Add the following to sub-clause 4.1.1:

"The Contractor shall, save in so far as it is legally or physically impossible,

- (a) Provide all superintendence, labour, materials, Constructional Plant, Temporary Works, including the design thereof, all requisite transport and all other things, whether of a temporary or permanent nature, required in and for such design, execution and completion of the Works and for the remedying of any defects, so far as the necessity for providing the same is specified in or reasonably to be inferred from the Contract.

- (b) After award of the Contract, the Contractor shall be obligated to ensure that at least the Constructional Plant stated on the prescribed form in the Tender Documents, or Constructional Plant equivalent thereto, are on the site when required.”

Add the following sub clause:

“4.1.3 Contractor deemed to have inspected the Site

The Contractor shall be deemed to have inspected and examined the Site and its surroundings and information available in connection therewith and to have satisfied himself before submitting his tender (as far as practicable) as to

- (a) the form and nature of the Site and its surroundings, including subsurface conditions,
- (b) the hydrological and climatic conditions.
- (c) the extent and nature of work and materials necessary for the execution and completion of the Works,
- (d) the means of access to the Site and the Accommodation he may require and, in general, shall be deemed to have obtained all information (as far as is practicable) as to risks, contingencies and all other circumstances which may influence or affect his tender.

No subsequent claims by the Contractor arising from his lack of knowledge of perceptible conditions on the site or its surroundings or of information available in connection therewith shall be entertained.”

4.3 LEGAL PROVISION

Add the following to sub clause 4.3.1:

The Contractor shall, in fulfilling the Contract, comply with all applicable laws, *with regard to Health, Safety, Wages and Condition of Work*, regulations, statutory provisions and agreements, and shall, at the request to the Employer’s Agent, provide proof that he has complied therewith.

5.2 COMMENCEMENT OF THE WORKS

Add the following sub-clause:

5.2.2 .Payment of Obligations (13.01 (c))

Paragraph 8 the second sentence of 1303 (iii) (3) of the Standard Specifications for Road and Bridge Works for State Road Authorities page 1300-2 change the sentence starting “The tendered rate will be paid ...” to

“The tendered rate will be paid monthly, pro-rata for parts of a month from the commencement date until the end of the period for completion of the works, plus”

8. RISKS AND RELATED MATTERS

8.2 Care of works

Add the following sub clause.:

8.2.2.4 “The Contractor shall take care that property beacons, trigonometrical survey beacons or setting-out beacons are not displaced or destroyed without the consent of the Employer’s Agent.

Property beacons and trigonometrical survey beacons that have been displaced or destroyed shall be replaced by a registered land surveyor, who shall certify such replacement.

The cost of replacing all beacons displaced or destroyed during the course of the Contract without the consent of the Employer's Agent shall be borne by the Contractor."

9. TERMINATION OF CONTRACT

9.3 Termination by Contractor

Delete the wording of sub clause 9.3.1.2 and replace this clause with the following:

9.3.1.2 "Failing to pay the contractor the amount due in terms of any payment certificate issued by the Employer's Agent, provided that such payment certificate is acceptable to the Employer and further more subject to the provision of sub-clause 3.3.7, within the time of payment provided in the contract, or."

10. CLAIMS AND DISPUTES

Add the following sub clause:

"10.12 Joint ventures

If the Contractor is in a joint venture of two or more parties or persons, the parties or persons shall be jointly and severally bound to the Employer for fulfilment of the Contractor's obligations and terms of this Contract. The formation and/or conditions of agreement of the joint venture shall not be altered without the consent of the Employers. Should such a change be acceptable to the Employer then two notarially certified copies of the revised Joint Venture Agreement shall be submitted to the Employer's Agent within fourteen (14) days of signature thereof by the parties to the Joint Venture."

TENDER NO. DRT 26/07/2019

CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD), UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71 (PITTS AVENUE)

PART C2: PRICING DATA

C2.1	PRICING INSTRUCTIONS	C-25
C2.2	BILL OF QUANTITIES	C-27

C2.1 PRICING INSTRUCTIONS

1. Measurement and payment shall be in accordance with the relevant provisions of the COLTO Standard Specification for Road and Bridge Works for State Authorities (1998 edition), subject to the amendments and additions in the Scope of Works:

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

mm	=	millimetre	h	=	hour
m	=	metre	kg	=	kilogram
km	=	kilometre	t	=	ton (1000 kg)
m ²	=	square metre	No.	=	number
m ² -pass	=	square metre-pass	sum	=	lump sum
ha	=	hectare	MN	=	meganewton
m ³	=	cubic metre	MN.m	=	meganewton-metre
m ³ -km	=	cubic metre-kilometre	P C sum	=	Prime Cost sum
l	=	litre	Prov sum	=	Provisional sum
kl	=	kilolitre	%	=	per cent
MPa	=	megapascal	kW	=	kilowatt
LJ	=	refer to sub-clause 12 of Clause C2.1	W/day	=	Work day

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

Unit: The unit of measurement for each item of work as defined in the COLTO Standard Specification for Road and Bridge Works for State Authorities (1998 edition).

Quantity: The number of units of work for each item.

Rate: The agreed payment per unit of measurement.

Amount: The product of the quantity and the agreed rate for an item.

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

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

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

6. A price or rate is to be entered against each item in the Bill of Quantities, whether the quantities are stated or not. An item against which no price is entered will be considered to be covered by the other prices or rates in the Bill of Quantities.

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

8. The short descriptions of the items of payment given in the Bill of Quantities are only for the purposes of identifying the items. More details regarding the extent of the work entailed under each item appear in the Scope of Work.
9. The item numbers appearing in the Bill of Quantities refer to the corresponding item numbers in the COLTO Standard Specification for Road and Bridge Works for State Authorities (1998 edition). Item numbers prefixed by the letter B refer to payment items described under part B of the Project Specifications, those with C to payment items described under part C, and so on for further parts of the project specifications.

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C2.2 BILL OF QUANTITIES

REFER TO BOQ ATTACHED TO THIS PAGE

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
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(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

SECTION 1200: GENERAL REQUIREMENTS AND PROVISIONS

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
1200	GENERAL REQUIREMENTS AND PROVISIONS					
B12.01	Relocation and/or Protection of Existing Services					
	(i) Relocation/Protection of existing electrical services	Prov sum	1.0	2,500,000.00	2,500,000	00
	(ii) Relocation/Protection of existing water services	Prov sum	1.0	800,000.00	800,000	00
	(iii) Relocation/Protection of existing sewer services	Prov sum	1.0	800,000.00	800,000	00
	(iv) Relocation/Protection of existing Telecommunication services	Prov sum	1.0	600,000.00	600,000	00
B12.02	Relocation and installation of Traffic Signals	Prov sum	1.0	4,000,000.00	4,000,000	00
B12.03	Provision of professional surveying services to complete land survey of the road reserve and supply information to the Engineer	Prov sum	1.0	200,000.00	200,000	00
B12.04	Handling cost and profit on items B12.01 to B12.03	%	8,400,000.0			
B12.06	Supply and installation of contract sign boards (as per GDRT specifications)	No.	3.0			
B12.07	Installation of new street lights complete including cabling, excavations and backfill to electrical engineers specification	Prov sum	1.0	6,000,000.00	6,000,000	00
B12.08	Demolition of existing brick structures, stormwater structures, culvert wing walls, culverts, outlet/inlet structures, culvert bases and concrete slabs/surface beds as specified by the Employer's Agent.	Prov sum	1.0	500,000.00	500,000	00
B12.09	Handling cost and profit on items B12.07 and B12.08	%	6,500,000.00			
Total Carried Forward To Summary						

SINGED BY CONTRACTOR.....

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SCHEDULE A: ROADWORKS

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

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
1300	CONTRACTOR'S ESTABLISHMENT ON SITE AND GENERAL OBLIGATIONS					
B13.01	The Contractor's General Obligations					
	(a) Fixed obligations	L/sum	1.0			
	(b) Value-related obligations	L/sum	1.0			
	(c) Time-related obligations	Month	22.0			
Total Carried Forward To Summary						

SIGNED BY CONTRACTOR.....

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(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

SECTION 1400: HOUSING, OFFICES AND LABORATORY FOR THE ENGINEER'S SITE PERSONNEL

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
14	HOUSING, OFFICES AND LABORATORY FOR THE ENGINEER'S SITE PERSONNEL					
14.01	Office and laboratory accommodation					
	(a) Offices (interior floor space only)	m ²	120.0			
	(b) Laboratories (interior floor space only)	m ²	100.0			
	(c) Open concrete working floors	m ²	100.0			
	(d) Roof covers for open concrete working floors	m ²	100.0			
	(e) Ablution units	m ²	14.0			
	(f) Stores	m ²	40.0			
B14.02	Office and laboratory furniture					
	(a) Chairs					
	(i) Ergonomic highbackl chairs (swivel with casters)	No	7.0			
	(ii) Boardroom/visitor chairs	No	34.0			
	(d) Desks, complete with drawers and locks	No	7.0			
	(e) Drawing tables	No	2.0			
	(f) Conference tables	No	1.0			
B14.03	Office and laboratory fittings Installations and equipment					
	(a) Items measured by number					
	(i) 220/250 volt power points	No	30.0			
	(iii) Double 80 watt fluorescent light fittings complete with ballast and tubes	No	20.0			
	(iv) Double 55 watt fluorescent light fittings complete with ballast and tubes	No	10.0			
	(v) Single incandescent light fittings complete with 100 watt globes	No	5.0			
	(vi) Hand wash basins complete with taps and drains	No	4.0			
	(vii) Laboratory basins complete with swan-neck taps and drains	No	4.0			
	(viii) Extractor fans installed complete with own power connection	No	2.0			
	(x) Fire extinguishers, 9,0 kg,all purpose dry powder type, complete, mounted on wall with brackets	No	3.0			
Total Carried Forward						

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SCHEDULE A: ROADWORKS

SECTION 1400: HOUSING, OFFICES AND LABORATORY FOR THE ENGINEER'S SITE PERSONNEL

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
Brought Forward						
	(xi) Air conditioning units with 2,2 kW minimum capacity, mounted and with own power connection	No	6.0			
	(xiii) Curing chamber for UCS specimens, complete with water connection, including the provision of brick partitions, plaster, paint and shelving, all complete according the drawings	No	1.0			
	(xiv) General-purpose steel cupboards with shelves	No	6.0			
	(xv) Steel filing cabinets with drawers	No	5.0			
	(xvi) Refrigerators	No	2.0			
	(xvii) Bookcases	No	6.0			
	(xviii) Voltage stabilizers	No	3.0			
	(xix) Microwave oven with a minimum capacity of 30 litres	No	2.0			
	(xx) Floodlights complete with poles and 500 Watt minimum globes	No	3.0			
	(b) Prime-cost items and items paid for in a lump sum:					
	(i) The provision of internet service, including the cost of data, installation and wireless router in connection with contract administration	PC Sum	1.0	40,000.00	40,000	00
	(ii) Handling costs and profit in respect of subsubitem 14.03(b)(i) above	%	40,000.0			
	(iii) Provision of cellphone services, including the cost of contract and calls in connection with contract administration	PC Sum	1.0	90,000.00	90,000	00
	(iv) Handling costs and profit in respect of subsubitem 14.03(b)(iii)above	%	90,000.0			
	(v) Provision of laptop computer, software printers and tablets for the use by the Employer's Agent	PC Sum	1.0	100,000.00	100,000	00
	(vi) Handling costs and profit in respect of sub-item B14.03(b)(v) above	%	100,000.0			
	(vii) The provision of 400/231 volt 3-phase electrical power installations, including all wiring, switchboards, mains connections, etc	L/sum	1.0			
	(viii) The provision of gas installations, including gas-storage cylinders, tubing, regulators, gas burners and shut-off cocks	L/sum	1.0			
	(c) Items measured by area					
	(i) Shelving as specified, complete with brackets	m ²	40.0			
Total Carried Forward						

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SCHEDULE A: ROADWORKS

SECTION 1400: HOUSING, OFFICES AND LABORATORY FOR THE ENGINEER'S SITE PERSONNEL

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
Brought Forward						
	(ii) Work-benches complete with concrete slab top, minimum thickness 75mm	m ²	50.0			
	(iii) Work benches complete with wooden top, minimum thickness 25mm	m ²	15.0			
	(iv) Constant temperature baths and/or plastered brick	m ²	10.0			
	(v) Foundations for laboratory equipment	m ²	10.0			
	(vii) Venetian blinds	m ²	6.0			
	(viii) Notice boards as specified	m ²	6.0			
14.04	Car ports					
	(a) Car ports, as specified, at offices and laboratory buildings	No	6.0			
14.07	Rented, hotel and other accommodation					
	(a) Provisional sum for providing rented housing, hotel or other accommodation as described in sub-subclause 14.03(c)(ii) (where the Engineer is not from Gauteng)	Prov sum	1.0	1,000,000.00	1,000,000	00
	(b) Handling costs and profit in respect of subitem 14.07(a)	%	1,000,000.0			
14.08	Services					
	(a) Services at office and laboratories					
	(i) Fixed costs	L/sum	1.0			
	(ii) Running costs	Month	22.0			
14.10	Provision of photostat facilities	Month	22.0			
Total Carried Forward To Summary						

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SCHEDULE A: ROADWORKS

SECTION 1500: ACCOMMODATION OF TRAFFIC

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
1500	ACCOMMODATION OF TRAFFIC					
B15.01	Accommodating traffic and maintaining temporary deviations	Month	22.0			
B15.03	Temporary traffic-control facilities					
	(a) Flagmen as ordered by Employers Agent	man-day	1,200.0			
	(b) Portable STOP and GO-RY signs	No	2.0			
	(d) Amber flicker lights	No	10.0			
	(e) Road signs, R- and TR-series					
	(i) 900mm diameter	No	100.0			
	(ii) 1200mm diameter	No	65.0			
	(f) Road signs, TW-series, with distance board					
	(i) 1200mm sides	No	10.0			
	(ii) 1500mm sides	No	5.0			
	(g) Road signs, STW-, DTG-, TGS- AND TG-series (excluding delineators and barricades)	m ²	45.0			
	(h) Delineators (TWW 401 and TW 402)					
	(i) Single (800mm x 200mm)	No	1,500.0			
	(ii) Mounted back to back (800mm x 200mm)	No	200.0			
	(i) Moveable barricade/road sign combination	No	1,000.0			
	(n) Other traffic control measures ordered by the Employers Agent:					
	(i) Provision of other traffic control measures	Prov sum	1.0	180,000.00	180,000	00
	(ii) Handling costs and profit in respect of subitem B15.03(n)(i)	%	180,000.00			
15.08	Repairs, alterations and/or additions to existing roads used as temporary deviations	Prov sum	1.0	2,500,000.00	2,500,000	00
	(i) Handling costs and profit in respect of subitem B15.08	%	2,500,000.00			
B15.14	Amber flashing lights mounted on signs	No	10.0			
B15.15	Provision of traffic safety equipment for use by the Employers Agent					
	(a) Safety jackets	No	8.0			
Total Carried Forward						

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SCHEDULE A: ROADWORKS

SECTION 1600: OVERHAUL

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
1600	OVERHAUL					
B16.02	Overhaul on material hauled in excess of 4,0 km (ordinary overhaul)	m ³ .km	550,000.0			
Total Carried Forward To Summary						

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SCHEDULE A: ROADWORKS

SECTION 1700: CLEARING AND GRUBBING

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
1700	CLEARING AND GRUBBING					
B17.01	Clearing and grubbing	ha	24.0			
17.02	Removal and grubbing of large trees and tree stumps					
	(a) Girth exceeding 1m up to and including 2m	No	30.0			
	(b) Girth exceeding 2m up to and including 3m	No	20.0			
17.04	Clearing and grubbing at inlets and outlets of hydraulic structures	m ²	200.0			
Total Carried Forward To Summary						

SIGNED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

SECTION 1800: DAYWORKS

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
1800	DAYWORKS					
B18.01	PERSONNEL					
	(a) Unskilled Labour	h	1,200.0			
	(b) Semi-skilled labour	h	400.0			
	(c) Skilled labour	h	300.0			
	(d) Surveyor	h	120.0			
	(e) Foreman	h	200.0			
B18.02	EQUIPMENT					
	(a) Grader - 140kW	h	50.0			
	(b) Roller	h	100.0			
	(c) Excavator	h	100.0			
	(d) TLB	h	200.0			
	(e) 10m3 Tipper Truck	h	200.0			
	(f) Small plant and tools	Prov sum	1.0	50,000.00	50,000	00
B18.03	Materials					
	(a) Procurement of materials	Prov sum	1.0	200,000.00	200,000	00
	(b) Contractor's handling costs, profit and and all other charges in respect of subitem B18.03(a)	%	200,000.00			
B18.04	Transport					
	(a) LDV	km	5,000.0			
	(b) Flatbed truck	km	350.0			
Total Carried Forward To Summary						

SINGED BY CONTRACTOR.....

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UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
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(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

SECTION 2100: DRAINS

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
2100	DRAINS					
21.01	Excavation for open drains:					
	(a) Excavating soft material situated within the following depth ranges below the surface level:					
	(i) 0 m up to 1,5 m	m ³	16,000.0			
	(ii) Exceeding 1,5 m and up to 3,0 m	m ³	250.0			
	(b) Extra over subitem B21.01(a) for excavation in hard material, irrespective of depth	m ³	150.0			
21.02	Clearing and shaping existing open drains	m ³	80.0			
21.03	Excavation for subsoil drainage systems:					
	(a) Excavating soft material situated within the following depth ranges below the surface level:					
	(1) 0 m up to 1,5 m	m ³	5,113.0			
	(2) Exceeding 1,5 m and up to 3,0 m	m ³	3,410.0			
	(3) Etc, in increments of 1,5 m					
	(b) Extra over subitem B21.03(a) for excavation in hard material irrespective of depth	m ³	1,533.9			
21.04	Impermeable backfilling to subsoil drainage systems	m ³	3,560.0			
21.05	Banks and dykes	m ³	3,400.0			
21.06	Natural permeable material in subsoil drainage systems (crushed stone):					
	(b) Crushed stone obtained from commercial sources					
	(2) Coarse-Grade - 19mm	m ³	3,550.0			
21.07	Natural permeable material in subsoil drainage systems (sand):					
	(b) Sand from commercial sources					
	(2) Medium Grade <2.00mm	m ³	480.0			
	(3) Fine Grade <0.25mm	m ³	40.0			
21.08	Pipes in subsoil drainage systems:					
	(b) Unplasticised PVC pipes and fittings, normal duty complete with couplings					
	(1) 100 mm internal dia. perforated or slotted	m	11,836.0			
Total Carried Forward						

SINGED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
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K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

SECTION 2100: DRAINS

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
Brought Forward						
	(2) 100 mm internal dia. unperforated	m	100.0			
	(3) 150 mm internal dia. perforated or slotted	m	200.0			
	(4) 150 mm internal dia. unperforated	m	200.0			
21.09	Polyethylene sheeting 0,15 mm thick, or similar, approved material, for lining subsoil drainage systems	m ²	1,000.0			
21.10	Synthetic-fibre filter fabric					
	(a) Grade 2	m ²	15,150.0			
21.12	Concrete outlet structures, manhole boxes, junction boxes and cleaning eyes for subsoil drainage systems:					
	(a) Outlet structures	No.	48.0			
	(b) Manholes boxes	No.	6.0			
	(c) Junction boxes	No.	5.0			
	(d) Cleaning eyes	No.	46.0			
21.13	Concrete caps for subsoil drain pipes	No.	46.0			
21.17	Test flushing of pipe subsoil drains	No.	46.0			
21.19	Selected backfill material under concrete-lined side drains compacted to 93% maximum dry density	m ³	1,051.5			
B21.20	Exposing of existing subsoil drains	m ³	25.0			
B21.21	Clearing of existing subsoil drains	m	500.0			
B21.22	Shaping and cleaning existing unlined open drains:					
	(a) Soft material	m ³	150.0			
	(b) Hard material	m ³	28.0			
B21.23	Break into existing drainage structures and install subsoil drainage	No.	9.0			
B21.24	Removing of existing subsoil drains in the following depths:					
	(a) 0 m up to 0,5 m	m	50.0			
	(b) Exceeding 0,5 m up to 1,0 m	m	300.0			
	(c) Deeper than 1,0 m	m	20.0			
Total Carried Forward						

SIGNED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
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(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

SECTION 2100: DRAINS

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
Brought Forward						
B21.25	Geocell Drain - High Dynamic/Elastic Modulus Geocell >450MPa @ 60 Degree Celcius, Low permanent deformation (creep) <3% at the end of design life (UV and oxidation resistant, weld distance: 356mm, height: 100mm, filled with low grade (20MPa) concrete (infill 100mm + overfill 15mm = 115mm)	m²	900.0			
B21.26	Separation sheet, non woven geotextile (Bidem A2 or similar approved)	m²	900.0			
Total Carried Forward To Summary						

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K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

SECTION 2200: PREFABRICATED CULVERTS

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
2200	PREFABRICATED CULVERTS					
22.01	Excavation					
	(a) Excavating soft material situated within the following depth ranges below the surface level:					
	(i) 0 m up to 1.5 m	m ³	6,555.0			
	(ii) Exceeding 1,5 m and up to 3,0 m	m ³	3,950.0			
	(iii) Exceeding 3,0 m and up to 4,5 m	m ³	250.0			
	(iv) Exceeding 4,5 m and up to 6,0 m	m ³	22.0			
	(iv) Exceeding 6,0 m and up to 7,5 m	m ³	8.0			
	(b) Extra over subitem 22.01(a) for excavation in hard material, irrespective of depth	m ³	1,950.0			
	(c) Extra over hand excavation due to services	m ³	2,500.0			
22.02	Backfilling:					
	(a) Using the excavated material	m ³	6,215.0			
	(b) Using imported selected material	m ³	2,875.0			
	(c) Extra over subitems 22.02(a) and (b) for soil cement backfilling (1:12 mixture)	m ³	260.0			
22.03	Concrete pipe culverts:					
	(b) On class B bedding					
	(i) 450mm dia. Type 50D	m				Rate Only
	(ii) 450mm dia. Type 100D	m				Rate Only
	(ii) 600mm dia. Type 50D	m	1,930.0			
	(iv) 600mm dia. Type 100D	m	1,500.0			
	(iii) 750mm dia. Type 50D	m	520.0			
	(iii) 750mm dia. Type 100D	m	700.0			
	(iv) 900mm dia. Type 50D	m	490.0			
	(iv) 900mm dia. Type 100D	m	190.0			
22.05	Portal and rectangular culverts:					
	(b) Without prefabricated floor slabs					
	(i) 2400mm x 900mm Type 75S	m	14.2			
Total Carried Forward						

SINGED BY CONTRACTOR.....

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**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
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(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

SECTION 2200: PREFABRICATED CULVERTS

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
Brought Forward						
22.07	Cast in situ concrete and formwork					
	(b) In floor slabs for portal or rectangular culverts, including formwork and class U2 surface finish (Class 30/19 concrete)	m ³	15.0			
	(c) In inlet and outlet structures, skewed ends, catchpits, manholes, thrust and anchor blocks, excluding formwork but including class U2 surface finish (Class 30/19 concrete)	m ³	77.0			
	(d) Formwork of concrete under subitem 22.07(c) above					
	(i) Vertical formwork for F1 surface finish	m ²	300.0			
	(ii) Vertical formwork for F2 surface finish	m ²	300.0			
22.10	Steel reinforcement					
	(a) Mild steel bars	t	1.8			
	(b) High-tensile steel bars	t	2.0			
	(c) Welded steel fabric	kg	1,500.0			
B22.12	Removing existing concrete					
	(a) Plain concrete	m ³	30.0			
	(b) Reinforced concrete	m ³	30.0			
22.17	Manholes, catchpits, precast inlet and outlet structures complete:					
	(a) Manholes - Drawing GRP 15-76-120 DOT, Medium duty - 2m deep	No.	20.0			
	(b) Field Inlets - Drawing GRP 15-76-120 DOT - 1.5m deep	No.	36.0			
	(c) Grid Inlets - GDRT Standard Plan No. GTD 4/1	No.	35.0			
	(d) Kerb Inlets					
	(1) Type A - GDRT Standard Plan No. GTD 10/1	No.	40.0			
22.18	Brickwork					
	(b) 230 mm thick	m ²	180.0			
22.21	Accessories					
	(a) Manhole covers including frames	No.	11.0			
	(b) Inlet grids including frames	No.	27.0			
22.23	Service Ducts					
Total Carried Forward						

SIGNED BY CONTRACTOR.....

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**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
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K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

SECTION 2200: PREFABRICATED CULVERTS

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
Brought Forward						
	(a) Ordinary pipes					
	i) 110mm dia, uPVC	m	5,500.0			
	ii) 160mm dia, uPVC	m	5,500.0			
22.24	Duct marker blocks					
	(b) Aluminium type grouted on top of kerb	No.	50.0			
22.25	Overhaul in excess of 4km on excavated material carted to spoil, backfill material (but excluding cement in the case of soil cement), existing structures demolished and removed to spoil, and removing and relaying, and removing and stacking existing prefabricated culverts, for haul in excess of the 4.0km free-haul distance	m ³ .km	7,500.0			
22.26	Hand excavation to determine the position of existing services	m ³	250.0			
22.27	Reinstating trenches crossing road:					
	(a) Selected layers	m ²	100.0			
	(b) Subbase	m ²	100.0			
	(c) Base (including prime coat)	m ²	100.0			
	(d) Bituminous surfacing (including tack coat)	m ²	100.0			
	(e)Kerbing	m	20.0			
B22.29	Breaking into existing drainage structures and building in pipes of all diameters	No.	2.0			
B22.30	Breaking into existing stormwater culverts of all sizes to construct inlets	No.	2.0			
B22.31	Directional drilling for Traffic Signals and service ducts inclusive of establishment/destablishment cost in all material types.					
	(a) Augering	m	500.0			
	(b) 160mm Dia HDPE sleeves	m	500.0			
Total Carried Forward To Summary						

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(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

SECTION 2300: CONCRETE KERBING, CONCRETE CHANNELLING, CHUTES AND DOWNPIPES, AND CONCRETE LININGS
FOR OPEN DRAINS

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
2300	CONCRETE KERBING, CONCRETE CHANNELLING, CHUTES AND DOWNPIPES, AND CONCRETE LININGS FOR OPEN DRAINS					
23.01	Concrete kerbing (U2 surface finish, class 30/19 concrete)					
	(a) Figure 8c kerbing to SABS 927					
	(i) Linear	m	30.0			
	(ii) Radius 1m to 4m	m	30.0			
	(iii) Radius 4.01m to 20m	m	1,000.0			
	(b) Figure 10					
	(i) Linear	m	2,000.0			
	(ii) Radius 1m to 4m	m	230.0			
	(iii) Radius 4.01m to 20m	m	100.0			
B23.02	Concrete kerbing-channelling combination (U2 surface finish on channel, class 30/19 concrete) (as per detail in pavement design drawing)					
	(a) Precast kerbing + Channel to SABS 927 (300mm channel included)					
	(1) Figure 7 kerb					
	(i) Linear	m	800.0			
	(ii) Radius 1m to 4m	m	60.0			
	(iii) Radius 4.01 m to 20 m	m	40.0			
	(2) Figure 3 kerb					
	(i) Linear	m	6,000.0			
	(ii) Radius 1m to 4m	m	60.0			
	(iii) Radius 4.01 m to 20 m	m	400.0			
23.03	Concrete chutes					
	(a) Precast concrete chute down chutes (Class 30/19 concrete)	m	240.0			
23.05	Inlet, outlet, transition and similar structures (typical designs):					
	(a) Inlet structures on high fills complete	No.	12.0			
	(b) Outlet structures for pipe chutes on high fills complete	No.	12.0			
Total Carried Forward						

SINGED BY CONTRACTOR.....

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**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
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K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

SECTION 2300: CONCRETE KERBING, CONCRETE CHANNELLING, CHUTES AND DOWNPIPES, AND CONCRETE LININGS
FOR OPEN DRAINS

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
Brought Forward						
	(c) Outlet structures for concrete side drains complete	No.	14.0			
23.07	Trimming of excavations for concrete-lined open drains					
	(a) In soft material	m ²	12,010.0			
	(b) In hard material	m ²	400.0			
23.08	Concrete lining for open drains complete					
	(a) Cast in situ concrete lining class 30/19 concrete					
	(i) Side drain - 2.5m wide	m ³	1,020.0			
	(ii) Median V-drain - 1m wide	m ³	198.0			
	(b) Class U2 surface finish to cast in situ concrete for all types open drains	m ²	12,010.0			
23.09	Formwork to cast in situ concrete lining for open drains (Class F2 surface finish)					
	(b) To sides with formwork on both internal and external faces (each face measured)	m ²	1,230.0			
	(c) To ends of slabs	m ²	500.0			
23.10	Sealed joints in concrete linings of open drains					
	(a) 10mm Flexcell" or similar approved"	m	4,990.0			
23.12	Steel reinforcement					
	(c) Welded steel fabric (Ref. no. 311)	kg	35,490.0			
23.13	Polyethylene sheeting (0,15 mm thick) for concrete lined open drains	m ²	12,010.0			
23.14	Cutting bituminous surfacing and pavement layers for concrete kerbing, channelling or concrete-lined drains	m	800.0			
23.15	Precast concrete blocks in outlet structures	No.	60.0			
B23.16	Pedestrian ramps as per JRA specifications	No.	73.0			
Total Carried Forward To Summary						

SIGNED BY CONTRACTOR.....

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**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

SECTION 3200: SELECTION, STOCKPILING AND BREAKING DOWN THE MATERIAL FROM BORROW PITS, CUTTINGS AND EXISTING PAVEMENT LAYERS, AND PLACING AND COMPACTING OF THE GRAVEL LAYERS

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
32.00	SELECTION, STOCKPILING AND BREAKING DOWN THE MATERIAL FROM BORROW PITS, CUTTINGS AND EXISTING PAVEMENT LAYERS, AND PLACING AND COMPACTING THE GRAVEL LAYERS					
32.01	Providing a crushing and/or screening plant					
	(d) Multiple-stage crusher and screening plant	No	1.0			
32.03	Crushing and screening					
	(d) Multiple-stage crushing and screening	m³	52,000.0			
32.04	Removal of oversize pavement material	m³	2,000.0			
Total Carried Forward To Summary						

SINGED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
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(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

SECTION 3300: MASS EARTHWORKS

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
3300	MASS EARTHWORKS					
33.01	Cut and borrow to fill, including free-haul up to 4km					
	(a) Gravel material in compacted layer thickness of 200 mm and less:					
	(ii) Compacted to 93% of mod Aashto density	m ³	230,000.0			
	(e) Pioneer layer	m ³	3,000.0			
33.03	Extra over item B33.01 for excavating and breaking down material in:					
	(a) Intermediate excavation	m ³	25,000.0			
	(b) Hard excavation	m ³	15,000.0			
	(c) Boulder excavation class A	m ³	5,000.0			
	(d) Boulder excavation class B	m ³	5,000.0			
33.04	Cut to spoil, including free-haul up to 4 km					
	(a) Soft excavation	m ³	25,000.0			
	(b) Hard excavation	m ³	14,000.0			
33.10	Roadbed preparation and the compaction of material (G8)					
	(a) Compaction to 93% of mod Aashto Density	m ³	22,350.0			
33.13	Finishing-off cut and fill slopes, medians and interchange areas:					
	(a) Cut slopes	m ²	38,000.0			
	(b) Fill slopes	m ²	38,000.0			
	(c) Medians and interchange areas	m ²	21,788.0			
33.14	Extra over item 33.01 for excavating material from the pavements and fills of existing roads:					
	(a) Non-cemented material	m ³	2,000.0			
	(b) Cemented material	m ³	800.0			
B33.20	Fill material obtained from commercial sources					
	(a) Gravel material in compacted layer thickness of 200 mm					
	(ii) Compacted to 93% of mod Aashto density	m ³	20,000.0			
	(e) Rockfill (3209(c)) and/or Pioneer Layer (3307(c))	m ³	5,000.0			
33/32.06	Stockpiling of Material	m ³	80,000.0			
Total Carried Forward To Summary						

SINGED BY CONTRACTOR.....

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(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

SECTION 3400: PAVEMENT LAYERS OF GRAVEL MATERIAL

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
3400	PAVEMENT LAYERS OF GRAVEL MATERIAL					
34.01	Pavement layers constructed from gravel material obtained from cut or borrow					
	(a) Gravel selected layer compacted to:					
	(i) 93% of mod AASHTO density (G7 compacted layer thickness 150mm)	m³	17,410.0			
	(ii) 95% of mod AASHTO density (G6 compacted layer thickness 150mm)	m³	9,750.0			
	(d) Gravel subbase (chemically stabilized material) compacted to:					
	(i) 97% of mod AASHTO density (C3 compacted layer thickness 150mm)	m³	4,890.0			
	(ii) 95% of mod AASHTO density (C4 compacted layer thickness 150mm)	m³	7,300.0			
	(g) Gravel shoulder compacted to:					
	(i) 95% of mod AASHTO density (G6 compacted layer thickness 150mm)	m³	2,510.0			
	(i) Gravel shoulder in median under block pavers compacted to:					
	(i) 95% of mod AASHTO density (C4 compacted layer thickness 150mm)	m³	515.0			
	(ii) 93% of mod AASHTO density (G7 compacted layer thickness 150mm)	m³	2,060.0			
B34.14	Pavement layers constructed from gravel material obtained from commercial sources					
	(a) Gravel selected layer compacted to:					
	(i) 93% of mod AASHTO density (G7 compacted layer thickness 150mm)	m³	4,350.0			
	(ii) 95% of mod AASHTO density (G6 compacted layer thickness 150mm)	m³	9,350.0			
	(d) Gravel subbase (chemically stabilized material) compacted to:					
	(i) 97% of mod AASHTO density (C3 compacted layer thickness 150mm)	m³	13,150.0			
	(ii) 95% of mod AASHTO density (C4 compacted layer thickness 150mm)	m³	14,180.0			
	(g) Gravel shoulder compacted to:					
Total Carried Forward						

SINGED BY CONTRACTOR.....

CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD), UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71 (PITTS AVENUE)

SCHEDULE A: ROADWORKS

SECTION 3400: PAVEMENT LAYERS OF GRAVEL MATERIAL

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
Brought Forward						
	(i) 95% of mod AASHTO density (G6 compacted layer thickness 150mm)	m ³	2,515.0			
	(i) Gravel shoulder in median under block pavers compacted to:					
	(i) 95% of mod AASHTO density (C4 compacted layer thickness 150mm)	m ³	2,060.0			
	(ii) 93% of mod AASHTO density (G7 compacted layer thickness 150mm)	m ³	515.0			
Total Carried Forward To Summary						

SIGNED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
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(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

SECTION 3500: STABILIZATION

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
3500	STABILIZATION					
B35.01	Chemical stabilization extra over unstabilized compacted layers (b) Subbase (i) 150mm thickness	m ³	44,300.0			
B35.02	Chemical stabilization agent: (a) Cement CEM II 32,5N (b) Slaked road lime	t	3,100.0			
35.04	Provision and application of water for curing	kl	20,000.0			
35.13	Extra over items for B35.01 for trial sections	m ³	180.0			
Total Carried Forward To Summary						

SIGNED BY CONTRACTOR.....

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
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(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

SECTION 3800: BREAKING UP EXISTING PAVEMENT LAYERS

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
3800	BREAKING UP EXISTING PAVEMENT LAYERS					
B38.01	Excavating and removing existing pavement material including free-haul of 15km to point of use or stockpile					
	(a) Asphalt					
	(1) Not exceeding 50 mm	m ³	280.0			
	(2) Exceeding 50 mm but not exceeding 100 mm	m ³	120.0			
	(b) Non-cemented material					
	(1) Not exceeding 150 mm	m ³	20.0			
	(2) Exceeding 150 mm but not exceeding 300 mm	m ³	20.0			
B38.02	Milling out existing bituminous material with an average milling depth:					
	(a) Asphalt					
	(1) Not exceeding 50 mm	m ³	450.0			
	(2) Exceeding 50 mm but not exceeding 100 mm	m ³	25.0			
	(b) Non-cemented material					
	(1) Not exceeding 150 mm	m ³	20.0			
	(2) Exceeding 150 mm but not exceeding 300 mm	m ³	500.0			
	(c) Cemented material					
	(1) Not exceeding 150 mm	m ³	20.0			
	(2) Exceeding 150 mm but not exceeding 300 mm	m ³	200.0			
38.07	Extra over items 38.02 and 38.03 for tapering the milled excavation edges or ends	m ³	20.0			
38.08	Sawing or cutting asphalt or cemented pavement layers:					
	(a) Sawing asphalt	m ²	40.0			
38.09	Removing the remaining asphalt from the underlying layer	m ²	5,000.0			
B38.14	Providing the milling machine on the site irrespective of the number of establishments (Drum width and pick configuration to ensure compliance with specifications tolerances)	L/sum	1.0			
B38.15	Moving the milling machine on the site irrespective of the number of moves	L/sum	1.0			
Total Carried Forward To Summary						

SIGNED BY CONTRACTOR.....

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
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(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

SECTION 4100: PRIME COAT

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
4100	PRIME COAT					
B41.01	Prime coat: (f) Invert bitumen emulsion (MSP 1 or similarly approved)	ℓ	97,000.0			
41.02	Aggregate for blinding	m²	415.0			
41.03	Extra over item 41.01 for applying the prime coat in areas accessible only to hand held equipment	ℓ	6,000.0			
Total Carried Forward To Summary						

SINGED BY CONTRACTOR.....

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**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
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(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

SECTION 4200: ASPHALT BASE AND SURFACING

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
4200	ASPHALT BASE AND SURFACING					
42.01	Asphalt base (varying thickness, 40/50 penetration grade bitumen and maximum 26.5mm aggregate size).					
	(a) Continuously graded	t	600.0			
B42.02	Asphalt surfacing					
	(a) Continuously graded					
	(i) Mix A - 40mm thick continuously (coarse) graded asphalt (50/70 bitumen penetration grade)	m ²	12,000.0			
	(ii) Mix B - 40mm thick continuously (coarse) graded asphalt (A-E2 binder)	m ²	104,980.0			
42.04	Tack Coat					
	(a) Tack coat of 30% stable-grade emulsion	ℓ	77,500.0			
42.06	Variations in active filler content:					
	(a) Active filler					
	(i) Cement	t	10.0			
	(ii) Lime	t	10.0			
	(b) Aggregate	t	10.0			
B42.07	Trail sections (40 mm thickness)	t	25.0			
B42.08	100 mm cores in asphalt paving	No.	50.0			
Total Carried Forward To Summary						

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CONTRACT NO. DRT 26/07/2019

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(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

SECTION 5100: PITCHING, STONEMWORK AND PROTECTION AGAINST EROSION

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
5100	PITCHING, STONEMWORK AND PROTECTION AGAINST EROSION					
51.01	Stone pitching					
	(b) Grouted stone pitching (150mm)	m ²	400.0			
51.04	Concrete pitching and block paving					
	(d) Prefabricated concrete block for sidewalks pavement (80mm thickness)	m ²	12,300.0			
	(e) Prefabricated concrete block for medians and interchange areas (80mm thickness)	m ²	7,820.0			
51.05	Concrete edge beams (Class 25/19)	m ³	8.0			
51.06	Provision of approved herbicide and ant poison:					
	(a) Provision of materials	Prov sum	1.0	45,000.00	45,000	00
	(b) Contractor's charges and profit added to the prime cost sum	%	45,000.0			
Total Carried Forward To Summary						

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**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
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(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

SECTION 5200: GABIONS

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
5200	GABIONS					
52.01	Foundation trench excavation and backfilling:					
	(b) In all other classes of materials	m ³	400.0			
52.02	Surface preparation for bedding the gabions	m ²	500.0			
52.03	Gabions:					
	(a) Galvanized gabion boxes, 1,0 m diaphragm spacing, 15,0 m long by 1,0 m wide by 1,0 m deep mesh (Double twisted, hexagonal wire mesh gabions of nominal 80mm mesh, with 3.4mm o/d frame wire and 2.7mm o/d mesh wire.)	m ³	60.0			
	(c) Galvanized gabion mattresses, 1,0 m diaphragm spacing, 6,0 m long by 2,0 m wide by 0,3 m deep mesh (Double twisted, hexagonal wire mesh gabions of nominal 80mm mesh, with 3.4mm o/d frame wire and 2.7mm o/d mesh wire.)	m ³	160.0			
52.05	Filter fabric					
	(a) Grade 3	m ²	600.0			
Total Carried Forward To Summary						

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**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
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(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

SECTION 5400: GUARDRAILS

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
5400	GUARDRAILS					
54.01	Guardrails on timber posts					
	(a) Galvanized	m	4,773.0			
54.03	Extra over item 54.01, 54.02 and 54.11 for horizontally curved guardrails factory bent to a radius less than 45m	No	1,000.0			
54.04	End treatments					
	(a) End wings	No.	30.0			
	(b) Bullnoses	No.	8.0			
	(c) Bridge adaptors	No	8.0			
54.06	Reflective plates	No.	1,164.0			
54.07	Removing existing guardrails	m	300.0			
Total Carried Forward To Summary						

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(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

SECTION 5600: ROAD SIGNS

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
5600	ROAD SIGNS					
B56.01	Road sign boards with painted or coloured semi-matt background. Symbols, lettering and borders in semi-matt black or in Class 1 retro-reflective material, where the sign board is constructed from:					
	(c) Prepainted galvanized steel plate (chromadek 1,4 mm thick or approved equivalent):					
	(i) Area not exceeding 2 m ²	m ²	77.7			
	(ii) Area exceeding 2 m ² but not 10 m ²	m ²	30.0			
	(iii) Area exceeding 10 m ²	m ²	30.0			
	(d) Prepainted galvanized steel profiles (200 mm high chromadek 1.4mm thick or approved equivalent):					
	(i) Area not exceeding 2 m ²	m ²	8.0			
	(ii) Area exceeding 2 m ² but not 10 m ²	m ²	66.0			
	(iii) Area exceeding 10 m ²	m ²	80.0			
56.02	Extra over item 56.01 for using:					
	(a) Background of retro-reflective material:					
	(i) Class I	m ²	2,200.0			
	(b) Lettering, symbols, numbers, arrows, emblems and borders of retro- reflective material:					
	(i) Class III	m ²	131.6			
56.03	Road sign supports (overhead road sign structures excluded):					
	(a) Steel tubing					
	(i) 76 mm dia x 2 mm	m	500.0			
	(i) 100 mm dia x 4 mm	m	270.0			
56.04	Kilometre posts	No.	8.0			
56.05	Excavation and backfilling for road sign supports (not applicable to kilometre posts)	m ³	60.0			
56.06	Extra over item 56.05 for cement-treated soil backfill	m ³	60.0			
56.07	Extra over item 56.05 for rock excavation	m ³	8.2			
56.08	Dismantling, storing and re-erecting road signs with a surface area of:					
Total Carried Forward						

SINGED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
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(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

SECTION 5600: ROAD SIGNS

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
Brought Forward						
	(a) Up to 2 m ²	No.	15.0			
	(b) Exceeding 2 m ² but not 10 m ²	No.	15.0			
	(c) Exceeding 10 m ²	No.	15.0			
56.09	Dismantling and storing road signs with a surface area of:					
	(a) Up to 2 m ²	No.	17.0			
	(b) Exceeding 2 m ² but not 10 m ²	No.	17.0			
	(c) Exceeding 10 m ²	No.	17.0			
B56.10	Hazard marker signs, fully retro-reflective in Class I retro-reflective sheeting					
	(a) 600 mm x 150 mm	No.	160.0			
	(b) 1000 mm x 250 mm	No.	150.0			
Total Carried Forward To Summary						

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(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

SECTION 5700: ROAD MARKINGS

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
5700	ROAD MARKINGS					
B57.02	Retro Reflective road marking using Thermo Plastic Paint					
	(a) White lines (broken or unbroken)					
	(i) 100 mm wide	km	20.0			
	(ii) 150 mm wide	km	5.2			
	(iii) 200 mm wide	km	1.5			
	(iv) 300 mm wide	km	0.2			
	(b) Yellow lines (broken or unbroken)					
	(ii) 100 mm wide	km	13.5			
	(iii) 150 mm wide	km	3.0			
	(d) White lettering and symbols	m ²	320.0			
	(e) Yellow lettering and symbols	m ²	102.0			
	(f) Transverse lines, painted island and arrestor bed markings (any colour)	m ²	1,300.0			
57.04	Variations in rate of application:					
	(a) White paint	litre	100.0			
	(b) Yellow paint	litre	100.0			
	(d) Retro-reflective beads	kg	50.0			
B57.05	Road studs					
	(a) Ennis C80-Avery Denison or similar					
	(i) White bodied (white/ red)	No	350.0			
	(ii) Red bodied (red/ red)	No	350.0			
	(b) Temporary road studs, self adhesive					
	(i) Bi-directional	No	300.0			
57.06	Setting out and premarking the lines (Excluding traffic-island markings, lettering and symbols)	km	35.0			
57.07	Re-establishing the painting unit at the end of the maintenance period	L/sum	1.0			
B57.08	Removal of existing, temporary or permanent road markings by:					
Total Carried Forward						

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(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

SECTION 5800: LANDSCAPING AND PLANTING PLANTS

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
5800	LANDSCAPING AND PLANTING PLANTS					
58.01	Trimming					
	(a) Machine trimming	m ²	3,500.0			
	(b) Hand trimming	m ²	3,500.0			
B58.03	Preparing the areas for grassing:					
	(b) Scarifying for loosening topsoil	ha	1.0			
	(c) Topsoiling within the road reserve, where the following materials are used:					
	(i) Topsoil obtained from within the road reserve or borrow areas (including all haul)	m ³	1,000.0			
	(e) Providing and applying chemical fertilisers and/or soil-improvement material:					
	(ii) Superphosphate	t	2.0			
	(iii) Limestone ammonium nitrate	t	2.0			
	(iv) Formula 2:3:2 (22)	t	0.1			
	(v) Formula 3:2:1 (25)	t	0.1			
	(vi) Formula 2:3:4	t	0.1			
	(f) Stockpiling of topsoil including all haul where the following applies: topsoil stored at a stockpile site agreed with by the Employer's Agent.					
	(i) topsoil stored at a stockpile site agreed with by the Employer's Agent.	m ³	7,000.0			
	(ii) topsoil pushed or bladed into heaps next to area from which it was taken.	m ³	3,500.0			
58.04	Grassing:					
	(c) Hydroseeding:					
	(i) Providing an approved seed mixture for hydroseeding	kg	370.0			
	(iii) Hydroseeding	ha	10.0			
58.06	Watering the already planted grass, trees, and shrubs planted during periods of drought experienced during the growing season	kl	300.0			
58.07	Mowing the grass	ha	1.0			
B58.09	Trees and shrubs:					
Total Carried Forward						

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(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

SECTION 5800: LANDSCAPING AND PLANTING PLANTS

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
Brought Forward						
	(a) Providing trees and shrubs	PC Sum	1.0	25,000.00	25,000	00
	(b) Contractor's handling cost, profit and all other charges in respect	%	25,000.0			
B58.12	Removal of undesirable vegetation	km	1.0			
Total Carried Forward To Summary						

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(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

SECTION 5900: FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
5900	FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS					
59.01	Finishing the road and road reserve:					
	(a) Dual carriageway road	km	4.2			
	(b) Single carriageway road	km	1.9			
Total Carried Forward To Summary						

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**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
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SCHEDULE A: ROADWORKS

SECTION 8100: TESTING MATERIALS AND WORKMANSHIP

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
8100	TESTING MATERIALS AND WORKMANSHIP					
81.01	Special tests on elastomeric bearings (150% vertical load and 150% shear distortion) as described in subclause 6604(d)	No	1.0			
81.02	Other special tests requested by the engineer	Prov sum	1.0	500,000.00	500,000	00
	(i) Handling Fee for item 81.02	%	500,000.0			
B81.04	Employer's 65% contribution to a joint site laboratory	Prov sum	1.0	3,900,000.00	3,900,000	00
Total Carried Forward To Summary						

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SCHEDULE A: ROADWORKS

PART C: EMPLOYMENT OF LOCAL LABOUR

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
PART C	EMPLOYMENT OF LOCAL LABOUR					
C12.01	Community Liaison:					
	(a) Community Liaison Officer(s)	PC Sum	1.0	400,000.00	400,000	00
	(b) Community Liaison	PC Sum	1.0	200,000.00	200,000	00
	(c) Contractor's charge to allow for handling costs and profit in respect of subitem C12.01(a and b)	%	600,000.0			
C12.02	The contractor's obligation in respect of local and other labourers:					
	(a) Provision of transport for local labourers	PC Sum	1.0	200,000.00	200,000	00
	(b) Contractor's charge to allow for handling costs and profit in respect of subitem C12.02(a)	%	200,000.00			
C12.03	Contractor's obligations in respect of Emerging Contractors					
	(a) Contractor's obligations in respect of emerging contractors	Prov sum	1.0	200,000.00	200,000	00
	(b) Handling cost and profit in respect of subitem C12.03(a)	%	200,000.0			
C12.04	Provision of EPWP branding and overalls:					
	(a) E/O for the provision of ORANGE overalls for EPWP labour	PC Sum	1.0	100,000.00	100,000	00
	(b) E/O for the provision of EPWP branding on overalls for EPWP labour	PC Sum	1.0	100,000.00	100,000	00
	(c) Contractors charge to allow for handling costs and profit in respect of the items above	%	200,000.0			
Total Carried Forward To Summary						

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(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

PART D: PROVISION OF COMPULSORY TRAINING

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
PART D	PROVISION OF COMPULSORY TRAINING					
D06.01	Training:					
	(a) Wages and salaries of local labourers employed by the contractor, subcontractors and emerging contractors during formal training period. Accredited training costs including stipends for all LOCAL labourers and sub contractors attending selected courses.	PC Sum	1.0	1,000,000.00	1,000,000	00
	(b) In-service training for civil engineering students	PC Sum	1.0	350,000.00	350,000	00
	(c) Training courses for officials from the Department	PC Sum	1.0	200,000.00	200,000	00
	(d) Contractor's charge to allow for handling costs and profit in respect of subitems D07.01 (a)	%	1,550,000.0			
Total Carried Forward To Summary						

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SCHEDULE A: ROADWORKS

PART E: HEALTH AND SAFETY SPECIFICATION

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
PART E	HEALTH AND SAFETY SPECIFICATION					
E10.01	Contractor's initial obligations in respect of the Occupational Health and Safety Act, Construction Regulations and COVID19 Construction Site Management Procedures know at the time of tender.	L/sum	1.0			
E10.02	Contractor's time related obligations in respect of the Occupational Health and Safety Act, Construction Regulations and COVID19 Construction Site Management Procedures Management Act know at the time of tender.	Month	22.0			
Total Carried Forward To Summary						

SINGED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

PART C3.5.1: ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP)

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
C3.5.1	ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP)					
C100.01	Penalty for unnecessary removal or damage to trees for the following diameter sizes					
	(a) 2600mm girth or less	No		-5,000.00	Rate Only	
	(b) Greater than 2600mm, but less than 6200mm girth	No		-10,000.00	Rate Only	
	(c) Greater than 6200mm girth	No		-30,000.00	Rate Only	
C100.02	Penalty for serious environmental violations:					
	(a) Hazardous chemical/oil spill and/or dumping non-approved sites	No		-10,000.00	Rate Only	
	(b) General damages to sensitive environments	No		-5,000.00	Rate Only	
	(c) Damage to cultural and historical sites	No		-5,000.00	Rate Only	
	(d) Pollution of water sources	No		-10,000.00	Rate Only	
	(e) Unauthorized blasting activities	No		-5,000.00	Rate Only	
	(f) Uncontrolled/unmanged erosion (depending on environmental impacts, plus rehabilitation at contractor's costs)	No		-1,000.00	Rate Only	
	(d) Pollution of water sources	No		-10,000.00	Rate Only	
	(f) Uncontrolled/unmanged erosion (depending on environmental impacts, plus rehabilitation at contractor's costs)	No		-1,000.00	Rate Only	
	(g) Damage to sensitive vegetation within "no-go" areas (depending on vegetation damaged, plus rehabilitation thereof at contractor's costs)	No		-5,000.00	Rate Only	
C100.03	Penalty for less serious violations: Penalties as scheduled in C1010					
	(a) Littering on site	No		-1,000.00	Rate Only	
	(b) Lighting of illegal fires on site	No		-1,000.00	Rate Only	
	(c) Persistent or un-repaired fuel and oil leaks	No		-1,000.00	Rate Only	
	(f) Excess dust or excess noise emanating from site	No		-1,000.00	Rate Only	
	(g) Dumping of milled material in side drains or on grassed areas without rehabilitation plan.	No		-1,000.00	Rate Only	
	(h) Possession or use of intoxicating substances on site	No		-500.00	Rate Only	
	(i) Any vehicles being driven in excess of designated speed limits	No		-500.00	Rate Only	
Total Carried Forward						

SINGED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
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(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

PART C3.5.1: ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP)

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					R	c
Brought Forward						
	(j) Removal and/or damage to flora or cultural or heritage objects on site, and/or killing of wildlife	No		-2,000.00	Rate Only	
	(k) Illegal Hunting	No		-2,000.00	Rate Only	
	(l) Urination and defecating anywhere except in designated areas	No		-2,000.00	Rate Only	
C100.04	The contractor's obligations in respect of environmental management					
	(a) Designated environmental officer (DEO)	Month	24.0	25,000.00	600,000	00
	(b) Environmental aspects and impacts heritage objects on site, and/or killing of wildlife	Prov sum	1.0	100,000.00	100,000	00
Total Carried Forward To Summary						

SIGNED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

SUMMARY OF SECTIONS

SECTION	DESCRIPTION	AMOUNT (RAND)
1200	SECTION 1200: GENERAL REQUIREMENTS AND PROVISIONS	.....
1300	SECTION 1300: CONTRACTOR'S ESTABLISHMENT ON SITE AND GENERAL OBLIGATIONS	.....
1400	SECTION 1400: HOUSING, OFFICES AND LABORATORY FOR THE ENGINEER'S SITE PERSONNEL	.....
1500	SECTION 1500: ACCOMMODATION OF TRAFFIC	.....
1600	SECTION 1600: OVERHAUL	.....
1700	SECTION 1700: CLEARING AND GRUBBING	.....
1800	SECTION 1800: DAYWORKS	.....
2100	SECTION 2100: DRAINS	.....
2200	SECTION 2200: PREFABRICATED CULVERTS	.....
2300	SECTION 2300: CONCRETE KERBING, CONCRETE CHANNELLING, CHUTES AND DOWNPIPES, AND CONCRETE LININGS FOR OPEN DRAINS	.....
3200	SECTION 3200: SELECTION, STOCKPILING AND BREAKING DOWN THE MATERIAL FROM BORROW PITS, CUTTINGS AND EXISTING PAVEMENT LAYERS, AND PLACING AND COMPACTING OF THE GRAVEL LAYERS	.....
3300	SECTION 3300: MASS EARTHWORKS	.....
3400	SECTION 3400: PAVEMENT LAYERS OF GRAVEL MATERIAL	.....
3500	SECTION 3500: STABILIZATION	.....
3600	SECTION 3600: CRUSHED STONE BASE	.....
3800	SECTION 3800: BREAKING UP EXISTING PAVEMENT LAYERS	.....
3900	SECTION 3900: PATCHING AND REPAIRING EDGE BREAKS	.....
4100	SECTION 4100: PRIME COAT	.....
4200	SECTION 4200: ASPHALT BASE AND SURFACING	.....
5100	SECTION 5100: PITCHING, STONEMWORK AND PROTECTION AGAINST EROSION	.....
5200	SECTION 5200: GABIONS	.....
5400	SECTION 5400: GUARDRAILS	.....
5600	SECTION 5600: ROAD SIGNS	.....
5700	SECTION 5700: ROAD MARKINGS	.....
Total Carried Forward		.....

SINGED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE A: ROADWORKS

SUMMARY OF SECTIONS

SECTION	DESCRIPTION	AMOUNT (RAND)
Brought Forward		
5800	SECTION 5800: LANDSCAPING AND PLANTING PLANTS	.....
5900	SECTION 5900: FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS	.....
8100	SECTION 8100: TESTING MATERIALS AND WORKMANSHIP	.....
E	PART C: EMPLOYMENT OF LOCAL LABOUR	.....
D	PART D: PROVISION OF COMPULSORY TRAINING	.....
E	PART E: HEALTH AND SAFETY SPECIFICATION	.....
F	PART F: HIV/AIDS SPECIFICATION	.....
C3.5.1	PART C3.5.1: ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP)	.....
Total Carried Forward To Summary Of Schedules		.....

SIGNED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE B: STRUCTURES: BRIDGE @ CH 0.726 OF K73

SECTION 6100: FOUNDATIONS FOR STRUCTURES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
61		FOUNDATIONS FOR STRUCTURES					
61.01		Additional foundation investigations	Prov sum	1.0	200,000.00	200,000	00
61.02		Excavation:					
		(a) Excavating soft material situated within the following successive depth ranges:					
		(1) 0 m up to 2 m	m ³	3,771.0			
		(2) Exceeding 2 m and up to 4 m	m ³	1,500.0			
		(3) Exceeding 4 m and up to 6 m	m ³	100.0			
		(b) Extra over sub-item 61.02(a) for excavation in hard material irrespective of depth	m ³	239.2			
		(d) Extra over subitem 61.02(a) for excavation by hand	m ³	239.2			
61.03		Access and drainage:					
		(b) Drainage where no access has been provided	L/sum	1.0			
61.04		Backfill to excavations utilising:					
		(a) Material from the excavation	m ³	300.0			
		(b) Imported material	m ³	939.0			
61.05		Fill within a restricted area (extra over item 33.01)	m ³	5,200.0			
61.14		Foundation lining					
		(a) Polyethylene sheeting 0,150mm thickness	m ²	412.3			
61.15		Establishment on the site for piling	L/sum	1.0			
61.16		Moving to and setting up the equipment at each position for installing the piles	No	26.0			
61.17		900mm Ø permanently cased oscillator pile with 1000mm Ø rock socket through material situated within the following successive depth ranges :					
		(a) Augured / drilled holes:					
		(1) 0 m up to 15 m	m	150.0			
61.24		Extra over items 61.17 for raking piles:					
		(a) Holes for piles of 900mm and rake 1:8	m	150.0			
Total Carried Forward							

SINGED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE B: STRUCTURES: BRIDGE @ CH 0.726 OF K73

SECTION 6100: FOUNDATIONS FOR STRUCTURES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
B61.27		Socketing piles into rock formation with minimum socket diameter of 1000mm Ø					
		(a) Socketing piles into rock formation (soft up to hard rock shale, or dolerite) class R2 to R4; to a depth of 1350mm.	m	40.0			
		(b) Extra over Item B61.27(a) for sockets in rock of class R5 for any length of socket	m	10.0			
		(c) Extra over Item B61.27(a) for sockets in rock exceeding class R5 for any length of socket	m	10.0			
61.30		Steel reinforcement in cast in situ piles:					
		(a) Mild steel bars	t	1.0			
		(b) High yield stress-steel bars of type C	t	8.0			
61.31		Cast in situ concrete in piles, underreams, bulbous bases and sockets					
		(a) Class 40/19	m ³	150.0			
61.34		Stripping/cutting the pile heads (type and diameter/size of pile indicated)	No	26.0			
61.40		Standing time for pile-installation frame	h	150.0			
B61.50		Pile Integrity Testing on bored/augere piles					
		(a) Impact Frequency Response (IFR) tests and interpreted results (per pile diameter and per pile construction site)	No	26.0			
Total Carried Forward To Summary							

SIGNED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
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K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE B: STRUCTURES: BRIDGE @ CH 0.726 OF K73

SECTION 6200: FALSEWORK, FORMWORK AND CONCRETE FINISH

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
62		FALSEWORK, FORMWORK AND CONCRETE FINISH					
62.02		Vertical formwork to provide					
		(a) Class F1 surface finish to:					
		(1) Hidden faces of foundation footing	m ²	689.0			
		(2) Hidden faces of abutments	m ²	825.0			
		(3) Hidden faces of wingwalls	m ²	398.0			
		(4) Hidden faces of return wall	m ²	72.0			
		(5) Hidden faces of deck edges and cross beams	m ²	82.0			
		(6) Hidden faces of approach slab	m ²	38.0			
		(b) Class F3 surface finish to:					
		(1) Vertical faces of abutments	m ²	693.0			
		(2) Vertical faces of wingwalls	m ²	398.0			
		(2) Vertical faces of piers	m ²	541.0			
		(3) Vertical faces of return wall	m ²	483.5			
62.03		Horizontal formwork to provide:					
		(a) Class F1 surface finish to:					
		(1) Hidden faces of deck edges and cross beams	m ²	28.0			
		(b) Class F3 surface finish to:					
		(1) Exposed faces of deck	m ²	98.0			
		(2) Exposed faces of return wall	m ²	460.6			
62.04		Inclined formwork to provide:					
		(a) Class F1 surface finish to:					
		(1) Hidden faces of abutments	m ²	26.0			
		(2) Hidden faces of return wall	m ²	27.4			
		(b) Class F3 surface finish to:					
		(1) Exposed faces of pier	m ²	25.0			
		(1) Exposed faces of deck	m ²	11.0			
62.05		Permanent formwork:					
Total Carried Forward							

SINGED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
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 (PITTS AVENUE)**

SCHEDULE B: STRUCTURES: BRIDGE @ CH 0.726 OF K73

SECTION 6200: FALSEWORK, FORMWORK AND CONCRETE FINISH

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT		
						R	c	
Brought Forward								
		(a) To form voids of 110mm dia in F-Shape parapet	m	210.0				
		(b) 50mm thick pre-cast concrete panels for slab between cross beams (45MPa)						
		(1) 690mm wide, 50mm thick, 22.256m long	m ²	491.4				
62.06		Formwork to form open joints (20mm wide)	m ²	45.0				
Total Carried Forward To Summary								

SINGED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
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(PITTS AVENUE)**

SCHEDULE B: STRUCTURES: BRIDGE @ CH 0.726 OF K73

SECTION 6300: STEEL REINFORCEMENT FOR STRUCTURES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
63		STEEL REINFORCEMENT FOR STRUCTURES					
63.01		Steel reinforcement for:					
		(a) Footings					
		(1) High yield stress steel bars class 3	t	268.0			
		(b) Abutments					
		(1) High yield stress steel bars class 3	t	125.0			
		(c) Pier					
		(1) High yield stress steel bars class 3	t	34.0			
		(d) Wingwalls					
		(1) High yield stress steel bars class 3	t	37.0			
		(e) Deck and cross beam					
		(1) High yield stress steel bars class 3	t	45.0			
		(f) Approach slab					
		(1) High yield stress steel bars class 3	t	7.0			
		(g) Return wall					
		(1) High yield stress steel bars class 3	t	29.4			
Total Carried Forward To Summary							

SIGNED BY CONTRACTOR.....

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**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE B: STRUCTURES: BRIDGE @ CH 0.726 OF K73

SECTION 6400: CONCRETE FOR STRUCTURES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
64		CONCRETE FOR STRUCTURES					
64.01		Cast in situ concrete:					
		(a) Class 15/19 in blinding and foundation fill	m ³	105.0			
		(b) Class 30/19 in approach slab	m ³	46.0			
		(c) Class 40/19 in footings / foundations	m ³	1,784.0			
		(d) Class 40/19 in abutment	m ³	2,000.0			
		(e) Class 40/19 in pier	m ³	300.0			
		(f) Class 40/19 in wingwall	m ³	246.0			
		(g) Class 40/19 in deck slab and cross beam	m ³	242.0			
		(h) Class 40/19 in return wall	m ³	195.8			
B64.02		Manufacturing precast concrete members					
		(a) Prestressed beams containing 1.0 ton of high yield stress steel each, Prestressing beams: 31x15.7mm dia cables with ultimate tensile force of 5789kN per beam					
		(i) Y5 - Length = 22.17m	No.	28.0			
		(b) Prestressed beams containing 1.2 ton of high yield stress steel each, Prestressing beams: 38x15.7mm dia cables with ultimate tensile force of 7100kN per beam					
		(i) YE5 - Length = 22.17m	No	8.0			
64.03		Transporting and erecting precast concrete members:					
		(a) Y5 - Length = 22.17m	No.	28.0			
		(b) YE5 - Length = 22.17m	No.	8.0			
B64.07		Curing of concrete					
		(a) All concrete using a water based low viscosity clear wax	m ²	3,500.0			
Total Carried Forward To Summary							

SIGNED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE B: STRUCTURES: BRIDGE @ CH 0.726 OF K73

SECTION 6600: NO-FINES CONCRETE, JOINTS, BEARINGS, BOLT GROUPS FOR ELECTRIFICATION, PARAPETS AND DRAINAGE FOR STRUCTURES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
66.00		NO-FINES CONCRETE, JOINTS, BEARINGS, BOLT GROUPS FOR ELECTRIFICATION, PARAPETS AND DRAINAGE FOR STRUCTURES					
B66.05		Expansion joints:					
		(a) Sealed joints on sidewalks and barriers drawings GBP16-05-015 MISCELLANEOUS DETAIL	m	46.2			
		(b) Thorma type, 400*75, as indicated on drawings GBP16-05-013 DECK CONCRETE DETAILS and GBP16-05-015 MISCELLANEOUS DETAIL	m	51.6			
B66.06		Filled Joints					
		(a) 20mm jointex or similar					
		(i) Between the approach slab and the pavement layerworks	m ²	20.0			
		(a) 20mm jointex or similar					
		(i) Between the deck end and abutment	m ²	109.2			
66.11		Bearings, laminated, natural rubber IRDH = 60'					
		(a) 300 x 250 x 48	No	72.0			
66.14		Dowels / guides					
		(a) R40 galvanized dowel 1200mm long at 1454 c/c in bridge deck installed as per drawing	No	38.0			
		(b) R20 galvanized tie bars 1200mm long at 300 c/c in approach slab	No	156.0			
B66.15		Concrete parapets					
		(a) F-shape 1220 high New Jersey type balustrades, Class 40/19 concrete, include sealants between barriers, draw wires	m	93.0			
		(a) F-shape 800 high New Jersey type balustrades, Class 40/19 concrete, include sealants between barriers, draw wires	m	93.0			
66.17		End blocks	No	8.0			
66.18		Numbers for structures:					
		(c) Numbers formed in concrete	No	4.0			
Total Carried Forward							

SINGED BY CONTRACTOR.....

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**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
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(PITTS AVENUE)**

SCHEDULE B: STRUCTURES: BRIDGE @ CH 0.726 OF K73

SECTION 6600: NO-FINES CONCRETE, JOINTS, BEARINGS, BOLT GROUPS FOR ELECTRIFICATION, PARAPETS AND DRAINAGE FOR STRUCTURES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
66.19		Drainage pipes and weepholes:					
		(a) Drainage pipes:					
		(1) M65 Netlon drainage pipe including 200x50mm concrete bed	m	177.0			
		(2) 75mm Diameter uPVC	m	14.0			
		(b) Weep holes:					
		(1) 90mm Diameter uPVC weep holes through abutment walls @ 2m c/c	m	100.0			
66.20		Drainage gully's (76mmdia outside diameter scupper)	No	32.0			
66.21		Synthetic-fibre filter fabric					
		(1) Grade A5 bidim	m ²	1,587.9			
		(2) 325mm Netlon wrapped n bidim	m	1,200.0			
66.24		Nose endings at balustrades	No	8.0			
B66.27		Concrete pedestrian railings	m	93.0			
B66.30		Joint protection plates	m	20.0			
B66.31		Additional water tests for joints ordered by the engineer	No	4.0			
Total Carried Forward To Summary							

SIGNED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
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(PITTS AVENUE)**

SCHEDULE B: STRUCTURES: BRIDGE @ CH 0.726 OF K73

SECTION 6700: STRUCTURAL STEELWORK

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
67		STRUCTURAL STEELWORK					
67.02		Anchor bolts: (b) Guardrail anchor sets consisting of 4 no. 20mm diameter 340mm long studs welded to 12mm back plate including nuts and washers	No	8.0			
67.03		Corrosion protection: (b) Hot-dip galvanising: (3) Guardrail anchor bolt sets (HDG to SANS 1461)	No	8.0			
Total Carried Forward To Summary							

SIGNED BY CONTRACTOR.....

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**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
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 (PITTS AVENUE)**

SCHEDULE B: STRUCTURES: BRIDGE @ CH 0.726 OF K73

SECTION 8100: TESTING MATERIALS AND WORKMANSHIP

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
81		TESTING MATERIALS AND WORKMANSHIP					
81.02		Other special tests requested by the Employers Agent	Prov sum	1.0	50,000.00	50,000	00
Total Carried Forward To Summary							

SIGNED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
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K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE B: STRUCTURES: BRIDGE @ CH 0.726 OF K73

SUMMARY OF SECTIONS

SECTION	DESCRIPTION	AMOUNT (RAND)
1	SECTION 4100: PRIME COAT	.....
2	SECTION 4200: ASPHALT BASE AND SURFACING	.....
3	SECTION 6100: FOUNDATIONS FOR STRUCTURES	.....
4	SECTION 6200: FALSEWORK, FORMWORK AND CONCRETE FINISH	.....
5	SECTION 6300: STEEL REINFORCEMENT FOR STRUCTURES	.....
6	SECTION 6400: CONCRETE FOR STRUCTURES	.....
7	SECTION 6600: NO-FINES CONCRETE, JOINTS, BEARINGS, BOLT GROUPS FOR ELECTRIFICATION, PARAPETS AND DRAINAGE FOR STRUCTURES	.....
8	SECTION 6700: STRUCTURAL STEELWORK	.....
9	SECTION 8100: TESTING MATERIALS AND WORKMANSHIP	.....
Total Carried Forward To Summary Of Schedules		.....

SIGNED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE C: STRUCTURES: EXTENSION OF EXISTING CULVERT @ CH 0.8 OF K58

SECTION 2200: PREFABRICATED CULVERTS

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
2200		PREFABRICATED CULVERTS					
22.05		Portal and Rectangular culverts					
		(b) Without prefabricated floor slabs					
		(1) SATS SAR - Class 1 Loading, 3mx3m, Fill height 5-10m	m	360.0			
22.07		Cast in situ concrete and formwork					
		(a) In class A bedding, screeds and encasing pipes, including formwork					
		(1) Class 15/19	m ³	106.0			
		(b) In floor slabs for portal or rectangular culverts, including formwork, joints and class U2 surface finish					
		(1) Class 30/19	m ³	451.0			
		(c) In inlet and outlet structures, skewed ends, catchpits, manholes, thrust and anchor blocks, excluding formwork but including class U2 surface finish					
		(1) Class 30/19	m ³	38.0			
		(d) Formwork of concrete under subitem 22.07(c) above					
		(1) Vertical formwork for F3 surface finish	m ²	274.0			
22.10		Steel reinforcement					
		(b) High-tensile steel bars	t	58.7			
		(c) Welded steel fabric	kg	2,000.0			
22.12		Removing existing concrete					
		(a) Plain concrete	m ³	15.0			
		(b) Reinforced concrete	m ³	30.0			
22.26		Hand excavation to determine the positions of existing services	m ³	30.0			
Total Carried Forward To Summary							

SIGNED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE C: STRUCTURES: EXTENSION OF EXISTING CULVERT @ CH 0.8 OF K58

SECTION 5200: GABIONS

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
52		GABIONS					
52.01		Foundation trench excavation and backfilling:					
		(b) In all other classes of materials	m ³	70.0			
52.02		Surface preparation for bedding the gabions	m ²	228.0			
52.03		Gabions:					
		(a) Galvanized gabion boxes, 1,0 m diaphragm spacing, 15,0 m long by 1,0 m wide by 1,0 m deep mesh (Double twisted, hexagonal wire mesh gabions of nominal 80mm mesh, with 3.4mm o/d frame wire and 2.7mm o/d mesh wire.)	m ³	0.0			
		(c) Galvanized gabion mattresses, 1,0 m diaphragm spacing, 6,0 m long by 2,0 m wide by 0,3 m deep mesh (Double twisted, hexagonal wire mesh gabions of nominal 80mm mesh, with 3.4mm o/d frame wire and 2.7mm o/d mesh wire.)	m ³	72.0			
52.05		Filter fabric					
		(a) Grade 3	m ²	250.0			
Total Carried Forward To Summary							

SINGED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE C: STRUCTURES: EXTENSION OF EXISTING CULVERT @ CH 0.8 OF K58

SECTION 6100: FOUNDATIONS FOR STRUCTURES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
61		FOUNDATIONS FOR STRUCTURES					
61.01		Additional foundation investigations	Prov sum	1.0	30,000.00	30,000	00
61.02		Excavation:					
		(a) Excavating soft material situated within the following successive depth ranges:					
		(i) 0 m up to 1.5 m	m ³	1,176.0			
		(ii) Exceeding 1,5 m and up to 3,0 m	m ³	855.0			
		(iii) Exceeding 3,0 m and up to 4,5 m	m ³	855.0			
		(iv) Exceeding 4,5 m and up to 6,0 m	m ³	855.0			
		(v) Exceeding 6,0 m and up to 7,5 m	m ³	855.0			
		(vi) Exceeding 7,5 m and up to 9,0 m	m ³	855.0			
		(b) Extra over sub-item 61.02(a) for excavation in hard material irrespective of depth	m ³	117.6			
		(d) Extra over subitem 61.02(a) for excavation by hand	m ³	117.6			
61.03		Access and drainage:					
		(b) Drainage where no access has been provided	L/sum	1.0			
61.04		Backfill to excavations utilising:					
		(a) Material from the excavation	m ³	5,000.0			
		(b) Imported material	m ³	500.0			
		(c) Soil cement backfilling containing 5% cement	m ³	500.0			
61.05		Fill within a restricted area (extra over item 33.01)	m ³	300.0			
Total Carried Forward To Summary							

SINGED BY CONTRACTOR.....

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE C: STRUCTURES: EXTENSION OF EXISTING CULVERT @ CH 0.8 OF K58

SECTION 6200: FALSEWORK, FORMWORK AND CONCRETE FINISH

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
62		FALSEWORK, FORMWORK AND CONCRETE FINISH					
62.02		Vertical formwork to provide					
		(a) Class F1 surface finish to:					
		(1) Hidden faces of cut-off beams	m ²	172.0			
		(2) Hidden faces of floor slab	m ²	113.2			
		(3) Hidden faces of wingwall	m ²	75.0			
		(4) Hidden faces of roofslab	m ²	7.0			
		(5) Hidden faces of wall	m ²	50.0			
		(6) Hidden faces of head wall	m ²	8.0			
		(b) Class F2 surface finish to:					
		(1) Vertical faces of floor slab	m ²	13.0			
		(2) Vertical faces of wingwall	m ²	75.0			
		(3) Vertical faces of roof slab	m ²	4.0			
		(4) Vertical faces of wall	m ²	105.0			
		(5) Vertical faces of head wall	m ²	8.0			
62.03		Horizontal formwork to provide:					
		(b) Class F2 surface finish to:					
		(1) Horizontal faces of roof slab	m ²	60.0			
62.04		Inclined formwork to provide:					
		(b) Class F2 surface finish to:					
		(1) Exposed faces of deck	m ²	18.0			
Total Carried Forward To Summary							

SIGNED BY CONTRACTOR.....

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE C: STRUCTURES: EXTENSION OF EXISTING CULVERT @ CH 0.8 OF K58

SECTION 6300: STEEL REINFORCEMENT FOR STRUCTURES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
63		STEEL REINFORCEMENT FOR STRUCTURES					
63.01		Steel reinforcement for:					
		(a) Cut-off beam					
		(1) High yield stress steel bars class 3	t	3.6			
		(b) Wing walls					
		(1) High yield stress steel bars class 3	t	6.1			
		(c) Floor slab					
		(1) High yield stress steel bars class 3	t	1.2			
		(d) Walls & Headwall					
		(1) High yield stress steel bars class 3	t	10.5			
		(e) Roof slab					
		(1) High yield stress steel bars class 3	t	2.7			
Total Carried Forward To Summary							

SIGNED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE C: STRUCTURES: EXTENSION OF EXISTING CULVERT @ CH 0.8 OF K58

SECTION 6400: CONCRETE FOR STRUCTURES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
64		CONCRETE FOR STRUCTURES					
64.01		Cast in situ concrete:					
		(a) Class 15/19 in blinding and foundation fill	m ³	106.0			
		(b) Class 30/19 in cut-off beams	m ³	24.0			
		(c) Class 30/19 in wing walls, floor slab, walls & roof slab	m ³	450.3			
64.04		Epoxy bonding of new concrete surfaces to old	m ²	24.0			
64.06		Demolishing existing concrete:					
		(a) Plain concrete in:	m ³	30.0			
		(b) Reinforced concrete in:	m ³	30.0			
B64.07		Curing of concrete					
		(a) All concrete using a water based low viscosity clear wax	m ²	1,000.0			
Total Carried Forward To Summary							

SIGNED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE C: STRUCTURES: EXTENSION OF EXISTING CULVERT @ CH 0.8 OF K58

SUMMARY OF SECTIONS

SECTION	DESCRIPTION	AMOUNT (RAND)
1	SECTION 2200: PREFABRICATED CULVERTS	.....
2	SECTION 5200: GABIONS	.....
3	SECTION 6100: FOUNDATIONS FOR STRUCTURES	.....
4	SECTION 6200: FALSEWORK, FORMWORK AND CONCRETE FINISH	.....
5	SECTION 6300: STEEL REINFORCEMENT FOR STRUCTURES	.....
6	SECTION 6400: CONCRETE FOR STRUCTURES	.....
Total Carried Forward To Summary Of Schedules		.....

SIGNED BY CONTRACTOR.....

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE D: STRUCTURES: EXTENSION OF EXISTING CULVERT @ CH 2.407 OF K58

SECTION 6100: FOUNDATIONS FOR STRUCTURES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
6100		FOUNDATIONS FOR STRUCTURES					
61		FOUNDATIONS FOR STRUCTURES					
61.01		Additional foundation investigations	Prov sum	1.0	40,000.00	40,000	00
61.02		Excavation:					
		(a) Excavating soft material situated within the following successive depth ranges:					
		(1) 0 m up to 2 m	m ³	95.0			
		(2) Exceeding 2 m and up to 4 m	m ³	50.0			
		(b) Extra over sub-item 61.02(a) for excavation in hard material irrespective of depth	m ³	20.0			
		(d) Extra over subitem 61.02(a) for excavation by hand	m ³	20.0			
61.03		Access and drainage:					
		(b) Drainage where no access has been provided	L/sum	1.0			
61.04		Backfill to excavations utilising:					
		(a) Material from the excavation	m ³	100.0			
		(b) Imported material	m ³	100.0			
61.05		Fill within a restricted area (extra over item 33.01)	m ³	300.0			
Total Carried Forward To Summary							

SINGED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE D: STRUCTURES: EXTENSION OF EXISTING CULVERT @ CH 2.407 OF K58

SECTION 6200: FALSEWORK, FORMWORK AND CONCRETE FINISH

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
62		FALSEWORK, FORMWORK AND CONCRETE FINISH					
62.02		Vertical formwork to provide					
		(a) Class F1 surface finish to:					
		(1) Hidden faces of foundation	m ²	55.0			
		(2) Hidden faces of floor slab	m ²	15.0			
		(3) Hidden faces of wingwall	m ²	75.0			
		(4) Hidden faces of roofslab	m ²	7.0			
		(5) Hidden faces of wall	m ²	50.0			
		(6) Hidden faces of head wall	m ²	8.0			
		(b) Class F2 surface finish to:					
		(1) Vertical faces of foundations	m ²	20.0			
		(2) Vertical faces of floor slab	m ²	13.0			
		(3) Vertical faces of wingwall	m ²	75.0			
		(4) Vertical faces of roof slab	m ²	4.0			
		(5) Vertical faces of wall	m ²	105.0			
		(6) Vertical faces of head wall	m ²	8.0			
62.03		Horizontal formwork to provide:					
		(b) Class F2 surface finish to:					
		(1) Horizontal faces of roof slab	m ²	60.0			
62.04		Inclined formwork to provide:					
		(b) Class F2 surface finish to:					
		(1) Exposed faces of deck	m ²	18.0			
Total Carried Forward To Summary							

SIGNED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE D: STRUCTURES: EXTENSION OF EXISTING CULVERT @ CH 2.407 OF K58

SECTION 6300: STEEL REINFORCEMENT FOR STRUCTURES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
63		STEEL REINFORCEMENT FOR STRUCTURES					
63.01		Steel reinforcement for:					
		(a) Foundations					
		(1) High yield stress steel bars class 3	t	13.0			
		(b) Wing walls					
		(1) High yield stress steel bars class 3	t	8.2			
		(c) Floor slab					
		(1) High yield stress steel bars class 3	t	2.0			
		(d) Walls & Headwall					
		(1) High yield stress steel bars class 3	t	11.0			
		(e) Roof slab					
		(1) High yield stress steel bars class 3	t	2.8			
Total Carried Forward To Summary							

SIGNED BY CONTRACTOR.....

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE D: STRUCTURES: EXTENSION OF EXISTING CULVERT @ CH 2.407 OF K58

SECTION 6400: CONCRETE FOR STRUCTURES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
64		CONCRETE FOR STRUCTURES					
64.01		Cast in situ concrete:					
		(a) Class 15/19 in blinding and foundation fill	m ³	13.0			
		(d) Class 30/19 in footings / foundations	m ³	82.0			
		(c) Class 30/19 in wing walls, floor slab, walls & roof slab	m ³	93.0			
64.04		Epoxy bonding of new concrete surfaces to old	m ²	12.0			
64.06		Demolishing existing concrete:					
		(a) Plain concrete in:	m ³	30.0			
		(b) Reinforced concrete in:	m ³	30.0			
B64.07		Curing of concrete					
		(a) All concrete using a water based low viscosity clear wax	m ²	500.0			
Total Carried Forward To Summary							

SIGNED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE D: STRUCTURES: EXTENSION OF EXISTING CULVERT @ CH 2.407 OF K58

SECTION 6600: NO-FINES CONCRETE, JOINTS, BEARINGS, BOLT GROUPS FOR ELECTRIFICATION, PARAPETS AND DRAINAGE FOR STRUCTURES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
66		NO-FINES CONCRETE, JOINTS, BEARINGS, BOLT GROUPS FOR ELECTRIFICATION, PARAPETS AND DRAINAGE FOR STRUCTURES					
66.14		Dowels / guides					
		(a) Y20 galvanised dowel 750mm long at 200 c/c	No	202.0			
Total Carried Forward To Summary							

SIGNED BY CONTRACTOR.....

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE D: STRUCTURES: EXTENSION OF EXISTING CULVERT @ CH 2.407 OF K58

SECTION 8100: TESTING MATERIALS AND WORKMANSHIP

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
81		TESTING MATERIALS AND WORKMANSHIP					
81.02		Other special tests requested by the Employers Agent	Prov sum	1.0	10,000.00	10,000	00
Total Carried Forward To Summary							

SIGNED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE D: STRUCTURES: EXTENSION OF EXISTING CULVERT @ CH 2.407 OF K58

SUMMARY OF SECTIONS

SECTION	DESCRIPTION	AMOUNT (RAND)
1	SECTION 6100: FOUNDATIONS FOR STRUCTURES	.....
2	SECTION 6200: FALSEWORK, FORMWORK AND CONCRETE FINISH	.....
3	SECTION 6300: STEEL REINFORCEMENT FOR STRUCTURES	.....
4	SECTION 6400: CONCRETE FOR STRUCTURES	.....
5	SECTION 6600: NO-FINES CONCRETE, JOINTS, BEARINGS, BOLT GROUPS FOR ELECTRIFICATION, PARAPETS AND DRAINAGE FOR STRUCTURES	.....
6	SECTION 8100: TESTING MATERIALS AND WORKMANSHIP	.....
Total Carried Forward To Summary Of Schedules		.....

SIGNED BY CONTRACTOR.....

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE E: STRUCTURES: EXTENSION OF EXISTING CULVERT @ CH 2.464 OF K58

SECTION 6100: FOUNDATIONS FOR STRUCTURES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
6100		FOUNDATIONS FOR STRUCTURES					
61.01		Additional foundation investigations	Prov sum	1.0	20,000.00	20,000	00
61.02		Excavation:					
		(a) Excavating soft material situated within the following successive depth ranges:					
		(1) 0 m up to 2 m	m ³	95.0			
		(2) Exceeding 2 m and up to 4 m	m ³	0.0			
		(b) Extra over sub-item 61.02(a) for excavation in hard material irrespective of depth	m ³	20.0			
		(d) Extra over subitem 61.02(a) for excavation by hand	m ³	20.0			
61.03		Access and drainage:					
		(b) Drainage where no access has been provided	L/sum	1.0			
61.04		Backfill to excavations utilising:					
		(a) Material from the excavation	m ³	80.0			
		(b) Imported material	m ³	100.0			
61.05		Fill within a restricted area (extra over item 33.01)	m ³	300.0			
Total Carried Forward To Summary							

SINGED BY CONTRACTOR.....

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE E: STRUCTURES: EXTENSION OF EXISTING CULVERT @ CH 2.464 OF K58

SECTION 6200: FALSEWORK, FORMWORK AND CONCRETE FINISH

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
6200		FALSEWORK, FORMWORK AND CONCRETE FINISH					
62.02		Vertical formwork to provide					
		(a) Class F1 surface finish to:					
		(1) Hidden faces of foundation	m ²	55.0			
		(2) Hidden faces of floor slab	m ²	15.0			
		(3) Hidden faces of wingwall	m ²	75.0			
		(4) Hidden faces of roofslab	m ²	7.0			
		(5) Hidden faces of wall	m ²	50.0			
		(6) Hidden faces of head wall	m ²	8.0			
		(b) Class F2 surface finish to:					
		(1) Vertical faces of foundations	m ²	20.0			
		(2) Vertical faces of floor slab	m ²	13.0			
		(3) Vertical faces of wingwall	m ²	75.0			
		(4) Vertical faces of roof slab	m ²	4.0			
		(5) Vertical faces of wall	m ²	105.0			
		(6) Vertical faces of head wall	m ²	8.0			
62.03		Horizontal formwork to provide:					
		(b) Class F2 surface finish to:					
		(1) Horizontal faces of roof slab	m ²	60.0			
62.04		Inclined formwork to provide:					
		(b) Class F2 surface finish to:					
		(1) Exposed faces of deck	m ²	18.0			
Total Carried Forward To Summary							

SIGNED BY CONTRACTOR.....

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE E: STRUCTURES: EXTENSION OF EXISTING CULVERT @ CH 2.464 OF K58

SECTION 6300: STEEL REINFORCEMENT FOR STRUCTURES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
63		STEEL REINFORCEMENT FOR STRUCTURES					
63.01		Steel reinforcement for:					
		(a) Foundations					
		(1) High yield stress steel bars class 3	t	8.5			
		(b) Wing walls					
		(1) High yield stress steel bars class 3	t	6.1			
		(c) Floor slab					
		(1) High yield stress steel bars class 3	t	1.2			
		(d) Walls & Headwall					
		(1) High yield stress steel bars class 3	t	10.5			
		(e) Roof slab					
		(1) High yield stress steel bars class 3	t	2.7			
Total Carried Forward To Summary							

SIGNED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE E: STRUCTURES: EXTENSION OF EXISTING CULVERT @ CH 2.464 OF K58

SECTION 6400: CONCRETE FOR STRUCTURES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
64		CONCRETE FOR STRUCTURES					
64.01		Cast in situ concrete:					
		(a) Class 15/19 in blinding and foundation fill	m ³	10.0			
		(d) Class 30/19 in footings / foundations	m ³	56.0			
		(c) Class 30/19 in wing walls, floor slab, walls & roof slab	m ³	78.1			
64.04		Epoxy bonding of new concrete surfaces to old	m ²	12.0			
64.06		Demolishing existing concrete:					
		(a) Plain concrete in:	m ³	20.0			
		(b) Reinforced concrete in:	m ³	20.0			
B64.07		Curing of concrete					
		(a) All concrete using a water based low viscosity clear wax	m ²	500.0			
Total Carried Forward To Summary							

SIGNED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE E: STRUCTURES: EXTENSION OF EXISTING CULVERT @ CH 2.464 OF K58

SECTION 6600: NO-FINES CONCRETE, JOINTS, BEARINGS, BOLT GROUPS FOR ELECTRIFICATION, PARAPETS AND DRAINAGE FOR STRUCTURES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
66		NO-FINES CONCRETE, JOINTS, BEARINGS, BOLT GROUPS FOR ELECTRIFICATION, PARAPETS AND DRAINAGE FOR STRUCTURES					
66.14		Dowels / guides					
		(a) Y20 galvanised dowel 750mm long at 200 c/c	No	202.0			
Total Carried Forward To Summary							

SIGNED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE E: STRUCTURES: EXTENSION OF EXISTING CULVERT @ CH 2.464 OF K58

SECTION 8100: TESTING MATERIALS AND WORKMANSHIP

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
81		TESTING MATERIALS AND WORKMANSHIP					
81.02		Other special tests requested by the Employers Agent	Prov sum	1.0	10,000.00	10,000	00
Total Carried Forward To Summary							

SIGNED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE E: STRUCTURES: EXTENSION OF EXISTING CULVERT @ CH 2.464 OF K58

SUMMARY OF SECTIONS

SECTION	DESCRIPTION	AMOUNT (RAND)
1	SECTION 6100: FOUNDATIONS FOR STRUCTURES	.....
2	SECTION 6200: FALSEWORK, FORMWORK AND CONCRETE FINISH	.....
3	SECTION 6300: STEEL REINFORCEMENT FOR STRUCTURES	.....
4	SECTION 6400: CONCRETE FOR STRUCTURES	.....
5	SECTION 6600: NO-FINES CONCRETE, JOINTS, BEARINGS, BOLT GROUPS FOR ELECTRIFICATION, PARAPETS AND DRAINAGE FOR STRUCTURES	.....
6	SECTION 8100: TESTING MATERIALS AND WORKMANSHIP	.....
Total Carried Forward To Summary Of Schedules		.....

SIGNED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE F: SABS 1200 WATER

SECTION 1 - 1200 DB

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
	SANS 1200 DB	SITE CLEARANCE					
1.1		SITE CLEARANCE					
	8.2.1	(a) Clear and grub 6m wide strips for (where not cleared within other clear and grub areas)					
1.1.1		Water pipe (steel)	m	1,396.0			
1.2		LARGE TREES					
	8.2.2	(b) Remove and grub large trees and tree stumps of girth					
1.2.1		1m to 2m	No	8.0			
1.2.2		> 2m	No	5.0			
		REMOVAL OF SERVICES					
	8.2.7	Dismantle remove and spoil pipelines, powerlines, cables, etc (excavation and backfilling measured elsewhere)					
		(a) 600mm steel pipeline	m	900.0			
1.3		PREPARATION AND STRIPPING OF SITE					
	8.2.10	(c) Remove topsoil to a depth of 150mm, 6m wide and					
1.3.1		Stockpile, maintain and replace after backfilling	m ³	500.0			
	SANS 1200 DB	EARTHWORKS (PIPE TRENCHES)					
1.4		EXCAVATION AND BACKFILLING					
	8.3.2	(a) Excavate in all materials , backfill and compact to 90% mod AASHTO density and dispose of surplus and unsuitable materials , within the freehaul distance , for trenches					
	8.3.2	.1 Over 1m and up to 2m wide					
1.4.1		Up to 1m deep	m ³	3,100.0			
1.4.2		Over 1m and up to 2m deep	m ³	1,950.0			
1.4.3		Over 2m and up to 3m deep	m ³	1,890.0			
1.4.4		Over 3m and up to 4m deep	m ³	1,100.0			
1.4.5		Over 4m and up to 5m deep	m ³	160.0			
Total Carried Forward							

SIGNED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
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K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE F: SABS 1200 WATER

SECTION 1 - 1200 DB

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
	8.3.2	(b) Extra over items 8.3.2 (a) for					
1.4.4		Intermediate excavation	m ³	2,300.0			
1.4.5		Hard rock excavation	m ³	800.0			
1.4.6	8.3.2	(c) Excavate unsuitable material from trench bottom, dispose within the freehaul distance , and re-fill with suitable imported material compacted to 90% mod AASHTO density (Provisional)	m ³	366.0			
1.5		EXCAVATION ANCILLARIES					
	8.3.3	.1 Make up deficiency in backfill material (Provisional)					
1.5.1		(a) From other necessary excavations on site	m ³	366.0			
1.6		ADDITIONAL COMPACTION					
	8.3.3	Compaction in road reserves					
1.6.1		Additional compaction to 93% mod AASHTO density in road reserves	m ³	60.0			
1.7		TEMPORARY WORKS					
	8.3.4	(a) Shoring					
1.7.1		As instructed by the engineer	Prov sum	1.0	40,000.00	40,000	00
	8.3.4	(b) Control water inflo for duration of construction of all services from					
1.7.2		Storm water, water, sewer, sub surface water, etc.	L/sum	1.0			
1.8		EXISTING SERVICES					
	8.3.5	Existing services that intersect or adjoin pipe trench excavations					
		(a) Services that intersect a trench					
1.8.1		Street light cable/ electrical cable	No	5.0			
1.8.2		Storm water pipe (size unknown)	No	3.0			
1.8.3		Fibre optic cable	No	3.0			
1.8.4		Water main not exceeding 400mm diameter	No	2.0			
1.8.5		Municipal sewer	No	1.0			
Total Carried Forward							

SIGNED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE F: SABS 1200 WATER

SECTION 1 - 1200 DB

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
1.8.6		Street light cable/ electrical cable	m	200.0			
1.8.7		Storm water pipe	m	100.0			
1.8.8		Fibre optic cable	m	250.0			
1.8.9		Water main not exceeding 400mm diameter	m	85.0			
1.8.10		Municipal sewer	m	0.0			
1.9	SANS 1200 DB	FINISHING					
	8.3.6	.1 Reinstatement of existing road surfaces complete					
1.9.1		30mm thick on roads	m ²	60.0			
1.10		ACCOMODATION OF TRAFFIC					
	8.3.7	Accommodation of traffic					
1.10.1		.1 For construction of storm water, water and sewer road crossings crossings only	L/sum	1.0			
Total Carried Forward To Summary							

SIGNED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE F: SABS 1200 WATER

SECTION 2 - 1200 L

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
	SANS 1200 L	MEDIUM PRESSURE PIPELINES					
1.1		PIPELINES					
	8.2.1	(a) Supply , lay , bed (class B bedding), butt weld joint and test steel pipes to comply to SANS719. Pipe should be DN600 API 5L X42 pipe, 12mm wall thickness.					
1.1.1		DN600	m	1,300.0			
	8.2.1	(b) Disinfect pipes					
1.1.2		600mm	m	1,396.0			
		(a) Extra over items 8.2.1(a) for supply , install , bed and testing the following fittings , including cutting of pipes , couplings , etc					
	8.2.2	(a) 0.1 Fittings for steel pipes					
		All flanges to be fastened with electroplate galvanised nuts, bolts and washers, rubber gaskets, all to be wrapped in Denso tape with plastic cover. Refer to drawings: Water details (sheet 1 and 2)					
1.1.4		DN600 Equal T-Piece, flanged for airvalves	No	2.0			
1.1.5		DN600 45deg Segmented s-bend flanged at both ends	No	2.0			
1.1.6		DN600-DN200 Reducing T-Piece, flanged	No	2.0			
1.1.7		DN600 VJ flange adapter	No	2.0			
1.1.8		Air Valve Assembly: DN600 Blank flange with hole to suit DN100 pipe; DN100 x 150mm long flanged pipe; DN100 Gate valve; DN100 Double orifice stubbed air valve with anti shock orifice mechanism Vent-O-Mat RBX Series or similar approved	No	2.0			
1.1.9		DN600 various segmented bends, welded at both ends including joint repair, internal and external (0.1-45 deg)	No	14.0			
1.1.10		DN 600 Puddle flanges at air valve chamber	No	4.0			
1.1.11		Disconnect existing pipe work and connect new pipe work	Sum	2.0			
Total Carried Forward							

SINGED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE F: SABS 1200 WATER

SECTION 2 - 1200 L

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
1.1.12		Kelvin Power Connection Cost (Cost to be paid to Kelvin Power to cover a water disruption of 24 hours)	PC Sum	1.0	250,000.00	250,000	00
1.1.13		Contractors handling fee for item 1.1.12	%	250,000.0			
1.1.14		Provision of temporarily man access points. One at each tie in point. this items also includes removal/repair of the two access points.	No.	2.0			
1.2		TESTING					
	8.2.9	(a) Non destructive testing of weld joints					
1.2.1		DN 600	m	252.0			
1.3		ANCILLARIES					
	8.2.11	Anchor/thrust blocks and pedestals in strength concrete 25Mpa/19mm					
	8.2.11	(a) Measured by number					
1.3.1		At T-pieces size 0.25m3	No	4.0			
1.3.2		At bends size 0.5m3	No	4.0			
1.3.3		At bends size 1.5m3	No	14.0			
		Soilcrete (5% OPC)					
1.3.4		(a) Backfilling around pipes	m³	510.0			
1.4		CHAMBERS AND MANHOLES					
	8.2.13	Valve and hydrant chambers					
1.4.1	8.2.13	(a) Valve chambers - Scour valve to Water Detail Drawing 2m deep	No.	1.0			
1.4.2		(b) Air valve chamber to Water Detail Drawing 2m deep	No.	2.0			
Total Carried Forward To Summary							

SINGED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE F: SABS 1200 WATER

SECTION 3 - 1200 LB

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
	SANS 1200 LB	BEDDING (PIPES)					
1.1		BEDDING FROM TRENCH EXCAVATIONS					
	8.2.1	Provision of bedding material from trench excavations within the freehaul distance					
1.1.1		(a) Selected granular material	m ³	750.0			
1.1.2		(b) Selected fill material	m ³	1,120.0			
1.2		BEDDING BY IMPORTATION					
	8.2.2	Supply only of bedding by Importation:					
	8.2.2	Provision of bedding material by importation from other necessary excavations within the freehaul distance:					
1.2.1		(a) Selected granular material	m ³	75.0			
1.2.2		(b) Selected fill material	m ³	300.0			
1.3		BEDDING FROM COMMERCIAL SOURCES					
	8.2.2	Provision of bedding material by importation from commercial sources selected by the Contractor:					
1.3.1		(a) Selected granular material	m ³	50.0			
1.3.2		(b) Selected fill material	m ³	250.0			
1.4		CONCRETE ENCASEMENT					
	8.2.4	Encasing of pipes in concrete					
		(a) Strength concrete 25Mpa/19mm					
1.4.1		Encasement to pipes not exceeding 750mm	m ³	10.0			
Total Carried Forward To Summary							

SINGED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SCHEDULE F: SABS 1200 WATER

SUMMARY OF SECTIONS

SECTION	DESCRIPTION	AMOUNT (RAND)
1	SECTION 1 - 1200 DB	.....
2	SECTION 2 - 1200 L	.....
3	SECTION 3 - 1200 LB	.....
Total Carried Forward To Summary Of Schedules		.....

SIGNED BY CONTRACTOR.....

CONTRACT NO. DRT 26/07/2019

**CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD),
UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW
K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71
(PITTS AVENUE)**

SUMMARY OF SCHEDULES

SCHEDULE	DESCRIPTION	AMOUNT (RAND)
A	SCHEDULE A: ROADWORKS	.....
B	SCHEDULE B: STRUCTURES: BRIDGE @ CH 0.726 OF K73	.....
C	SCHEDULE C: STRUCTURES: EXTENSION OF EXISTING CULVERT @ CH 0.8 OF K58	.....
D	SCHEDULE D: STRUCTURES: EXTENSION OF EXISTING CULVERT @ CH 2.407 OF K58	.....
E	SCHEDULE E: STRUCTURES: EXTENSION OF EXISTING CULVERT @ CH 2.464 OF K58	.....
F	SCHEDULE F: SABS 1200 WATER	.....
SUBTOTAL		.....
1	Add 15% VAT	.....
Total		.....

SIGNED BY CONTRACTOR.....

TENDER NO. DRT 26/07/2019

CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD), UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71 (PITTS AVENUE)

PART C3: SCOPE OF WORK

PART C3: SCOPE OF WORK	C-117
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TENDER NO. DRT 26/07/2019

CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD), UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71 (PITTS AVENUE)

C3.1 DESCRIPTION OF WORKS

Note that dimensions and quantities stated in this description are approximate and for demonstration of order size purposes only.

C3.1.1 Employer's Objectives

The objective of the employer is:

- Construction of 1.446km dual carriageway of the new K73 between Montrose Road and Allandale Road (K58), including the upgrading of 0.590km section of K71 (Woodmead Drive) through the intersection with new K73. Included in this section is the construction of a new bridge across the Jukskei River on K73 and a new intersection for access to Barbeque Downs at Jubie Road.
- Upgrading of a section (2.859km) of Allandale Road (K58) between Harry Galaun Drive and Pitts Avenue (K71). Included in the upgrading of Allandale Road (K58) is the upgrading and extension of large culvert structures and other stormwater infrastructure for road drainage on the K58, K71 and K73, and the relocation of a 600 mm diameter Grade B steel waterpipe along Allandale Road.

Objectives during construction are to provide black economic enterprise contractors with a substantial portion of the work, provide training to local and other labourers and to execute the work with a high degree of safety.

C3.1.2 General Description of the Project Route

The Project is located in Midrand in the Northern region of the City of Johannesburg. The site is located between Kyalami Race Track to the west, Mall of Africa to the east and Waterfall Estate to the south.

C3.1.3 Extent of Works

The main work items to be undertaken in terms of the contract involve the following:

- Widening of the existing K58 and K71.
- Construction of the new road K73.
- Construction of K3 and Jubie Road intersection for access to Barbeque Downs
- Rehabilitation in K58 and K71.
- Construction of a bridge on K73.
- Extension of existing culverts on K58.
- Construction of new culverts on K58.
- Construction of new concrete-lined v-drains.
- Construction of drainage inlets and outlets.
- Relocation of existing services.
- Construction of kerbs.
- Supply and installation of guard rails.
- Supply and installation of traffic lights.
- Supply and installation of street lights.
- Accommodation of traffic.
- Landscaping.
- Appurtenant works such as road signs and road markings.
- Realignment of a 600mm dia steel pipeline in K58.

C3.1.4 Temporary Works

Temporary bypass lanes where construction is in half-width.

Refer C3.1.5.2 Accommodation of traffic.

C3.1.5 General Information

C3.1.5.1 Pavement design

The following pavement designs is appropriate to this project:

PAVEMENT LAYERS	
1	40mm AC CONTINUOUSLY (MEDIUM) GRADED ASPHALT SURFACING WITH A-E2 BINDER.
2	150mm CRUSHED STONE BASE (G1) COMPACTED TO 88% OF APPARENT RELATIVE DENSITY (ARD)
3	150mm CEMENT STABILISED (C3) UPPER SUBBASE LAYER - 1.5MPa UCS - COMPACTED TO 97% MOD AASHTO DENSITY, GM > 1,75, PI < 4
4	150mm CEMENT STABILISED (C4) LOWER SUBBASE LAYER - 1.2MPa UCS - COMPACTED TO 95% MOD AASHTO DENSITY, GM > 1,5, PI < 6
5	150mm UPPER SELECTED LAYER OF IMPORTED TYPE G6 MATERIAL COMPACTED TO 95% MOD AASHTO DENSITY, CBR > 50, GM > 0,75, PI = 3GM + 10
6	150mm LOWER SELECTED LAYER OF IMPORTED TYPE G6 MATERIAL COMPACTED TO 93% MOD AASHTO DENSITY, CBR > 35
7	IN-SITU ROADBED / FILL WITH NATURAL GRAVEL (G8) COMPACTED TO 93% MOD. AASHTO DENSITY

SIDEWALK AND PAVED MEDIAN LAYERS	
8	60mm INTERLOCKING PAVING BLOCKS ON 20mm RIVER SAND BEDDING.
9	150mm CEMENT STABILISED (C4) LOWER SUBBASE LAYER - 1.2MPa UCS - COMPACTED TO 95% MOD AASHTO DENSITY, GM > 1,5, PI < 6
10	150mm LOWER SELECTED LAYER OF IMPORTED TYPE G6 MATERIAL COMPACTED TO 93% MOD AASHTO DENSITY, CBR > 35

GRAVEL SHOULDERS	
11	150mm NATURAL GRAVEL SHOULDER (G6) COMPACTED TO 95% MOD AASHTO DENSITY

C3.1.5.2 Accommodation of Traffic

The traffic volumes along this route are moderate to high.

Temporary traffic deviations will be required. The contractor will be responsible for the construction, full maintenance and removal of the deviation on completion, as well as the reinstatement of the area.

Temporary traffic control signs and devices employed daily in the accommodation of traffic along the route shall be erected on and removed from the site of the works on a daily basis as required and no such signs or devices shall be permitted to remain in place overnight, unless otherwise instructed by the Employer's Agent.

With the exception of short term closures in certain areas for 'blasting', at least one lane per direction shall be open to traffic at all times. The contractor should ensure that all aspects of traffic accommodation are shown on the Construction Programme and shall submit Method Statements and Plans for long and short term traffic accommodation.

C3.1.5.3 Services

Numerous services are affected, amongst which telecommunication infrastructure and electrical cables. The Contractor must ensure that there is enough time allocated to relocate in the project programme.

C3.1.5.4 Construction Materials

Gravel materials required for construction work are available on the site and shall be obtained from excavations unless otherwise specified from commercial sources.

Concrete, making-up material and surfacing materials (asphalt) shall be obtained from commercial sources.

C3.1.5.5 Drawings

All drawings necessary to complete the works are bound in **Volume 4: Contract Drawings**.

The drawings indicating the extent of the works along the road are for tendering purpose only. The final extent of the work will be as instructed by the Employer's Agent.

Any information in the possession of the contractor which is required by the resident Employer's Agent to complete his as-built drawings shall be supplied to the resident Employer's Agent before a certificate of completion will be issued.

Only figured dimensions shall be used and drawings shall not be scaled unless so instructed by the Employer's Agent. The Employer's Agent will supply any figured dimensions which may have been omitted from the drawings.

C3.1.5.6 Power Supply and other Services

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

C3.1.5.7 Water for Construction Purposes

The contractor shall make his own arrangements regarding a suitable supply of water for the project and he must make adequate provision in his tender for all negotiations and procurement of water for construction activities and all related costs will be deemed to be included in his tendered rates.

C3.1.5.8 Construction in Confined Areas

It may be necessary for the Contractor to work within confined areas. No additional payment will be made for work done in restricted areas, except in the case of structures as described in Subclause 6108(d) of the Standard Specifications. In certain places the width of the fill material and pavement layers may decrease to zero and the working space may be confined. The method of construction in these confined areas largely depends on the Contractor's constructional plant.

However, the Contractor must note that measurement and payment will be in accordance with the specified cross-sections and dimensions only, irrespective of the method used for achieving these cross-sections and dimensions and that the tendered rates and amounts shall include full compensation for all special equipment and construction methods and for all difficulties encountered when working in confined areas and narrow widths, and at or around obstructions, and that no extra payment will be made nor will any claim for additional payment be considered in such cases.

C3.1.5.9 Contractor's Camp Site

The contractor shall make his own arrangements regarding the establishment of a camp site and housing for his construction personnel. The choice of all sites for the establishment of camps is subject to the approval of the Employer's Agent. Camp sites within the road reserve will not be permitted.

The establishment of all labour, plant and materials on site is the responsibility of the Contractor and all arrangements in this respect are the Contractors' responsibility; however:

- Provision has been made in the Schedule of Quantities for the Contractor to tender for his independent establishment on site (Section 1300);
- Base camp(s) established by the Contractor for his use must be approved by the Employer's Agent before the Contract begins and this approval must be obtained in writing but must also meet the approval of the local authorities, headmen or residents associations, as well as the Environmental Management Programme with regard to batching plants, bitumen storage areas and plant maintenance areas.

The Contractor shall provide and maintain a continuous means of on-site communication between his site supervision staff (i.e. the people responsible for the day to day running of the Contract) and the staff of the Employer's Agent's Representative. The Contractor must provide the Employer's Agent with at least two cellphones which will be paid for under Item B14.03. The provision and use of cellular phones for the Contractor's personnel will be for his own cost.

C3.1.5.10 Security

The contractor shall be responsible for the security of his personnel and constructional plant on and around the site of the works and for the security of his camp, and no claims in this regard shall be considered by the employer. The Contractor shall also be responsible for the security of the areas around the Employer's Agent's offices.

C3.1.5.11 Programme of the Work

The contractor shall take note of various factors contained in these specifications which will have a significant influence on the compilation of the programme of work. Detailed directives for compiling the programme of work are given in clause B1204 of section 1200 of the project specifications.

It should be programmed to relocate the 600 mm diameter steel waterline in the early stages of the project to ensure construction of the roadworks can continue.

It shall be noted that the specified contract period is twenty two (22) months.

C3.1.5.12 Environmental Requirements

The Contractor shall be responsible for implementing and managing an Environmental Management Plan (also referred to as the “Environmental Management Programme”) in terms of C3.5.1 and Annexure B.

The Contractor's authorised agent shall report to the Employer's Agent regarding compliance with the conditions as stipulated in the Environmental Management Plan.

The Contractor shall take the utmost care to minimise the impact of his establishment and other construction activities on the environment and shall adhere to the requirements as set out in Annexure B. The Contractor shall prepare a detailed Method Statement to the Employer's Agent detailing his construction activities and what measures will be implemented to prevent the pollution of streams, rivers and countryside through the spilling of fuels, bituminous binders, sewage from the temporary toilets and other deleterious materials. Where in the opinion of the Employer's Agent, the Contractor has not adhered to these requirements; the Contractor shall rectify the damage at his own cost and to the satisfaction of the Employer's Agent.

(Refer C3.5.1: Environmental Management Plan).

C3.1.5.13 Minimum requirements for sub-contractors, females, local labour and training

Refer to Clause C3.3 relating to procurement and training.

C3.1.5.14 Employment of Local Labour

(Refer C3.4 Part C) Employment of Local Labour.

C3.1.5.15 Training

(Refer C3.4 Part D) Provision of Compulsory Training.

C3.1.5.16 Occupational Health and Safety (OHS)

(Refer C3.4 Part E) Occupational Health and Safety Act 1993: Health and Safety Specification.

(a) General statement

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 (OHS) Act (Act 85 and Amendment Act 181) of 1993, and the Construction Regulations 2014 issued on 7 February 2014 by the Department of Labour. Contractor to complete Schedules T2.1 K: Occupational Health and Safety Questionnaire.

The additional specification regarding health and safety issues on this contract have been included in Part C3.4: Part E.

For the purpose of this contract the Contractor is required to confirm his status as mandatory to the Employer (Client) and employer in his own right for the execution of the contract, and he shall enter into an agreement in respect of the Occupational Health and Safety Act in the schedule as included in Part C1.2: Agreement in Terms of Occupational Health and Safety (OHS) Act (Act 85 and Amendment Act 181) of 1993.

(b) Health and Safety Specifications and Plans to be submitted at tender stage

(i) Employer's Health and Safety Specification

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

(ii) Tenderer's Health and Safety Plan

The Tenderer shall submit with his tender sufficient proof that he has a Health and Safety Plan in place. The Contractor will, however, have to submit his Health and Safety Plan on request by the Employer during the tender evaluation stage.

In terms of the OHS Act the tender will be disqualified if the tenderer has no Health and Safety Plan.

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.

The Contractor shall not be entitled to claim for extension of time or standing time and the related costs for any delays due to delayed commencement or suspension of the work arising from the lack of approval of an approved Health and Safety Plan.

C3.1.5.14 Temporary latrines

The Contractor shall provide sufficient portable chemical latrine units for the use of his employees. Furthermore the Contractor shall also provide a portable chemical latrine unit at each temporary traffic control facility. He shall be entirely responsible for enforcing their use and for maintaining such latrines in a clean, orderly and sanitary condition to the satisfaction of the Employer's Agent and the Employer. Latrines shall be positioned within walking distance from wherever employees or labourers are employed on the Works.

Where required, latrines shall be provided at the rate of one for ten persons and where applicable, the Contractor shall make his own arrangements and pay all charges for the removal of sewage.

No separate payment shall be made for this requirement and the costs thereof shall be deemed to be included in the rates tendered for the Contractor's time-related obligations.

C3.2 ENGINEERING

C3.2.1 Design

- The employer is responsible for the design of the permanent Works as reflected in these Contract Documents unless otherwise stated.
- The contractor is responsible for the design of the temporary Works and their compatibility with the permanent Works.
- The contractor is responsible liaison with services owners and local authorities for the relocation and protection of existing services.
- The contractor shall supply all details necessary to assist the Employer's Agent in the compilation of the as-built drawings.

C3.2.2 Employer's Design

The brief description of the work is indicative rather than absolute and shall not limit the work to be executed by the Contractor under this contract. Approximate quantities of the various types of work to be carried out in accordance with the contract documents are listed in the schedule of quantities.

C3.2.2.1 Detail description of Works

Pavement design

The following pavement design is appropriate to this project:

PAVEMENT LAYERS	
1	40mm AC CONTINUOUSLY (COARSE) GRADED ASPHALT SURFACING WITH A-E2 BINDER.
2	150mm CRUSHED STONE BASE (G1) COMPACTED TO 88% OF APPARENT RELATIVE DENSITY (ARD)
3	150mm CEMENT STABILISED (C3) UPPER SUBBASE LAYER - 1.5MPa UCS - COMPACTED TO 97% MOD AASHTO DENSITY, GM > 1,75, PI < 4
4	150mm CEMENT STABILISED (C4) LOWER SUBBASE LAYER - 1.2MPa UCS - COMPACTED TO 95% MOD AASHTO DENSITY, GM > 1,5, PI < 6
5	150mm UPPER SELECTED LAYER OF IMPORTED TYPE G6 MATERIAL COMPACTED TO 95% MOD AASHTO DENSITY, CBR > 50, GM > 0,75, PI = 3GM + 10
6	150mm LOWER SELECTED LAYER OF IMPORTED TYPE G6 MATERIAL COMPACTED TO 93% MOD AASHTO DENSITY, CBR > 35
7	IN-SITU ROADBED / FILL WITH NATURAL GRAVEL (G8) COMPACTED TO 93% MOD. AASHTO DENSITY

SIDEWALK AND PAVED MEDIAN LAYERS	
8	80mm INTERLOCKING PAVING BLOCKS ON 20mm RIVER SAND BEDDING.
9	150mm CEMENT STABILISED (C4) LOWER SUBBASE LAYER - 1.2MPa UCS - COMPACTED TO 95% MOD AASHTO DENSITY, GM > 1,5, PI < 6
10	150mm LOWER SELECTED LAYER OF IMPORTED TYPE G6 MATERIAL COMPACTED TO 93% MOD AASHTO DENSITY, CBR > 35

GRAVEL SHOULDERS	
11	150mm NATURAL GRAVEL SHOULDER (G6) COMPACTED TO 95% MOD AASHTO DENSITY

Accommodation of Traffic

The traffic volumes along this route are moderate to high.

Temporary traffic deviations will be required. The contractor will be responsible for the construction, full maintenance and removal of the deviation on completion, as well as the reinstatement of the area.

Temporary traffic control signs and devices employed daily in the accommodation of traffic along the route shall be erected on and removed from the site of the works on a daily basis as required and no such signs or devices shall be permitted to remain in place overnight, unless otherwise instructed by the Employer’s Agent.

With the exception of short term closures in certain areas for ‘blasting’, at least one lane per direction shall be open to traffic at all times. The contractor should ensure that all aspects of traffic accommodation are shown on the Construction Programme and shall submit Method Statements and Plans for long and short term traffic accommodation.

Services

Numerous services are affected, amongst which telecommunication infrastructure and electrical cables. The Contractor must ensure that there is enough time allocated to protect, relocate or replace existing services in the project programme.

The Contractor shall contact the all affected service providers to obtain permissions and/or wayleaves to work in the vicinity of their services, and confirm such to the writing to the Employer’s Agent as follows:

AGENCY	REMARKS / SIGNATURE / DATE	AGENCY	REMARKS / SIGNATURE / DATE
CITY POWER		TELKOM	
EGOLI GAS		ESKOM	
JHB WATER		RAND WATER	
CITY PARKS		NEOTEL	
JRA STORM WATER & PLANNING		MTN	
SASOL		METRO TRADING COMPANY	
DARK FIBRE AFRICA		TRANSNET	

Local Council Wayleaves

The contractor will also be responsible for the application of local council wayleaves (where applicable) for any work conducted within local council road reserves.

Construction Materials

Gravel materials required for construction work are available on the site and shall be obtained from excavations unless otherwise specified from commercial sources.

Concrete, making-up material and surfacing materials (asphalt) shall be obtained from commercial sources.

C3.2.3 Drawings

All drawings necessary to complete the works are bound in **Volume 4: Contract Drawings**.

The drawings indicating the extent of the works along the road are for tendering purpose only. The final extent of the work will be as instructed by the Employer's Agent.

Any information in the possession of the contractor which is required by the resident Employer's Agent to complete his as-built drawings shall be supplied to the resident Employer's Agent before a certificate of completion will be issued.

Only figured dimensions shall be used and drawings shall not be scaled unless so instructed by the Employer's Agent. The Employer's Agent will supply any figured dimensions which may have been omitted from the drawings.

C3.2.4 Design Procedures

All designs and modifications thereto shall be communicated in writing and the contractor and Employer's Agent shall maintain master lists to record and track all transactions.

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C3.3 PROCUREMENT, LOCAL LABOUR AND TRAINING

C3.3.1 Procurement

C3.3.1.1 Minimum Preferential Procurement Requirements

The following minimum preferential procurement requirements apply:

- (a) It is required that at least 30% of the Contract Price (excluding VAT, provisional sums and prime cost amounts) be undertaken sub-contractors and suppliers as stipulated in section 9(2) (b-h) in the PPR 2017.

Of this 30% at least the following proportions shall apply:

- i) 40% to shall be Female owned
- ii) 60% shall be Qualifying Small Enterprises (QSE's) or Exempted Micro Enterprises (EME's) that have an Average Weighted Equivalent B-BBEE Status Level of 1 or 2 only.
- iii) 60% shall be 100% black owned sub-contractors

All subcontractors to be involved in the actual execution of works must be registered with the CIDB in the appropriate grading for the value of works to be executed and be approved by the Employer. Local sub-contractor and suppliers refers to those subcontractors and suppliers whose business registered address is located within the municipal or ward boundaries in which the project is undertaken. Sub-contractors from outside the affected communities (but within Gauteng province) will only be considered in the event of having failed to obtain suitably capable service providers within the affected communities.

- (b) Minimum Employment Creation Requirements

It is required that at least 30% of the Contract Value (Excl VAT) be spent on worker's salaries and wages, of this 30%, at least one third must be Local Labour.

The proportions of Workers must be at least:

For all workers:

- i) 40% to be for Female workers
- ii) 60% to be Youth workers
- iii) 2% to be Disabled workers

For local labour:

- i) 40% to be for Female workers
- ii) 60% to be Youth workers
- iii) 2% to be Disabled workers

C3.3.1.2 Definitions

Percentages stated in clause C3.3.1.1 (a)

Percentages of the Contract Value (Excl provisional sums, prime cost amounts and VAT, as allowed in terms of National Treasury directives and/or guidelines) are calculated from the agreed financial values of the work performed by the various types of subcontractors, based on the appropriate quantities in the Contractor's approved statements of payment (in terms of clause 6.10 of the General Conditions of Contract), including the applicable proportional values of general costs derived from sections 1200, 1300, 1400 and 1500 of the Bill of Quantities. In the event that agreement cannot be reached, the Engineer's ruling shall prevail.

B-BBEE Status Level

The certified status level in-terms of the Preferential Procurement Regulations promulgated on 20 January 2017.

Qualifying Small Enterprises (QSE's) or Exempted Micro Enterprises (EME's)

The QSE and EME's certified status in terms of the B-BBEE Code of Good Practice and the Preferential Procurement Policy Framework Act, 05 of 2000 and Regulations of 2017.

EME's are deemed to have the status of a level 4 contributor and in instances where black ownership is greater than 51%, the status of a level 3 contributor.

Average weighted equivalent B-BBEE Status level

The Average Weighted B-BBEE Status level =

$$\left(\frac{\sum (s \times v)}{\sum (v)} \right)$$

Σ = The sum of the values in parenthesis ()

s = status level of each individual, QSE or EME sub-contractor

v = Value of the work performed, including the proportion of General costs incurred, by each individual QSE or EME Sub-contractor.

Female Owned

Female owned enterprises are enterprises that can provide proof of more the 51% female ownership, in accordance with the applicable laws.

Worker

As defined in Part C of the project specifications.

Salaries and Wages

The total gross remuneration of the workforce, (as defined in Part C of the Project Specification) is to be reported regularly to the Employer's Agent in an acceptable format.

The gross remuneration shall exclude the proportions of salaries and wages of labourers when such workers are not performing work directly related to the contract.

The gross remuneration shall only include the remuneration or proportional remuneration of :

- Key Personnel*
- The Workforce*
- Local Labour*
- Sub-contractors
- The Community Liaison Officer*
- Other labour specifically approved by the Employer's Agent

* As defined in Part C of the Project Specifications, The Employer's Agent may require certification by a registered professional auditor of the values reported.

Local Labour

"Local labour" are defined in Part C of the Project Specifications.

Youths

Youths are Local Labour between the ages of 15 and 35.

C3.3.1.3 QSE and EME Subcontractor work

The contractor is expected to demonstrate to what extent he can meet the minimum requirements (See C3.3.1.5 hereafter).

In order to further assist the contractor to attain and exceed the minimum requirements stated in Clause C3.3.1.1 (a) above, the CLO and the employers social facilitator (as defined in Part C of the Project Specifications) will provide the contractor with a list of local QSEs and ESEs who were engaged on the project by the previous contractor.

The contractor is obliged to give first preference to the QSE's of ESE's thus identified in appointing sub-contractors on the project.

Examples of some of the construction activities included in the works which are considered suitable to be undertaken by QSE and EME sub-contractors include:

- Supply of construction materials,
- Provision of traffic control facilities,
- Management of traffic control facilities and traffic safety as part of the accommodation of traffic,

- Erection and maintenance of the contractor's camp site,
- Removal of trees,
- Construction of concrete paving, kerbs and channels,
- Manufacture of pre-cast concrete elements,
- Construction of concrete walkways,
- Finishing off cut and fill slopes,
- Construction of minor concrete drainage elements such as side drains, catchpits, manholes, etc.
- Construction of side drains,
- Installation of stormwater pipes,
- Patching,
- Relocation/protection of services, Installation of subsoil drains,
- Cartage of materials,
- Cleaning out of pipe culvert inlet and outlet structures,
- Erection of temporary and permanent road signs .
- Erection of guardrails.
- Finishing of the road and road reserve,
- Road markings,
- Construction of service roads.
- Stone pitching
- Landscaping

The contractor is encouraged to innovate and add additional activities. If a labour broker is employed for labour resourcing, the labour broker will not be considered as a subcontractor.

C.3.3.1.4 Examples of Employment Creation

Key objectives of this contract are:

- That Local Labourers that are employed during the course of the contract (as specified in Part C of the Project Specification), be permanently employed (i.e. for at least 230 person days).
- That work on the project be performed in a way which will maximise employment through the utilisation of labour intensive instead of mechanical intensive construction methods.
- Local Labourers who were employed on the project by the previous contractor are to be given first preference when appointing labourers.

The following activities included in the works are examples of work considered as suitable for labour enhanced construction:

- Site establishment
- Clearing and grubbing in areas without trees
- Accommodation of Traffic
- Mixing of concrete/soilcrete for minor concrete works

- Laying of concrete block paving, kerbs and channels
- Excavations for minor concrete drainage structures and kerbing
- Construction of variable depth side drains (normal side drains are part of bulk earthworks)
- Excavation and backfilling of pipes and culverts
- Finishing of the road and road reserve
- Construction of subsoil drains
- Excavations for road signs
- Patching
- Clearing the fence line and erection of fencing
- Brooming of slush on crushed stone bases
- Spreading of topsoil and application of fertilizers on areas for grassing
- Grass sodding.

The contractor is encouraged to be innovative and add additional activities.

Labour enhanced construction activities, shall be clearly identified by the contractor and approved by the Employer's Agent.

No variation in payment shall be made for labour enhanced work identified by the contractor.

C3.3.1.5 Demonstrating how the minimum Preferential Procurement requirements are to be achieved

The Contractor shall take cognisance of the minimum criteria and their contribution to the utilisation of employment creation when, at tender stage, he sets out his intentions, on forms T2.1 C, H and M on how he proposes to achieve the minimum requirements in Clause C3.3.1 (a) and (b) above.

C3.3.1.6 Penalties for failure to comply with the minimum requirements of Clause 3.3 Minimum Empowerment of Subcontractors and Females (MESF):

Failure or refusal on the part of the contractor to take the necessary steps to ensure that the required Minimum Empowerment of Subcontractors and Females (MESF) is achieved, shall be sufficient cause for the Employer's Agent to deduct penalties as follows:

MESF Penalty (main category) = Tender sum (excluding CPA & VAT) x (required MESF% -actual MESF %)

MESF main category refers to 30% of Tender Sum (excl. CPA & VAT) to be spent towards sub-contractors and suppliers.

MESF Penalty (each sub-category) = Target Amount (excluding CPA & VAT) x (required MESF% -actual MESF %)

MESF sub-categories refers to:

- i) 40% shall be Female owned
- ii) 60% shall be Qualifying Small Enterprises (QSE's) or Exempted Micro Enterprises (EME's) that have an Average Weighted Equivalent B-BBEE Status Level of 1 or 2 only.
- iii) 60% shall be 100% black owned sub-contractors

Penalties for non-achievement of CPG targets will start being levied once the project financial progress or expenditure has reached 50%.

All subcontractors to be involved in the actual execution of the works must be registered with the CIDB in the appropriate grading for the value of works to be executed and be approved by the Employer. Local sub-contractor and suppliers refers to those subcontractors and suppliers whose business registered address is located within the municipal or ward boundaries in which the project is undertaken. Suppliers need not be registered with the CIDB. Sub-contractors from outside the affected communities (but within Gauteng province) will only be considered in the event of having failed to obtain suitably capable service providers within the affected communities.

Minimum Employment Creation (MEC):

Failure, or refusal on the part of the contractor to take the necessary steps to ensure that the required percentages of Minimum Employment Creation (MEC) for local labour are met, shall be sufficient cause for the Employer's Agent to deduct penalties as follows:

MEC Penalty (All labour) = Tender sum (excluding CPA & VAT) x (required MEC % -actual MEC %)

MEC Penalty (Local labour) = Tender sum (excluding CPA & VAT) x (required MEC % -actual MEC %)

MEC Penalty (each sub-category) = Target Amount (excluding CPA & VAT) x (required MEC % -actual MEC %)

MEC sub-categories refers to:

- i) 40% to be Female workers
- ii) 60% to be Youth workers
- iii) 2% to be Disabled workers

The penalty amounts shall be agreed between the contractor and the Employer's Agent. In the event that agreement of the penalties' amounts cannot be reached, the Employer's Agent's ruling shall prevail. Penalties for non-achievement of CPG targets will start being levied once the project financial progress or expenditure has reached 50%.

The contractor agrees that the penalty amounts may be deducted from the contractor's payment certificates. No additional payment (negative discounts) will be applicable if the contractor exceeds the minimum requirements.

C3.3.2 Compulsory training

Compulsory training shall be implemented for local Labour, QSE's and EME's by the contractor as specified in Part D of the Project Specifications. Training plan must be submitted to the Employer's Agent for recommendation and approval by the employer.

Provisional sums are included in PART D – D06.01 of the Bill of Quantities for accredited training providers. This sum will be spent at the sole discretion of the Employer's Agent in consultation with the employer.

The contractor will, inter alia be responsible for:

- Arranging Construction Education and Training Authority (CETA) approved courses (Payment being by way of the Provisional Sum allowances in the Bill of Quantities).
- Payment of trainees wages during training (the contractor will be reimbursed for these wages by way of the Provisional Sum allowances in the Bill of Quantities)
- Provision of training facilities and, if required, transport to the training, venue; (Payment to the contractor being included in the contractor's General obligations as specified in section 1200 of the Project Specifications).

The attendance and completion of each course by selected individuals must be CETA certified and copies of such certificates must be submitted to the Employer's Agent.

No additional payment shall be made for informal training/

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C3.4 CONSTRUCTION

C3.4.1 STANDARD SPECIFICATIONS

The following specifications shall apply for the construction of the Works.

- (a) The COLTO Standard Specifications for Road and Bridge Works for State Road Authorities (1998).

The contractor may purchase copies from the South African Institution of Civil Engineers.

SAICE:

Thornhill Office Park	Private Bag X200
98 Becker Street	Halfwayhouse
Vorna Valley	1685

Midrand

Tel: (011) 805-5947

Fax: (011) 805-5971

- (b) SABS or BS Specifications and Codes of Practice

Wherever any reference is made to the South African Bureau of Standards (SABS) and the British Standards Specification (BSS) in either these Bill of Quantities or the Specification of Materials and Methods to be Used (OOG-001E), this reference shall be deemed to read "SABS or equivalent standard" and BS or equivalent standard" respectively.

- (c) Various other specifications specified in the COLTO Standard Specifications or the Project Specifications.

C3.4.2 PROJECT SPECIFICATIONS: GENERAL

These specifications shall address project specific matters such as:

- Restrictions on construction
 - Site usage
 - Permits and wayleaves
 - Confined areas
- Services
- Materials
- Traffic Volumes
- Drawings
- Site Establishment
 - Contractor and Employer's Agents camp
 - Security, etc.
 - Water for construction
 - Power supply
 - Telkom Service
 - Other Services
 - Survey control
 - Notices, signs and advertisements

C3.4.3 PROJECT SPECIFICATIONS RELATING TO STANDARD SPECIFICATIONS

C3.4.3.1 General Conditions of Contract Referred to in the Standard Specifications

The references to the General Conditions of Contract appearing in the COLTO Standard Specifications refer to the COLTO General Conditions of Contract which is superseded in this contract by the General Conditions of Contract for Construction Works 2004. The corresponding clause in the latter document pertaining to the reference in the COLTO Standard Specifications is listed in the table below.

COLTO Standard Specification		COLTO General Conditions of Contract 1998 (GCC)		GCC2015 General Conditions of Contract for Construction Works, 2015	
Clause No	Page No	Cl. No	Description or Reference	Cl. No	Description or Reference
1115	1100-2		Definition of applicable GCC and special conditions of contract		GCC 2015 together with project documents
1204	1200-2	15	Construction programme	5.6.1	Construction programme
1204	1200-2		General reference to GCC		GCC 2015, as applicable

COLTO Standard Specification		COLTO General Conditions of Contract 1998 (GCC)		GCC2015 General Conditions of Contract for Construction Works, 2015	
Clause No	Page No	Cl. No	Description or Reference	Cl. No	Description or Reference
1206	1200-3	14	Setting out of works	5.4	Access to the Site
1209(a)	1200-4		General references to GCC		GCC 2015, as applicable
1209(e)	1200-5	52(2)	Valuation of material brought onto site	6.10.2	Valuation of material brought onto site
1210	1200-5	54	Certificate of practical completion	5.14.4	Certificate of practical completion
1212(1)	1200-7	49(2)	Cost of checking alternative designs		
1215	1200-9	45	Extension of time for completion due to abnormal rainfall.	5.12	Extension of time for Practical Completion
1217	1200-10	35	Care of the works	8.2	Care of the works
1303(ii)	1300-1		General reference to GCC		GCC 2015, as applicable
1303(iii)	1300-1	49	Price adjustment Item 13.01 (a)	6.11	Variations exceeding 15%
1303 (iii)	1300-2	49	Price adjustment Item 13.01 (b)	6.11	Variations exceeding 15%
1303 (iii)	1300-1	53	Variations exceeding 20%	6.11	Variations exceeding 15%
1303 (iii)	1300-2	53	Variations exceeding 20%	6.11	Variations exceeding 15%
1303	1300-2	12	Payment Item 13.01 (c)	6.1.1	Payment to Contractor
1303	1300-2	49	Payment of Item 13.01 (c) Time Related Obligations	6.11	Variations exceeding 15%
1403(c) (ii)	1400-4	40	Variation for rented accommodation	6.4	Valuations of Variations
1505	1500-3	40	Payment for damage caused by temporary drainage	6.4	Valuations of Variations
Item 15.08	1500-8	48	Payment of Provisional Sum	6.6	Provisional and Prime Cost Sums
Item 15.09	1500/8	48	Payment of Provisional Sum	6.6	Provisional and Prime Cost Sums
Item 15.11	1500-8	48	Payment of Provisional Sum	6.6	Provisional and Prime Cost Sums
Note (2)	3100-4	40	Payment for prospecting for materials	6.4	Valuations of Variations
3204(b) (iii)	3200-2	40	Determining Compensation for varied methods and equipment	6.4	Valuations of Variations
3303(b)	3300-2	2	Employer's Agent's decisions, with reference to materials classification	3	Employer's Agent
Item 44.06	4400-3		General reference to GCC, PC Sums	6.6	Provisional and Prime Cost Sums
Item 45.06	4500-3		General reference to GCC, PC Sums	6.6	Provisional and Prime Cost Sums
5803 (c)	5800-3	40	Variation, for landscaping	6.4	Valuations of Variations
5805 (d)	5800-4	40	Variation, for grassing	6.4	Valuations of Variations
Item 58.10	5800-10	48	Payment for Extra Work	6.6	Provisional and Prime Cost Sums
8103 (c)	8100-1	40	Testing materials	6.9	Vesting of Plant and materials
			Valuation of Variations	6.4	Valuations of Variations
Item 81.02	8100-26		General reference to GCC, Provisional Sums	6.6	Provisional and Prime Cost Sums
Item 81.03	8100-26	22	Removal of Test Equipment and Clearance of Site on Completion	5.15	Clearance of Site

C3.4.4 SPECIFIED MANAGEMENT REQUIREMENTS

The requirements stated in the Management part of the contract shall be considered as further specified requirements of the contract

TENDER NO. DRT 26/07/2019

CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD), UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71 (PITTS AVENUE)

PROJECT SPECIFICATIONS

PART B: MATTERS RELATING TO THE STANDARD SPECIFICATIONS

PROJECT SPECIFICATIONS REFERRING TO THE STANDARD SPECIFICATIONS AND ADDITIONAL SPECIFICATIONS

The Standard Specifications for Road and Bridge Works for State Road Authorities 1998, prepared by the Committee of Land Transport Officials (COLTO), as amended, shall apply to this Contract. The amendments are those issued by COLTO and reproduced below, together with additional amendments as set out herein.

1 STANDARD AMENDMENTS TO THE STANDARD SPECIFICATIONS ISSUED BY COLTO

No amendments have been issued.

2 PROJECT SPECIFICATIONS REFERRING TO THE STANDARD SPECIFICATIONS AND ADDITIONAL 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 part of the Project Specifications. It also contains some additional specifications required for this particular Contract.

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

PROJECT SPECIFICATION REFERRING TO THE STANDARD SPECIFICATIONS AND ADDITIONAL SPECIFICATIONS

- SECTION 1100: DEFINITIONS AND TERMS
- SECTION 1200: GENERAL REQUIREMENTS AND PROVISIONS
- SECTION 1300: CONTRACTOR'S ESTABLISHMENT ON SITE AND GENERAL OBLIGATIONS
- SECTION 1400: HOUSING, OFFICES AND LABORATORIES FOR THE EMPLOYER'S AGENT'S SITE PERSONNEL
- SECTION 1500: ACCOMMODATION OF TRAFFIC
- SECTION 1600: OVERHAUL
- SECTION 1700: CLEARING AND GRUBBING
- SECTION B1800 : DAYWORKS AND HIRE OF CONSTRUCTION EQUIPMENT
- SECTION 2100: DRAINS
- SECTION 2300: CONCRETE KERBING, CONCRETE CHANNELLING, CHUTES AND DOWNPIPES, AND CONCRETE LINING FOR OPEN DRAINS
- SECTION 3300: MASS EARTHWORKS
- SECTION 3400: PAVEMENT LAYERS OF GRAVEL MATERIAL
- SECTION 3500: STABILISATION
- SECTION 3600: CRUSHED STONE BASE
- SECTION B3800: BREAKING UP EXISTING PAVEMENT LAYERS
- SECTION B3900: PATCHING AND REPAIRING EDGE BREAKS
- SECTION 4100: PRIME COAT
- SECTION 4200: ASPHALT BASE AND SURFACING
- SECTION 5600: ROAD SIGNS
- SECTION 5700: ROAD MARKINGS
- SECTION 5800: LANDSCAPING AND PLANTING PLANTS
- SECTION 5900: FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS
- SECTION 6100: FOUNDATIONS FOR STRUCTURES
- SECTION 6200: FALSEWORK, FORMWORK AND CONCRETE FINISH
- SECTION 6300: STEEL REINFORCEMENT FOR STRUCTURES
- SECTION 6400: CONCRETE FOR STRUCTURES
- SECTION 6500: PRESTRESSING OF STRUCTURES
- SECTION B6600: NO-FINES CONCRETE, JOINTS, BEARINGS, PARAPETS AND DRAINAGE FOR STRUCTURES
- SECTION 6900 : MISCELLANEOUS

SECTION B8200: QUALITY CONTROL (SCHEME 1)

SECTION SANS 1200L: MEDIUM PRESSURE PIPELINES

SECTION 1100: DEFINITIONS AND TERMS

B1115 GENERAL CONDITIONS OF CONTRACT

Replace Clause 1115 with the following:

The General Conditions applicable to this Contract are the General Conditions of Contract for Construction Works, 2015, Third Edition, (GCC 2015).

Accordingly, all reference in the Standard Specifications to any other General Conditions of Contract (GCC) has to be amended. The Standard Specifications have been scrutinised and clauses, which refer to another GCC, identified. These are tabulated below together with the relevant equivalent clause in the GCC 2015 Conditions of Contract. The context of the reference to the GCC is also noted.

Whereas every effort has been made to include all of the affected clauses in the table, there may be some omissions. In every case, however, the GCC 2015 Conditions of Contract for Construction, as amended by the Special Conditions of Contract in Section C1.2 of this Volume, shall apply and the contractor shall be responsible for interpretation of the equivalent clause

CHANGES TO ALL REFERENCES BY THE COLTO STANDARD SPECIFICATIONS AND GENERAL CONDITIONS OF CONTRACT

COLTO Standard Specification		COLTO General Conditions of Contract 1998 (GCC)		GCC2015 General Conditions of Contract for Construction Works, 2015	
Clause No	Page No	Cl. No	Description or Reference	Cl. No	Description or Reference
1115	1100-2		Definition of applicable GCC and special conditions of contract		GCC2015 together with project documents
1204	1200-2	15	Construction programme	5.6.1	Construction programme
1204	1200-2		General reference to GCC		GCC 2015, as applicable
1206	1200-3	14	Setting out of works	5.4	
1209(a)	1200-4		General references to GCC		GCC 2015, as applicable
1209(e)	1200-5	52(2)	Valuation of material brought onto site	6.10.2	Valuation of material brought onto site
1210	1200-5	54	Certificate of practical completion	5.14.4	Certificate of practical completion
1212(1)	1200-7	49(2)	Cost of checking alternative designs		
1215	1200-9	45	Extension of time for completion due to abnormal rainfall.	5.12	Extension of time for completion
1217	1200-10	35	Care of the works	8.2	Care of the works
1303(ii)	1300-1		General reference to GCC		GCC 2015, as applicable
1303(iii)	1300-1	49	Price adjustment Item 13.01 (a)	6.11	Variations exceeding 15%
1303 (iii)	1300-2	49	Price adjustment Item 13.01 (b)	6.11	Variations exceeding 15%

COLTO Standard Specification		COLTO General Conditions of Contract 1998 (GCC)		GCC2015 General Conditions of Contract for Construction Works, 2015	
1303	1300-2	12	Payment Item 13.01 (c)	1.5.2	Commencement Date
1303	1300-2	49	Payment of Item 13.01 (c) Time Related Obligations	6.11	Variations exceeding 15%
1403(c) (ii)	1400-4	40	Variation for rented accommodation	6.4	Valuations of Variations
1505	1500-3	40	Payment for damage caused by temporary drainage	6.4	Valuations of Variations
Item 15.08	1500-8	48	Payment of Provisional Sum	6.6	Provisional and Prime Cost Sums
Item 15.09	1500/8	48	Payment of Provisional Sum	6.6	Provisional and Prime Cost Sums
Item 15.11	1500-8	48	Payment of Provisional Sum	6.6	Provisional and Prime Cost Sums
Note (2)	3100-4	40	Payment for prospecting for materials	6.4	Valuations of Variations
3204(b) (iii)	3200-2	40	Determining Compensation for varied methods and equipment	6.4	Valuations of Variations
3303(b)	3300-2	2	Employer's Agent's decisions, with reference to materials classification	3	Employer's Agent and Employer's Agent's Representative
Item 44.06	4400-3		General reference to GCC, PC Sums	6.6	Provisional and Prime Cost Sums
Item 45.06	4500-3		General reference to GCC, PC Sums	6.6	Provisional and Prime Cost Sums
5803 (c)	5800-3	40	Variation, for landscaping	6.4	Valuations of Variations
5805 (d)	5800-4	40	Variation, for grassing	6.4	Valuations of Variations
Item 58.10	5800-10	48	Payment for Extra Work	6.6	Provisional and Prime Cost Sums
8103 (c)	8100-1	40	Testing materials	6.9	Materials, Workmanship and Construction Equipment
			Valuation of Variations	6.4	Valuations of Variations
Item 81.02	8100-26		General reference to GCC, Provisional Sums	6.6	Provisional and Prime Cost Sums
Item 81.03	8100-26	22	Removal of Test Equipment and Clearance of Site on Completion	5.15	Clearance of Site
8209	8200-11		Process Control by Contractor (Table 8206/3 amended		GCC 2015, as applicable

SECTION 1200: GENERAL REQUIREMENTS AND PROVISIONS

B1202 SERVICES

Add the following first paragraph:

“All reference to services in this clause shall mean utility services as well as traffic monitoring devices.”

In the second paragraph, delete the word “utility” at the end of the second line.

In the tenth paragraph delete the last sentence starting with ‘Should’ and replace with the following:

“The Shifting of Services Layout drawings indicate all known services on the site. Those requiring removal, realignment or temporary replacement are indicated on the drawings. Before any work can commence the contractor shall verify the actual position of each station and bring to the attention of the Employer’s Agent any service that is not recorded.

The contractor directly shall liaise with all service and utility owners to work in the vicinity and removal, replacement or protection of any existing services/ The contractor shall:

- i) Give preliminary notice, in writing to the relevant service provider, that the services on the site will require removal or protection prior to works being carried out in the vicinity of each service. The contractor shall advise the service provider of
 - a. The number of services, their locations and station ID numbers and
 - b. The proposed dates when work will commence in the vicinity of each service.
- ii) Obtain all relevant service provider and local authority permissions and wayleaves. The contractor shall comply with all the conditions and notice periods of the issued permissions and wayleaves.
- iii) Upon completion of the work in the vicinity of each facility, the contractor shall notify the service provider, in writing, that work is complete and the service provider must be notified to confirm acceptance.

Any delay resulting from the removal/replacement of a service shall not be the subject of a claim, it being deemed that the contractor shall employ the services of the service provider as a subcontractor.

In the final paragraph, replace “clause 15” in the second line with “clause 8.3”.

B1204 PROGRAMME OF WORK

(a) General requirements

Add the following as a continuation of the first paragraph:

“In drawing up the programme the contractor shall make allowance for the following:

- (i) All special non-working days defined in C1.4 Contract Data.
- (ii) The expected delays defined in B1215: Extension of time resulting from inclement weather.
- (iii) The construction sequences and accommodation of traffic as indicated in Part C3.4: Accommodation of Traffic.
- (iv) The Time for Practical Completion as indicated in Part C1.4.2 Contract Specific Data, subclause 5.5.1.
- (v) Construction is limited to the lengths of road that may be occupied at a time as specified in clause 1500 of these specifications.
- (vi) The following restricted working conditions:
 - a) Where road marking has been obliterated by the Works, temporary markings are to be applied before re-opening of the section to traffic.
- (vii) Where an overlay is constructed, the total road width shall be surfaced from one end in construction blocks to prevent “round” joints between paving lanes and in such a manner that traffic lines can be painted as soon as possible after a section of the work is completed to assist the traffic. To further assist, pre-marking of the lines shall be done as soon as possible after surfacing of each section.
- (viii) During any break in production of more than 5 days, the total road width, in one direction, shall be surfaced up to a point where the Contractor stopped for the break and all road marking or pre-marking as agreed with the Employer’s Agent must be done on the completed section.
- (ix) Relocation of Services
- (x) Proclamation of land along the K73 (Main Rd) , between Montrose Road and Limit of Construction at the end of Jubie Road Intersection is planned to be complete and access granted to the Contractor, 12 months after the Commencement Date.

Add the following subclause:

“(c) Programme revisions

The programme will be reviewed at the scheduled site meetings at which the contractor shall provide sufficient detail that will allow the comparison of completed work per activity against the original approved programme. The contractor shall indicate what resources and programme changes he intends to implement in order to remedy any activity that may have fallen behind. The Employer’s Agent may request from the contractor a major revision of the programme. Such a revision shall be submitted for approval within fourteen (14) days of the request.”

B1205 WORKMANSHIP AND QUALITY CONTROL

Add the following after the title:

“The Contractor shall indicate in his tender, his intended procedure to satisfy the process control testing by means of on-site testing facilities or a combination of on-site and offsite testing. The Contractor shall implement a quality assurance system in accordance with ISO 9002 and appoint a quality manager who shall ensure that members of the Contractor’s staff comply with the requirements of the quality system. The quality system and the methods used to implement it shall be described in a quality plan produced by the Contractor. The system shall record the lines and levels of responsibility and indicate the method by which testing procedures will be conducted. In addition, the quality plan will provide for record keeping of all work executed on site including application rates and quantities, referenced to road position.

The quality manager shall be resident on site full time. No construction activities shall take place on site before the Employer’s Agent approves the quality plan”.

The results of all process control testing, with reference to road positions, shall be reported to the Employer’s Agent within the time period contained in the quality assurance plan and agreed with the Employer’s Agent that will allow approval hold points to be achieved. Should the Contractor fail to provide test results according to the agreed program, the Employer’s Agent may order the works to be temporarily stopped in order to ensure quality compliance. No work will be measured for payment that has not been tested by the Contractor and accepted by the Employer’s Agent. As the onus lies with the Contractor for product performance, testing by the Employer’s Agent will be done on a random quality control basis only using accredited commercial laboratories. Provision is made in Section 8100 should the Employer’s Agent require the Contractor to perform ad hoc testing in the Contractors site laboratory.”

Delete the third paragraph with the following+:

“The contractor shall submit the quality assurance system he proposes using to the Employer’s Agent, for his approval, within two weeks of the site handover. Once accepted by the Employer’s Agent the contractor shall not deviate from it unless written notification of proposed changes have similarly been submitted and approved. The system shall record the lines and levels of responsibility and indicate the method by which testing procedures will be conducted.”

The intensity should be changed as per table B8206/3

Add the following:

“For the purposes of this contract, the test results and measurements will be assessed in accordance with COLTO Section 8300 Quality Control (Scheme 2).”

Add the following paragraph:

“Dual laboratory facilities for the engineer and the contractor may be substituted with the combined laboratory facilities for process and acceptance control testing subject to the following requirements:

The following is required from the contractor:

- (a) A formal application

- (b) A clear indication of the type(s) of laboratory that will be included in the combined effort.
- (c) An undertaking that he will accept the test results of the combined laboratory. Should there be any doubts with regard to certain test results, this will be settled by an independent laboratory mutually agreed upon. The cost in such cases will be to the account of the party at fault.
- (d) An undertaking that the engineer will be in charge of the combined laboratory and the staff and equipment supplied by the contractor will be under the sole control of the engineer.
- (e) A monetary contribution that can be made up with respect to one or part of the following:
 - Qualified laboratory staff
 - Laboratory buildings
 - Laboratory equipment
 - Transport for field testing and sampling
 - Monetary

For the combined laboratory option, the contractor will be required to contribute towards at least 35% of the costs of the laboratory. The total cost of the laboratory for the contract period has been estimated at R6 000 000,00."

B1206 THE SETTING-OUT OF WORK AND PROTECTION OF BEACONS

Delete the first portion of the first paragraph up to the words of " ..., and he". The paragraph shall start "The contractor shall comply with all legal...."

Delete "and of clause 14 of the general conditions of contract" in the sixth paragraph

Add the following paragraphs:

"The contractor shall take care that property beacons, trigonometrical survey beacons or setting-out beacons are not displaced or destroyed without the consent of the Employer's Agent. Property beacons and trigonometrical survey beacons that have been displaced or destroyed shall be replaced by a registered land surveyor, who shall certify such replacement.

The cost of replacing all beacons displaced or destroyed during the course of the contract without the consent of the Employer's Agent shall be the contractor's responsibility and included in the tender rates".

"The contractor shall use appropriate methods for setting out the works to be constructed by labour-based methods. This may include the use of special templates and sight rails and other suitable implements, which will assist the labourers in constructing the works to the required lines, levels and standards. The cost of these implements and additional setting-out procedures shall be included in the rates for the works items and no separate payment will be made for them."

Add the following at the end of the fourth paragraph:

"Road markings, particularly the divergent/convergent lines of ramp interchanges and no overtaking barriers are also elements of the road that require proper setting out. The contractor

shall prove to the Employer's Agent that critical reference points have been satisfactorily recorded for later reinstallation before any work commences that will obliterate the existing markings."

B1207 NOTICES, SIGNS AND ADVERTISEMENTS

Add the following to this clause:

"Detail of the notice boards that are required in terms of clause 1207, are shown in Volume 4."

B1208 MEASUREMENTS

(a) Measurement of Completed Work

Add the following:

'(v) The actual authorised quantities of application or mix proportion of materials such as bituminous binders, aggregates, mineral fillers, paint, etc., shall be measured and paid for irrespective of allowed variations from nominal mix proportions or prescribed, portions. Any unauthorised increase in rates of application or mix proportions above those specified, shall however not be paid for.

The Employer's Agent may also reject any work outright where the actual rate of application of the aforementioned is not within the specified limits and this work shall be rectified or reconstructed at the Contractor's expense.'

B1209 PAYMENT

(b) The meanings of certain phrases in payment clauses

Procuring and furnishing ... (material)

Add the following:

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

(e) Materials on the site

Add the following:

"The Employer's Agent may at his sole discretion allow payments under "Materials on the site" in respect of any construction materials, if stored off-site, providing that:

- the site selected for this purpose is approved by the Employer's Agent;
- such land is physically separated from any production plant or operation;
- only materials for use under this contract are stockpiled on such land, and
- the contractor has provided proof of an agreement with the owner of such land that the owner has no objection to using the land for these purposes and has no claim whatsoever on any materials stockpiled on such land."

Add the following subclause:

"(g) Value Added Tax (VAT)

No value added tax shall be included in the contractor's tendered rates or amounts."

B1210 CERTIFICATE OF PRACTICAL COMPLETION OF THE WORKS

Add the following to subclause (e) before the semicolon:

"(including road studs)"

Add the following paragraphs after item (h):

"Notwithstanding that there might be natural or programmed sections of the works that will result in them being completed in their entirety before other sections, no consideration shall be given to the issuing of practical completion certificates for portions of the works. The use of any completed roadway or portions of the work, whether for unhindered use by the public or for accommodation of traffic while other portions are being constructed, shall not constitute use or occupation by the Employer until the Certificate of Practical Completion is issued.

In addition to the listed specified items of work and regardless of the degree of beneficial occupation by the Employer, the works shall be considered for Practical Completion only if the following criteria have also been met:

- (i) The estimated cost to complete the outstanding work is less than 2% of the tendered value of work plus the cost of any variation or extra work orders, but excluding CPA and VAT.
- (ii) The written list of outstanding items of work can be completed within 14 days of the list having been accepted in writing by the Contractor.
- (iii) Any information in the Contractor's possession, which is required by the Employer's Agent and has been requested in writing, has been supplied.

The contents of this clause 1210 of the COLTO Standard Specifications, together with the above amendment, shall apply equally to the issue of a Certificate of Practical Completion in terms of Clause 5.14.1 of the SAICE General Conditions of Contract."

B1211 TRAFFIC OVER COMPLETED PAVEMENT LAYERS

Add the following:

Where existing roads cross the proposed roads the Contractor shall make arrangements for crossing traffic to be provided for at all times"

B1215 EXTENSION OF TIME RESULTING FROM ABNORMAL RAINFALL

Add the following:

"Extension of time resulting from abnormal rainfall or other forms of inclement weather shall be calculated according to the requirements of Method ii (critical-path method). The value of "n" as specified in this clause shall be taken as three (3) working days per calendar month from November to March and two (2) working days per calendar month for the remainder of the year, of the specified time for completion of the contract. If no abnormal rainfall or other inclement

weather periods occur during a specific calendar month (or months), the n-value of these days, as allowed for in the programme of works shall not be taken as accumulating over the contract period."

B1216 INFORMATION FURNISHED BY THE EMPLOYER

Add the following after the second paragraph:

"Drawings and quantities regarding the distribution and extent of work items were compiled and calculated to the best of the Employer's Agent's knowledge and available information at the time of the design and could be subject to variations at the construction stage. Such variations shall, however, not form grounds for a claim by the contractor in terms of subclause 6.3: Variations of the General Conditions of Contract."

B1217 PROTECTION OF THE WORKS AND REQUIREMENTS TO BE MET BEFORE CONSTRUCTION OF NEW WORK ON TOP OF COMPLETED WORK IS COMMENCED

Add the following:

"(h) Prior to the start of any excavation on any part of the works, the contractor shall submit to the Employer's Agent for approval a method statement for the execution of that part of the work. The contractor is responsible for the protection of the underlying pavement layers and the drying out and/or keeping dry of such excavations. The contractor's programme shall make provision for the speedy backfilling of the excavations and the drainage thereof if inundation cannot be prevented.

The contractor shall, at his own cost, be responsible for the repair of pavement layers which have been damaged due to his own works or his neglect to submit his planning to the Employer's Agent for approval or to adhere to approved precautionary measures."

B1229 SANS CEMENT SPECIFICATION

Add the following:

"Where reference is made in this specification or the standard specifications to the cement specifications, e.g. SANS 471: Portland cement and rapid hardening Portland cement, it shall be replaced with the new specification:

SANS 50197-1: 2000: Cement compositions, specifications and conformity criteria Part 1: Common cements.

B1230 TRAINING (PART D: PROVISION OF COMPULSORY TRAINING)

Add the following to D06: Measurement and Payment:

"D06.03 Training Programme

The contractor shall submit a training programme and training content to the Employer's Agent for recommendation as soon as possible after commencement of the project. The training

programme will have to be approved by the employer. The training shall include relevant content based on the three categories of:

- Entrepreneurial training
- Employer's Agent training
- Generic training

The contractor shall also submit a proposed venue for approval by the Employer's Agent.

The contractor shall also provide for the required stationary, transport and compensation to the labourers for the duration of the training.

All aspects related to training, including the contractor's cost, shall be paid for under item D06.01 – Provision of Compulsory Training.”

Add the following clause:

“B1231 SECURITY

Security of contractor's plant and personnel

The tenderer shall note that, notwithstanding the insurances effected by the contractor, the contractor shall be responsible for the effecting of safety and security of plant and personnel on and around the site of the works, and that no claims in this regard will be entertained by the employer. “

Contractors are expected to use common sense and good judgment in assessing their security requirements. Under no circumstances will additional payment be made for items such as security fencing, e.g. razor coil wire, mobile radios, control of persons entering the site camp(s), day and night watchmen, armed guards on pay days, control on stockpiles of materials and fuel, or any other measures normally associated with the provision and maintenance of security on site.

Security arrangements will be deemed to be included in the amount tendered for in Items 13.01(a) and 13.01(c).

B1232 DRAWINGS

The drawings shall remain in the sole custody of the Employer's Agent, but one electronic copy shall be furnished to the Contractor free of charge. The Contractor shall, at his own expense, produce therefrom all further prints required for the Construction of the Works. At the completion of the Contract, the Contractor shall return to the Employer's Agent all prints provided and produced during the Contract period.

One full size set of prints of the drawings shall be kept by the Contractor on the Site and these shall at all reasonable times be available for inspection and use by the Employer's Agent and his representative, or by any other persons so authorised by the Employer's Agent in writing.

The drawings shall not be used by the Contractor for any purpose other than the execution of the works.

B1233 MEASUREMENT AND PAYMENT

“Item	Unit
B12.01	Relocation and/or Protection of Existing Services
(i)	Relocation/Protection of existing electrical services .....provisional sum
(ii)	Relocation/Protection of existing water services .....provisional sum
(iii)	Relocation/Protection of existing sewer services .....provisional sum
(iv)	Relocation/Protection of existing Telecommunication services.....provisional sum
	The unit measurement for the above items is for payment to service providers and their sub-contractors for relocating the services as well as for the security and protection of the services.
B12.02	Relocation and Installation of Traffic Lights.....provisional sum
	The unit measurement for the above items is for payment to service providers and their sub-contractors for relocating and installation of the traffic signals.
B12.03	Provision of professional land surveying services to complete land survey of the road reserve and supply information to the Employer’s Agent.....provisional sum
	The unit measurement for the above items is for payment to professional land surveying services for related survey work and will include full compensation to the land surveyor as well as the travel/ vehicle to perform his duties.
B12.04	Handling Cost and Profit on Items B12.01 to B12.03%
B12.06	Supply and Installation of Contract Sign Board.....No
	The unit of measurement shall be the number of sign boards supplied and erected on the site.
	The tendered rate shall include full compensation for furnishing and erection of the sign boards as detailed on the drawings, complete with supports and the dismantling and removal thereof on completion of the contract.’
B12.07	Installation of new street lights complete including cabling, excavations and backfill to Electrical Employer’s Agent’s Specification.....provisional sum
	The unit of measurement shall be the above items is for payment to service providers and their sub-contractors for the installation and relocation of the street lights.
	The tendered rate shall include full compensation for furnishing and erection of the street lights, including the cabling, excavations and backfill as detailed on the drawings.’
B12.08	Demolition of existing brick structures, stormwater structures, culvert wingwalls, culverts, inlet/outlet structures, culvert bases and concrete slabs/surface beds as specified by the Employer’s Agent.....provisional sum
	Written instruction will be given by the Employer’s Agent with details of what will be demolished.

B12.09 Handling Cost and Profit on Items B12.07 to B12.08%

All information in the possession of the Contractor which is required by the Employer's Agent's representative for the completion of "as-built" drawings shall be submitted to the Employer's Agent's representative before a completion certificate is issued.

Only figured dimensions on the drawings shall be used, and drawings shall not be scaled. The Employer's Agent shall supply and figured dimensions which have been omitted from the drawings.

Additional drawings may be issued as necessary to the Contractor by the Employer's Agent from time to time during the progress of the works. The Contractor shall timeously notify the Employer's Agent of the priority in which drawings and details are required.

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

B1302 GENERAL REQUIREMENTS

(a) Camps, construction plant and testing facilities

Add the following to this clause:

“The contractor shall make his own arrangements regarding the establishment of a camp site and housing for his construction personnel. No personnel will be allowed to reside on the site. Only night-watchmen may be on the site after hours.

The contractor shall be responsible for the security of his personnel, construction plant on and around the site of the works, and of his camp. The cost of this will be deemed to be included in item 13.01.

The contractor's offices, laboratory and stores shall, unless otherwise agreed, be erected in close proximity to the Employer's Agent's offices and laboratory. The entire area shall be fenced with a minimum of 1,8m height razor taped mesh. The contractor's offices, laboratory and stores and Employer's Agent's offices and laboratory shall be provided with sufficient perimeter lighting.

The contractor shall provide security guards from a reputable security company for protection of the Employer's Agent's offices and laboratory. The security guards must be provided with a two way radio and be in constant contact with the control room of the security company and an armed response unit. The security guards must be armed and accompanied by trained guard dogs. Payment for the above shall be included in item 13.01.

The contractor shall provide at each work site at least one portable chemical latrine unit per 10 workers for use by construction workers employed on the project. The latrine units shall be serviced daily and kept in a hygienic and orderly state to the satisfaction of the Employer's Agent. The contractor shall move them to the required positions, and finally remove them, on completion of the works, all to the satisfaction of the Health Department of the relevant authority. Toilets must be screened from public view and their use shall be enforced. No separate payment shall be made for this requirement and payment shall be deemed to be included in the rates tendered for the contractor's time-related obligations.”

B1303 PAYMENT

Add the following payment item:

“Item	Unit
B13.01 The Contractor's general obligations	
(a) Fixed Obligations.....	Lump Sum
(b) Value - related obligations.....	Lump Sum
(c) Time – related obligations.....	Month

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

B1402 OFFICES AND LABORATORIES

(a) General

Add the following:

"It is a requirement of the contract that the offices for the Employer's Agent's supervisory staff shall be supplied with approved burglar proofing, the cost of which shall be included in the relevant tendered rates.

Add the following new paragraph at the end of this clause:

'The offices, laboratory and stores shall, unless otherwise agreed, be erected in close proximity to the contractor's offices and laboratory, and the entire area shall be fenced with security fencing and provided with a gate. The contractor shall take all reasonable precautions to prevent unauthorised entry to the offices and laboratories and to ensure the general security of the offices and laboratories.'

(b) Offices

Replace sub-subclause (xii) with the following:

"A complete telephone service together with fax equipment shall be provided. The cost of telephone calls and fax transmissions are included in the prime cost sum for the provision of the telephone service".

Add the following:

'(xviii) Steel plan cabinets which are able to accommodate AO plans hung from the narrow side.

(xxiv) Microwave oven with a minimum capacity of 30 litres.

(xxv) Computers, tablets and printers.

Employer's Agent to supply their own computers.

The printers shall be a high speed colour printer capable of printing A3 size prints. It shall also have the ability to scan and copy.'

(c) Laboratories

In the second paragraph, second line substitute "drawings" with "figures included in the project document"

Delete (xvi) and replace with:

"Uninterrupted power supply (UPS) units shall be supplied for all electronic equipment."

(g) Ablution units

Add the following:

“Two separate ablution units are required on site. Each unit shall contain at least a wash-hand basin, flush toilet, urinal, shower unit and the necessary accessories.

Both ablution units shall be provided with hot and cold water.

The towels shall be replaced with clean towels every second day and soap and other toiletries supplied as necessary.

One of the units shall contain a lockable clothing cupboard for at least eight employees. The other unit shall contain a lockable clothing cupboard for at least three employees.

The ablution units shall each have an interior floor area of at least 10m² and a 1,5m wide veranda on one side with a 100mm concrete floor.

The tendered rate under Item B14.01(e) shall include full compensation for the supply, erection and maintenance of the complete units as specified.”

Add the following subclauses:

“(i) Kitchen units

The contractor shall provide two kitchen units with minimum interior floor area of 12m², a 1,5m wide veranda on one side with a 100 mm thick concrete floor in the vicinity of the offices.

The unit shall contain at least two opening windows, a lockable door, a three-plate electrical stove with oven, a steel framed formica topped table (0,6 m x 1,2 m), four steel framed bar or kitchen stools, a lockable refrigerator of one hundred and fifty litres capacity, a kitchen sink supplied with clean hot and cold potable water, a drain board coupled to a suitable drainage system and a lockable steel grocery cupboard.

B1404 SERVICES

(b) Water, electricity and gas

Add the following:

The power supply shall be regulated by suitable UPS units in order to maintain a constant current and voltage level at all times to prevent damage to the office and laboratory equipment and related electronic equipment during power surges. In the event of damage to the office and laboratory equipment and related electronic equipment because of a faulty voltage, the contractor shall be liable for payment of all repair or replacement costs of such damaged items.

(c) Maintenance

Add the following:

"The Contractor shall supply soap, toilet paper, towels, cleaners and sanitary personnel, cleaning aids and refuse removal service to keep the offices, laboratories, ablution facilities and kitchen units clean and tidy at all times. Offices shall be vacuum-cleaned once a week.

The Contractor shall also keep the grounds around the offices and laboratory and all access roads to these facilities, carports and surface drains clean and neat and in a condition acceptable to the Employer's Agent."

1406 MEASUREMENT AND PAYMENT

B14.02 Office and laboratory furniture

Replace the last paragraph of this subclause with the following:

The unit of measurement and payment shall be the authorized number of units erected, complete and in accordance with the specifications and together with all items as specified in Clause B1402.

The tendered rate shall include full compensation for the supply and erection of units, accessories, furniture, etc. as specified and for the proper maintenance, cleaning and provision of daily requirements.

B14.03 Office and laboratory fittings, installations and equipment

Add the following to this subclause:

Items measured by number

The tendered rate for items measured by number shall also include full compensation all maintenance repairs to ensure that the equipment is maintained in fully serviceable condition.

(c) Prime-Cost items and items paid for in a lump sum

Add to (b) (i) the following:

"Included, is the payment of rental and calls made by cell phone by the Employer's Agent and his staff in the execution of their duties in respect of the contract administration."

Amend/add the following pay items:

- (i) The provision of internet service, including the cost of data, installation and wireless router in connection with contract administration Prime Cost (PC) Sum
- (ii) Handling costs and profit in respect of sub-item 14.03(b)(i) above % Percentage
- (iii) Provision of cellphone services, including the cost of contract and calls in connection with contract administration Prime Cost (PC) Sum

(iv) Handling costs and profit in respect of sub-item 14.03(b)(iii) above	% Percentage
(v) Provision of laptop computer, software printers and tablets for the use by the Employer's Agent	Prime Cost (PC) Sum
(vi) Handling costs and profit in respect of sub-item B14.03(b)(v) above	% Percentage
(vii) The provision of 400/231 volt 3-phase electrical power installations, including all wiring, switchboards, mains connections, etc	Lump Sum
(viii) The provision of gas installations, including gas-storage cylinders, tubing, regulators, gas burners and shut-off cocks	Lump Sum

SECTION 1500: ACCOMMODATION OF TRAFFIC

B1501 SCOPE

Add the following:

“It is a condition of this contract that traffic is accommodated taking into account the provisions of the latest edition of the South African Road Traffic Signs Manual (SARTSM). The latest version for use in the accommodation of traffic is volume 2, chapter 13 of the June 1999 edition. Copies of this publication are available from Government Printers – Arma Steyn – Tel: (012) 334 4500 e-mail: asteyn@print.pwv.gov.za.

This section also covers the provision of additional information signs for motorists and the release of any notices to the media and public.”

B1502 GENERAL REQUIREMENTS

(a) Safety

Add the following:

“The contractor shall be responsible for maintaining the existing road surface both within the works area and the advance warning and termination areas in a safe and trafficable condition for the duration of the contract.”

(f) Approval of temporary deviations

Add the following:

“The Contractor's programme for the accommodation of traffic must be approved by the Employer's Agent on site. The Employer's Agent shall be permitted to stop any work at any time if the road signs are not compliant with the prescribed requirement and/or if the non-compliance is deemed to place the safety of the travelling public at risk.

“If, after any temporary deviation has been constructed, any changes are considered necessary or desirable, the proposal shall be submitted to the Employer's Agent for his approval.”

(i) Traffic Safety Officer

Add the following to the end of the second paragraph:

“The contractor shall submit a CV of the candidate to the Employer's Agent for approval before the candidate is appointed as the traffic safety officer. “

Insert the following as the opening phrase to sub-subclause (i)

“make himself available to discuss road safety and traffic accommodation matters whenever required by the Employer's Agent and shall be responsible...”

Delete sub-subclauses (ii) and (iii) and replace with the following”

“(ii) Record on neat and dimensioned sketches and submit to the Employer's Agent the position and sign reference number, where applicable, of each sign, barricade, delineator,

cone, amber flicker light, guardrail and permanent or temporary painted road marking feature. The position of each shall be adequately referenced from the marker boards or other surveyed points on the site of the works.

These records shall also show the date and time at which the recorded traffic accommodation features are certified correct by the traffic safety officer, and shall be signed by the traffic safety officer before being submitted to the Employer's Agent.

The records shall similarly account for whatever changes are made in the field. Such changes shall record the position of flagmen and stop/go control men and their associated traffic accommodation equipment wherever they are used.

- (iii) Personally inspect the position and condition of each traffic accommodation feature on the whole site of works twice each day by 9h30 and by 16h30, to record all irregularities discovered and the remedial action taken, and to sign off as correct and submit to the Employer's Agent such record sheets by midday of the next working day. The traffic safety officer shall keep a duplicate book for this specific purpose.

The traffic safety officer shall also submit with this report the daily labour returns of flagmen, stop/go and traffic signal control men employed."

Add the following sub-subclauses:

- "(ix) The traffic safety officer shall be equipped with a cellular telephone and digital camera, and shall have a vehicle and sufficient labour at his disposal 24 hours a day, including all prescribed non-working days, and shall not be utilised for other duties. He shall be directly answerable to the contractor's site agent. The traffic safety vehicle shall be a truck with a capacity of 3 tons and shall be equipped with a high visibility rear panel in accordance with the requirements of the SARTSM. The words TRAFFIC CONTROL shall be written on a warning sign in highly legible letters, not less than 150 mm high, and the sign shall be mounted on the vehicle at least 1,5 m above ground level. The proposed sign and letter dimensions shall be submitted to the Employer's Agent for his approval.

The vehicle shall also be equipped with an amber-coloured flashing light of the rotating parabolic reflector type with a minimum intensity of 100 W. The warning light shall be switched on at all times and the sign shall be displayed when the vehicle is used on site.

The traffic safety officer shall have a direct line of communication at all times with the police and traffic officers responsible for the area within limits of the contract. The provision of the road safety vehicle, driver, labourers and the cost of the cellular telephone shall be deemed to be included in the rates tendered for the contractor's establishment on site

- (x) Ensure that all obstructions related to the contractor's activities be removed before nightfall where applicable as instructed by the Employer's Agent and that the roads are safe for night traffic.
- (xi) The traffic safety officer shall, in addition to the duties listed in paragraph 1502 (i), also be responsible for the removal of broken down vehicles off the roadway and implementing actions requested by the traffic authorities with regard to the work to be carried out, be

responsible for the erection and maintenance of all traffic signs necessary for the accommodation of traffic.

- (xii) In the advent of an accident the traffic officer shall record in a written report the details of the accident, record the position of all temporary road signs, barricades, delineators, flagmen and any other devices used for traffic accommodation. In addition, the report shall include a neat dimensional sketch, photographs, identifiable permanent features, and any other relevant information.”

Add the following subclauses:

“(j) Site Personnel

The contractor shall ensure that all his personnel, excluding those who are permanently office bound, are equipped with reflective safety jackets and that these are worn at all times when working on or near to the travelled way. Any person found not wearing a reflective jacket under these circumstances shall be removed from the site until such time as he is in possession of and wearing a reflective jacket. Reflective safety jackets shall be kept in good condition and any jackets that are, in the opinion of the Employer’s Agent, ineffective shall be immediately replaced by the contractor.

“(k) Failure to comply with provisions

Failure or refusal on the part of the contractor to take the necessary steps to ensure the safety and convenience of the travelling public, accommodation of traffic, plant and personnel in accordance with these specifications or as required by statutory authorities or ordered by the Employer’s Agent, shall be sufficient cause for the Employer’s Agent to apply penalties as follows:

A fixed penalty of R5, 000.00 per occurrence shall be deducted for each and every occurrence of non-compliance with any of the requirements of section 1500 of the standard specifications and section B1500 of the project specifications.

In addition a time-related penalty of R1, 000.00 per hour over and above the fixed penalty shall be deducted for non-compliance to rectify any defects in the accommodation of traffic within the allowable time after the Employer’s Agent has given an instruction to this effect. The Employer’s Agent’s instruction shall state the allowable time, which shall be the time in hours for reinstatement of the defects. Should the contractor fail to adhere to this instruction, the time-related penalty shall be applied from the time the instruction was given.”

“Normal working hours” (referred to in clause 5.8.1 of the SAICE Conditions of Contract for Construction.) will, because of heavy peak hour traffic volumes, be restricted to between 30 minutes after sunrise and 30 minutes before sunset.

“(o) Access to working areas

Entrance and exit points to and from the barricaded working areas onto the public road shall be kept to an absolute minimum and shall be provided in agreement with the Employer’s Agent.

Only approved drivers of trucks and equipment will be allowed to operate equipment / trucks on the road. The approval process will include an induction and a card of approval. Contraventions will be recorded and after any contravention, the driver will be required to redo the induction.

After 3 contraventions, the driver will be deemed negligent and dealt with under clause 4.11.2 of the SAICE Conditions of Contract for Construction.

The induction training will include:

- i) Knowledge of Section 1500
- ii) Fitting and checking of safety devices. (Yellow lights; CONSTRUCTION VEHICLE signs, tail gate locks; oil leaks, vehicle lights, reverse hooters)
- iii) Instruction on the movement into and out of closures, with particular reference to not feeding directly into public lanes without due regard.

Entry and exit points must be defined by the closure manager and only those points must be used. These points should be identified by truck warning signs and a trained flagman. Suitably identified points will serve as an aid to drivers as to where to enter and exit. The flagman should assist the driver with the exit manoeuvre.

(p) Moving and display of signs

The Contractor shall adhere strictly to the sign layout and spacing shown on the drawings or directed by the Employer's Agent.

Any sign not required, or which is in contradiction with a prevailing situation, shall be removed or covered with non-transparent material without delay. Where permanent signs are to be covered it shall be done with non-plastic material. Traffic-control facilities no longer required at the site of a deviation or a lane closure shall be moved for re-use.

No deviation from the specified layouts will be allowed without the specific permission in writing from the Employer's Agent.

(q) Extension of time for completion

Accommodation of public traffic on the works or any delays caused thereby, as well as any suspensions due to failure by the Contractor to comply with the provisions for the accommodation of traffic, will not be regarded as special circumstances for the extension of time. The penalty for the late opening of a traffic lane will be R5000.00 per hour or any portion thereof.

(r) Parking of equipment on the site

The Contractor shall ensure that the presence of his equipment on site does not affect the safety of the travelling public. On completion of a day's work, all plant that can travel unaided on public roads must be removed from the work area to the Contractor's camp site, other plant difficult to move may be left on site with the following provisos:

- (i) When the work area is the slow lane and shoulder closed to traffic, the plant must be parked at least 6m away from the roadway used as a deviation.
- (ii) In other cases applicable normally to surfacing equipment, equipment shall preferably be parked at least 6m beyond the edge of the slow lane. If that is not possible, the equipment shall be protected by plastic New Jersey barriers filled to capacity with water. A leading taper of 1:15 shall apply. Under no circumstances may be equipment be parked beyond the centre of the median, failing which barriers will be provided on both sides of the equipment.

Notwithstanding the above, equipment not required to work on site the following day must be removed to the Contractors camp site.

No additional payment for the provision of protection of equipment will be measured.”

B1503 TEMPORARY TRAFFIC-CONTROL FACILITIES

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

“The contractor shall provide, erect and maintain the necessary traffic-control devices, road signs, channelisation devices, barricades, delineators, warning devices and road markings (hereinafter referred to as traffic-control devices) in accordance with these special provisions and as shown on the drawings and in the SARTSM and remove them when no longer required. It shall be incumbent upon the contractor to see to it that the abovementioned traffic-control devices are present where required at all times and are functioning properly.”

The Contractor shall indemnify the Employer against all proceedings, claims, actions, damages and costs which may arise from or be related to the absence or improper functioning or placement of road traffic signs, barricades, traffic-control facilities, channelisation devices and warning devices.”

Add the following after the first paragraph:

“No work may proceed on any section where accommodation of traffic is required until such time as the relevant requirements with regard to signposting are met and the approval of the Employer’s Agent is obtained. The Contractor shall keep sufficient surplus signs, delineators and barricades on the site to allow for the replacement of damaged or missing items within a period of three hours of instructions having been given by the Employer’s Agent.

Should the Contractor fail to respond to an instruction to re-erect a road sign within three hours or fail to comply with the requirements, penalties as detailed in paragraph B1502(m) will be applicable.”

Replace the third paragraph with the following:

“The type of construction, spacing and placement of traffic-control devices shall be in accordance with the SARTSM. The recommended arrangements of the traffic control devices illustrated and/or drawings issued by the Employer’s Agent shall not be departed from without prior approval of the Employer’s Agent. The arrangements expected to be most commonly used in the contract are given on the tender drawings.

The details shown for spacing and placement of traffic-control facilities may however, be revised at the discretion of the Employer’s Agent where deemed necessary to accommodate local site geometry and traffic conditions.”

(b) Road signs and barricades

Add the following:

“The contractor shall be responsible for the protection and maintenance of all signs, and shall at his own cost replace any that have been damaged, lost, or stolen.

All temporary road signs required to remain in position for some time shall be pole mounted as shown on the drawings. All temporary road signs required to be moved more often shall be mounted on portable supports for the easy moving of signs to temporary positions. The only permitted method of ballasting the sign supports shall consist of durable sandbags filled with sand of adequate mass to prevent signs from being blown over by wind. The cost of the sandbags shall be included in the tendered rates for the various types of temporary road signs.

The covering of permanent road signs, if applicable, shall be by utilizing a hessian bag that shall be pulled over the sign in the form of a hood and fastened to the signposts. Plastic bags or other materials and fastened by means of adhesive tape shall not be permitted. The cost of covering of permanent road signs shall be included in the tendered rates of items B15.01 and B15.10.”

In addition to the signs required for lane closures, the Contractor shall have available at all times for use on the site, the following warning signs that will be measured and paid for under Item B15.08:

- Temporary Lines
- Temporary Road Surface
- Road Slippery when Wet
- Loose Stones
- Speed Restriction Signs 40km/h

(c) Channelisation devices and barricades

Add the following:

“The use of drums as channelisation devices shall not be permitted. Drums may however be used to set up barriers as provided for in sub clause 1503(d).

Delineators shall:

- (i) comply with the manufacturing and reflective requirements of the SARTSM and the blades shall be reversible with dimensions as indicated on the drawings;
- (ii) have smooth and round edges and be mounted on a post and base. All components shall be of durable plastic material;
- (iii) have the lower edge of the reflective part of the delineator mounted not lower than 250mm above the road surface;

- (iv) be capable of withstanding the movement of passing vehicles and gusting winds up to 60 km/h in typical working conditions without falling over. To achieve this, the base shall be at least 0,18 m² and ballasted by sandbags with sand;
- (v) together with its mounting be designed such that it will collapse in a safe manner under traffic impact.

Traffic cones manufactured in a fluorescent red-orange or red plastic material may be used only at short term lane deviations during daylight. Cones shall not be used on their own, but shall be interspersed with delineators at a ratio not exceeding 3:1. Cones used on all deviations shall be 750 mm high. Lane closures which continue into the night time shall be demarcated by delineators only.”

(e) Warning devices

Add the following:

“All construction vehicles and plant used on the works shall be equipped with rotating amber flashing lights and warning boards as specified. All vehicles and plant before being allowed onto the site shall obtain a clearance permit from the Employer’s Agent.

(i) Vehicle mounted flashing lights

Rotating lights (min 55W) shall have an amber lens of minimum height of 200 mm and shall be mounted in such a way as to be highly visible from all directions. The lights on construction vehicles shall not be switched on while vehicles are being operated on unrestricted sections of a public road, but shall be switched on while construction vehicles are operating within the accommodation of traffic area, as the vehicles decelerate to enter a construction area, and as the vehicles accelerate to the general speed when entering the road from a construction area. Lights on plant shall operate continuously while the plant is working alongside sections of road open to public traffic

All LDV's and cars operating on site shall also be equipped with rotating amber flashing lights which shall be placed so as to be highly visible and operated continuously while the vehicles are manoeuvring in or out of traffic or are travelling or parked alongside roads open to public traffic.

Rotating lights and the "construction vehicle" signs on the contractor's vehicles and plant shall not be paid for separately but shall be included in the rates covering the use of the vehicles.

The contractor shall apply and maintain lights together with temporary mounting brackets, to the approval of the Employer’s Agent. Vehicles and plant that do not comply with these requirements shall be removed from the site.

(ii) Sign mounted flashing lights

Two amber flashing lights shall be vertically mounted on top of the traffic signs at each end of each traffic accommodation section as shown on the drawings. The lights shall be operated during the hours of darkness.”

(f) Road markings

Add the following:

“Where a section of road marking has been removed / covered, and before opening the section of road to traffic, the Contractor shall comply with the following:

- (i) Install temporary road marking;
- (ii) Install temporary road studs.

Should the time constraints not allow the Contractor to comply with (ii) above, the Contractor shall erect temporary delineators at 24 m spacing on the yellow line to indicate the edge of the slow lane. These delineators shall be provided, installed and maintained at the Contractor’s cost.

Refer to B5701 for permanent road markings.”

Add the following sub clauses:

“(g) Other traffic control measures ordered by the Employer’s Agent

“The Employer’s Agent may instruct the contractor to provide any other road sign, reflective tape, etc. not measured in standard pay items. Such road signs shall conform to the requirements of the SARTSM, or specification provided by the Employer’s Agent. Similarly, in order to ensure that the travelling public is kept fully informed and warned on matters relating to the accommodation of traffic, construction sign posting and the effect of the construction on the free flow of traffic through the site, the Employer’s Agent may arrange for advertising in the press and/or for other forms of publicity.

(h) Flagmen

During the daytime, at least two flagmen shall be provided at each traffic control point in addition to the STOP/GO sign operator, one flagman at the 80 km/h sign and a second roving flagman to indicate to the traffic at the end of the queue to stop. At night time, if required, only one roving flagman equipped with a Stromberg Lightman xenon strobe, or similar approved, and a torch is required at each traffic control point as well as the traffic light operator. Where the shoulder of the road is closed to traffic, a flagman shall be provided at the leading end of the closure during daytime. This flagman shall be provided at the 80-km/h sign to warn the traffic about the closure. No flagman shall be on duty for a period of more than 10 hours per day.

Flagmen shall be adequately trained in the standard flagging techniques as described in the SARTSM (refer to figure 13.23 of detail 13.23.1) and be provided with conspicuous clothing such as safety jackets utilizing retro-reflective and / or fluorescent panels in red, yellow and / or white.

Flagmen shall have in their possession, at all times, certification that they have attended and passed an accredited course in flagging techniques before being allowed onto the construction site. Flags shall be made from bright red or red-orange material and shall be square with a minimum side length of 600 mm. The flag shall be attached to a staff at least 1,0 m in length.

In terms of lateral clearance and safety, flagmen shall stand on the shoulder of the lane of traffic that is being controlled and under no circumstances shall flagmen be permitted to stand within

the traffic lane. In order to obtain maximum visual impact for the travelling public, flagmen shall stand-alone.

The payment of flagmen shall be deemed to be included in item B15.01 where they are required as shown on the drawings, specified or shown in the South African Road Traffic Signs Manual (SARTSM). Only flagmen specifically ordered by the Employer’s Agent shall be paid for separately.”

B1517 MEASUREMENT AND PAYMENT

Replace item 15.01 to with the following:

“Item	Unit
B15.01 Accommodating traffic and maintaining temporary deviations.....	month

The unit of measurement shall be the month measured as per item 13.01(c).

The tendered rate shall include full compensation for the general obligations and incidental cost-items necessary for the accommodation of traffic during the construction period and during the maintenance period where such items of cost are not specially paid for under the pay items provided under this section in the Schedule of Quantities.

It shall also include full compensation for the provision of all equipment, including tools, transport, labour, supervision, guards, and temporary traffic aids and all work, including all relocation and re-erection as may be required for the execution of all the works, required for the proper and safe accommodation of traffic.

It shall also include, where necessary, communications equipment required to regulate traffic, for the provision and maintenance of temporary drainage, arranging for the moving of services, attending to traffic problems, complying with the requirements of the South African Road Traffic Signs Manual (SARTSM), and for providing temporary access to private properties.

The tendered rate shall also include full compensation for flagmen as required in accordance with the drawings and/or the South African Road Traffic Signs Manual (SARTSM).

The tendered rate shall include the re-use of the signs measured and paid for under Item B15.03 for all the closures at any locations and full maintenance including the replacement of damaged signs.

The tendered rate shall also include the provision assistants, special vehicles for 24 hour maintenance, inspection, dealing with all accommodation of traffic related issues including and reporting of accidents.“

“Item	Unit
B15.03 Temporary traffic control facilities	

Amend the following sub-item to read:

- (a) Flagmen as ordered by Employer’s Agent.....man-day

Add the following pay item:

- (n) Other traffic control measures ordered by the Employer’s Agent:
 - (i) Provision of other traffic control measures.....provisional sum
 - (ii) Handling costs and profit in respect of subitem B15.03(n)(i) %

Amend the measurement description for item (a) Flagmen as follows:

- (a) Flagmen as ordered by Employer’s Agent

“The unit of measurement shall be a full day and night worked by flagmen as ordered by the Employer’s Agent. A man-day shall be deemed to comprise of three eight hour shifts in a twenty four hour period. Three shifts of eight hours per flagman equates to one man-day. Shorter single portion shifts (6 to 10 hours) shall be measured as a half man-day. Flagmen included as part of other traffic control items shall not be measured under this item.”

Insert the following as a second last paragraph:

(n) Expenditure under this item shall be made in accordance with the general conditions of contract, Subclause 13.5, for the supply and installation of any additional signs or other traffic control measure ordered by the Employer’s Agent in accordance with clause B1503(g).

The tendered percentage is a percentage of the actual amount spent under subitem B15.03 (n)(i), which shall include full compensation for the handling costs of the contractor, and the profit in connection with providing other signs and traffic control measures ordered by the Employer’s Agent.”

At the end of the item under the heading “General” the last sentence shall be replaced by the following:

“Facilities which are stolen or become unserviceable, in particular delineators, shall be replaced promptly at no additional cost. All signs not in their correct position for whatever reason shall be noted and reported to the Employer’s Agent daily as part of the Traffic Safety Officer’s duties. In this event, the fixed penalty of R5 000 shall not be deducted but the time-related penalty of R1000 per hour shall remain applicable as per B1502(k).”

Add the following pay items:

“Item	Unit
B15.14 Amber flashing lights mounted on signs.....	No

The unit of measurement shall be the amount of amber lights the contractor is instructed to use.

B15.15 Provision of traffic safety equipment for use by the Employer’s Agent

- (a) Safety jackets.....No**

The unit of measurement shall be the number of safety jackets ordered by the Employer’s Agent. These jackets are to be in the size that the Employer’s Agent orders.

- (b) **Safety shoes..... number (No)**

The unit of measurement shall be the number of pairs of safety shoes ordered by the Employer’s Agent. These shoes are to be the size the Employer’s Agent orders it.

- (c) **Magnetic vehicle mounted rotating amber flashing LED light bars with a minimum width of 320mm..... number (No)**

The unit of measurement shall be the number of rotating amber flashing LED light bars ordered by the Employer’s Agent.

- (d) **Magnetic vehicle mounted “Road Inspection” signs number (No)**

The unit of measurement shall be the number of Road Inspection” signs ordered by the Employer’s Agent.

B15.16 Traffic safety officer.....Month

The unit of measurement shall be the period in months that the approved traffic safety office is employed.

The tendered rate per month shall include full compensation for the cost of the traffic safety officer and his vehicle/ transport to conduct his duties as specified in subclauses B1502 (i).

B15.17 Penalties to be deducted for non-compliance with requirements for accommodation of traffic

- (a) Fixed penalty per occurrencenumber (No)

- (b) Time related penaltyhour (h)

In sub item B15.16(a) a fixed penalty of R5 000.00 per occurrence shall be deducted for each and every occurrence of non-compliance with any of the requirements of section 1500 of the standard specifications and section B1500 of the project specifications.

In addition in sub item B15.16 (b), a time-related penalty of R1000.00 per hour over and above the fixed penalty in sub-item B15.16 (a) shall be deducted for non-compliance to rectify any defects in the accommodation of traffic within reasonable time after the Employer’s Agent has given an instruction to this effect. The Employer’s Agent’s instruction shall state the time in hours for re-instatement of the defects. Should the contractor fail to adhere to the instruction, the time-related penalty will be applied from the time the instruction was given.”

SECTION 1600: OVERHAUL

B1602 DEFINITIONS

(a) Overhaul material

Add the following sub-subclause:

"(vii) Any material, irrespective of the type of material, which is removed from the existing pavement layers and spoiled at designated spoil sites, or is re-used in other parts of the works or to approved stockpiles or from stockpiles to any part of the works".

(b) Overhaul

Replace the sub-clause with the following:

"Overhaul shall not be payable on materials transported from commercial sources.

(d) Free-haul distance

Replace the last sentence with:

"This distance shall be 4 kilometres in the case of all overhaul materials"

B1603 MEASUREMENT AND PAYMENT

Amend item 16.02 as follows:

"Item	Unit
B16.02 Ordinary overhaul on material hauled in excess of 4 km (Ordinary overhaul).....	m ³ ·km

Delete the first paragraph of the first set of notes.

SECTION 1700: CLEARING AND GRUBBING

B1701 SCOPE

Add the following to the end of the last paragraph:

“This section covers the clearing and grubbing at the stockpile areas and the open and side drain works.”

B1702 DESCRIPTION OF WORK

c) Conservation of topsoil

Add the following to the end of the first paragraph:

“Before commencing with the open drain and side drain excavation, the Contractor shall clear and remove to temporary windrow or stockpile the topsoil to a depth of at least 150mm at the area to be excavated. Failure of the Contractor to comply with the removal of topsoil, and/or failure of the Contractor to protect the topsoil for later reuse shall result in the Contractor having to provide topsoil at his cost. Measurement and payment for the reuse of the topsoil shall be made under Section 5800.”

B1704 MEASUREMENT AND PAYMENT

Amend item 17.01 as follows:

“Item	Unit
B17.01 Clearing and grubbing	ha

“The unit of measurement for clearing and grubbing shall also include the removal of topsoil to a depth of at least 150mm to temporary windrow or to stockpile, will be the hectare (to the nearest 0.01ha) designated by the Employer’s Agent and cleared and grubbed in accordance with these specifications.

The tendered rate shall also include full compensation for all plant, equipment and labour for removing the topsoil as specified to temporary windrow or preparing for removal to stockpile before commencing with any excavation work where applicable.

The tendered rate shall include full compensation for all work necessary for the clearing of the surface, the removal and grubbing of trees and tree stumps (except large trees and stumps as defined below), cutting of branches, backfilling of cavities, demolishing and disposal of structures except where otherwise provided in the project specifications, and the removal, transporting and disposal of material, all as specified in this section.

The tendered rate shall also include the loading and disposing of rubbish at a legal dump site and be inclusive of unlimited overhaul.”

SECTION B1800 : DAYWORKS AND HIRE OF CONSTRUCTION EQUIPMENT

Add the following section to the standard specifications:

SECTION B1800: DAYWORKS AND HIRE OF CONSTRUCTION EQUIPMENT

Contents

B1801	SCOPE
B1802	GENERAL REQUIREMENTS
B1803	MEASUREMENT AND PAYMENT

B1801 SCOPE

This section covers the listing of daywork items in accordance with the general conditions of contract sub-clause 13.6 as amended by Particular Condition, for the use in determining payment for work which cannot be quantified in specific units in the Pricing Schedule, or work ordered by the Employer's Agent during the construction period which was not foreseen at tender stage and for which no applicable rate exists in the Pricing Schedule.

B1802 GENERAL REQUIREMENTS

Work will be classified as daywork 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 daywork in terms of Clause 37(2) of the General Conditions of Contract will be issued at the discretion of the Employer's Agent. Some or all of the items priced under daywork in the Bill of Quantities may possibly not be required for this Contract.

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.

B1803 MEASUREMENT AND PAYMENT

Item	Unit
B18.01 Personnel during project working hours	
B18.01 Personnel	
(a) Unskilled labour	hour (h)
(b) Semi-skilled labour	hour (h)
(c) Skilled labour	hour (h)
(d) Surveyor	hour (h)
(e) Foreman	hour (h)

Item	Unit
B18.02 Equipment	
(a) Grader -140kW	hour (h)
(b) Roller	hour (h)
(c) Excavator	hour (h)
(d) TLB	hour (h)
(e) 10m3 Tipper Truck.....	hour (h)
(f) Small Plant and Tools.....	Prov Sum

Item	Unit
B18.03 Materials	
(a) Procurement of materials	provisional (prov) sum
(b) Contractor's handling costs, profit and all other charges in respect of subitem B1803(a)	percentage (%)

The prices for materials (excluding VAT) shall be based on the documented proof submitted to the Employer's Agent in accordance with the General Conditions of Contract. The prices shall not be subject to the Contract Price Adjustment factor.

The tendered percentage as an on-cost on the net cost price of materials shall include full compensation for handling, overheads, profit, liabilities, obligations, risks, incidentals, wastage and other on-cost for the supply, delivery and distribution of materials for dayworks."

Item	Unit
B18.04 Transport	
(a) LDV	kilometre (km)
(b) Flatbed truck	kilometre (km)

The unit of measurement for items B18.01 and B18.02 shall be the hour for the item of plant or personnel. Non-working hours for transport breakdown, lack of operator of any other reason shall not be measured. The time shall be taken from the time that the personnel and/or plant depart until return

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

The tendered rates for labour for items B18.01 shall include full compensation to cover overhead charges and profit, leave pay, bonuses, subsistence, allowances, employer's contributions,

additional payment for overtime where applicable, insurances, housing, site supervision, use of small hand tools and appliances, non -mechanical plant and equipment and consumable stores, for all administrative, supervisory, operative and contingent costs, relating to the supply of personnel.

The tendered rates for plant for item B18.02 shall be an all-inclusive hire charge for the use of the vehicle and driver or plant/equipment and operator and shall apply only to vehicles plant and equipment nominated in writing by the Employer's Agent, for all administrative, supervisory operative and contingent cost, and profit, relating to the running of the plant.

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

The rates shall be for the working hours of this contract.

SECTION 2100: DRAINS

B2101 SCOPE

Amend the first paragraph to read:

“This section covers all work both rehabilitative and new work in connection with the excavation and construction of open drains, subsoil drainage and banks and dykes at the locations and to the sizes, shapes, grades and dimensions as shown on the drawings or as directed by the Employer’s Agents, and the test flushing of subsoil drains.”

B2104 SUBSOIL DRAINAGE

(a) Materials

(i) Pipes

Add the following to the end of the third paragraph:

“(category-heavy duty) or SABS 1601 (stiffness class 350)

The pipes to be used shall be either slotted or perforated uPVC pipes or HDP pressure pipes, 100 mm or 150 mm ID.”

(ii) Natural permeable material

Add the following to the 3rd paragraph:

“The crushed stone shall be fine (13,2 mm nominal) or coarse (19 mm nominal) and shall be washed clean of all fines.”

(iii) Synthetic-fibre filter fabric

Under item (4) Selection, of this subclause, replace the 1st paragraph with the following:

“The filter-fabric used for subsoil drains shall be grade 2 and shall satisfy the criteria for a grade 2 geotextile as given in Table 2104/2”

Add the following:

(vii) Geocell Drains

System Physical Description

- Geocells – 3D honeycombed sections extruded from polymers into welded strips, which expand to form stiff yet flexible geocell mattress
- Material – polymeric composite alloy
- Surface texture – slightly coarse indentations over entire strip area
- Traceability – each section marked for full detailed traceability
- Color – sand (brown)

Mechanical Properties – Stiffness And Strength (ISO 10319, ASTM D4885)

- Material Strength at Yield: >21 MPa (ASTM D638, ISO 527)
- Strength at Yield (Wide-Width – non-perforated): >23 kN/m (ISO 10319)
- Strength at Yield (Wide-Width – perforated): >17 kN/m (ISO 10319)

Performance At Elevated Temperatures (ISO 6721-1 - DMA; ASTM E2254)

- Elastic Modulus at 30°C > 700 MPa
- Elastic Modulus at 60°C > 450 MPa

Dimensional Stability (ISO 11359-2 - TMA; ASTM E831)

- Coefficient of Thermal Expansion (CTE) < ≤ 135 ppm/1°C (ISO 11359-2 (TMA), ASTM E831)

Oxidation Resistance (ISO 11357-6, ASTM D3895)

- Oxidative Induction Time (OIT) > 100 minutes (virgin prior to aging, OIT @200°C)

Photochemical Resistance (ASTM D5885)

- UV Resistance ≥ 400 minutes (HPOIT @150°C) (ASTM D-5885 as per GRI GM13)

Cell & Section Nominal Dimensions (±7%)

Cell weld distance (seams)	356 mm	445 mm	712 mm
Cell wall heights (slope)	75, 100, 150, 200 mm	75, 100, 150, 200 mm	75, 100, 150, 200 mm
Cell wall heights (channel)	65, 75 mm	65, 75, 100 mm	100 mm
Cell dimension (expanded)	260 x 224 mm	340 x 290 mm	520 x 448 mm
No. of cells /m ²	35	22	8
Section size	2.7 x 7.4 m	2.8 x 10.7 m	2.5 x 16 m
Section area expanded	20m ²	30m ²	40m ²

(b) Construction of subsoil drainage systems

Add the following subclause:

“(v) Proving of pipes in sub-soil drainage systems

On completion of the pipe laying and prior to backfilling, all pipe joints shall be surveyed as proof of their installation to line and level. After backfilling the pipes shall be proved by pulling through a cylindrical cleaning brush followed by a wooden mandrill ± 400 mm long and 5 mm in dia less than the bore of the pipe. Proving of pipes shall not be paid for separately and the cost thereof shall be deemed to be included in the rate tendered for laying the pipe.”

B2107 MEASUREMENT AND PAYMENT

Add the following pay items/subclauses:

“Item	Unit
B21.20 Exposing of existing subsoil drains	cubic metre (m ³)

The unit of measurement shall be the cubic metre of material exposing the subsoil drainage, measured in place in the subsoil drainage systems and calculated in accordance with the authorised dimensions.

The tendered rate shall include full compensation for all labour, equipment, tools and transport required for exposing of subsoil drains and for disposal of the cleared material to approved sites.”

“Item	Unit
B21.21 Clearing of existing subsoil drains	cubic metre (m ³)

The unit of measurement shall be the cubic metre of material clearing the existing subsoil drainage, measured in place in the subsoil drainage systems and calculated in accordance with the authorised dimensions.

The tendered rate shall include full compensation for all labour, equipment, tools and transport required for clearing subsoil drains and for disposal of the cleared material to approved sites.”

“Item	Unit
B21.22 Shaping and cleaning of existing unlined open drains ...	cubic metre (m ³)

The unit of measurement shall be the cubic metre of material shaping and cleaning of existing unlined open drains, measured in place in the drainage systems and calculated in accordance with the authorised dimensions.

The tendered rate shall include full compensation for all labour, equipment, tools and transport required for shaping and cleaning the existing unlined open drains and for disposal of the cleared material to approved sites.”

“Item	Unit
(a) Soft material	cubic metre (m ³)
(b) Hard material	cubic metre (m ³)

B21.23 Break into existing drainage structures and install subsoil drainage..	number (No)
--	-------------

B21.24 Removing of existing subsoil drainage in the following depths:

- (a) 0m up to 0.5 m.....metre (m)
- (b) Exceeding 0.5m up to 1.0mmetre (m)
- (c) Deeper than 1.0mmetre (m)

“Item **Unit**

B21.25 Geocell Drain High Dyanmic/Elastic Modulus Geocell >450MPa @ 60 Degree Celcius, low permanent deformation (creep) <3% at the end of design life. UV and oxidation resistant, weld distance: 356mm, height: 100mm, filled with low grade (20MPa) concrete (infill 100mm + overfill 15mm = 115mm): square metre (m²)

The unit of measurement shall be the square metre of geocell drain, measured in place, and filled with low 20MPa concrete to overfill the geocell by 15mm, to a total concrete height of 115mm.

The tendered rate shall include full compensation for all labour, equipment, tools and transport required for placing the geocell and filling it with concrete.

“Item **Unit**

B21.26 Separation sheet, non woven geotextile (Bidem A2 or similar approved)
square metre (m²)

The unit of measurement shall be the square metre of geotextile placed under the geocell drain. This rate includes procurement of the material and placing the material.

SECTION 2200: PREFABRICATED CULVERTS

B2201 SCOPE

Add the following:

"This section also covers the replacing and/or lengthening of the existing culverts during the widening of the existing road.

The conditions encountered at the individual culverts to be replaced and/or lengthened may, during construction be found to vary from information available at tender stage. For this reason, the Employer's Agent's representative will re-assess the situation at the beginning of the contract and issue the contractor with specific instructions of what is to be carried out at each individual culvert site."

B2215 SERVICE DUCTS

Add the following subclause:

A drilling pit shall be excavated on the one side of the road from where drilling is to be conducted. The pit shall be of adequate size to permit free standing of the operator and drilling equipment. On the other side of the road, a receiving pit is to be excavated. Both pits shall be backfilled after completion of the drilling, using the excavated material compacted in 150 mm layers to a minimum density of 90% of maximum dry density.

Drilling shall be carried out from the one side of the road in positions and to levels as indicated on the plans and / or as instructed by the Employer's Agent. The hole shall be of adequate size to accommodate the required sleeve. The permissible deviation in level of the hole between the two sides of the road shall not exceed 500 mm.

The sleeve shall be installed through the drilled hole and shall be extended to above ground. A 3,15 mm galvanised draw wire shall be installed through the sleeve and the sleeve ends shall be blocked temporarily."

2218 MEASUREMENT AND PAYMENT

B22.12 Removing existing concrete:

Amend subclause second paragraph:

Replace "1,0 km" with "4 km"

Add the following pay items

B22.29 Breaking into existing drainage structures and building in pipes of all diameters.....number (no)

The unit of measurement shall be the number of pipes of all diameters that is to be broken into.

The tendered rate shall include full compensation for all labour, equipment, tools and transport required for breaking into the drainage structures and for disposal of the cleared material to approved sites."

B22.30 Breaking into existing stormwater culverts of all sizes to construct an inlet.....number (no)

The unit of measurement shall be the number of stormwater culverts of all sizes that is to be broken into.

The tendered rate shall include full compensation for all labour, equipment, tools and transport required for breaking into the stormwater structures and for disposal of the cleared material to approved sites.”

Item		Unit
B22.31	Directional Drilling for Traffic Signals and service ducts inclusive of Establishment/Destablishment cost in all material types	

- | | | |
|--|----------------------------------|-----------|
| | (a) Augering..... | metre (m) |
| | (b) 160mm dia. HDPE sleeves..... | metre (m) |

The unit of measurement shall be the metre of sleeves (service ducts) supplied and installed by means of directional drilling in all material types.

The tendered rate shall include full compensation for the supply, delivery, handling and installing the cable sleeves (service ducts) including all labour and equipment, the drilling, required couplings, steel draw wires and plugs.

The tendered rate shall also include establishment, de-establishment and moving costs, regardless on the number of establishments or moves.”

The tendered rate shall also include the excavation of drill pits, irrespective of depth or type of material.

SECTION 2300: CONCRETE KERBING, CONCRETE CHANNELLING, CHUTES AND DOWNPIPES, AND CONCRETE LINING FOR OPEN DRAINS

B2301 SCOPE

Add the following to this clause

“This section also covers the replacement of damaged concrete kerbing, channelling and lining.”

B2304 CONSTRUCTION

(b) Prefabricated concrete kerbing and channelling

Add the following:

“All precast kerbs shall be provided with continuous in situ concrete backing (haunching), the cost of which shall be included in the tendered rate. Dimensions of the triangular-shaped (in cross-section) haunching shall be: if the difference in levels between the top of the kerb and the subbase on which the kerb is laid is h , then the height of the haunch is $\frac{2}{3}h$ and the width of the haunch is h .” Refer to road authority typical details.

(e) Cast in situ kerbs and channels

Add the following:

‘Where new kerbing and channelling have to be laid in an existing surface, the surface shall be neatly cut to a straight line with an angle grinder or similar approved means along the edge of the channel. The existing road foundation shall then be removed over the width and depth required to construct the new kerb and channel.

During the construction of the in situ channel, the contractor shall take care not to stain or damage the existing road surface.

Add the following sub-clauses:

“(l) Shrinkage joints for cast in situ concrete work

Cast in situ channels shall be provided with shrinkage joints spaced a maximum of 2m apart. Shrinkage joints shall be constructed so that shrinkage cracks are generated at the joints. Sections of channel which have cracked between shrinkage joints shall be removed and replaced by the contractor at his own cost.”

“(m) Removal of existing kerb and channel

Where indicated by the Employer’s Agent, the existing kerb and channel shall be removed and transported to spoil as directed.”

B2307 MEASUREMENT AND PAYMENT

Edit pay Item B23.02 as follows:

Item	Unit
“B23.02 Concrete kerbing-channelling combination (U2 surface finish on channel, class 30/19 concrete) (as per detail drawings)	
(a) Precast kerbing + Channel to SABS 927 (300mm channel included)	
(1) Figure 7	
(i) Linear.....	metre(m)
(ii) Radius 1 m to 4 m.....	metre(m)
(iii) Radius 4.01 m to 20 m.....	metre(m)
(2) Figure 3 Kerb (300mm channel included)	
(i) Linear.....	metre (m)
(ii) Radius 1 m to 4 m.....	metre (m)
(iii) Radius 4.01 m to 20 m.....	metre (m)
(b) Concrete Kerb only to SABS 927 (no channel included)	
(1) Figure 8 kerbing to SABS 927 (no channel included)	
(i) Linear	metre (m)
(ii) Radius 1 m to 4 m.....	metre (m)
(iii) Radius 4.01 m to 20 m.....	metre (m)
(2) Figure 12/Garden Kerb (no channel included)	
(i) Linear.....	metre (m)
(ii) Radius 1 m to 4 m.....	metre (m)
(iii) Radius 4.01 m to 20 m.....	metre (m)

For compensation details refer to the second paragraph under item 23.02.

Item	Unit
“B23.16 Pedestrian ramps as per specifications.....	number (no)

This item includes all items to form one pedestrian ramp, this includes complete supply and installation pedestrian ramps in accordance with the Johannesburg Roads Agency's Standard Design Details for Roads & Stormwater available from their website.

SECTION 3300: MASS EARTHWORKS

Add the following to the last paragraph:

B3302 MATERIALS

- (b) Fill

Add the following under item (iv):

“The maximum swell at 100% maximum dry compaction shall not be more than 2%.”

B3303 CLASSIFICATION OF CUT AND BORROW EXCAVATION

Classification of cut and borrow excavation shall be revised as follows:

- (a) Class of excavation

- (ii) Intermediate excavation

No distinction shall be made between soft and intermediate excavation, and all intermediate excavation shall be classified and measured as soft excavation.”

- (iv) Boulder excavation class A

No distinction shall be made between Boulder excavation class A and Boulder excavation class B. All Boulder excavation class A shall be classified and measured as Boulder excavation class B.”

B3305 TREATING OF THE ROADBED

- (d) In-situ treatment of roadbed

Add the following after the second paragraph:

“Shales and mudstone shall under no circumstances be subject to the above treatment.”

B3306 CUT AND BORROW

- (a) Dimensions of cuts

Replace the second sentence of the third paragraph with the following:

“No additional or extra over payment will be made for widening existing or partly completed cuttings along the road. The widening of such cuttings shall be measured and paid for as 'cut and borrow to fill' (item 33.01) or 'cut to spoil' (item B33.04) as instructed by the Employer's Agent.”

- (c) Borrow

Replace the first sentence of the second paragraph of this subclause with the following:

"Where insufficient material is available for fill from cut, material will be imported from commercial sources, designated borrow pits, employer identified sources or stockpiles of milled pavement layers (which may include asphalt), or stockpiled natural gravels excavated from nearby developments. The contractor shall use only material that conforms to specification, and keep over-haul to a minimum."

- (e) The temporary stockpiling of materials

Replace the contents of this subclause with the following:

"The contractor shall plan his activities in such a manner so that materials excavated from borrow areas, milling material and cuttings can be directly transported to and placed at the designated points.

The temporary stockpiling of material will not be paid for separately unless instructed by the Employer's Agent, and full compensation will be deemed to have been included in the rates tendered for the various payment items for work for which the stockpiled material is to be used."

- (f) The disposal of surplus material

Insert the following after the first sentence of this subclause:

The Employer's Agent may order any surplus material to be stockpiled at approved sites."

Add the following after the first paragraph:

"Material shall be disposed of by side spoiling only on the written instructions of the Employer's Agent."

- (g) General

Add the following after the first sentence of the second paragraph:

"The final cut surface in hard excavation shall not be more than 0,5 m below the specified slope face, measured at right angles to the strike and dip directions of the slope face."

B3306 FILLS

- (d) Benching

Replace the first sentence of the second paragraph with the following:

"The dimensions of benches as well as the extent to which existing fills have to be cut back to form benches shall be subject to the Employer's Agent's approval."

Add the following:

"In order to obtain sufficient working width for road-building equipment when the existing road fill is widened, it may be necessary to form benches that extend beyond the normal road prism or to cut back into the existing road fill or both. The contractor shall submit his proposals in this regard to the Employer's Agent for approval before proceeding with such work. The contractor will be paid in accordance with the relevant payment items for work required to obtain a working width of up to 4 m. Additional work required to provide a working width in excess of 4 m shall be at the contractor's expense."

- (i) Widening of fills

Replace the first sentence of the eight paragraph with the following:

"No additional or extra over payment will be made for widening of existing fills along the road. The widening of fills shall be measured and paid for under items B33.01 and B33.20 as instructed by the Employer's Agent."

3312 MEASUREMENT AND PAYMENT

Add the following before the first paragraph:

"Any reference in this section to free-haul of up to 0.5km or 1km should be read as free-haul up to 4km."

Add the following payment items:

B33.20 Fill material obtained from commercial sources

- (a) Gravel material in compacted layer thickness of 200 mm
- (ii) Compacted to 93% of mod Aashto density cubic metre (m³)
- (e) Rockfill (3209(c)) and/or Pioneer Layer (3307(c)) cubic metre (m³)

The unit of measurement is the cubic metre of material measured in the compacted fill. The quantity measured shall be calculated by the method of average end areas from levelled cross-sections prepared from the ground line after clearing and grubbing and the removal of topsoil and the completion of any preparatory roadbed treatment which may have been ordered by the engineer, but prior to the construction of the fill, and the final specified or authorised fill cross-section superimposed at 20 m intervals along the centre line of the road. All measurement shall be neat and no payment will be made for that part of the fill placed in excess of the authorised cross-section shown on the drawings or instructed by the engineer, irrespective of the tolerances in workmanship allowed under the contract. Where the roadbed has subsided under the fills, the

quantities shall be adjusted to make allowance for such subsidence, as set out in the note at the beginning of clause 3312.

Measurement of fill shall distinguish between the alternative methods of processing and compacting.

Where measurement by cross-sections is considered by the engineer to be impractical, the compacted volume of the material may be taken as equal to 70% of the loose volume of material in the hauling vehicles as an alternative method of measurement.

The tendered rates shall include full compensation for procuring, furnishing and transporting the materials over an unlimited free-haul distance from the sources to the site, for placing, preparing, processing, shaping, watering, mixing and compacting the materials to the densities or in the manner specified, and for removing and disposing of all oversize material from the road after processing, including transport for the haul distance to approved dumping sites provided by the contractor. No overhaul shall be paid for material from commercial sources.

SECTION 3400: PAVEMENT LAYERS OF GRAVEL MATERIAL

B3402 MATERIALS

(a) General

Add the following at the end of the second paragraph:

"For chemically stabilised layers the material shall conform to the requirements in table B3402/5 and B3402/6"

Replace Table 3402/5 with:

"Table B3402/5

Requirements For Chemically Stabilised Layers

Classification	C1	C2	C3	C4
Material before treatment	At least G2 quality	At least G4 quality	At least G5 quality	At least G6 quality
PI after treatment	Non-plastic	Non-plastic	6 max. *(1)	6 max. *(1)
UCS (MPa) *(2)	6 min.	4 min.	1,5 min	0,75 min.
ITS (kPa) *(3)	-	-	250 min.	200 min.
WDD (% loss)	5 max.	10 max.	20 max.	30 max.

Note * (1) For materials derived from the basic crystalline rock group, the Plasticity Index after stabilisation shall be non-plastic.

* (2) Unconfined Compressive Strength @ 100% maximum dry density

* (3) Indirect tensile Strength @ 100% maximum dry density

* (4) Wet/Dry Durability according to Method B 8110"

Add the following sub-clause:

“(d) Excavations

Excavations in the pavement shall be kept dry. In the event of water penetrating the underlying layers, construction of the consecutive layers shall be postponed until the underlying layers are dry enough to accommodate the construction plant without any deformation or distress.”

B3405 CONSTRUCTION TOLERANCES

(g) Construction tolerances

“The layer of in-situ recycled material shall be classified as a base layer regarding compliance with the construction tolerances.”

B3406 QUALITY OF MATERIALS AND WORKMANSHIP

Replace the second paragraph with the following:

“Test results and measurements will be assessed in accordance with the provisions of Section 8200.”

B3407 MEASUREMENT AND PAYMENT

Add the following before the first paragraph:

“Any reference in this section to free-haul of up to 0.5km or 1km should be read as free-haul up to 4km.”

Add the following pay item:

Item	Unit
“B34.14 Pavement layers constructed from gravel obtained from commercial sources, including all haul	
(a) Gravel selected layer compacted to:	
(i) 93% of mod Aashto density (G7 compacted layer thickness150mm)	m ³
(ii) 95% of mod Aashto density density (G6 compacted layer thickness 150mm)	m ³
(d) Gravel subbase (chemically stabilized material) compacted to:	
(i) 97% of modified AASHTO density (150mm layer thickness, C3 quality).....	m ³
(ii) 95% of modified AASHTO density (150mm layer thickness, C4 quality).....	m ³
(g) Gravel shoulder compacted to:	
(i) 95% of modified AASHTO density (150mm layer thickness, G6 quality)	m ³
(d) Gravel subbase in median under block pavers (chemically stabilized material) compacted to:	
(i) 95% of modified AASHTO density (150mm layer thickness, C4 quality).....	m ³
(ii) 93% of modified AASHTO density (150mm layer thickness, G7 quality)	m ³

The unit of measurement shall be the cubic metre of compacted pavement layer constructed with material obtained from commercial sources or approved sources provided by the contractor. The quantity of which shall be calculated in accordance with the authorised dimensions of each separate completed layer by the method of average end areas from levelled cross-sections prepared from the ground line prior to the construction of new pavement layers, and the final specified or authorised layer cross-section superimposed at 20 m intervals along the centre line of the road.

The tendered rates shall include full compensation for the cost of procuring and furnishing the material from commercial sources, transporting the material over an unlimited free-haul distance, temporary stockpile, placing, spreading, mixing, breaking down, shaping, watering, preparing and compacting the material, protecting and maintaining the layer and for conducting control tests, all as specified. The tendered rates shall include full compensation for blading all oversize material off the road into windrows, for loading and transporting the material for an unlimited free-haul distance to approved dumping sites provided by the contractor, and for off-loading and spreading the material, all as specified.

The Contractor shall obtain written approval from the Engineer prior to procuring material from commercial sources, to ensure effective use from material from cut or borrow.”

SECTION 3500: STABILISATION

B3502 MATERIALS

(a) Chemical stabilising agents

Delete subclauses (ii) Ordinary Portland cement and (iii) Portland blast-furnace cement and replace with the following:

"Cement shall comply with the relevant requirements of SANS 50197-1:2000. The use of strength classes greater than 32,5 shall not be permitted. On this contract CEM II 32,5N shall be used for stabilization purposes.

Enough stabilizer should be added, over and above the design value, to allow for wastage during construction, to allow for high preshaping levels and inaccuracies during the spreading operation. The contractor shall allow in his rates for any additional stabilizer content required to achieve the design stabilizer content in the stabilized layer compacted to the specified density and thickness. The contractor is to allow for the construction of thicker layer before the final cut (which will require additional stabilizer), to avoid the building-in of laminations. The extra layer thickness will depend on the methodology and equipment used by the contractor. Under no circumstances the cost of the additional stabilizer due to the additional layer thickness shall be claimed by the contractor."

B3503: CHEMICAL STABILISATION

a) Preparing the layer

Insert the following before the first paragraph:

"Moisture content tests shall not be undertaken more than one day in advance of in situ stabilization operations. Care shall be taken to ensure that samples are representative of the in situ material. Checks shall be conducted when wet weather occurs between initial testing and work commencing on any section."

b) Applying the stabilizing agent

Replace the second sentence of the second paragraph with the following:

"Spreading shall only commence when the engineer is satisfied that the correct quantity of stabilizing agent has been placed on the layer and has given permission that the stabilizing agent may be spread uniformly over the entire surface to be treated."

(d) Mixing in the stabilising agent

Add the following:

'Notwithstanding anything to the contrary in the provisions of any part of these specifications, the contractor shall, without any extra payment and for each type of material, prepare a trial section where he shall demonstrate his proposed mixing process before commencing any extensive mixing.

After approval has been obtained, the mixing process and equipment shall remain unaltered unless otherwise instructed by the Employer's Agent.

The fact that the Employer's Agent has approved the mixing process shall not relieve the contractor of any of his obligations in respect of the mixing as specified elsewhere in the specifications. It will only serve as a guideline to ensure that the specified mixing requirements can actually be met.'

(h) Curing the Stabilised work

Amend the second sentence of paragraph (i) to read:

"This method will be permitted for up to a maximum period of 24 hours, but either (ii) or (v) shall be applied as soon as the moisture content of the stabilized layer so permits. Method (iii) and (iv) shall not be applicable."

(i) Construction limitations

Add the following:

"No Stabilisation shall be done with falling air temperatures when the air temperature falls to below 7 °C or during rising air temperatures, when the air temperature is below 3 °C.

Moisture content tests shall not be undertaken more than one day in advance of in-situ Stabilisation operations. Care shall be taken to ensure that samples are representative of the in-situ material. Checks shall be conducted when wet weather occurs between initial testing and work commencing on any section."

In Table 3503/1, delete 8 hours for ordinary Portland cements and cement blends and replace with:"6 hours"

B3505 BITUMINOUS STABILISING

Foamed bitumen shall not be permitted on this contract.

(a) Preparing the material

Add the following sentence after the second sentence:

"Prior to the adding of the bitumen emulsion the moisture content of the aggregate shall be at least 2% or as authorized by the Employer's Agent."

(b) Mixing in the additive

Add the following sentence after the first sentence:

"Where active filler is spread by hand the spreading shall be confined to one cut width at a time unless otherwise authorized by the Employer's Agent."

(c) Heating and diluting the bituminous stabilizing agent

Add the following sentence to the second paragraph:

“When diluting the bitumen emulsion the emulsion shall be added to the water, and not the water to the emulsion.”

(d) Applying the stabilizing agent

Add the following paragraph:

“When applying the stabilizing agent with an in situ recycler adjacent cuts shall overlap by at least 150mm. Over application of the bitumen and water, or diluted emulsion, in the overlap shall be avoided.”

(e) Compaction

Add the following sentence:

“Where an in situ recycler is used to construct a bitumen stabilized material the contractor shall ensure that the material between the wheel paths of the recycler is compacted to at least the same density as the material in the wheel paths before the grader is allowed to start leveling.”

(g) Construction limitations

Add the following:

- Where active filler is spread by hand the filler shall be accurately and uniformly spread on the road surface immediately prior to commencing work with the recycler. The contractor shall ensure that no traffic is allowed, at any time, to travel over the spread filler.
- Where the material is pre-treated with lime sufficient time shall be allowed for modification to take place before bitumen treatment. The minimum time allowed shall be as authorized by the Employer’s Agent.
- The contractor shall accurately measure and report to the Employer’s Agent the depth of cut at least once every 100 metres.
- The contractor shall physically check the actual overlap achieved at least once every 200 metres by measurements taken in front of the and behind the recycler.

Add the following subsection:

Uniformity of mix (chemical stabilisation)

Add the following:

“The coefficient of variation shall not exceed 0,3 (30%) for mixing in place and 0,2 (20%) for plant-mixed material, calculated as follows:

$$\frac{S_n}{X_n} \times 100$$

where:

X_n is the average, and

S_n is the standard deviation of stabilizer.

Method A15(d) The acid/base back titration method shall be used to determine the chemical stabilizer content."

B3506 TOLERANCES

b) Uniformity of mix (chemical stabilisation)

Replace the full stop at the end of paragraph (i) with the following:

"using the formula (S_n / X_n)

where:

S_n is the standard deviation of stabilizer

X_n is the average stabilizer content."

B3507 CONSTRUCTION OF TRIAL SECTION

Add the following to the last paragraph:

"The fact that the Employer's Agent has approved the mixing process shall not relieve the contractor of his obligations in respect of the mixing specified elsewhere in the specifications. It will serve only as a guideline to ensure that the specified mixing requirements can actually be met."

B3509 QUALITY OF MATERIALS AND WORKMANSHIP

Add the following after the second paragraph:

"The test results and measurements will be judged in accordance with the provisions of Section 8200."

B3510 MEASUREMENT AND PAYMENT

Item	Unit
B35.01 Chemical stabilization extra over unstabilized compacted layers	

cubic metre (m³)

Add the following to the second payment paragraph:

"The tendered rate shall also include full compensation for working in restricted areas on top of and alongside culverts where necessary.

Item	Unit
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B35.02 Chemical stabilizing agent:	
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Replace the third paragraph with the following:

"Subject to the provisions of clause 1220, the quantity of stabilizer will be determined in accordance with the authorised rate of application and layer dimensions. Extra stabilizer added for wastage and higher preshaping levels will not be included in the quantity and the cost thereof shall be deemed to be included for in the rates."

SECTION 3600: CRUSHED STONE BASE

SECTION 3601: SCOPE

(a) Requirements for crushed aggregate

After the first sentence delete the remainder of the paragraph and replace with the following:

"The aggregate shall not contain more than 0,1% by mass of unwanted material such as wood, coal or similar organic material.

Aggregates containing mica, such as granite, gneiss, mica schist, pegmatite, sandstone shall not contain more than 2% by mass of free mica, especially muscovite, when assessed by visually separating the particles, or more than 4% by volume when assessed by means of microscopic slides. Aggregate containing easily detectable quantities (more than 1%) of olivine, serpentine and sulphide minerals such as pyrites and marcasite, must be considered with caution, and may warrant additional evaluation to the satisfaction of the Employer's Agent.

Soft or weathered particles shall be controlled by the Durability Mill Index values specified in B3602(e) Durability.

Provision has been made in clause (B)8108(b)(iii), calculation, for the determination and calculation of the Apparent Density for aggregates with a total water absorption greater than 1,5%, when total water absorption is determined according to TMH1 methods B14 and B15."

(c) Grading requirements

Replace entire clause with the following:

"The target grading, after compaction, shall be as near as possible to the mean of the specified grading envelope listed in table 3602/1 and shall be continuous with no marked gaps or excessive quantities of any particular size. The mean grading of each lot (minimum of 4 but preferably 6 test points per lot) shall conform to the approved target grading plus or minus the tolerances specified in table 3602/4."

Table 3602/1

In table 3602/1 delete "85% of bulk relative density" and replace with:

"88% of Apparent Density (AD)".

Replace the grading section in Table 3602/1 with:

Grading	Nominal aperture size of sieve (mm)	Percentage passing through sieve by mass	
		Nominal max size	
		37,5 mm	26,5 mm
	37,5	100	
	28	86 - 95	
	26,5	84 - 94	100
	20	73 - 86	87 - 96
	19	71 - 84	85 - 95
	14	61 - 76	73 - 86
	13,2	59 - 75	71 - 84
	5	37 - 54	43 - 61
	4,75	36 - 53	42 - 60
	2	23 - 40	27 - 45
	0,425	11 - 24	13 - 27
	0,075	4 - 12	5 - 12

Note: Refer to standard COLTO Table for COLTO grading if required

Replace Table 3602/4 with:

Sieve size (mm)	Permissible deviations by mean values (% by mass)		Permissible deviations by individual values (% by mass)	
	Nominal maximum size (mm)			
	37,5	26,5	37,5	26,5
28	± 5		± 5	
26,5	± 5		± 5	
20	± 5	± 5	± 7	± 7
19	± 5	± 5	± 7	± 7
14	± 5	± 5	± 7	± 7
13,2	± 5	± 5	± 7	± 7
5	± 5	± 5	± 7	± 7
4,75	± 4	± 4	± 7	± 7
2	± 4	± 4	± 5	± 5
0,425	± 3	± 3	± 5	± 5
0,075	± 2	± 2	± 3	± 3

Note: Refer to standard COLTO Table for COLTO grading if required

Add the following sub clause:

“(e) Durability

The durability property of aggregates derived from the basic crystalline group shall be assessed by means of the Ethylene Glycol Durability Index. When tested in accordance with the method prescribed in B 8105 (g) the Durability Index shall not exceed four. In addition, the 10% FACT value obtained after soaking in ethylene glycol for four days shall not be less than 70% of that obtained on the unsoaked sample. Where any values are obtained that fall outside the above requirements, a detailed assessment of the quarry shall be undertaken together with a specialist mineralogical evaluation of both the coarse as well as fine fractions in order to assess the long-term durability properties of the material.

For Basic crystalline rocks, Arenaceous rocks, Argillaceous rocks and Diamictites the Durability Mill Index (DMI) shall be less than 125. For all other rock types the Durability Mill Index (DMI) shall not be more than 420, subject to the % passing the 0,425mm sieve not increasing by more than 8 percentage points during the Durability Mill test.”

B3604 CONSTRUCTION

b) Compaction

Replace that last sentence of the first paragraph with:

“The density of the layer shall be tested at each third of the layer thickness.”

c) Surfacing preparation of the base

Replace the final paragraph in subsubclause 3604(c)(i) with:

“Slushing of the base, is compulsory and shall be carried out within 48 hours after completion of the compaction. Even if the specified density is achieved without slushing or before completion of the slushing process, the full slushing process must still be completed.”

Delete sub-sub-clause (ii) Multi-stage process (water or slurry rolling).

B3605 PROTECTION AND MAINTENANCE

Replace “moisture content of the layer” in the first paragraph with “moisture content of the upper 50mm of the layer.”

Add the following to the end of the second sentence:

“as determined according to TMH 1 method A7.”

B3607 QUALITY AND WORKMANSHIP

Delete “or 8300” in the second paragraph.

SECTION B3800: BREAKING UP EXISTING PAVEMENT LAYERS

NOTE:

In addition to the requirements of Section 3800, the following shall apply and take precedence,
“This section relates to the milling of the road surface for road rehabilitation purposes in large areas and all milling required for the repair of isolated base and surface failures is included in the road repair rates in Section B3900.”

B3804 PLANT AND EQUIPMENT

(a) Milling equipment

Add the following:

“No separate payment shall be made for moving the milling machine on the site.”

B3805 CONSTRUCTION

(b) Milling

(iii) Asphalt

o spoil

Add the following:

On the instruction of the Engineer, the milled material shall be spoiled by the contractor. No additional payment shall be made for spoiling of material. A free haul distance of 4km shall be applicable.

(vi) General

Add the following:

“Where milling is to be done at existing structures, care shall be exercised to avoid damage to concrete elements, expansion joints, nosings to expansion joints, manholes, catch pits etc. Damage caused to any element forming part of the permanent works shall be repaired at the Contractor’s cost.

The floor of the milled excavation shall be cleaned out of all loose material by brooming and final cleaning using high pressure compressed air. The exposed floor of the excavation shall be lightly sprayed with water to identify cracks. The Employer’s Agent shall be given the opportunity to inspect the milled surface for cracks and loose patches and any cracks or loose patches shall be repaired in accordance with the relevant sections of the specification.”

B3807: MEASUREMENT AND PAYMENT

Add the following before the first paragraph:

“Any reference in this section to free-haul of up to 0.5km or 1km should be read as free-haul up to 4km.”

Amend the following pay item:

Item	Unit
B38.01 Excavating and removing existing pavement material including free-haul of 15km to point of use or stockpile	
(a) Asphalt	
(1) Not exceeding	Cubic metre (m ³)
(2) Exceeding 50 mm but not exceeding 100 mm.....	Cubic metre (m ³)
(b) Non-cemented material	
(1) Not exceeding 150 mm... ..	Cubic metre (m ³)
(2) Exceeding 150 mm but not exceeding 300 mm.....	Cubic metre (m ³)

Item	Unit
B38.02 Milling out existing bituminous material with and average milling depth:	Cubic metre (m ³)

Amend the first sentence of the fourth paragraph as follows:

The tendered rate shall also include full compensation for loading and transporting the material to approved stockpiles or spoil sites for a free-haul distance of 4,0 km irrespective of the method of loading, and for unloading the material and placing it in stockpile, also for screening out the oversize material if necessary.

The tendered rate shall include full compensation for demarcating, clearing, levelling and draining the stockpile site as specified, also for levelling and reinstating of the site after completion of the work, for off-loading and spreading the material if necessary, and for loading when required for use.

Add the following:

“The rates shall also include for transverse saw-cutting at the start and end of sections in order to ensure a vertical cut face. The rate shall also include for ensuring a clean-cut vertical longitudinal joint prior to paving.

Delete the following pay item:

Item	Unit
38.10 Preparing the stockpile sites	square metre (m ²)

Amend the following item:

“Item	Unit
B38.14 Providing the milling machine on site, irrespective of the number of establishments..... (Drum width and pick configuration to ensure compliance with specified tolerances)	Lump Sum

The unit of measurement shall be the lump sum for providing the milling machine(s) on site, irrespective of the number of milling machines provided, or the number of times a milling machine is brought into the site where it had to be removed temporarily with the approval of the Employer’s Agent.”

Amend the following item:

“Item	Unit
B38.15 Moving the milling machine on site irrespective of the number of moves	Lump Sum

The unit of measurement for the moving of the milling machine on site shall be the lump sum, irrespective of the number of times the machine(s) is/are moved.”

SECTION B3900: PATCHING AND REPAIRING EDGE BREAKS

B3902 MATERIALS

Add the following subclause:

"(a) Backfilling of excavations for patching

"Excavations shall be backfilled with emulsion treated crushed stone.

B3903 PLANT AND EQUIPMENT

Add the following:

"A sawing machine shall be provided on site before any excavation of patches shall commence. It shall be power driven and able to cut accurately to the required depths and alignment. Skilled operators are required for operating the sawing machines. Operators shall be equipped with suitable safety equipment, e.g. safety goggles, etc for operating the sawing machines. No payment shall be made for standing time of the sawing machine."

B3904 PATCHING

(a) Demarcation

Add the following:

"Before saw cutting may commence, the cut line shall be accurately pre-marked to the specified dimensions."

(c) Excavating pavement material

Add the following:

"In the event of the edge of a surfacing layer which was mechanically sawn being damaged by construction activities, the contractor shall at his own cost make good such damaged edges until the specified tolerances are met."

B3906 QUALITY OF MATERIALS AND WORKMANSHIP

Add the following:

"The surface regularity of completed asphalt patches shall be measured with a 3,0m straight-edge in accordance with sub clause 8111(b) and no irregularity may exceed a maximum value of 5mm too high but 0 mm too low."

Add the following clause:

"B3908 CONSTRUCTION TOLERANCES, FINISH REQUIREMENTS AND RESTRICTIONS

The final riding surface on any particular point on patches shall not deviate more than 5mm from the bottom of a 3m long straight edge."

SECTION 4100: PRIME COAT

B4102 MATERIALS

b) Aggregate for blinding

Add the following sentence:

“Blinding of the primed surface with aggregate shall only be permitted to facilitate vehicular access to adjoining properties”

B4104 WEATHER AND OTHER LIMITATIONS

Replace paragraph (g) with the following:

“(g) When at any position within the layer the moisture content of a granular base layer is more than 50% of the optimum moisture content determined according to TMH 1, Method A7. In the event of rain after priming, the base shall be allowed to dry out to meet the above moisture content requirement prior to surfacing.”

B4106 APPLICATION OF THE PRIME COAT

Replace paragraph (c) with the following:

“The type of prime and application rate best suited for the base shall be determined during construction. The Contractor shall provide about 20ℓ of each prime and apply it at different application rates with a brush on the base. Then engineer will then instruct the type of prime and application rate to be used. No payment shall be made for tests to determine the type of prime.

Unless directed otherwise by the engineer or indicated on the drawings, the edges of the primed surface shall be 150mm wider than the edges of the surfacing.”

Add the following sub-clause:

“(j) Application in areas treated by reworking and construction of a new base shall be primed using a mechanical distributor complying with sub clause 4103(a). The edges of the previously constructed or existing surfacing shall be adequately protected by approved means to ensure that an overlap of prime not exceeding 50mm is sprayed onto the previously constructed or existing surfacing.”

B4108 TOLERANCES

Replace the first paragraph with the following:

“The actual spray rates measured at spraying temperature shall not deviate by more than 8.0% from that ordered by the engineer. The engineer may, at his discretion, conditionally accept application rates falling outside this tolerance at reduced payment in accordance with Table B4108/1.B4110

TABLE B4108/1: PAYMENT REDUCTION FACTORS FOR CONDITIONALLY ACCEPTED PRIME COAT

Deviation specified spray rate at spraying temperature. (%)	Payment reduction factor of tendered rate.
±8,0	1.00
±9,0	0.97
±10,0	0.95
±11,0	0.90
±12,0	0.85
±13,0	0.80

Any deviation outside these limits shall not be paid for, however, the engineer shall have the right to instruct the contractor to make up any deficiency, or blind excessive prime without additional payment. Where so instructed, the material for blinding shall consist of approved, but shall consist of screened 5mm nominal single size aggregate. The use of crusher dust for blinding shall not be permitted.

If under-spraying occurs, and it is accepted by the engineer, only the actual quantities applied shall be paid for.”

B4109 TESTING

Add the following:

“No payment will be made if this condition is not adhered to. The contractor shall provide, at his cost, representative samples of every batch of prime delivered onto site.”

B4110 MEASUREMENT AND PAYMENT

Add the following payment items:

“Item	Unit
B41.01 Prime Coat:	
(f) Invert bitumen emulsion (MSP/1 or similarly approved).....	litre (l)

“The unit of measurement shall be the litre of priming material measured at spraying temperature and sprayed as required.”

“The tendered rates shall include full compensation for supplying the priming material, cleaning and watering the layer to be primed, applying the priming material and maintaining the primed surface as specified.”

SECTION 4200: ASPHALT BASE AND SURFACING

B4201 SCOPE

Add the following to the end of the clause:

“The asphalt paving will consist of with the following mixes identified below.

Mix A: 40mm Coarse continuously graded asphalt 50/70 bitumen penetration grade

Mix B: 40mm Coarse continuously graded asphalt with A-E2 (SBS)

Mix C: 40mm Coarse continuously graded asphalt with 50/70 penetration grade binder modified with 3% Sasobit”

B4202 MATERIALS

- (a) Bituminous binders
- (iii) Homogeneous modified binders

Replace the last sentence with:

“The modified binder to be used in Mix B shall be A-E2.

The homogeneous modified binder shall be manufactured according to the guidelines contained in “Technical Guideline: The use of Modified Bituminous Binders in Road Construction (TG 1-2007): Asphalt Academy”. The base bitumen shall conform to SABS 307, or a blend of SABS 307 grades. The type as well as percentage of modifier is not prescribed, however the contractor shall indicate in the Pricing Schedule what polymer he shall be using. The properties of the homogeneous modified binder shall comply with the relevant requirements for binder class A-E2 as listed in table B4202/12.

A complete method statement on the A-E2 binder (SBS polymer) manufacturing process and quality assurance procedures shall be submitted to the Engineer for review; in particular the manufacturing process shall include high shear blending process with a high shear mill. High shear blender or high shear stirrers only will not be classified by the engineer as a high shear blending process.

Tenderers shall state where this product has previously been used successfully.

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

Property	Unit	Test Method	Binder Class
			A-E2
Softening Point ¹	°C	MB-17	65-85
Dynamic Viscosity@ 165°C	Pa.s	MB-18	≤0.6
Force Ductility @ 5°C	N	EN 13703	Report ³
Elastic Recovery @ 15°C	%	MB-4	>60

Property	Unit	Test Method	Binder Class
			A-E2
Storage Stab @ 160°C)	°C	MB-6	≤5
Flash Point	°C	ASTM: D93	≥230
Complex shear modulus: $G^* \sin \delta$ @10 rad/s	°C	AASHTO:TP5	Report
Creep Stiffness	MPa	AASHTO:TP1	Report
Properties after ageing (RTFOT)			MB-3
Diff in Softening Point	°C	MB-17	-2 to +8
Elastic Recovery @ 15°C	%	MB-4	>50
Mass change	%	MB-3	≤1.0
Torsional Recovery @ 25°C	%	MB-5	Report
Dynamic Viscosity @ 165°C	Pa.s	MB-18	Report ²

Notes:

1. The prescribed test method is based on not using stirrers although it has been reported that the use of stirrers has shown no difference in test results. For referencing purposes no stirrers should be used.
2. No limits are given and the values should be recorded for reporting purposes only as they may be used in future specifications.
3. No values given but the test can be used to rank various binders according to their low temperature cohesion properties.

TABLE B4202/15: TEMPERATURE/TIME LIMITS FOR POLYMER MODIFIED BINDERS

Binder Class	Short Term Handling/ Transportation		Storage ¹		Spraying/Asphalt Mixing/Application		
	Max Temp (°C)	Max Holding Time (hrs)	Max Temp (°C)	Max Holding Time ² (hrs)	Max Temp (°C)	Min Temp (°C)	Max Holding Time (hrs)
A-E1 (SBR)	180	24	160	240	190	175	8
A-E1 (SBS)	180	24	160	240	180	160	12
A-E2 ³	180	24	160	240	180	170	12
A-P1	180	24	150	240	170	150	24

Notes:

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

(b) Aggregates

Add the following paragraph to the introductory description:

“Asphalt mixes shall be manufactured using different individual single size coarse aggregates fractions and crushed fine aggregates blended to conform to the specified grading requirements. The use of natural sands shall only be permitted if approved by the Employer’s Agent and shall be limited to a maximum of 5% for continuously graded mixes. All aggregate in excess of 4,75 mm shall consist of individual nominal single sized aggregate. For stone mastic asphalt mixes all aggregate fractions in excess of 2,36 shall consist of individual single size fractions. Contractors shall note that commercial suppliers may not be able to supply all the required single size aggregates, in which instance arrangements will have to be made for additional on-site screening. No additional payment shall be made for screening aggregate. The use of crusher type materials shall not be permitted.”

Quartzite aggregate may not be used."

(ii) Shape of the aggregate

Delete Table 4202/5 and replace with

Nominal size of aggregate (mm)	Maximum flakiness index %
	Asphalt aggregate
	All grades
	Mix A, B and C
14,0	15
10,0	15

(v) Absorption

Add the following sentence

“In addition, the total binder absorption of the combined coarse and fine aggregate blend shall not exceed 0,5%”

(viii) Grading

Delete the second paragraph commencing with "The target grading..." and add the following paragraphs:

The grading limits for the combined aggregate grading for the asphalt surfacing shall be as specified in table 4202/7: Continuously graded medium grade.

TABLE B4202/7: GRADING LIMITS AND MIX PROPORTIONS FOR ASPHALT

	Sieve Size (mm)	Grading	Grading	Grading
		Mix A	Mix B	Mix C
% Passing by mass SANS 3001	19,0		100	100
	14		86-100	86-100
	13,2	100	84-100	84-100
	10	85-100	72-93	72-93
	9,5	82-100	70-92	70-92
	6,7	-	-	-
	5	56-77	51-71	51-71
	4,75	54-75	50-70	50-70
	2,36	35-50	37-55	37-55
	2	33-48	34-51	34-51
	1,18	27-42	26-41	26-41
	1	25-40	23-37	23-37
	0,600	18-32	16-28	16-28
	0,300	11-23	12-20	12-20
	0,15	7-16	8-15	8-15
0,075	4-10	4-10	4-10	
Nominal mix proportion by mass	Aggregate	93.7%	93.7%	93.7%
	Binder	5.2% 50/70 penetration grade bitumen	5.2% A-E2 (SBS)	5.2% 50/70 penetration grade bitumen with 3% Sasobit
	Active filler	1.0%	1.0%	1.0%
	Voids	4-6%	4-6%	4-6%

"(xi) Deleterious materials

The presence of deleterious material in both coarse and fine aggregates to be used in the asphalt mixes shall be determined from the following tests: SABS Method 1243: 1994: Deleterious clay content of the fines in aggregate (methylene blue adsorption test). The methylene blue value of the materials shall not exceed a maximum of 5 %.

(xii) Durability of materials

The resistance of dolerite to weathering shall be determined from the following tests:

- Petrographic analysis of thin sections for the identification of minerals.
- X-ray diffraction test to confirm the absence of smectite clays.
- Slake durability tests in ethylene-glycol.

Add the following new sub item:

“(xiii) Moisture content

The moisture content of aggregates, sampled from the cold feed belt, shall not exceed the following limits at the time that it is introduced into the mix:

- Coarse aggregate 2%
- Fine aggregate 4%”

(c) Fillers

Delete the second last sentence of the first paragraph and replace with:

“With the exception of stone mastic asphalt, in no instance shall more than 2% by mass of active filler be used in the mixes.”

Add the following after the last paragraph:

“For tender purposes the active filler shall be hydrated lime”.

(h) General

Add the following after the second paragraph:

“Sufficient aggregate for a minimum of 3 days production shall be separately stockpiled and tested for conformance and uniformity prior to use. The test results shall be presented to the Employer’s Agent”.

Add the following sub-clause:

The dosage, temperature of the bituminous binder, mixing process and shelf life of blend shall be in accordance with the supplier’s specifications.”

B4203 COMPOSITION OF ASPHALT BASE AND SURFACING MIXTURES

In the first paragraph, third last line, after “or active filler content” add:

“or aggregate content”

Replace the fifth paragraph with the following:

“The design of the asphalt mixes shall be in accordance with ‘Interim Guidelines For The Design Of Hot-Mix Asphalt In South Africa (June 2001)’ and appropriate research results. The mix properties and requirements shall be as specified in the project specifications”

The relevant asphalt mix for the surfacing layers shall comply with the requirements in table B4203/2

Table B4203/2

Asphalt mix requirements: Surfacing

Property	Continuously graded surfacing mixes
Marshall Stability (kN)	8 – 18
Marshall Flow (mm)	2 – 6
Stability /Flow (kN/mm)	> 2,5
VMA (%)	> 15
VFB (%)	65 – 75
Voids in Mix (%)	4 – 6
Indirect tensile strength @ 25°C (kPa)	> 1000
Dynamic Creep Modules @ 40°C (MPa)	> 20
Modified Lottmann (%)	> 80
Air permeability (cm ²)	< 1 x 10 ⁻⁸
Binder film thickness (microns)	5,5 – 8,0
Filler bitumen ratio	1 – 1,5
Immersion index (%)	–
MMLS rutting for 50°C wet test after 100 000 load repetitions * (mm)	2

Note: * Downward deformation only
Wheel load: 2,9 kN @ 690 kPa
MMLS laboratory testing

B4204 PLANT AND EQUIPMENT

(c) Spreading Equipment

(i) Paver

Add the following after the first paragraph “The paver shall have a variable width, heated, screed plate. The paver screed shall be adjustable to be able to pave to any width specified within the ranges of 2,5m to 5,5m. The auger screws shall extend the full length of the paver screed. The gap between the auger and the screed end plate shall not exceed 300mm. The auger shall be set to the correct height according to the manufacturers specification. Where the auger height is adjustable on the paver, under no circumstances will the distance from the lowest point on the auger to the paver screed level exceed twice the paving thickness. Where the auger is fixed and cannot be lowered, the Contractor shall prove that the dimensions of the auger are within the manufacturer’s specifications.

The paver shall be equipped with ultra-sonic levelling beams on both sides of the paver.”

(f) Vehicles

Replace the second paragraph with the following:

“To minimize temperature loss all vehicles used for transporting asphalt to the site shall be fitted with thermal asphalt covers (canvas covers not acceptable) irrespective of the prevailing climatic conditions or distance of transport.”

B4205 GENERAL LIMITATIONS AND REQUIREMENTS AND THE STOCKPILING OF MIXED MATERIAL

b) Moisture

Amend the last paragraph as follows:

Insert “and/or primed base” after “surfacing” in the third line of the first sentence.

Replace the last sentence with

“In such case the base shall be allowed to

dry out to meet the above moisture content requirement prior to placing the surface layer.”

(c) Surface Requirements

(i) Tack Coat

Add the following paragraph:

“Hand spraying shall only be permitted on areas approved by the Employer’s Agent. The binder distributor shall be capable to apply the binder evenly over the full area. The equipment shall comply with clause 4103. Tack coat shall be applied to all transverse and longitudinal joints by hand utilizing a paint brush.”

B4206 PRODUCING AND TRANSPORTING THE MIXTURE

(b) Production of the mixture

- (ii) Using drum-type mixer plants:

Add the following:

“Pre blending of aggregate fractions shall not be permitted and the contractor shall ensure that sufficient cold-feed bins are installed to accommodate each individual aggregate fraction, including the filler.”

(c) Transporting the mixture

Add the following paragraph:

“Special precautions shall be taken by the contractor to ensure that the temperature of the total mass of asphalt does not decrease by more than 10°C from point of dispatch to the point where it is to be paved. The use of the thermal blankets is obligatory.

The contractor shall ensure that trucks used to haul asphalt are not overloaded and the legal axle loads are not exceeded. Before any asphalt can be transported, the contractor must provide the Employer’s Agent with the certified carrying capacity of each truck intended for the purpose of transporting the mix. The contractor shall provide the Employer’s Agent with a weighbridge ticket before discharging into the paver’s hopper.

Any truck that is overloaded shall not be allowed to discharge its load and shall return to the depot/batching plant for adjustment of the load. In addition, a penalty shall be applied for the overload.”

Add the following subclause:

“(f) Approval of asphalt mixture

Before any asphalt is placed on the road, the Employer’s Agent shall verify the mix design. The verification process shall be as follows:

The contractor shall prepare and submit a laboratory design mix with test results at four different bitumen contents. The design mix shall be submitted on the prescribed form D3 of TMH 10: “Instruction for the Completion of As-Built Materials Data Sheets” with all the necessary test results completed. In addition, the proposed asphalt mixture shall be subjected to gyratory testing. All the expenses in preparing and submitting the laboratory design mix shall be to the contractor’s cost.

Samples of all aggregate and bitumen shall be submitted with the laboratory design mix to enable the Employer’s Agent to carry out check design testing as necessary. The above design and aggregate shall be submitted to the Employer’s Agent at least six weeks before it is intended to commence with any asphalt production.

After the Employer’s Agent has verified and confirmed that the laboratory design mix conforms to the specification, a plant mix at varying binder contents of approximately 5 to 10 tons each shall

be produced. The purpose of the plant mix is for the contractor to prove that the laboratory design mix can be produced successfully. The Employer's Agent shall conduct the necessary testing on the plant mix. The plant mix shall not be placed on the road. During the production of the plant mix, the Employer's Agent shall be afforded the opportunity to inspect the asphalt plant.

After the plant mix has been proven to conform to the specification, permission shall be given for laying a trial section at varying binder contents in accordance with the requirements of section 4211 of the specifications. The Employer's Agent may require that the mix be further assessed by means of CSIR Wheel Tracking or MMLS testing, the cost of which will be borne by the Employer. Mass production of asphalt shall only commence after the trial section has been successfully placed, which should be given within a maximum of ten days.

The Employer's Agent may instruct the contractor at any time to halt his paving process and to review the whole or part of the above process should a change of aggregate properties occur, the specified asphalt requirements not being met and/or a consistent asphalt mixture not be produced."

B4208 JOINTS

Add the following to this clause:

"Where the difference in level between the new work and the existing road surface exceeds 25mm, joints shall be treated as follows:

Transverse steps at the end of a day's work shall be tapered off at a slope of 1 vertical to 20 horizontal (1:20) to tie in with the existing surface. The tapered section shall be removed before surfacing is recommenced and a joint formed in accordance with clause 4208 of the specification. Longitudinal joints exposed to traffic shall be provided with a taper of compacted asphalt material over the full length of the exposed joint. The width of the taper shall be at least 5 times the difference in level between the old and new work.

All costs involved in the provision and removal of these temporary ramps shall be deemed to have been included in the rates tendered for the relevant asphalt pay item."

B4209 PRE-COATED CHIPPINGS FOR ASPHALT SURFACINGS

In the first sentence of the fifth paragraph, delete 6-8 kg/m² and 7-9kg/m² respectively and replace with:

"3-4 kg/m² and 5-6 kg/m²"

In the last sentence of the fifth paragraph, delete "between 0,6 and 1,0 mm" and replace with:

"between 0,8 and 1,2mm"

B4214 QUALITY OF MATERIAL AND WORKMANSHIP

(a) Coring of asphalt layers

Add the following:

"A suitable coring machine shall be available on a daily basis when asphalt paving is taking place. Cores shall only be drilled, when the road temperature is 20°C or less. Core holes shall be filled with hot mix asphalt and compacted, all within 24 hours of the core being drilled. Coring shall be carried out within 48 hours after the paving has been completed and supplied to the Employer's Agent. The test results of cores shall be submitted to the Employer's Agent within 24 hours after coring."

(c) Routine inspection and tests

Add the following paragraph:

"The contractor shall keep accurate records of:

- (i) The position where every truckload of asphalt is paved (chainage, lane, time and date).
- (ii) The temperatures of the asphalt in the trucks both at the mixing plant and at the paving equipment immediately prior to discharging the load.
- (iii) The truck and load number from which control samples are taken. All samples taken shall be appropriately numbered."

Add the following subclause:

(d) Special tests

n-Heptane-Xylene Equivalent (Spot test) (AASHTO-T102)

If the Employer's Agent suspects that bitumen or asphalt has been overheated, he may order that the bitumen, or the bitumen recovered from the asphalt, be subjected to the Spot Test. Recovery of binder for use in the Spot Test shall be carried out according to an approved method.

Any bitumen having an n-Heptane-Xylene equivalent in excess of 36, or in excess of the manufacturers test result on the dispatched stock, shall be considered to have been overheated and shall be deemed to be rejected unless proven otherwise."

B4215 MEASUREMENT AND PAYMENT

“Item” **Unit**

Amend Subitem (a) as follows:

B42.02 Asphalt surfacing

(a) Continuously graded

(i) Mix B - 40mm thick coarse continuously graded asphalt

(50/70 penetration grade bitumen)square metre (m²)

(ii) Mix B - 40mm thick coarse continuously graded asphalt

(A-E2 binder)square metre (m²)

The unit of measure for subitem (a) shall be the square metre (m²) of asphalt overlay placed to the nominal thickness. When specified the measurement will be in ton and measured according to certified weighbridge tickets issued in respect of the mixture used.

B42.07 Trial sections

Amend the unit of measurement from m² to ‘ton (t)’ and:

‘The unit of measurement shall be the ton of asphalt trial section constructed to the nominal thickness indicated, and measured according to certified weighbridge tickets issued in respect of the mixture used.’

B42.08 100mm cores in asphalt paving

Amend the 1st sentence by adding the following after the word “drilled”:

“irrespective of depth of core.”

Amend the unit of measurement from m² to ‘ton (t)’ and:

‘The unit of measurement shall be the ton of asphalt trial section constructed to the nominal thickness indicated, and measured according to certified weighbridge tickets issued in respect of the mixture used.’

SECTION 5600: ROAD SIGNS

Amend the following items

"Item	Unit
B56.01 Road sign boards with painted or coloured semi-matt background. Symbols, lettering and borders in semi-matt black or in Class 1 retro – reflective material, where the sign board is constructed from:	

(d) Pre-painted galvanized steel profiles (200mm high chromadek 1.4mm thick or approved equivalent

(1) Area not Exceeding 2 m²..... square metre (m²)

(2) Area exceeding 2 m² but not 10 m²..... square metre (m²)

(3) Area exceeding 10 m².....square metre (m²)

Add following pay item:

B56.10 Hazard marker signs, fully retro-reflective in Class I retro-reflective sheeting

(a) 600 mm x 150 mm.....number (No)

(b) 1000 mm x 250 mm.....number (No)

SECTION 5700: ROAD MARKINGS

B5701 SCOPE

Replace South African Road Traffic Signs Manual in the second paragraph with:

“SADC Road Traffic Signs Manual”

B5702 MATERIALS

Insert the following before subclause (a) Paint:

“The selection of appropriate road marking materials for permanent road markings to ensure conformance with the requirements of this specification rests with the Contractor. Road marking materials for temporary road markings as clarified in SANS 731-1 shall be equal to or more durable than road marking paint specified in subclause B5702(a)(i) and (ii), provided it meets the specified initial performance criteria.”

(a) Paint

- (i) Road-marking paint

Add the following:

“The commercial product supplied by the contractor shall be subject to the approval by the Employer’s Agent and the submission of a certificate of the SABS permitting the manufacturer to apply the SABS standardising mark to the supplied product.”

- (ii) *Retro-reflective road-marking paint*

Replace “CKS192” in the first paragraph with “SABS EN 1423 for medium grading glass beads”.

When measured in accordance with SABS Method 1261-1998 within a period of two weeks

(± 1 week) after application, the coefficient of retro-reflected luminance, RL, of temporary road markings shall be at least 150 mcd/m².lx for white markings and 100 mcd/m².lx for yellow markings.

The product supplied for permanent road markings shall be subject to the approval by the Employer’s Agent, who may request the contractor to provide sufficient supporting evidence to compare the durability of the proposed product with that of hot-melt thermoplastic material.

B5704 MECHANICAL EQUIPMENT FOR PAINTING

Add the following:

“The machine shall always operate in the same direction of the traffic flow when applying lane markings.”

B5705 SURFACE PREPARATION

Add the following at the end of the second paragraph:

“The onus is on the contractor to ensure that the surface on which the road markings are to be applied is sufficiently clean and dry to ensure that the quality of the road markings will not be adversely affected. The contractor is also responsible for protecting road studs from being painted over, and the subsequent cleaning thereof if such over-painting did occur. (The cleaning of the road studs shall be done in such a manner that the functionality of the road studs will not be detrimentally affected by the cleaning agent.)”

B5706 SETTING OUT THE ROAD MARKINGS

Add the following:

“Where road markings are to be replaced on seal, it is essential that all existing barrier lines and other road marking lines be accurately referenced before commencement. The position of barrier lines shall be re-assessed on site by the Employer’s Agent before the contractor commences with the road marking. No separate payment will be made for referencing the existing road markings and full compensation shall be included in the rate tendered for item B57.06.”

B5707 APPLYING THE PAINT

Replace the last paragraph with the following:

The Contractor’s establishment on site and general obligation shall be deemed to fully include the establishment of the road-marking team, irrespective of the number of times the road-marking team is required to be on site or is required to move within the site, other than those payments specifically allowed for in payment item B13.01(e).”

Replace the second last paragraph with the following:

“Road marking materials shall be applied at application rates which would suit the traffic conditions in such a way that the functional life of the temporary road markings would exceed six months, whilst the expected functional life of the permanent road markings should exceed 36 months.”

B5714 MEASUREMENT AND PAYMENT

Amend the following pay item heading to read:

“Item	Unit
B57.02 Retro-reflective road marking using Thermo Plastic paint	

Add the following sub pay items:

B57.05 Road Studs

- (a) Ennis C80-Avery Denison or similar

(i) White bodied (white/red).....number (No)

(ii) Red bodied (amber/red)..... number (No)

(b) Temporary road studs, self-adhesive

(i) Bi-directionalnumber (No)

Add following sub pay item:

B57.08 Removal of existing, temporary or permanent road markings by:

(c) Waterjet blasting kilometre (km)

Add the following:

“Referencing of barrier lines and other road marking lines and other operations, shall be included in the tendered rate for setting out and pre-marking.

“Island markings shall specifically exclude the length of line which outlines or borders the extent of the diagonal or chevron bars forming the island marking. Island markings shall also exclude longitudinal lines of a continuous nature.”

SECTION 5800: LANDSCAPING AND PLANTING PLANTS

B5801 SCOPE AND DEFINITION

(a) Scope

Delete this paragraph and replace with

“This section includes all areas affected by construction activities. It includes landscaping, grassing, rehabilitation, erosion protections and planting trees and shrubs”

(b) Definition

WEEDS

Delete the following:

(as listed in bulletin 413 issued by the Department of Agriculture, Directorate of Agricultural Information)”

and replace it with

“(as listed in the Conservation of Agricultural Resources Act)”

B5802 MATERIALS

(g) Topsoil

Add the following at the end of the first paragraph:

“The contractor shall be responsible for the control of any germination of weed seeds within topsoil used on site.”

Add the following at the end of the second paragraph:

“Areas such as stockpiles, borrow pits and spoil sites shall be stripped of all topsoil before work may commence within the area. Should a larger site for any of the above be required during construction, the contractor shall refer to the DEO for best practice methods on ensuring the preservation of the additional stripped topsoil.”

Add the following new paragraph:

“The topsoil shall be kept free of all foreign material generated during construction. This shall include all stone and bituminous products. Topsoiling shall not be accepted should it contain any of the above material.”

B5804 PREPARING AREAS FOR PLANTS

Add the following subclause:

“(g) Removal of undesirable vegetation

During the course of the Contract the Employer’s Agent may instruct the contractor to physically remove undesirable vegetation from within the road reserve. Such an operation will take place before the flowering stage of the undesirable vegetation upon written instruction from the

Employer's Agent, but shall not relieve the contractor of his obligation towards weeding sodded, grassed areas as described under 5806(a) and any area directly affected by any construction activity. Should the contractor fail to respond to the written instruction from the Employer's Agent for the removal of the aforementioned undesirable vegetation before flowering, the contractor shall be held contractually responsible for any growth or seeding of said vegetation for a period of not less than twenty four (24) months in the affected area."

B5805 GRASSING

(a) Hydroseeding

Replace the first sentence of the second paragraph with the following:

"The seed shall be fresh and of good quality. The contractor shall provide samples of the seed for germination tests at an early stage. Hydroseeding shall preferably be carried out in the spring or early summer, and the Employer's Agent's prior approval of the programme shall be obtained. The seed mixture shall consist of the following species in the stated proportions:

For cut and fill slopes:

(i) Eragrotis tef	2,0 kg/ha
(ii) Eragrotis curvula	5,0 kg/ha
(iii) Cenchrus ciliaris	5,0 kg/ha
(iv) Cynodon dactylon (not pelleted)	6,0 kg/ha
(v) Aristida congesta susp congesta	6,0 kg/ha
(vi) Digitaria eriantha	6,0 kg/ha
(vii) Panicum maximum	7,0 kg/ha
Total	37,0 kg/ha

Add the following after the fourth paragraph:

During seeding, the seed mixture shall be regularly mixed by hand in order to prevent the separation of smaller and larger seeds in the mixture. After seeding, the soil surface shall be lightly raked parallel to the contours in order to cover the seed. During raking, care shall be taken to prevent the redistribution or removal of seed from any area."

Add the following:

"The thickness of the topsoil layer shall be as specified by the Employer's Agent. The preparation of the soil for areas to be grassed is to include scarifying just before sowing the grass seed. Should erosion of any kind (by animal, wind or rain) have occurred before the contractor applies the grass seed, the slope shall be re-instated, at the contractor's cost, to its original, erosion free state before seeding.

The types and mixtures of seeds to be used shall be as specified in the project specifications. The contractor shall be solely responsible for establishing an acceptable grass cover, and any approval by the Employer's Agent of seed mixtures intended for use by the contractor shall not relieve him of his responsibility".

B5808 GENERAL

Add the following sub-items:

“(g) Weeding

The contractor shall maintain all areas affected by construction activities free of all undesirable plant species. They shall be removed before the flowering stage of each species. Should the contractor fail to remove the alien plant species before flowering he shall be held responsible for alien plant removal within the affected area, for an additional period of one year, over and above the contractual one year maintenance period.

The method for the removal of undesirable plant species shall be either by hand, which shall include the removal of the complete root system, or by chemical means, through the use of a registered selective herbicide. A registered, licensed pest control operator, licensed for the industrial application of herbicides, shall only administer the application of the herbicide.

(h) Establishment of vegetation within areas disturbed by construction activities

The Employer’s Agent shall assess any area within the construction boundaries that has been disturbed by construction activities, but which is not scheduled for formal revegetation within the contract. The assessment shall include whether re-vegetation is required. These disturbed areas, none the less remain the contractor’s responsibility for the removal of alien vegetation (see B5804(g)) for which no additional payment will be made.

Any area outside the roadwork area, namely on existing cut and fill slopes as well as between toe lines and the reserve boundaries, that has been disturbed by spoiled material or any other activities whatsoever by the contractor shall be reinstated to its original condition. The Employer’s Agent will prescribe the necessary reinstatement that may include removal of the spoiled material, ripping, placing of new topsoil and grassing. No payment will be made for the reinstatement and repairs of these areas."

B5809 MEASUREMENT AND PAYMENT

Add the following before the first paragraph:

“Any reference in this section to free-haul of up to 0.5km or 1km should be read as free-haul up to 4km.”

Item

Unit

B58.03 Preparing the areas for grassing

Delete the following sub-item:

"(f) Stockpiling topsoil

cubic metres (m³)

Add the following:

Stockpiling of topsoil is included in item B17.01.

Amend the following item as follows:

Item	Unit
B58.09 Trees and shrubs:	

"(a) Providing trees and shrubs Prime Cost (PC) Sum

The prime cost sum shall be paid in accordance with the provisions of the General Conditions of Contract."

Add the following subitem:

"(b) Contractor's handling cost, profit and all other charges in respect

of subitem B58.09(a) abovepercentage (%)

The percentage tendered is a percentage of the amount actually spent under the prime-cost sum item, which shall include full compensation for the handling, profit and all other charges in connection with providing the trees and shrubs."

Add the following pay item:

Item	Unit
B58.12 Removal of undesirable vegetation	kilometre (km)

The unit of measurement shall be the linear kilometre measured along the road centerline and within the road reserve, and measured each time the contractor has been instructed by the Employer's Agent to remove the undesirable vegetation under this pay item. This item shall not include areas of undesirable vegetation that have occurred within areas affected by construction activities, which are considered a contractual obligation (B5808(g)).

The tendered rate shall include full compensation for all plant, equipment, labour and consumables required to effectively remove the undesirable vegetation, including the entire root system, and disposing by approved means."

SECTION 5900: FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS

B5901 SCOPE

In the first line of the second paragraph, insert the following after 'this section'

"...distinguishes between new construction and renewal construction. When construction is new, as in the case of new alignments for example, then this section....."

B5902 FINISHING THE ROAD AND ROAD RESERVE

Retain the existing paragraphs as new subclause:

“(a) New Construction”

Replace the sixth paragraph with:

“All materials resulting from the finishing operations shall be disposed of at approved spoil sites.”

Add the following:

“(b) Renewal Construction

After completing construction work within the site, the contractor shall ensure that all construction generated or related material that may have been swept, windrowed, stockpiled, stored or spread beyond the road surface is removed. This shall be done before any other rehabilitation work is undertaken, including shaping, top soiling and grassing. Should, during the removal of construction generated or related material, existing vegetation or topsoil be disturbed or destroyed, the contractor shall, at his own cost, re-instate the road reserve to its original state. This shall include ripping, should the construction material have compacted the existing surface.

Culvert inlets and outlets, culvert barrels, and open drains shall be cleared of debris, soil, silt and other material generated from the construction activities.

The surfacing shall be cleared of all dirt, mud and foreign objects. Dragging, pushing or scraping material across the finished surfacing shall not be permitted.

All junctions, intersections, islands, kerbing and other elements making up the completed works shall be neatly finished off.

The contractor shall ensure that all undesirable plants have been removed from the road reserve and borrow pit areas.

All materials resulting from the finishing operations shall be disposed of at approved spoil sites.”

SERIES 6000:STRUCTURES

SECTION B6100: FOUNDATIONS FOR STRUCTURES

B6103 GENERAL

(a) Subsurface Data

Add the following:

“It is expressly understood that, while all subsurface information is given in good faith, the correctness of the information furnished is not guaranteed. Where the actual foundation conditions encountered are considerably at variance with conditions visualised and described in the Contract documents and those terms for which the rate or price provided for in the Contract is rendered unreasonable or inapplicable, such other rate or price consistent with the rates set out in the Contract shall be fixed as set out in Clause 13 – Variations and Adjustments of the General Conditions of Contract subject always to a founding depth variation not exceeding 2.5m in any foundation component of the permanent structure not, by itself, being held to constitute cause for variation for the Contract rates or prices.”

B6104 ACCESS AND DRAINAGE

(c) Drainage

Add the following:

“Where dewatering and keeping dry of excavations has not been billed separately as per item 61.03 “Access and Drainage”, it shall be deemed to be included in the rates tendered and paid for excavation and backfill.”

B6105 EXCAVATION

(a) General

Add the following:

“Excavation required for diverting, channelling or widening streams within 5.0m of concrete structures shall be measured and paid for under item 61.02. Excavations beyond the 5.0m limit shall be measured and paid for under the appropriate items in Sections 2100 and 3300.”

(c) Excavation

Add the following paragraphs:

“Where excavation is in soft material, the final 0.75m and in the case of hard material, the final 0.25m of material shall be removed using suitable hand tools such as pick and shovel or pneumatic tools.

During construction of the river bridges the Contractor will only be permitted to construct, subject to the approval of the Directorate of Water Affairs, low level causeways access the rivers that cause negligible backing up and cofferdams around the piers and abutments for the construction of the foundations using material excavated in the road prism consisting of natural alluvial deposits of sand boulders, etc. These obstructions must be removed at the end of the contract and the river and banks restored to their original condition.

(g) The safety of excavations

Add the following paragraph:

“The design for shoring, signing of the drawings and inspection prior to construction of the permanent works of excavations to ensure it is safe shall be undertaken by the contractor’s competent person, who shall be a professional engineer with the relevant experience. The contractor shall ensure that all temporary works undertaken shall comply with the relevant sections of the Occupational Health and Safety Act and the Construction Regulations”.

B6106 FOUNDING

Add the following clause at the end of the last paragraph:

“Where foundation slabs or pile caps are cast directly against the face of the excavations, the volume of concrete measured for payment shall be the total volume of concrete placed or the volume based on the plan dimensions detailed on the drawings plus a 100mm allowance for overbreak on each applicable side whichever is the lesser. No formwork to the footing shall be measured when the concrete is cast against the face of the excavations”.

B6109 FOUNDATION FILL

In the 5th paragraph, 7th line delete “60” substitute “45”.

Add the following after the 6th paragraph:

“Concrete blinding shall extend 100mm all round beyond the horizontal dimensions of all formed footings to facilitate placing of the formwork, unless otherwise directed by the engineer.

In the case of structures where excessive ground water is encountered, the blinding layer may extend over the full plan area of the base of the excavation and beyond the edge of the foundation where required. Payment shall be made for the quantity of concrete calculated as the product of the specified thickness of blinding layer and the actual area of blinding placed subject to a maximum distance of 500mm beyond the edge of the foundation.”

B6113 FOUNDATION PILING

x) Nuclear integrity testing

Delete this subclause and replace it with the following:

“(x) Pile integrity testing (PIT)

(i) Calibration piles

Before piling on any site is commenced with, the contractor shall (per pile construction site) construct a 5.0m long calibration pile of the same pile type, same method of construction as the piles in the bridge or structure or wall, same diameter, and same concrete mix and reinforcing. The location of this calibration pile (at any particular site) will be selected in agreement with the engineer.

(ii) Provisions with regard to pile cap construction

Results from integrity tests on the piles for each pile cap must be evaluated and submitted to the engineer for approval, before any work on the pile cap itself may commence. Tests on the calibration pile must be done at the same time or before tests on the first working pile are undertaken.

(iii) Pile integrity test method

The purpose of integrity testing is to prove that the construction techniques employed to create a bored or augured pile is satisfactory in terms of quality assurance with respect to aspects such as necking of concrete in the pile shafts, checking concrete cover to reinforcement, checking for honeycombing or grout loss, segregation of aggregate inclusion and for large cracks or voids.

(1) Cross-Hole Sonic Logging (CSL) and optional Base Integrity Test

(aa) Overview

This method is used to verify the integrity of the pile shaft particularly in the case of larger diameter piles.

By sending ultrasonic pulses through concrete from one probe to another (probes located in parallel tubes), the CSL procedure inspects the drilled shaft structural integrity and extent and location of defects, if any. At the receiver probe, pulse arrival-time and signal strength are both affected by the concrete. For equidistant tubes, uniform concrete yields consistent arrival times with reasonable pulse wave speed and signal strengths. Non-uniformities such as contamination, soft concrete, honeycombing, voids, or inclusion exhibit delayed arrival times with reduced signal strength.

(bb) Personnel Requirements

The CSL consultant shall have a registered professional engineer supervising the testing and interpretation of results. The CSL consultant shall be an independent testing agency with at least 3 years experience in CSL testing. The consultant's qualifications and the specifications for the equipment used shall be submitted to the engineer for approval prior to beginning bored or augured pile shaft installation.

(cc) Equipment requirements

A Cross Hole Analyser (CHA) that meets the following minimum requirements:

- (1) Computer based CSL data acquisition system for display of signals during data acquisition, with a minimum 12 bit A/D converter with a sampling frequency of at least 500 000Hz, and recording of all pulse signals for full analysis and individual inspection.
- (2) Ultrasonic transmitter and receiver probes capable of producing records at a minimum frequency of 50 000Hz with good signal amplitude and energy through good quality concrete. The probes shall be less than 28mm in diameter and shall freely descend through the full depth of properly installed access tubes in the drilled shafts.
- (3) Two depth sensors to independently determine transmitter and receiver probe depths.
- (4) Triggering of the recording system time base with transmitted ultrasonic pulse.

(dd) Access tube preparation

The access tubes in each drilled shaft are indicated on the drawings. Every drilled shaft shall be equipped with access tubes to permit inspection by CSL. All permanent drilled shafts are to be tested by CSL. 50mm (minimum) nominal diameter 3mm wall thickness mild steel tubes are specified for access for the probes in each drilled shaft. Typically 3 to 4 tubes are used, although up to 6 may be used in larger piles. Round tubes with regular internal diameter free of defects and obstructions, including any tubes joints, to permit the

free, unobstructed passage of the probes shall be used. Tubes shall be watertight and free from corrosion with clean internal and external faces to ensure a good bond between the concrete and tubes. Tubes may be extended with mechanical couplings. Duct tape or other wrapping materials to seal the joints and butt welding of joints are prohibited. Tubes shall be installed by the contractor such that the CSL probes will pass through the entire length of the tube without binding. Ensure that the access tubes are plumb and verify that unobstructed passage of the probes is achievable before the CSL consultant arrives.

Fit the tubes with watertight shoe in the bottom and a removable cap on the top. Secure the tubes at regular intervals not to exceed 1,0m to the interior of the reinforcement cage. Install the tubes uniformly and equidistantly around the circumference such that each tube is spaced parallel for the full length and at the maximum distance possible from each adjacent tube. Tubes should be spaced as far as possible from the main axial reinforcing steel. Extend the tubes to within 300mm of the bottom of the pile, and at least 1,0m above the drilled shaft tops, and at least 0,6m, but no more than 1,5m above the ground surface. Do not damage the tubes during installation of the reinforcement cage.

Note: Do not allow the tube to rest on the bottom of the drilled shaft excavation.

After placement of the reinforcement cage, fill the access tubes with clean fresh water as soon as possible but within at the latest one hour of concrete placement. Cap the tube tops to prevent debris from entering the access tubes. Do not apply excessive torque, hammering or other stresses that could break the bond between the tube and concrete when removing caps from the tubes.

Note: The tubes should preferably be filled with water prior to concrete placement, but MUST be filled with water within 4 hours after placing concrete to prevent debonding of the access tubes due to thermal differentials.

(ee) Test sequence

Test the drilled shaft no sooner than 3 calendar days after placement of all concrete in any drilled shaft, but within 10 days after placement and prior to loading for test drilled shafts, or within 45 days after placement on production drilled shafts.

After all CSL testing has been completed, and after acceptance of the drilled shaft by the engineer, the contractor shall remove the water in the tubes, place grout tubes extending to the bottom of the access tube, and fill all access tubes in the drilled shafts with grout.

(ff) Test procedures

Prior to CSL testing, the contractor shall provide the engineer and CSL consultant with a record of all drilled shaft lengths with elevations of the top and bottom, and installation dates of all drilled shafts. The access tubes shall be clearly labelled for identification by the CSL consultant.

The CSL testing shall be performed with the transmitter and receiver probes in the same horizontal plane in parallel tubes unless test results indicate potential defects, in which case the questionable zone may be further evaluated with angled tests (source and receiver vertically offset in the tubes). Using the labelling established for the tubes, perform CSL testing between all adjacent perimeter access tube pairs and across at least two major diagonals within the drilled shafts with more than four tubes, additional logs in other diagonal tube pairs may be required to estimate the extent of the defect.

Lower the probes from the top, effectively measuring the access tube lengths. Pull the probes simultaneously, taking CSL measurements at intervals of 50mm or less from the bottom to the top of the drilled shaft. Defects indicated by late pulse arrival times and significantly lower amplitude/energy signals shall be immediately reported to the engineer. Additional tests such as the offset elevation CSL testing may be required by the engineer to further evaluate the extent of such defects. If debonding between the access tube and the concrete is indicated by the CSL results, an alternative test method will be required to determine the integrity of the concrete in the debonded region.

(gg) Results

Present the results of the CSL in a written report within five (5) working days of completion of testing. The report shall include presentation of CSL logs for all tested tube pairs including:

- (1) Presentation of the traditional signal peak diagram as a function of time plotted versus depth.
- (2) Computed initial pulse arrival time or pulse wave speed versus depth.
- (3) Computed relative pulse energy or amplitude versus depth.

A CSL log shall be presented for each tube pair. Defect zones, if any, shall be indicated on the logs and their extent and location discussed in the report text. Defect zones are normally (see Note below also) defined by an increase in arrival time of more than 20% relative to the arrival time in a nearby zone of good concrete, indicating a slower pulse velocity.

The log for each tube pair shall be clearly identified and oriented relative to the structure. The engineer shall have five (5) working days to evaluate the results and determine whether the drilled shaft construction is acceptable or not. The contractor shall not perform any load testing or other construction associated with these drilled shafts until after acceptance by the engineer. If the drilled shaft is accepted by the engineer, the contractor may then proceed with construction. If the engineer determines the drilled shaft is not acceptable, the drilled shaft must be cored, repaired or replaced by the contractor at the contractor's expense and with no increase in contract time.

(hh) Base integrity test

In order to establish the quality of the pile/base rock contact, a base integrity tests shall be performed. This shall be accomplished in the following manner:

- (1) The 85mm diameter tube for the "Cross Hole Sonic Logging" shall be installed to within 300mm of the base pile of the pile. The base of the tubes shall be sealed square with a water tight seal.
- (2) NX (55mm) diameter cores shall be drilled within 85mm diameter tubes, through the remaining

300mm of pile concrete and for a distance of 1200mm into the rock at the toe of the pile. The core shall be carefully retrieved with drill string lengths and datums noted. This core shall be marked and carefully placed inside a plastic sheath such that the actual condition of the interface between pile and rock is not disturbed. The core shall be temporarily stored in a core box for later inspection.

At the completion of the test, and when instructed by the engineer, the complete assembly to the top of the pile shall be filled with non-shrink grout of at least 30MPa strength. The hole shall be filled from the bottom up.

The basis of payment shall be in accordance with payitems 61.37, 61.38 and 61.39.

B6115 MEASUREMENT AND PAYMENT

Replace payment item 61.27 with the following

B61.27 Socketing piles into rock formation with minimum socket diameter of 900 mm:

- (a) Socketing piles into rock formation class R2 to R4; with min socket diameter of 900 mm..... (metre)
- (b) Extra over Item B61.27(a) for sockets in rock of class R5 for any length of socket..... (metre)
- (c) Extra over Item B61.27(a) for sockets in rock exceeding class R5 for any length of socket..... (metre)

The unit of measurement for sub-item a) shall be the linear meter of socket formed in rock of hardness of up to and including class R4. The rate tendered shall include full compensation for all work to be done for socketing into rock formation. The rate shall also include for the provision torque, crowd force and time against depth readings from the piling rig during the formation of the socket.

Supplementary payment shall be made under sub-item B61.27(b) and (c), for any length of socket in class R5 (up to 200 MPa) and exceeding class R5. The length and class of rock for this payment item shall be determined based on the torque, crowd force and time against depth readings from the piling rig and correlated against UCS tests undertaken in recovered core from the site. The readings shall be provided to the engineer during piling, after each pile.

No payment will be made under this item, irrespective of hardness, if the readings have not been provided.

Item

Unit

B61.50 Pile Integrity Testing on bored/augured piles

(a) Constructing 5.0m long reinforced concrete/ grout calibration bored piles of 900mm inclusive of the required number of 85mm diameter mild steel tubes number (No)

(b) Providing and installing 85mm dia. Mild steel tubes for CSL in all piles as shown on drawings meter (m)

(c) Cross-Hole Sonic Logging tests and interpreted results (per pile diameter and per pile construction site) metre of pile (m)

SECTION B6200: FALSEWORK, FORMWORK AND CONCRETE FINISH

B6204 DESIGN

(a) General

Add the following:

“The Contractor shall submit to the Engineer at least 4 weeks before the structure is scheduled for construction a detailed analysis showing the effect of the stresses that will be induced by the Contractor’s chosen method of construction. The cost of any additional prestressing, reinforcing steel, concrete, etc, required as a result of the Contractor’s chosen method of construction shall be to the Contractor’s account. No construction shall commence until the Engineer has given his written approval.”

(b) Falsework

“Unless instructed otherwise by the Engineer, the Contractor shall submit his design criteria and detailed drawings of the staging to the formwork. The design, signing of the drawings and inspection of the falsework prior to construction of the permanent works shall be undertaken by the contractor’s competent person, who shall be a professional engineer with the relevant experience.”

B6205 CONSTRUCTION

(d) Class F3 surface finish

Replace the second paragraph with the following:

“The use of steel forms shall be permitted to form surfaces for which Class F3 surface finish has been specified, provided that only undamaged forms shall be used for such work and that the forms shall be subject to the approval of the engineer.”

SECTION B6300: STEEL REINFORCEMENT FOR STRUCTURES

B6306 PLACING AND FIXING

Replace the second and third paragraphs with the following:

“The concrete cover for all structural concrete shall be within the acceptance ranges shown in Table B6404/6. Prior to fixing the steel, samples of the proposed cover and spacer blocks shall be submitted to the engineer along with a written statement for in-situ manufacture, if applicable, for approval.

Overlap of steel reinforcement bars shall be such that the cover to the lapped bars remains constant at the specified cover.”

B6307 COVER AND SUPPORT

Amend the second paragraph as follows:

Replace the second sentence, commencing with

“Where no cover is indicated...shown in Table 6306/1” with the sentence “Where no cover is indicated, the contractor shall inform the engineer who shall after consultation with the design engineer indicate the required cover in writing and the as-built drawings shall indicate such cover”.

Add the following to the end of the fifth paragraph:

“Concrete cover and spacer blocks shall be made using the same cement and aggregate type as the main concrete with the same water/cement ratio so that differences in shrinkage, thermal movements and strain are minimised. Cover blocks shall be water cured by submersion for a minimum of 7 days and thereafter kept submerged in water until immediately before fixing onto reinforcing steel. Where concrete cover blocks, subsequent to fixing, have visually dried out they shall be remoistened by an appropriate method so that they are damp before the placing of concrete. Only semi-spherical concrete cover blocks shall be used. Where fixing wire is inserted into cover blocks, it shall be galvanised. Cover and spacer blocks manufactured from other materials e.g. plastic or wood, shall not be permitted. All cover blocks regardless of the type of material manufactured from, shall not be visible on exposed concrete surfaces.”

Delete Table 6306/1 in its entirety.

Add the following paragraph:

“Where the concrete cover specified has not been achieved after cover tests have been carried out in accordance with clause B8106(g)(iv), reduced payment as determined under clause B8212 shall be applied to all the relevant pay items under section 6300.”

SECTION B6400: CONCRETE FOR STRUCTURES

B6402 MATERIALS

(a) Cement

Replace the colon at the end of the first paragraph with a comma, and add the following:

“taking into account the adoption of the new SANS 50197-1:2000 code for cements: (refer to C&CI website www.cnci.org.za)”

Add the following paragraphs:

“The type of cement to be used in any concrete element shall take into account the environmental conditions and durability requirements at the location of the site of the works, and shall be as approved by the engineer.

With the exception of the standard SANS approved cement blends supplied by the primary cement producers, the blending of CEM1 and extenders shall not be permitted unless specifically approved by the engineer on the basis of an acceptable quality assurance procedure.

(b) Aggregates

Delete the remainder of the sentence after “exceed” in sub-clause (i)(1) and replace with the following:

“150% of that of the reference norite aggregate or any of the other three reference aggregates”

Delete the remainder of the sentence after “exceed” in sub-clause (i)(2) and replace with the following:

“200% and of the coarse aggregate 175% of that of the reference norite aggregate or any of the other three reference aggregates”

Delete the remainder of the sentence after “exceed” in the first paragraph of sub-clause (i)(3) and replace with the following:

“235% of that of the reference norite aggregate or any of the other three reference aggregates”

Delete the entire last paragraph of sub-sub-sub-clause (i)(3) commencing with “The drying shrinkage of concrete...”

Add the following sub-sub-clause:

“(vi) The maximum chloride ion content of fine aggregate shall be 0,03% by mass of aggregate as specified by SANS 1083:2002. Where concrete is

situated in a chloride environment the value shall be reduced from 0,03% to 0,01%.”

(d) Water

Add the following:

“Water for concrete other than prestressed concrete, shall not contain chlorides, calculated as sodium chloride, in excess of three thousand parts per million (3000ppm) nor sulphates, calculated as sodium sulphate, in excess of two thousand parts per million (2000ppm).

Water for curing concrete shall not contain impurities in sufficient amount to cause discolouration of the concrete or produce etching of the surface.

No sea-water or water containing salts shall be used.

No water shall be added on site to ready mix concrete prior to placing to improve workability. All concrete delivered to site shall be checked for workability using the slump cone test and slump measured outside of the limit set from the design mix shall be rejected.”

(e) Admixtures

Add the following sub-sub-clauses:

“(v) Admixtures, which have a retarding effect on the rate of hydration of the cement, may not be used when the concrete temperature is below 20°C.

(vi) A retarding admixture shall be used if the temperatures of concrete mixes using cements of strength class 42.5 or higher is between 20 to 30°C or where the ambient temperature is between 20 to 30°C.”

Add the following:

“Note: Only admixtures of the type that do not increase the water content of the mix will be considered by the Engineer. In addition, no admixtures shall be added on site to ready mix concrete prior to placing to improve workability.”

B6404 CONCRETE QUALITY

(a) General

Insert the following paragraph after the second paragraph:

“When structural concrete prefixed ‘W’ is shown on the drawings, it shall, in addition to the strength requirement, comply with the durability requirements specified in sub-clause 6404(h), ‘W’ class concrete shall not apply to minor structural elements such as side drains and catchpits except in very severe environmental conditions of exposure. Requirements for concrete quality

(including any durability requirements) for concrete pavements are found in Section 7100 of the specifications.”

(b) Strength concrete

Replace the sixth paragraph with the following:

“Where concrete is designated by the prefix “W”, e.g. class W30/19, such designations shall denote concrete achieving the durability criteria specified in the relevant tables under sub-clause B6404(h).”

Add the following sub-clauses:

“(h) Concrete durability

(i) General

Concrete designated by the prefix ‘W’ shall, in addition to the requirements of sub-clause 6404(b) comply with the durability parameters described below. Durability is influenced by the materials used in the concrete, their mix proportions, transporting, placing, compacting and, in particular, curing of the finished cover concrete (concrete layer between the outermost layer of steel reinforcement and the exposed outer surface of the concrete element). The tests required to prove durability performance of the placed concrete are given under sub-clause B8106(h). The numbers of tests shown under pay item 81.02 are the minimum requirements that the engineer considers necessary to achieve the desired quality of concrete.

It is the engineer’s responsibility to approve the component materials and their mix properties, however it is the contractor’s responsibility to utilise acceptable component material and to achieve mix properties complying to the specifications. It is the contractor’s responsibility to design and blend materials to produce concrete of the specified quality

(ii) Durability parameters

Water sorptivity: Sorptivity is sensitive to surface effects and may be used to assess the effectiveness of initial curing.

Oxygen permeability: Permeability is sensitive to changes in the coarse pore fraction and thus a means of assessing compaction of concrete. It is used to quantify the microstructure of the concrete and sensitive to macro-defects such as voids and cracking.

Chloride conductivity: Chloride conductivity provides a method of characterisation of concretes in the marine

environment and is used to assess the chloride resistance of concrete.

Cover concrete: Cover concrete is the outer concrete layer that protects reinforcing steel. Concrete cover is a requirement for all concrete whether specified as durability concrete (Class "W") or normal reinforced concrete.

Individual Cover Depth Measurement (CDM): Individual cover depth measurement determined by an electromagnetic cover meter, complying with BS 1881, Part 204.

Average Cover: The average of at least 30 individual CDM's per m² determined on a clearly identified area.

Overall Cover: The mean average cover determined for the scanned area per structure.

Scan Area: Areas of approximately 1m², randomly distributed over the entire structure, representing at least 5% of total surface area for that structure.

Individual bar reading: A minimum of 3 linear CDM's, spaced at 100mm intervals, representing a single bar of reinforcement.

Capped CDM: The value applied to all CDM's in excess of the maximum allowed CDM, determined by the engineer (e.g. 40mm (specified cover) + 15mm (upper limit) = 55mm) or

Capped Value: A value in mm, assigned to a cover reading where the raw reading exceeds the specified cover, plus a value (mm) specified by the engineer.

Quick/Linear Scan: For evaluation of cover depth measurements taken perpendicular to closest rebar in a line covering required area to be scanned.

Image/Block/Grid Scan: Provides an overview of rebar layout. Measurements taken over a square meter clearly indicating position of first and second layer of rebar.

Notes:

1. Water sorptivity and Oxygen Permeability tests are required to assess carbonation resistance

2. Water sorptivity, permeability and chloride conductivity tests are required to assess chloride resistance

Concrete cover: Concrete cover is a dimensional indicator of cover concrete depth and it varies according to the requirements of the different environmental exposure classes.

When tested in accordance with the test protocols described in B8106 for each potential durability parameter, the concrete shall meet the limits listed in tables B6404/4 and B6404/6.

(iii) Cement content

In order to meet the durability criteria, the proportions of cementitious binder used shall be determined to suit the fine and coarse aggregate and cement type used in order to achieve the durability limits specified in tables B6404/4 and B6404/6 under the Acceptance Category of “Concrete made, cured and tested in the laboratory.”

In order to avoid the possibility of Alkali Silica Reaction (ASR), the following shall be taken into account when designing the mixes:

1. Where the cementitious contents is less than 350kg/m^3 the maximum equivalent sodium monoxide content (calculated as Na_2O) permitted shall be 0.60%, unless a test certificate from the CSIR (Built Environment) is provided stating that the long term testing has proved the aggregate to be non-reactive.
2. Where the cement content exceeds 350kg/m^3 , the maximum equivalent sodium monoxide content permitted shall be 2.1kg/m^3 of concrete.
3. Where potentially reactive aggregate is used, the maximum cement content shall be 400kg/m^3 and the equivalent sodium oxide (Na_2O) content permitted shall be 2.4kg/m^3 of concrete.
4. The contractor shall prior to the use of cement provide test certificates from an approved laboratory confirming the equivalent sodium oxide (Na_2O) content of the batch of cement to be used.
5. Special literature should be consulted e.g. Fulton’s Concrete Technology.

(i) Environmental Classes of Exposure

For this project, the environmental classes for carbonation and chloride exposure for the different structural elements are as shown below in Table B6404/3.

TABLE B6404/3: ENVIRONMENTAL CLASSES OF EXPOSURE FOR ELEMENTS OF STRUCTURE

Element	Carbonation Environment (OPI)
Foundations	n/a
Substructures	XC3
Superstructures	XC3

(v) Acceptance ranges

TABLE B6404/4: DURABILITY PARAMETERS ACCEPTANCE RANGES

Acceptance Category	Test No./ Description/ Unit				
	B8106(g)(i) Water Sorptivity (mm/h)	B8106(g)(ii) Oxygen Permeability (log scale)			
		Parapets	Sub-structures	Super-structure	Etc for other members
Concrete made, cured and tested in the laboratory using Trial Panels	<10.0	>9.1	>9.1	>9.1	>9.1
Full acceptance of in-situ using Test Panels	<10.0	>9.1	>9.1	>9.1	>9.1
Conditional acceptance of in-situ concrete based on results of Test Panels	Not applicable ²	9.0 – 9.1	9.0 – 9.1	9.0 – 9.1	9.0 – 9.1
Rejection based on results of Test Panels	Not applicable ²	<9.0	<9.0	<9.0	<9.0

Note:

1. A value has been given, but the value to be adopted shall be based on the results from design mixes.
2. Although no value has been given due to ongoing research, values above 12 are regarded as poor quality concrete.

3. For purposes of interpretation, substructure is deemed to be all supporting elements below the deck (superstructure), including buried lengths of columns, etc, but excluding foundation elements like bases and spread footings.

TABLE B6404/6 : DURABILITY PARAMETERS ACCEPTANCE RANGES : COVER FOR ALL CONCRETE TYPES

Test No.	Description of Test	Specified Cover (mm)	Acceptance Range	
			Min	Max
			Overall cover	Overall cover
B8106(g) (iv)	Concrete cover to reinforcement (mm)	30 to 80	85% of specified cover – 5mm	Specified cover + 15mm or where member depth is less than 300mm the limit accepted in writing by Design Engineer.

(v) Site Testing

To ensure that the concrete has been placed, compacted and cured correctly, a number of tests shall be carried out on the concrete by an approved laboratory.

(vi) Non-compliance with specified criteria

The Contractor should also note that there is specific provision made for curing of concrete under payment item B64.07 of the project specification. The amount priced under this item will be subject to reduced payments should the durability tests indicated under B8106(h) fail to meet the required targets. Similarly, failure to achieve the required durability test results will be sufficient cause to apply partial payment factors for all the payitems of the elements of the structure under sections 6300 and 6400 of the standard and project specifications or in some cases the removal of the rejected concrete.

Add the following sub-clauses:

“(i) Mix design approval procedures

(i) General

The compressive strength achieved on ‘W’ class concrete shall generally exceed the characteristic strength class structurally required. The contractor shall note that the process of finalising ‘W’ class mix designs could take up to two months. In order to expedite the process, the contractor must submit samples of aggregate and cement to an approved laboratory within seven days of the Commencement Date. Should ‘W’ class concrete be required before the mix design is finalised, the engineer will approve a preliminary mix design in consultation with the contractor.

(ii) Laboratory designs and site tests based on Trial Panels

Good mix design practice is essential and the following criteria shall be taken into consideration when pricing and determination of the mix design:

1. Selection of sands and aggregates to achieve a good grading is important if the desirable concrete density and durability have to be achieved.
2. The selection and use of the correct cement grade and type for the environmental conditions (and not based solely on costs) is fundamental
3. Water: cement ratios are critical, dictating both the structural strength and the durability requirements

Mix proportions for the concrete to be used on site need to be determined by an approved laboratory, Cylindrical specimens, 70 ± 2 mm in diameter shall be made or cored from a trial panel during the laboratory trial mix for performance of tests B8106(g)(i), (ii) (if required).

Note that concrete cubes are not cored for durability testing during design trial mix stage or during the construction stage.

Testing for design purposes shall be carried out by an accredited laboratory approved by the engineer, the costs of which are deemed to be included in the contractor's rates for structural concrete. Concrete as designed shall satisfy the limits set out in Table B6404/4 under the heading "Concrete made, cured and tested in the laboratory, using Trial Panels". It is therefore a requirement that the trial panels be cast on the site and the cores extracted and tested in the laboratory as part of the mix design approval process. Where the site is remote from the laboratory, the Trial Panels may be cast at the laboratory in accordance with the requirements of sub-clause B8106(g).

It will be necessary for the contractor to establish a target mean strength with a margin above the minimum requirement so that small fluctuations due to material changes or workmanship can be accommodated. In general, mean target strength = characteristic strength + $1,645 \times S_n$.

Once the mix is approved, the target mean compressive strength for quality control purposes for durability class concrete shall be the mean compressive strength obtained from the mix that satisfies the durability requirements."

B6407 PLACING AND COMPACTION

Add the following:

(b) Placing

“Casting of the in-situ parapets or placing of precast parapets shall only commence after removal of the deck staging, and in addition, in the case of prestressed decks, the stressing must be complete. Where specified on the drawings the top of the parapets after placing shall follow the pre-camber levels specified on the drawings to allow for future creep effects. This is of particular importance on the edges of very long skew decks and prestressed simply supported decks. The levels of the top rail of each panel of the balustrades/parapets shall be confirmed in writing by the design engineer”

B6408 CONSTRUCTION JOINTS

(a) General

Add the following:

“No construction joints other than those indicated on the drawings will be permitted without the written approval of the engineer. In all cases the proposed method of forming the joint shall be discussed and agreed with the engineer.”

B6409 CURING AND PROTECTION

Add the following to the end of sub-clause 6409(f):

“Where a curing compound is used, it shall consist of an approved water based low viscosity clear wax emulsion applied in accordance with the manufacturer’s instructions.”

Add the following paragraphs to the end of this sub-clause:

“Where curing by retention of formwork is used as the only method of curing the concrete, it must be left in place for the minimum period specified in Table 6206/1 but in no instance shall it be less than 7 days.

The materials used for formwork shall take into account properties such as thermal insulation and moisture absorption when assessing the suitability of the material, to the approval of the engineer.

If impermeable curing membranes are to be used as a curing method, they shall be installed at the same time as formwork is removed and no portion of a concrete surface may be left unprotected for a period in excess of 2 hours. If the surface is an unformed finish e.g. top of deck slab, then the surface must be protected immediately by appropriate methods approved by the engineer after it is finished, without damage to that surface, since it is vulnerable to plastic shrinkage cracking due to high rates of evaporation while the concrete is still in a plastic state. Plastic shrinkage and settlement shall not be permitted on any of the structural elements since it compromises the durability of the concrete. In order to prevent early settlement and shrinkage of the concrete, the concrete placed shall be re-vibrated after initial compaction while the concrete is still in a plastic state. Any remedial measures shall be as approved in writing by the engineer. On bridge decks, the top surface shall be

cured using the method described in clause 6409(d) i.e. "Constantly spraying the entire area of exposed surfaces with water".

For all concrete curing shall be excluded from the make-up of rates for measurement under items B64.01 and B64.02 and will be paid for separately under item B64.07. Where the application of a curing compound is used, the type and nominal application rate thereof shall be as specified in the schedule of quantities or to the manufacturer's nominal specified rates."

B6410 ADVERSE WEATHER

Add the following sub-clause:

"(d) Temperature and hydration of concrete

Site batched concrete: The temperature of concrete delivered to site shall be within the range 10°C to 30°C. Concrete which has a temperature outside of this range shall not be placed in the structure.

Ready mix concrete: In the case of ready mix concrete the temperature limits at point of delivery shall be as specified in SANS 878 2004 unless the engineer has specified other limits due to specific design requirements. If slump loss occurs at concrete temperatures of over 30°C and more than two hours after mixing, the concrete shall be rejected. Also if after addition of allowed water the concrete begins to stiffen again such as to place in doubt that full compaction and finishing can be achieved, the concrete shall be rejected.

Care must also be taken not to cast concrete onto hot steel shutters as this might induce cracking.

The rate of hydration of the cement in the concrete shall be such that the concrete can be placed and properly compacted within 2 hours after the addition of water to the mix ingredients. The initial set of the concrete shall not be unduly delayed due to inappropriateness of admixtures or cement type, which could promote bleeding."

B6413 PRECAST CONCRETE

Add the following final paragraph:

"Precast concrete units shall comply with the requirements of the latest SANS 986:2006 specification.

Prior to the manufacture of any units the manufacturer shall submit his Quality Plan to be approved by the engineer. The quality plan must incorporate all requirements and frequency for durability index testing i.e. Sorptivity, Oxygen Permeability, Chloride Conductivity (if required) and Cover Testing. As part of the Quality Plan submitted for approval, copies of calibration certificates of both gauges used for proof loads and cover meters used at the factory shall be supplied to the engineer. The originals of these certificates shall at all stages also be available for inspection at the

factory premises. The manufacturer shall check each precast unit for cover compliance, and random checking of units shall not be permitted. The engineer's representative may visit the factory at any stage to ascertain adherence to the quality plan including test results from the durability index testing as well as to check covers before delivery to site. Any substandard cover shall result in the applicable structural element or part thereof being rejected. Should the manufacturer not be adhering to their Quality Plan the engineer may exercise the right to reject the use of products from the manufacturer concerned. The Employer shall also be informed in all such cases.

For durability requirements due to the reduced cover provided for precast culverts, all such durability testing shall be done in accordance with clause B6404(h). "

B6414 QUALITY OF MATERIALS AND WORKMANSHIP

(a) Criteria for compliance with the requirements

Add the following paragraphs after the first paragraph:

"The cores shall be taken from the Trial Panels cast using the design mixes made in the laboratory. Where the site is remote from the laboratory, the Trial Panels may be cast at the laboratory in accordance with the requirements of sub-clause B8106(g).

In the event that for 'W' classed concrete the actual achieved average cube strengths of an element are less than 85% of the target mean strength needed to meet durability requirements or less than 100% of the target mean strength to meet strength requirements, it may result in the durability parameters not meeting the prescribed targets and the engineer will instruct the taking of cores from the test panel and structure for additional testing. The cost of these in-situ tests shall be borne by the contractor cost unless the results are acceptable.

The approved quality control criteria for durability concrete shall be coring and testing of test panels. The frequency of manufacture and coring of test panels shall be as ordered by the engineer and indicated in Tables B8106/1 and B8106/2.

Tests B8106(g)(i), (ii) and (iii) (when required), shall be conducted on cores extracted from the test panels when the concrete reaches the age of at least 28 days. To allow for variability in the material potential, the type of chloride conductivity values shall be limited to 90% of the values indicated in table B6404/5. Test no. B8106(g)(iv) shall be conducted to confirm that the specified depth of concrete cover has been achieved. The frequency of these tests shall be as described under item B8106(g). The test results shall be accepted or rejected on the criteria set out in Table B6404/4 and B6404/5 based on the following categories:

- (i) Full acceptance

Concrete shall be accepted unconditionally and full payment shall be made.

(ii) Conditional acceptance

Concrete may be accepted, based on the cube strength and durability index results with a warning that construction methods be examined to improve the durability criteria. A reduced payment shall be applied to all the relevant pay items of the specific element under B6300 where the cover requirements are not achieved and B6400 where the oxygen permeability and strength requirements are not achieved for the non-conforming element or concrete pour as set out in Tables B8212/1 and B8212/2. The decision to accept the substandard concrete at reduced payment shall rest solely with the Employer.

Should the test result(s) indicate conditional acceptance of the element tested, the Contractor shall have the option of carrying out additional tests (on 4 extracted cores) on that element of the structure, at his own expense to confirm or disapprove the original test result(s). These cores shall be extracted within 56 days from the date of the element being cast.

Should the additional test confirm the original test result, then the original test result shall serve to determine payment in accordance with Tables B8212/1 and B8212/2.

Should the additional test show that the structure meets the targets, the penalty shall be halved.”

(iii) Rejection

The concrete shall be removed and replaced with fresh concrete at the expense of the contractor, as directed by the engineer.

B6416 MEASUREMENT AND PAYMENT

Add the following at the beginning of clause 6416:

"Note that payitems B64.01, B64.02 and B64.07 below are only applicable to durability concrete prefixed 'W'."

Item	Unit
B64.01 Cast in situ concrete	

Amend the descriptions of subitems 64.01(a) and (b) to read as:

- "(a) Durability Concrete (Class W) cubic metre (m³)
 - (i) Indicate part of structure and strength e.g. Piers (W30/19))
 - (ii) Etc for other parts of structur

- (b) Normal Concrete cubic metre (m³)
 - (i) Indicate part of structure and strength e.g. Blinding (15/19)
 - (ii) Etc for other parts of structure

In the case of cast in situ concrete, delete “curing and protecting the concrete,” in the sixth line of the description of the tendered rate for item 64.01.

Add the following after the second paragraph in the rate make-up:

“The Contractor shall note that the strengths indicated above are to meet structural requirements only. In order for the durability criteria to be achieved, it may result in higher strengths being required. Target mean strengths to be achieved for durability purposes may therefore be higher than those shown above, as discussed under sub-clauses B6406(b) and B6404(h)(ii).”

Item	Unit
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B64.02	Manufacturing precast concrete members
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	(description of member) number (No)
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In the case of precast concrete, delete “curing and” in the second line of the description of the tendered rate for item 64.02.

Add the following:

“The bottom of the precast beams shall be finished to Class F2 surface finish, prior to being placed in position. No surface finish shall be permitted after the beams are placed in position”

Add the following payment item:

Item	Unit
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B64.06	Demolishing existing concrete
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Amend the payment paragraph as follows:

“The tendered rate shall include full compensation for all labour, plant (including access and craneage) and equipment (including concrete cutters) required to demolish the existing concrete (irrespective of strength) and the disposal of the product of the demolishing to a borrow pit within a free-haul distance of 15km. The tendered rate shall also include full compensation for any necessary measures to ensure no debris falls into rivers or surfaces where damage is possible and for any debris that has fallen into rivers to be recovered.

Payment shall distinguish between plain and reinforced concrete. For the purposes of this item, reinforced concrete is defined as concrete containing at least 0,2% of steel reinforcement measured by volume.”

Add the following payment items at the end of clause B6416:

“Item

Unit

B64.07 Curing of concrete:

(a) (Indicate structural element and surface to be cured)

(Tenderer to specify method of curing) square metre (m²)

(b) Etc. for various elements

(Tenderer to specify method of curing) square metre (m²)

The unit of measurement shall be the square metre of completed concrete element cured using an approved method as described in clause B6409 of these Project Specifications.

The tendered rates shall include full compensation for providing the curing agent and applying it to the fresh concrete surface by means of an approved pressure distributor (or other approved methods of application) in accordance with the manufacturer’s specified nominal rates of application. Wet fine mist spray curing is also permitted providing it is done for 7 days. Payment will also be made under this item if this is the preferred method to be used. Should no curing method be specified at time of tender then it will be assumed wet fine mist spray curing is to be done. Partial payment shall be applied in the event that the engineer allows conditional acceptance.

SECTION B6500: PRESTRESSING OF STRUCTURES

B6505 TECHNICAL DATA

(h) Bursting reinforcement

Add the following paragraph:

“The contractor shall design the bursting reinforcement for his proposed prestressing system and submit drawings to the engineer for approval in accordance with clause 6507. The price for the steel and fixing shall be included in the rate tendered for stressing.”

SECTION B6600: NO-FINES CONCRETE, JOINTS, BEARINGS, PARAPETS AND DRAINAGE FOR STRUCTURES

B6603 JOINTS IN STRUCTURE

(a) Materials

(h) General

Add the following after the last paragraph:

“It is a firm requirement that all contracts have full Agrément certification for bridge deck joints, with the target date for new applications for Agrément assessment one year from receipt and acceptance by Agrément South Africa of each application. Proof of original acceptance of application by Agrément is required in such a case.

- (1) current Agrément assessments: 1 September 2010.
- (2) new applications for Agrément assessment one year from receipt and acceptance by Agrément South Africa of each application. Proof of original acceptance of application by Agrément is required in such a case.”

(g) Installing the expansion joints

Delete the first paragraph and replace with the following:

“All deck expansion joints shall be installed by approved specialist subcontractors only. Installed deck expansion joints shall have the following guarantees:

Proprietary joints - 15 years

Asphalt plug type joints - 10 years

Concrete nosings (replacement) - 10 years

Joint sealant - 5 years

All deck expansion joints will only be considered for use on this contract if the manufacturer has obtained Agrément certification. New applications for Agrément assessment takes up to one year from receipt to acceptance by Agrément South Africa.”

B6608 MEASUREMENT AND PAYMENT

Item Unit

B66.05 Expansion Jointsmetre (m)

Add the following to the measurement clause of subitem (b):

“The joint measured shall be the complete joint shown on the drawings including termination details and recesses at balustrades and cover plates and fixings.”

Add the following to the end of the second paragraph:

“The tendered rate for subitems (a) and (b) shall also include for water test required to prove the joint. The water shall be ponded and maintained to a minimum depth of 150mm above the top of the joint for a period of one hour each. Testing should follow the installation of the various sections of joints to take advantage of the existing traffic accommodation and each test shall cover the length of each joint installed (generally half width of bridge)”.

Item Unit

B66.06 Filled Jointsmetre (m)

Add the following to the end of the second paragraph:

“The tendered rate for subitems (a) and (b) shall also include for water test required to prove the joint. The water shall be ponded and maintained to a minimum depth of 150mm above the top of the joint for a period of one hour each. Testing should follow the installation of the various sections of joints to take advantage of the existing traffic accommodation and each test shall cover the length of each joint installed (generally half width of bridge)”.

Item Unit

B66.15 Concrete parapetsmetre (m)

Add the following to this clause:

“The tendered rate shall include for sealing of joints between balustrade units as shown on the drawings.

Add the following payment items:

Item Unit

B66.27 Concrete pedestrian railingsmetre (m)

The unit of measurement shall be the metre of railing complete in accordance with the drawings. The concrete railing shall include the concrete upstand for fixing the concrete railing and all work above the concrete upstand and for any kerbing and coping forming an integral part of the railing.

The tendered rate shall include full compensation for all labour, plant and materials (including reinforcing steel and prestressing requirements) for the manufacture and erection of the precast concrete railings.

Item	Unit
B66.28 Drainage strips	metre (m)

The unit of measurement shall be the linear metre of drainage strips laced behind the earth faces as shown on the drawing.

The tendered rate shall include full compensation for all material, labour, and equipment to supply and install the strips as shown.

Item	Unit
B66.29 Perforated drainage pipes - M65 Netlon drainage pipe wrapped in Kaymat U34 or similar approved	metre (m)

The unit of measurement shall be the linear metre of perforated drainage pipes placed behind the earth faces as shown on the drawing.

The tendered rate shall include full compensation for all material, labour, and equipment to supply and install the perforated pipes as shown including the 300mm wide by 50mm thick mortar bed under the core.

Item	Unit
B66.30 Joint protection plates	metre (m)

The unit of measurement shall be the linear metre of specified width installed. The tendered rate shall include full compensation for supplying all materials, including fastening or adhesives, for galvanizing and installation, including all labour and equipment, and for any wasted material.

Item	Unit
B66.31 Additional water tests for joints ordered by the engineer	number (No)

The unit of measurement shall be the number of additional water tests for proving the expansion joints, as ordered by the engineer. The test shall be executed by ponding water to a minimum depth of 150mm deep above the top of the joint for a period of one hour each. Testing should follow the installation of the various sections of joints to take advantage of the existing traffic accommodation and each test shall cover the length of each joint installed (generally half width of bridge).

The tendered rate shall include full compensation for providing the pond of water and maintaining its minimum depth of 150mm for the full one hour period, and clearing away the ponding materials on completion.”

SECTION 6900 : MISCELLANEOUS

B6901 SCOPE

This section covers the construction or fabrication of all items of work that are not directly or indirectly covered in the various sections of the standard specifications and the project specifications.

B6902 FABRICATED ARTICLES

All fabricated articles manufactured from steel shall comply with the requirements of Section 6700 of the standard specifications. Articles consisting of other materials shall comply with the relevant requirements for such material specified in the standard specifications and project specifications.

B6903 PARTIAL REMOVAL OF EXISTING WORK

The extent to which existing work is to be removed, shall be in accordance with the dimensions shown on the drawings or as authorised by the engineer.

The contractor shall ensure that the existing concrete and reinforcing steel remaining part of the structure, are not damaged or cracked during the breaking process.

Before concrete is broken away in a structural member that is to be integrated with new work, the existing concrete shall be cut with a saw or by means of water jetting along the lines marked on the structure. The depth of cut shall be 25 mm or the depth of the concrete cover over the reinforcing steel, whichever the smaller. Feathered edges along the cut line shall not be permitted.

After removal of the concrete, the steel reinforcing shall be straightened and re-bent to the specified shape.

Before new concrete is cast against the broken existing concrete surface, the requirements of Clause B6905 shall be complied with.

B6904 PREPARATION OF EXISTING CONCRETE SURFACES

Existing concrete surfaces to which new concrete or other material is to be bonded, shall be roughened over the entire bonding surface to expose the coarse aggregate. Care shall be exercised to ensure that the coarse aggregate is not fractured in the process. It is thus important that blunt tools be used.

Before the new material is bonded to the existing concrete, the contact surface shall be cleaned to remove all dirt, loose particles and foreign material, whereafter the surface shall receive a treatment compatible with the new material to maximise the bond.

The casting of new concrete against existing concrete surfaces shall be in accordance with the requirements of Clause 6408(c) of the standard specifications.

B6905 DRILLING OF HOLES IN CONCRETE

The contractor shall ensure that the method and equipment used for drilling holes into concrete will not cause fracturing of the concrete surrounding the hole. If the contractor fails to comply with this requirement, the engineer shall have the right to prescribe the equipment to be used and method of drilling. Such instruction shall be carried out by the contractor at no additional compensation over and above the tendered rates for the appropriate pay items.

The holes shall be drilled within a tolerance of 25 mm of the specified position of the hole.

B6906 SECURING OF BARS IN DRILLED HOLES

Bars shall be secured in position using a bonding material (agent) that is compatible with the specific application. Care shall be exercised to ensure that no loss of bonding material (agent) occurs when securing bars in horizontal or inclined holes. The proprietary bonding agent that is acceptable for use in vertical holes is Lokset S40 and for horizontal holes is Lokset P40. These products are available from Fosroc (Pty) Ltd., Tel (011) 908 1980/6. If the contractor elects to use different products he shall prove that the bond obtained therewith within the specified depth of hole will ensure a factor of safety against pull-out failure of at least 2.

Lokset is a polyester resin that is inflammable and shall thus be used in well ventilated areas.

The manufacturer's instructions for the use of the bonding material shall be strictly adhered to.

B6907 MEASUREMENT AND PAYMENT

Item **Unit**

**B69.01 Fabricated articles (description of each article number (No.) or
and material indicated) meter (m**

The unit of measurement shall be the number of each article or the meter length thereof manufactured and installed complete as detailed.

The tendered rate shall include full compensation for the supply of the materials, fabrication and installation of the article as well as for the painting and / or galvanizing as specified. The rate shall also include for all nuts, bolts, washers, etc. required.

Item **Unit**

B69.02 Partial removal of existing work (indicate type of work).....cubic metre (m³)

The unit of measurement shall be the cubic metre of existing work removed and disposed of

The tendered rate shall include full compensation for demolition along the specified lines; the trimming of sides and treatment of surfaces to receive new work; restoring of the steel reinforcing bars; and for the labour and equipment required to complete the work as well as for disposal of the rubble, including a free-haul of 1,0 km.

Item	Unit
B69.03 Preparation of existing concrete surfaces where no removal of existing concrete takes place	square metre (m ²)

The unit of measurement shall be the square metre of concrete surface prepared and the quantity shall be calculated in accordance with the specified dimensions or as directed by the engineer.

The tendered rate shall include full compensation for all equipment, tools, scaffolding, platforms, incidentals and labour necessary for completing the work.

Item	Unit
B69.04 Establishment on site for the drilling of holes, the moving to, and setting up the equipment at each structure for the drilling of holes	number (No.)

The unit of measurement shall be the number of structures to which the drilling equipment has to be moved and set up. The number to be measured shall equal the number of structure where drilling is undertaken.

The tendered rate shall include full compensation for all the costs involved in establishing on the site and subsequent removal of the equipment, plant and scaffolding required for drilling the holes as well as for moving and setting up the equipment.

Item	Unit
B69.05 Drilling of holes (diameter indicated)	metre (m)

The unit of measurement shall be the metre of hole drilled and accepted by the engineer. The tendered rate shall include full compensation for the drilling and clearing the holes.

Item	Unit
B69.06 Securing of bars in drilled holes	metre (m)

The unit of measurement shall be the metre depth of hole into which the bar is secured.

The tendered rate shall include full compensation for the bar, bonding material (agent), the labour and equipment required to secure the bar in position as specified.

SERIES 8000: SUNDRIES

SECTION B8100: TESTING MATERIALS AND WORKMANSHIP

B8105 TESTING OF AGGREGATES

Add the following sub-clause:

“(g) Determination of Ethylene Glycol Durability Index

The Ethylene Glycol Durability Index shall be determined as follows:

(i) Apparatus

Suitable pans or basins

Ethylene Glycol solution

Stirring rod

(ii) Method

Obtain three or more representative samples from the source to be evaluated.

If not already crushed, crush the material in order to obtain sufficient minus 19mm plus 13mm sized aggregate in order to totally cover the bottom of the basin or pan with a single layer of stone. Add sufficient ethylene glycol to each basin ensuring that every aggregate particle is completely submerged.

After soaking for 24 hours, gently stir the aggregate and allow to settle. Observe and record the response of the aggregate to the ethylene glycol according to the criteria listed in (iii) below. Continue the above cycle at intervals of 24 hours for a further 4 days, in each case recording the observed response. After 5 days allow the samples to remain submerged in the solution and observe and record the disintegration response after a total period of 15, 30 and 60 days have elapsed.

(iii) Classification of response

After each cycle, classify and record the response of the aggregate as follows:

DISINTEGRATION CLASS

Class 1: No obvious effects, or only very minor spalling of sand sized particles or very small flakes.

Class 2: Splitting of rock, accompanied by any other disintegrative effects.

Class 3: Fracturing (spheroidal and/ or internal) without extensive spalling or distortion.

Class 4: Fracturing (spheroidal and/or internal) with extensive spalling or distortion.

Class 5: Complete disintegration.

TIME CLASS

The time factor in the above disintegrative process is classified according to the time taken for the most serious effect of the expansive stresses to occur i.e.

Class 4: 0 - 5 days

Class 3: 6 - 15 days

Class 2: 16 - 30 days

Class 1: 31 - 60 days

Class 0: Over 60 days

(iv) Determination of Glycol Durability Index

The Ethylene Durability Index is determined by adding the class number as assigned for the specific disintegrative response observed to the class number as assigned for the period for this response to occur. A durability index ranging from 1 (no response) to 9 (rapid and complete disintegration) is thus determined.”

Amend the heading of B8106 to read as follows:

“B8106 TESTING THE CONCRETE AND COVER TO STEEL REINFORCEMENT”

Add the following sub-clauses under B8106:

“(g) Trial panels for durability concrete (W class concrete)

As part of the durability class concrete mix design approval process, trial panels shall be constructed on the site (or at the laboratory) before construction of structural elements commences, to ensure that the contractor can successfully achieve the oxygen permeability and sorptivity targets set for the in-situ concrete with method of construction to be adopted. Each trial panel shall be constructed using the same type of concrete mix, shuttering type, placing and curing methods (including application rates of curing compounds if applicable) as to be used on the final structural element to be constructed. The dimensions of such a trial panel shall be 0.40m wide, 0.60m high and 150mm thick. The panel shall be constructed vertically. It is suggested that 2 lifting hooks be cast into the panel to facilitate lifting, moving or disposal of panel. It most likely will

be that one trial panel will be required for substructures (piers, abutments, retaining walls, etc) if the same grade concrete is specified for all substructures and another for the decks due to type of casting and curing methods.

The test area for taking of cores (taken in horizontal direction) shall not be less than 100mm from all horizontal and vertical edges. The number of cores to be extracted and tested is described under B8106(i).

(h) Test panels for durability concrete (W class concrete)

During casting of concrete on site, test panels shall be constructed on the site adjacent to where the concrete element is being placed. Each test panel shall be constructed with the same concrete, shutter type, compaction and curing methods being used in the element being cast (including same vibrator frequency and curing compound application rates), and be left to cure for 28 days adjacent to the concrete element. Thereafter it shall either be cored on site or transported to the laboratory for testing of the required durability parameters. The dimensions of the test panels shall be 0,4m wide, 0,6m high and 150mm thick and be cast vertically to simulate vertical casts of the substructures and vertical faces of bridge decks. It is suggested that 2 lifting hooks be installed at both top ends of the test panel to assist with transport. For precast concrete, test panels will not be constructed, as cores will be drilled from the concrete elements at the Precast yard before being placed at its final location. For the horizontal faces of in-situ bridge decks and culverts, test panels will also not be constructed. Instead cores will be extracted from the top surface of the decks.

The frequency of the testing and number of cores to be extracted is described under B8106(i).

The test area for the taking of cores (taken in a horizontal direction) shall not be less than 100mm all horizontal and vertical edges.

The costs for construction of the test panels shall be deemed to be included under rates for payitem 64.01.”

(i) Testing for concrete durability

Durability predictions for durability concrete prefixed ‘W’ will be based on the following tests that shall be carried out by an accredited laboratory approved by the Engineer:

- (i) Oxygen permeability
- (ii) Water sorptivity
- (iii) Chloride conductivity (if specified)

Notes:

The test methods shall be as described below.

For test no's (i) and (ii) (and (iii) when required), cores of 70 ± 2 mm diameter shall be extracted from the test panels when the concrete reaches the age of at least 28 days and tested for the durability criteria set out in clause B6404(h) and used to determine the payment as per Table B8212/1. Test No. (iii) may only be required where specified (e.g. within a chloride environment along the coast or where chlorides are present in ground water).

A sample for the purposes of durability testing is as defined in Table B8106/1. The cores for durability testing shall be extracted from the test panels for process and acceptance control (at the frequency as shown in Table B8106/2). Durability testing shall only be required for concrete specified as durability concrete with the prefix "W". The number of samples to be taken shall be as shown in Table B8106/2.

TABLE B8106/1: NUMBER OF CORE RESULTS REQUIRED FOR A SINGLE SAMPLE FOR DURABILITY TESTING

Durability Parameter	No. of Core Results
a. Sorptivity	2
b. Oxygen Permeability	4
c. Chloride Conductivity*	4

* Test undertaken only if specified and within a chloride environment.

TABLE B8106/2: NUMBER OF TEST PANELS REQUIRED FOR DURABILITY TESTING

Element	No. of Test Panels to be taken (see Table B8106/1 for number of core results required for a single sample)
In-situ Bridge Decks	1 (per pour) ¹
Bridge Piers/Abutments	1 (per element) ²
Precast Elements	1 (per element) ^{2, 3}
Bridge / Culvert Parapets	1 (per element) ²
Culvert walls / wingwalls / slabs	1 (per wall section) ^{1, 2}
Retaining walls	1 (per wall section) ²
All bases	1 (per element/pour) ²

Note:

1. Test panels required to be cast vertically. Additional cores required to be extracted from top of deck / major culvert slabs, i.e. in-situ cores.
2. Note that where group of elements are cast on the same day, only one test panel will be required, but only if the same grade concrete is used.
3. Sample required to be taken from Precast element in casting yard. For edge beams, inner face to be cored.

For cores to be extracted from precast elements and top of bridge decks, the engineer will indicate the positions at which the cores will be extracted. Filling of the holes left by the drilling of the cores shall be the responsibility of the contractor and shall be carried out using an approved proprietary non-shrink repair mortar so as to restore structural integrity and durability of the structural element tested.

If the test results indicate that the durability requirement has not been achieved, then the structural element shall be cored and tested for the durability criteria. The engineer will indicate the positions at which the cores will be extracted. The costs for testing of the structure shall be borne by the contractor. Filling of the holes left by the drilling of the cores shall be the responsibility of the contractor and shall be carried out with material as described in the paragraph above.

Note that if testing has to be undertaken on sides of decks and walls, the cores shall be taken on the exposed faces of the concrete i.e. the sidewall face taking care not to cut the reinforcing bars. Where the cores do contain pieces of reinforcing steel, they shall not be used for the tests. The cores shall be extracted through the cover concrete from the Test Panels or constructed concrete element as applicable. The outer 5mm of the exposed surface of the core shall be cut off and then a slice (30 ± 2 mm thick) shall then be cut and prepared for testing. The engineer will indicate the positions at which the cores will be extracted.

The methodology and latest revisions for the durability index tests are available at the University of Cape Town's web address at www.civil.uct.ac.za. In addition, the results of all the durability testing shall be submitted at least once a month in the required format to the University of Cape Town, where the present contact person is:

Dr. H Beushausen - email: hans.beushausen@uct.ac.za.

(j) Testing for concrete cover

Concrete cover testing shall be conducted using an approved calibrated electromagnetic cover meter, able to comply to requirements as defined in linear and block scans, and has the ability to save and calculate data measured.

The testing (non-destructive) shall be conducted to confirm that the specified depth of concrete cover has been achieved. The cover meter tests shall cover at least 1m² for every 20m² surface area of concrete placed. Readings shall be taken to identify individual bars, with at least 3 readings at 100mm spacing on

every single bar within 1m². The average cover of the 1m² subjected to the test shall be used to determine the payment as per Table B8212/2 unless the Contractor chooses to carry out additional tests as detailed in the final paragraph of clause B6414(a). The cover meter must be calibrated whenever being used to test for cover on each project. Standard Calibration block must be used on each project, and where substantial testing is required, the calibration block shall be kept on site. Cover meters shall comply with the relevant modern standards (e.g. EN55011, 50082-1, 6100-6-1, 6100-6-2, 6100-6-3, 6100-6-4 and BS18881 Part 204).

Critical elements for cover surveys are parapets, deck edges including underside of cantilevers, lower portions of columns and abutments and walls. Soffits should be excluded from measurements. All parapets (F-shaped) including the parapet beam shall be fully tested for cover compliance. In addition, the entire area up to 1,5m high on piers, walls and abutments, including the rear of abutments and wingwalls, shall be fully tested before being backfilled. The engineer will identify other critical areas required to be surveyed. Should any of these areas shows deficiencies, the engineer may order additional cover tests on other areas at the contractors costs.

The procedure for testing for depth of reinforcement from concrete surface shall be in accordance with the manufacturer's requirements for the relevant electromagnetic cover meter, but further requirements are set out in clause B8119. All cover meters shall be calibrated on site under the control of the engineer. The number of readings taken of the layer of rebar closest to the concrete surface to each 1m² to be tested shall be such that an accurate average cover can be determined for the tested area. For the purposes of calculating the average depth of cover bars that have covers 15mm or greater than what is specified shall be capped at specified cover plus 15mm in the calculations. For calculation of payment, specified cover to be reduced by 5mm (allowance for variation of equipment) before apply criteria as defined in Table B8212/2.

Example, where Specified cover = 40mm, test as 35mm, then apply limits, 85% * 35 = 30mm.

Quick Scan readings are to be taken perpendicular to the layer of rebar closest to the concrete surface for each scan area (+/- 30 per m²), so that an *average cover* to reinforcement can be determined for the tested area.

Readings are to be taken to identify individual bars within each 1m². At least three cover readings, at 150mm spacing, per an individual bar shall be shown in the test results but only overall cover measurement would be used for payment purposes. Reports generated by the equipment shall be used for determining payment. Where more than 10% of readings are below specified lower limit, the area shall be re-scanned, by *Image, Block or Grid scan* method, to verify the average cover. For calculation refer to specific worksheet (attached)

Cognizance to be taken of the effect to cover depth measured, where spliced bars are measured in same area as single bars. The size of rebar shall be corrected manually on the device by means of applying the following formula (approximately 1.41 x diameter of rebar as shown in design).

Where insufficient cover are established before placing of concrete, e.g. Starter bars from base not correct position, remedial action to be performed before continuing with next concreting – these actions to be clearly recorded and area identified.

B8108 DETERMINING THE TOTAL APPROXIMATE DRY BULK RELATIVE DENSITY AND THE APPARENT DENSITY

Add the following at the end of this clause:

“For materials where the total water absorption, when determined according to TMH1 Methods B14 and B15, is in excess of 1,5%, the Apparent Density shall be calculated in accordance to the following formula:

$$\frac{(b - a)}{(d - a) + \{ \underline{(w - 1.0)} \times (b - a) \} - (b - c)} \times 100$$

This formula shall be used as an alternative to note (5) regarding soaking period, when so instructed by the engineer."

B8110 TESTS RELATING TO CHEMICAL STABILISATION

Add the following sub-clause:

“(d) The Wet-Dry Durability Test for cement and/or lime-treated materials using the hand-brush method (SANRAL METHOD)”

1. Scope

This method covers the procedure for determining the soil-cement losses obtained by repeated wetting, drying and hand brushing of hardened soil-cement specimens (see 5.4).

2. Apparatus

2.1 A moisture curing room capable of maintaining a relative humidity of 95 to 100 percent and a temperature of 22 to 25°C, or suitable plastic bags capable of holding specimens and carriers in an air tight condition in a water bath as described in 2.2 below.

2.2 A suitable water bath with thermostatic control capable of maintaining a temperature of 22 to 25°C.

2.3 A balance to weigh up to 10kg, accurate to 0.5g.

2.4 A drying oven capable of maintaining temperatures of $71 \pm 3^\circ\text{C}$ and $110 \pm 5^\circ\text{C}$.

2.5 A wire scratch brush made of 50mm by 1.6mm flat 26 gauge wire bristles assembled in 50 groups of 10 bristles and mounted to form five longitudinal rows and 10 transverse rows on a 200 by 65mm wooden block.

3. Method

3.1 *Preparation of specimens*

Prepare specimens in accordance with the procedure described in the Appendix to method A19 in the TMH 1 with the following exceptions:

Use the material passing the 37.5mm sieve and discard the material remaining on the sieve.

Use the apparatus and compaction method as described in TMH 1 method A7 (100% Modified AASHTO at predetermined OMC).

3.2 *Curing of specimens*

Rapid cure the specimens (see 5.6). Alternatively, and where instructed by the engineer, the specimens may be cured for seven

days at a relative humidity of 95% to 100% and a temperature of 22°C to 25°C in a suitable curing room or in plastic bags and a suitable water bath.

3.3 *Wetting, drying and brushing*

After curing, remove the specimens from the curing room or plastic bags, allow to cool and submerge them in water at room temperature for a period of five hours. Remove the specimens from the water and place them in an oven at 71°C for 42 hours.

Remove the specimens from the oven. Give each specimen two firm strokes over the full surface area with the wire scratch brush. The brush must be held parallel to the long axis of the specimen or parallel to the ends as required to cover all areas of the specimen. Apply these strokes to the full height and width of each specimen with a firm stroke corresponding to approximately 13.5 kN force (see note 5.5).

3.4 *Determination of soil-cement losses*

After 12 cycles, dry the specimens to constant mass at 100°C and determine the oven dry mass of the specimens. The data collected will permit the calculation of the soil-cement losses of the specimens after the prescribed 12-cycle test.

4. Calculations

- 4.1 Calculate the soil-cement loss of the specimens as a percentage of the original oven-dry mass of the specimens as follows:

$$L = \frac{W - N}{W} \times 100$$

Where

L = soil-cement loss (%)

W = original calculated oven-dry mass (g) (calculated according to paragraph 3.5 in the Appendix to method A19 in the TMH 1).

N = final oven-dry mass (g).

- 4.2 The percentage loss shall be calculated and reported to the nearest 0.1 percent. The results are normally required for stabilisation design purposes and should be reported graphically against relevant cement contents.

5. Notes

- 5.1 Mass determinations of the specimens before and after brushing are usually made at the end of each cycle during research or special investigations.
- 5.2 Care is required when assessing results obtained on very coarse graded materials as "plucking" out of the aggregate pieces during the brushing process could result in very high losses of material, which may however not be truly indicative of its potential erosion resistance.
- 5.3 If it not possible to run the cycle continuously because of Sundays or holidays, or for any other reason, the specimens should be held in the oven during the layover period.
- 5.4 The test was originally developed to determine wet-dry durability of cement-treated material. It can, however, be used with equal success on material tested with other chemical stabilizers, for example lime, or mixes of lime and milled blast furnace slag, or cement and milled blast furnace slag.

5.5 The pressure of the brushing stroke is determined as follows:

Clamp a specimen in a vertical position on the edge of a platform scale and zero the scale. Apply vertical brushing strokes to the specimen and note the force necessary to register approximately 1.36kg.

5.6 Rapid curing:

Seal each specimen airtight in a suitable container or plastic bag. Carefully place the briquettes on suitable holders or in pans and place in the oven at the relevant temperature and period given below:

Stabilizing agent	Temp (°C)	Time (Hours)
Cement	70 – 75	24 ±0.5
PBFC	70 - 75	24 ±0.5
Lime	60 ±2	45 ±1
Lime / FA	60 ±2	45 ±1
Lime / MBFS	60 ±2	45 ±1

B8117 MEASUREMENT AND PAYMENT

Amend payitem 81.02 as follows:

Item **Unit**

B81.02 Other special tests requested by the engineer

- "(a) Additional durability tests where requested by the engineer
 - (i) Tests for water sorptivity(Provisional sum)
 - (ii) Tests for oxygen permeability(Provisional sum)
 - (iii) Tests for chloride conductivity.....(Provisional sum)
 - (iv) Tests for concrete cover(Provisional sum)
- (b) Other tests(Provisional sum)

The provisional sum provided to cover the cost of special tests as requested by the engineer in terms of clause 8115 shall be expended in accordance with the provisions of the general conditions of contract. Payment will not be made for any special tests should the result indicate that the specifications have not been complied with.

Durability testing costs shall be equally shared between the Employer and the contractor and the contractor's recovery of the Employer's 50% share shall be made under payitem B81.02(a).

Add the following clauses:

"B8118 FIELD BINDER TRANSVERSE DISTRIBUTION ("BAKKIE") TEST

1. Scope

This method sets out the procedure for the simple field determination of the transverse distribution of a binder distributor. Certain statistical criteria are applied to the results to determine conformance with requirements.

2. Definition

The purpose of the test is to determine conformance of the transverse distribution of the spray bar, as measured by direct discharge from sets of 3 nozzles, using the project binder.

3. Apparatus

3.1 Steel troughs

Steel troughs fitted with handles and manufactured from 3mm mild steel plate, conforming to the following or similar dimensions:

Width	-	265mm
Depth	-	405mm
Height	-	300mm

A total of 14 troughs are required for a 4,2m wide spray bar. Each trough must be clearly numbered on its side.

3.2 Balance

A balance capable of weighing up to 50kg to an accuracy of 20g.

3.3 Personal protective clothing

The appropriate safety gear must be worn when performing this test and should include a pair of asbestos gloves, face shield and approved overalls.

3.4 Cleaning fluid

Diesel or other suitable fluid.

4. Preparation of the binder distributor

Ensure that all the binder strainers on the sprayer have been cleaned.

Preheat the binder in the distributor tank to within $\pm 5^{\circ}\text{C}$ of the required spray temperature.

Circulate the binder through the spray bar for at least 15 minutes.

1.1 Position the spray bar over a full-length drip tray. A short preliminary spray is made to ensure that all the nozzles are functioning and that the machine is in normal working condition. Suck back the binder from the drip tray into the distributor tank on completion of test spray.

4.2 If necessary, correct any malfunctioning of the spray bar.

5. Method

5.1 Ensure that all troughs are clean and free of any water or other materials.

5.2 Place the pre-weighed steel troughs described in 3.1 under the spray bar in such a manner that the discharge of each set of three nozzles are

collected in one trough. Ensure that the troughs are placed in numerical order.

- 5.3 Adjust the spray bar height to ensure that the nozzles are below the sides of the trough.
- 5.4 Increase the bitumen pump speed to yield the desired triple spray overlap in accordance to the type of nozzles and type of binder being used. Typically this could vary between 12 and 20 litres per minute for conventional binders.
- 5.5 Open the nozzles and spray sufficient binder to fill the troughs without risking spillage during handling.
- 5.6 Weigh the troughs to determine the mass of binder sprayed.
- 5.7 On completion of the weighing and before the binder cools suck back the binder into the distributor tank.
- 5.8 Only clean the troughs with a suitable cleaning fluid once they have cooled down to room temperature.
- 5.9 Store used cleaning fluid in a suitable container for re-use.

6. Calculation and report

- 6.1 Determine the net mass of binder in each trough to the nearest 20 grams.

Net mass binder = $(M_1, M_2, M_3 \dots M_n)$.

- 6.2 Calculate the average mass of the binder collected in all the troughs.

$$M_{ave} = \sum (M_1 \dots M_n) / n$$

where n = number of troughs

- 6.3 Calculate the deviation from the average mass for every trough and express the value as a percentage.

$$\% \text{ Deviation} = (M_{ave} - M_i) / M_{ave} \times 100$$

- 6.4 If the transverse distribution is out of specification, make the necessary adjustments to the spray bar and repeat the test.
- 6.5 Report results on a suitable report sheet.
- 6.6 Update the 'bakkie' test record with the relevant information for the distributor.

7. Accuracy

Due to the varying nature of the different types of binders, cognisance must be taken of the respective binder's viscosity at spray temperature when establishing achievable tolerances, namely:

Conventional binders	40 – 100 CPs
Polymer modified binders	120 –200 CPs
Bitumen rubber	2,000 – 3,000 CPs.

B8119 CONCRETE COVER TESTING PROCEDURE

1. Scope

This procedure covers all measurements to be done on concrete structures to establish conformance to specified concrete cover requirements.

2. Guidelines and Preparation

- a. The contractor is to complete a cover survey request and forward it to the engineer.
- b. The selected area for cover measurement is to be indicated on a sketch (see example attached).
- c. The responsible person must identify the area to be scanned, take measurements on the required date and calculate the results in terms of project specification.
- d. The cover meter is to be checked against a calibration box/block constructed with typical reinforcement of known parameters, on each day of use. Any deviations from actual measurement must be recorded on a Cover Survey Request.
- e. Cognizance shall be taken of the effect to cover depth measured, where spliced bars are measured in the same area as single bars (typically, the rebar diameter is increased by a factor of 1.44).
- f. The depth of cover shall be determined with equipment, complying with BS 1881, Part 204 and capable of identifying the location and depth of reinforcement on a scanned area. The results shall be recorded electronically by the equipment software.
- g. Measurements are to be taken in accordance with cover meter manufacturer's guidelines.
- h. The person responsible for measurements must indicate the position, dimension, type and splicing of reinforcement on the sketch for each scanned area.

3. Method of Measurement

Two methods of measurement are proposed as follows:

a. Quick/Linear Scan Method

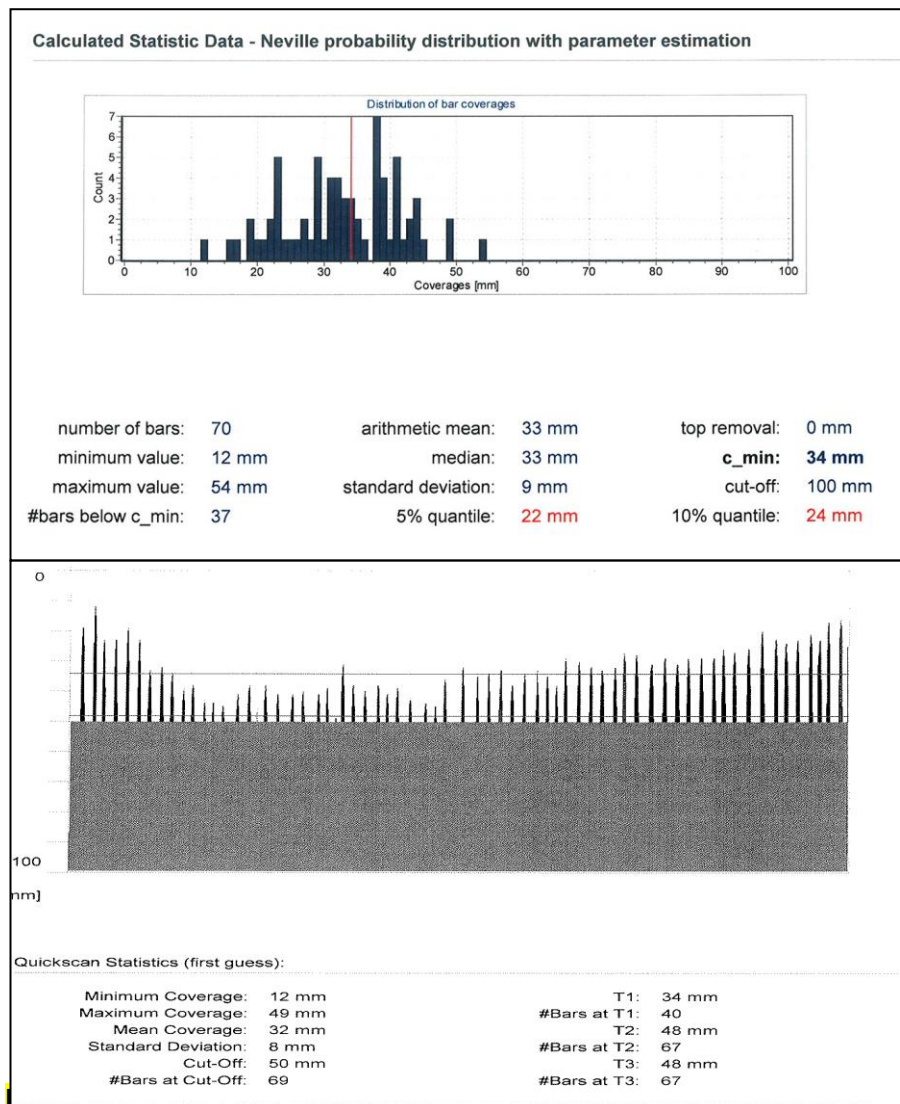
- (i) **Readings are to be taken perpendicular to the layer of rebar closest to the concrete surface for each scan area (± 30 per m^2), so that an average cover to reinforcement can be determined for the tested area.**
- (ii) **Readings are to be taken to identify individual bars within each $1m^2$. At least three cover readings, at 150mm spacing, per individual bar shall be shown in the test results but only the overall cover measurement would be used for payment purposes. Reports generated by the equipment shall be used for determining payment. Further specified cover to be reduced by 5mm (allowance for variation of equipment), before applying criteria as defined in table B8212/2a.**

e.g. If specified cover is 40mm, the lower limit for full acceptance is:

$$(40 \text{ mm} - 5 \text{ mm}) \times 85\% = 30 \text{ mm.}$$

- (iii) **Where more than 10% of readings are below specified lower limit, the area shall be re-scanned, by *Image, Block or Grid scan method*, to verify the average cover. Refer to item 3.2 below.**

An example of Quick Scan information and presentation is shown in Figure B8119-1 below.



b. Image/Block/Grid Scan Method

- (i) Readings are to be taken in both directions of a marked grid as per the equipment manufacturer's recommendations.
- (ii) This method shall be used to determine the average cover to reinforcement when more than 10% of the Quick/Linear Scan results do not meet the specified lower limit for overall cover.
- (iii) For purposes of calculation of the averages for cover of a rebar layer, readings exceeding upper limit (cover + 15mm) to be capped on upper limit. Further specified cover to be reduced by 5mm (allowance for variation of equipment), before applying criteria as defined in Table B8212/2a.

e.g. If specified cover is 40mm, the lower limit for full acceptance is:

$$(40 \text{ mm} - 5 \text{ mm}) \times 85\% = 30 \text{ mm.}$$

An example of Image Scan information and presentation is shown in Figure B8119-2 below:

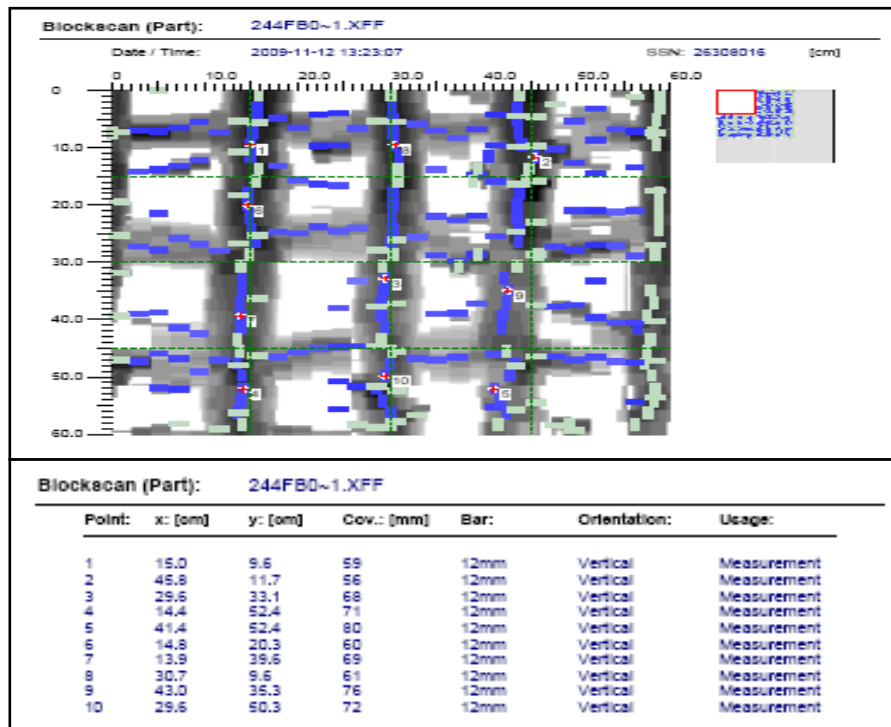


Figure B8119-2 : Example of a Imagescan output

If the equipment used is not able to provide the above presentation it has to be done manually by determining the grid of rebar, first and second layer closest to surface, and manually record readings in order to establish the depth of rebar, as shown in Figure B8119-3 below.

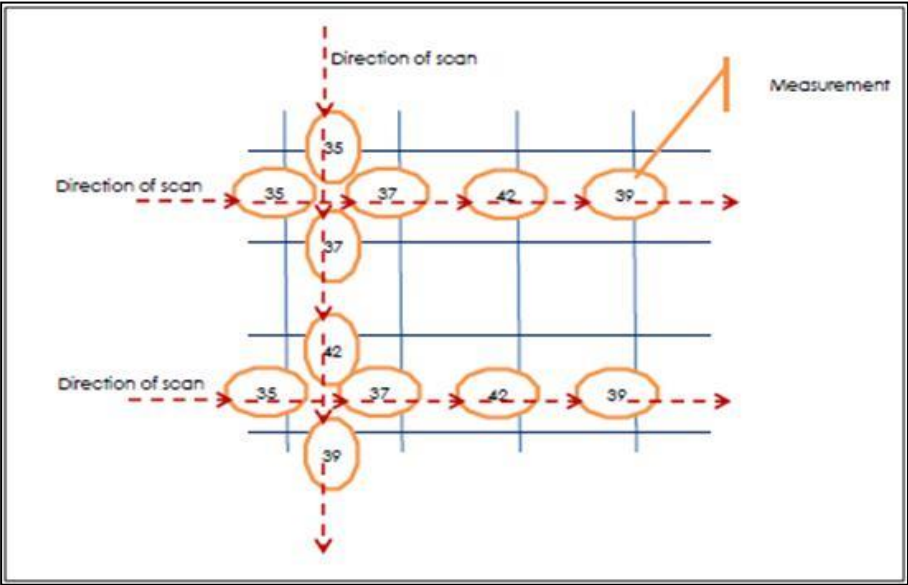


Figure B8119-3 : Manual recording of readings”

SECTION B8200: QUALITY CONTROL

B8206 JUDGEMENT PLAN B

Notes (Table 8206/3)

(1) Asphalt base or surfacing: Specification limits for-

(c) **Voids**

Delete and replace the contents of this subitem with the following:

$L_s = \text{specified values} - 1,0\% \text{ points}$

$L'_s = \text{specified values} + 1,0\% \text{ points}$

Add the following clause:

"B8212 DETERMINING BOTH REDUCED PAYMENTS FOR 'W' CLASS CONCRETE AND COVER METER TESTING

Payments for all durability concrete prefixed 'W' shall be based on the test results of the compressive strengths and of the durability parameters, i.e. oxygen permeability (from test panels) and for both durability and non-durability class concrete, cover meter testing as indicated in Tables B8212/1 and B8212/2 a and b.

General note:

The percentage payment shall be applied to a specific concrete member and shall apply to the relevant payitems of sections 6300 (based on concrete cover test) and 6400 (based on the worst results from the oxygen permeability and compressive strength tests).

TABLE B8212/1: TABLE OF REDUCED PAYMENTS FOR OXYGEN PERMEABILITY INDEX - 'W' CLASS CONCRETE

Description of test	Oxygen permeability index (log scale)	Percentage (%) payment
Full acceptance	See Table B6404/4 for limit	100%

Conditional acceptance (with reduced payment)	See Table B6404/4 for limit	80%
Rejection	See Table B6404/4 for limit	Not Applicable

TABLE B8212/2: TABLE OF REDUCED PAYMENTS FOR CONCRETE COVER

Concrete cover (mm)	% of specified cover	Percentage (%) payment
	Overall cover	
Full acceptance	≥ 85% <(100%+15mm)	100%
Conditional acceptance (with reduced payment)	<85% ≥75%	85%
Conditional acceptance (with remedial measures as approved by the Engineer and reduced payment)	<75% ≥65%	70%
Non-conforming (non-conformance raised with remedial measures as approved by the Engineer)	<65%	Agreed by Engineer (Note: remedial measures at the contractor's costs should restore full payment)

The following notes shall apply to Table B8212/2:

1. Specified cover to be reduced by 5mm (allowance for variation of equipment) before applying criteria as defined in Table B8212/2, e.g. where specified cover = 40mm, test as 35mm, apply limits, 85% * 35 = 30mm.
2. For cantilevers, the cover shall in no instance be greater than 10mm of the specified cover for the top reinforcement.
3. Percentage payment for concrete cover shall be based on the average number of cover meter tests performed on a particular concrete element.

In addition, the engineer shall confirm to the Employer whether substandard cover at a reduced payment shall be acceptable by agreement with the contractor.”

1.0 CONCRETE DURABILITY

(a) General

All structural concrete prefixed 'W' shall conform to the durability requirements specified under sub-clause B6404(h) of the Project Specifications. Durability is influenced by the materials used in the concrete, their mix proportions, transporting, placing, compacting and, in particular, curing of the finished cover concrete (concrete layer between the outermost layer of steel reinforcement and the exposed outer surface of the concrete element). The tests required to prove durability performance of the placed concrete are given under sub-clause B8106. The numbers of panels and tests are shown in Tables 1 and 2 below and are the minimum requirement that the engineer considers necessary to achieve the desired quality of concrete.

It is the engineer's responsibility to approve the component materials and their mix properties. However it is the contractor's responsibility to design and blend them and in so doing produce concrete of the specified quality.

b) Concrete mix design

Good mix design practice is essential and the following criteria ought to be taken into consideration when pricing:

- (i) Selection of sands and aggregates to achieve a good grading is important if the correct concrete density is to be achieved.
- (ii) The use of the correct cement grade and type for the environmental conditions (and not based solely on costs) is fundamental
- (iii) Selection of the correct cement extenders and admixtures are also fundamental to appropriate mix designs.
- (iv) Water: cement ratios are critical, dictating both the structural strength and the durability requirements.

Mix proportions for the concrete to be used on site need to be determined by an approved laboratory. Cylindrical specimens, 70 ± 2 mm in diameter must be made or cored from a laboratory trial mix for performance of tests B8106(g)(i), (ii) and (iii) (if required).

It will be necessary for the contractor to establish a target mean strength with a margin above the minimum requirement so that small fluctuations due to material changes or workmanship can be accommodated.

(c) Site testing

To ensure that the concrete has been placed, compacted and cured correctly, a number of tests shall be carried out on the trial and test panels as well as on the tops of decks and precast panels by an approved laboratory.

For this contract the following number of test / trial panels and testing are envisaged:

TABLE 1: MINIMUM NUMBER OF TRIAL / TEST PANELS REQUIRED

Panel Type	No. Vertical Cast	No. Horizontally cast	Total No.
Trial Panel	1	2	3
Test Panel			
Substructures	3	=	3
Culverts	128	=	128
Retaining walls	-	=	-
Bases	31	=	31
Decks	4	=	5
Parapets	6	=	6
Precast Beams	-	=	-

TABLE 2: MINIMUM NUMBER OF CORE RESULTS REQUIRED

Element	No. of Cores
Substructures	18
Culverts	768
Retaining walls	0
Bases	186
Decks	24
Parapets	36
Pre-Cast Beams	-

(d) Non-compliance with specified criteria

The contractor should also note that there is specific provision made for curing of concrete under payment item B64.07 of the project specification. The amounts priced under this item will be subject to reduced payments should the durability tests indicated under B8106(g) fail to meet the required targets. Similarly, failure to achieve the required durability test results will be sufficient cause to apply partial payment factors for all the payitems of the elements of the structure under section 6300 and 6400 of the standard and project specifications or in some cases the removal of the concrete rejected.

SERIES 8000: SUNDRIES

SECTION B8100 : TESTING MATERIALS AND WORKMANSHIP

B8102 TESTING METHODS

Add the following before the first paragraph;

Materials shall be tested in accordance with SANS 3001. The site laboratory shall be equipped with SANS 3001 apparatus.

References in the COLTO Standard Specifications to specific TMH test methods need to be exchanged for the equivalent SANS 3001 test method.”

B8117 MEASUREMENT AND PAYMENT

Item	Unit
B81.04 Employer's 65% contribution to the joint site laboratory.....	Pov Sum

As per specified in Section B1205 - Workmanship And Quality Control, payment under this item will be made on the Engineer's instruction in accordance with the Conditions of Contract.

SECTION B8200: QUALITY CONTROL (SCHEME 1)

B8206 JUDGEMENT PLAN B

Replace table 8206/3 with table B8206/3 below:

Table B8206/3

VALUES OF CONSTANTS m , L_s , L'_s , AND ϕ

Material	Properties	Minimum sample size n	L_s (Lower specification limit)	L'_s (Upper specification limit)	ϕ (%)
roadbed layer	Relative compaction	6	90%	-	15
Subgrade layer	Relative compaction	6	93%	-	15
Subgrade layer	CBR	4	See note 5		15
Lower & Upper Selected layer	Relative compaction	6	95%	-	15
Lower & Upper Selected layer	CBR	4	See note 5	-	15
Lower & Upper Subbase layer	Relative compaction	6	95% or 97%	-	15
Lower & Upper Subbase layer	UCS	4	750 or 1500 kPa	-	15
Gravel base	Relative compaction	6	88% of App density	-	15
Crushed stone subbase or base	Relative compaction	6	See subclause 3602(a)	-	15
Asphalt base or surfacing	Relative compaction	6	See note	See note	15
	Binder content	6			
	Voids	4	1	1	
Chemically stabilised layers	Cementitious binder content	10	See note 2	See note 2	10
Streight concrete (structural)	Compressive strenght (28 days)	See table 8206/3	See notes 3 and 4	-	5
Pavement concrete	Compressive strenght (28 days)	6	See subclause 7103(d)	-	5

Insure asphalt testing should be core and not relative troxler compacting by means of extracted cores

Notes (Table 8206/3)

(1) Asphalt base or surfacing: Specification limits for-

Add to (a) Density, the following:

“ L'_s = 96% of theoretical maximum density for surfacing at intersections of P39/1.”

(c) Voids

Delete and replace the contents of this subitem with the following:

“ L_s = specified values -1,0% points

L'_s = specified values +1,0% points”

B8209 PROCESS CONTROL BY THE CONTRACTOR

In the last sentence of the second paragraph replace “clause 4.4 of TRH5...” with “table B8206/3”

SECTION SANS 1200L: MEDIUM PRESSURE PIPELINE

Add the following:

Item	Unit
<p>8.2.1 (a) Supply, lay, bed (class B bedding), butt weld joint and test steel pipes to comply to SANS719. Pipe should be DN600 API 5L X42 pipe, 12mm wall thickness..... (m) metre</p> <p>Pipe shall conform to the requirements of SANS 719 and specials shall be manufactured from straight pipe.</p> <p>Pipe should be API 5L X42, (minimum yield strength = 235 MPa) pipe end shall be clean cut, free from burrs and acceptably squire to the axis of the pipe and shall be prepared for field welding or shall be plain as specified by the design engineer or and the purchaser a 609.6mm outside diameter pipe with a 600mm nominal bore shall have 12mm wall thickness Delivery of the pipe sections shall be 12m length.</p> <p>External pipe preparation to comply to SA 2 1/2.</p> <p>Internal pipe preparation to ST 2 ½.</p> <p>Application of carbo- guard 891 epoxy.</p> <p>Welding:</p> <p>All welding in pipes and specials shall be electric fusion welding, electric resistance welding in accordance with SANS 719 and API 1104 or submersed arc welding (SMAW).</p> <p>The contractor shall furnish the engineer with the manufacturer's certificate which covers the chemical analysis and the mechanical properties of the steel used in The manufacture of the pipes and specials, and shall provide written confirmation that welding has been carried out by coded welders.</p> <p>All production welding of pipes and specials shall be done by welders who are competent in terms of procedure approval tests as stipulated in SANS 10044-4 and API 1101.</p> <p>The root shall not deviate from the squareness of the axis of the pipe by more than the appropriate pf 3mm (except when using ERW where no root or filler in applicable).</p> <p>Nominal outside diameter above 250mm up to including 1250mm, to be joined by field welding tolerance of +2.4 and -0.8, length of ends subject to tolerance 100, pipes to be joined by coupling tolerance of +1.6 or -1.6, length of ends subject to tolerance 150mm.</p> <p>There shall be no overlap of the toes of the weld, but shall be substantially free from undercut and if present, the depth of the undercut should not exceed 12.5% of the nominal thickness of 1mm whichever is less and the aggregate of the undercut in any 1m of length of weld shall not exceed 50mm.</p> <p>The heights of the inner and outer weld reinforcements shall not exceed 3mm in the pipes of wall thickness not exceeding 10mm and 5mm height in pipes with a wall</p>	

thickness exceeding 10mm. With the exception of when required so by the engineer the height of the inner weld reinforcement shall not exceed 1mm.

Internal Coating:

The internal lining shall be of a solvent free epoxy with a dry film thickness of 300-400 micron and shall comply with all the requirements of SANS 1217 or SANS 719:2008

The contractor shall furnish the engineer with a certificate which confirms that the coating has been applied to the customer's and manufacturer's satisfaction. Such a certificate shall be signed by the manufacturer.

External Lining:

The external lining shall be of a 3 layer polyethylene with specification z245.20/21 with 2.3 dft. sigmaline 855 is required to apply over the fusion areas after applying the appropriate preparation.

“Item	Unit
8.2.2 Disconnect existing pipe work and connect new pipe work..... (sum)	

Add the following:

This item includes: Risk assessment and methodology, closing the existing pipeline valves, scouring existing pipelines, water management, cutting existing pipelines, connecting to existing pipelines and reopening on valves and bleeding of pipeline if necessary.

A methodology and risk assessment for the connection of the new pipeline to the existing pipeline must be done by the contractor and submitted to the Engineer and the Kelvin Power nominated works inspector for approval before commencing with the connection to the existing pipeline. The cost of the methodology and the risk assessment is included in this item.

“Item	Unit
8.2.2 Kelvin Power pipeline connection cost..... (sum)	

Add the following:

This cost includes the cost payable to Kelvin Power (if required) by the contractor to perform a connection to the existing pipeline over a continuous 24 hours.

When the time arrives for the new section of pipe to tie in to the existing section of pipe, the contractor will give the engineer and Kelvin Power 7 days’ notice prior to commencing with the connection of these pipes.

A disruption of the water supply of Kelvin Power station (a disruption of water supply in the existing pipeline that is to be realigned) over a continuous 24hours is allowed for the connection to the new pipeline. Within 24 hours the pipeline must be reconnected and conveying water as before disruption.

A disruption in water supply of more than 24hours ,due to connecting to the existing pipe, will cause Kelvin Power station to reduce its level of production. The contractor shall be liable for any loss in revenue suffered as a result of diminished production.

The contractor shall be liable for any damage to the pipeline or revenue loss by Kelvin Power station, or legal fees, due to a reduction in water supply caused by the contractor, or by others due to the fact that the contractor did not protect the pipeline properly.

A reduction of water supply might cause Kelvin Power to utilise water from Rand Water for a period of four days after which it may be forced to reduce production. In the event of this happening the sum total in this item covers the cost of purchasing water from Rand Water for approximately 48hours. All expenses or fines from Rand Water due to relocating or damaging this pipeline over and above the sum total of this item is for the contractor's account.

TENDER NO. DRT 26/07/2019

CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD), UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71 (PITTS AVENUE)

PROJECT SPECIFICATIONS

PART C: EMPLOYMENT OF LOCAL LABOUR

CONTENTS

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C.12	MEASUREMENT AND PAYMENT

C 01 SCOPE

This Specification covers the provisions and requirements relating to the employment of Local Labour to serve the employer's objectives of employment creation

C 02 INTERPRETATIONS

C 02.01 Definitions and abbreviations

For the purposes of this specification, the definitions given in the Conditions of Contract, the Standard Specifications and the Project Specifications, together with the following additional definitions shall, unless the context dictates otherwise, apply:

- (a) "Key Personnel" means all contracts managers, site agents, materials and survey technicians, trainers, supervisors, foremen, skilled plant operators, artisans and the like, and all other personnel in the permanent employ of the Contractor or Subcontractor who possess special skills and/or who play key roles in the Contractor's or Subcontractor's operation
- (b) "Project Steering Committee (PSC)" means a committee consisting of the Employer, the Employer's Agent, the Contractor, (or their nominated representatives) as well as representatives of the temporary workforce, which is convened from time to time at the discretion of the Employer's Agent, for the purposes of acting as an avenue for effective communication and liaison between all the parties referred to, in all matters pertaining to the Contract
- (c) "Subcontractor" means any person or group of persons in association, or firm, or body corporate (whether formally constituted or otherwise) not being the Contractor, to whom specific portions or aspects of the Works are sublet or subcontracted by the Contractor in accordance with the provisions of the Contract

- (d) "Worker" for the purposes of this Specification means any person, not being one of the Contractor's key personnel, nor any key personnel of any Subcontractor, who is engaged by the Contractor, a Subcontractor or the Employer to participate in the execution of any part of the Contract Works and shall include unskilled labour, semi-skilled and skilled labour, clerical workers and the like
- (e) "Workforce" means the aggregate body comprising all workers and shall, unless the context dictates otherwise, include the workforces of the Contractor and all Subcontractors
- (f) "Community Liaison Officer (CLO)" means a representative from the Local Labour Workers appointed by the Employer's Social Facilitator to act on their behalf and through whom all matters pertaining to Local Labourers can be channelized.
- (g) "Local Labour" or "Local Labourers" means workers that conform to the requirements stated in clause C3.3, and in in Part C of the Project Specifications.
- (h) "Social Facilitator" means a representative of the Employer responsible for all aspects for social facilitation including:
- i) Liaison with Ward Councillors and the community.
 - ii) Formation and management of a Project Steering Committee (PSC)
 - iii) Identification of a suitable Community Liaison officer (CLO)
 - iv) Identification of the Local Labour beneficiaries
 - v) Compiling lists of local QSE's and EME's
 - vi) Receipt of CLO / Contractor's monthly reports

C 02.02 Status

Where any provisions or requirements of this Specification are in conflict with anything elsewhere set out in the Contract, the provisions and requirements of this Specification shall take precedence and prevail.

C 03 REQUIREMENTS FOR LOCAL LABOUR

Local labour shall be Workers who are :

- Appointed by the contractor after the contract commencement date; and
- Who reside in local communities, which means within the boundaries the municipal wards that are immediately adjacent to the site; and
- Who are identified by the local councillors and the Community liaison officer; and
- Who are unemployed at the time of being offered employment by the contractor; and
- Are identifiable by wearing specified orange coloured clothing with distinct branding; and
- Are registered with the UIF.

Municipal wards immediately adjacent to the site are :

Ward No	Councillor's Name	Contact No
(Midrand)	Cllr. Deppe	082 886 8519

* Data to be provided during the contract period

The minimum percentages required for the employment of Local Labour are stated in clause C3.3 of the Scope of Works in the contract.

C 04 EMPLOYMENT RECORDS TO BE PROVIDED

- a) The Contractor shall maintain accurate and comprehensive records of all workers engaged on the Contract and shall provide the Employer's Agent at fortnightly intervals, from the commencement date, with interim records substantiating the actual statistics related to Labour employment, that shall have been generated to date and the amounts actually paid

in respect thereof. Such interim records shall be in a format approved by the Employer's Agent and in accordance with reporting templates to be discussed with the contractor. The Contractor will need certify the correctness and sign off these records prior to submission.

- (b) The Contractor shall, on completion of the Contract, and as a pre-requisite event to the release of any retention money in terms of the Conditions of Contract, provide the Employer's Agent with copies of the Terms of Employment as well as independently audited documentary evidence of the total number of temporary and permanent employment opportunities actually generated during the Contract.

C 05 VARIATIONS IN WORKER PRODUCTION RATES

Notwithstanding anything to the contrary as may be stated in or inferred from any other provision of this Contract, the Contractor shall not be entitled to any additional payment or compensation whatever, in respect of any differences as may result between the production rates actually achieved by workers in the course of the execution of the Contract Works and those production rates on which he has based his tender.

C 06 TRAINING OF THE TEMPORARY WORKFORCE

- (a) All Local Labour are to be provided with compulsory training in accordance with the provisions of Part D.
- (b) The Contractor shall make all necessary allowances in his programme of work to accommodate and facilitate the delivery of such compulsory training and shall comply fully with the requirements of Part D.
- (c) The provision of structured training as described in Part D shall not relieve the Contractor of any of his obligations in terms of the Conditions of Contract and the Contractor shall remain fully liable for the provision, at his own cost, of all training of the workforce, additional to that as provided for in Part D, as may be necessary to achieve the execution and completion of the works strictly in accordance with the provisions of the Contract.

C 07 RECRUITMENT AND SELECTION PROCEDURES

C 07.01 The Contractor shall be fully responsible for the selection of workers to constitute the workforce.

C 07.02 The Contractor shall advise the Employer's Agent in writing of the numbers of each category of Local Labour worker which he requires, together with the personal attributes which he considers desirable that each category of worker shall possess (taking due cognisance of the provisions of the Contract relating to training).

C 07.03 The CLO (see C11 hereafter) shall, take all necessary actions to advertise within the local communities.

C 07.04 The Contractor shall, in conjunction with the Social Facilitator, record in writing, the details of all persons applying for employment, including *inter alia*:

- (a) Name, address, age and sex
- (b) Marital status and number of dependants
- (c) Qualifications and previous work experience (whether substantiated or not)
- (d) Period since last economically active
- (e) Preference for type of work or task.

C 07.05 The Contractor shall make his selection of workers from amongst the applicants, taking due cognisance of his requirements for the workforce and the provisions of the contract in regard to the provision of training to the workforce and in accordance with the following principles:

- (a) No potential Local Labourer shall be precluded from being employed by the Contractor on the execution of the Works, by virtue of his lack of skill in any suitable operation forming part of the Works, unless -
 - (i) all available vacancies have been or can be filled by temporary workers who already possess suitable skills, or

- (ii) the Time for Completion allowed in the Contract, or the remaining portion of the Contract Period (as the case may be) is insufficient to facilitate the creation of the necessary skills.
- (b) Preference shall be given to the unemployed and single heads of households.
- (c) The Contractor shall, in so far as is reasonably practicable, give priority to accommodating the applicants' expressed preferences regarding the types of work for which they are selected.
- (d) The selection process shall not be prejudicial to youth and women.

C 07.06 After making his selection, the Contractor shall advise the Employer's Agent thereof, in writing and the Employer's Agent shall, without undue delay, ratify the Contractor's selection.

C 07.07 The provisions of this clause shall apply *mutatis mutandis* in respect of the selection of additional or replacement members of the workforce as may be necessary from time to time during the Contract.

C 08 **TERMS AND CONDITIONS PERTAINING TO THE EMPLOYMENT OF THE TEMPORARY WORKFORCE**

C 08.01 All Local Labour engaged in accordance with the provisions of Clause C3.3 of the Scope of Works and Part C of the Project Specifications shall be employed on the terms and conditions of employment as are consistent with those as set out in this Contract. The Contractor shall implement and adhere strictly to such terms and conditions relating to the employment of Local Labour, and subject only to the provisions of this Contract, shall not employ any worker on terms and conditions which are less favourable to the worker or inconsistent with the standards, norms and minimum rates of remuneration generally applicable to temporary workers in the Civil Employer's Agent Industry and applicable to the particular area.

C 08.02 The Contractor shall pay to all Local Labour nothing less than the minimum rate of remuneration as specified in C08.01 above and no variation in payment shall be made for labour intensive work tasks identified by the contractor. .

C 09 **LABOUR RELATIONS AND WORKER GRIEVANCE PROCEDURES**

C 09.01 The Contractor, as the Employer of the workforce, shall be fully responsible for the establishment and maintenance at his own cost, of satisfactory labour relations on site and the resolution of all grievances of temporary workers as may occur.

C 09.02 The Contractor shall at all times adhere to the accepted norms and standards of labour relations prevailing generally in the Civil Employer's Agent Construction Industry and shall conduct himself in a fair and reasonable manner, within the constraints as may be imposed upon him by the terms of the Contract.

C 09.03 In the event of any Local Labourer engaged by the Contractor in terms of the Contract, being aggrieved with regard to his Terms of Employment, working conditions and training, he shall have the right, at his discretion, to be supported in any inquiry or disciplinary hearing or investigation instituted by the Contractor in terms of Subclause C 09.02 above, by a Local Labourer and one member of the Project Committee, which persons shall be nominated by the worker.

C 09.04 In the event of any grievance not being satisfactorily resolved through the application of normal dispute resolution procedures in accordance with Sub clauses C 09.02 and C 09.03, then either the Contractor or the worker concerned may require that the matter be referred to the Project Committee for further consideration, with a view to facilitate the resolution thereof.

C 10 **THE SUBCONTRACTORS' WORKFORCES**

C 10.01 The provisions of this Part C shall apply *mutatis mutandis* to the workforces employed by all subcontractors engaged by the Contractor and the Contractor shall be fully responsible for ensuring, at his own cost, that the terms of every subcontract agreement entered into are such as to facilitate the application of these provisions in respect of the workforces of all subcontractors.

C 10.02 The Contractor shall at his own cost and to the extent necessary, assist and monitor all subcontractors in the application of the provisions of this Specification, and shall, in terms of the Conditions of Contract, remain fully liable in respect of the acts, omissions and neglects of all subcontractors, in respect of the application of the provisions of this Specification.

C 11 **COMMUNITY LIAISON OFFICER (CLO)**

The contractor or his appointed agent will appoint a Community Liaison Officer (CLO) after consultation with the Social Facilitator and the Employer's Agent. . An employment contract must be signed between the contractor and CLO from project initiation to project end. The contractor shall direct all his liaison efforts with the local communities through the appointed officer. The contractor shall, however, accept the appointed as part of his management personnel.

The Contractor will provide the CLO with additional cell phone air time of R300 per month.

C 11.01 **Duties of the Community Liaison Officer**

The Community Liaison Officer's duties will be:

- (i) To be available on site daily between the contractor's normal working hours and at other times as the need arises.
- (ii) To determine, in consultation with the contractor, the needs for relevant skills training. He will be responsible for the identification of suitable trainees and will attend one of each of the training sessions.
- (iii) To communicate daily with the contractor and the Employer's Agent to determine the labour requirements with regard to numbers and skill, to facilitate in labour disputes and to assist in their resolution.
- (iv) To facilitate the recruitment of suitable temporary labour.
- (v) To attend all meetings in which the community and/or labour are present or are required to be represented.
- (vii) To inform labourers of their conditions of employment and to inform temporary labourers as early as possible when their period of employment will be terminated.
- (viii) To attend disciplinary proceedings to ensure that hearings are fair and reasonable.
- (ix) To keep a daily written record of his interviews and community liaison.
- (x) To attend monthly site meetings to report on labour matters.
- (xi) All such other duties as agreed upon between all parties concerned.
- (xii) To submit monthly returns regarding community liaison in a format prescribed by the Employer's Agent.

C 11.02 **Payment for the community liaison officer**

A special pay item is incorporated in section 1200 of the bill of quantities relating to payment of the liaison officer on a prime cost sum basis. This payment shall only be made for the period for which the duties of the liaison officer are required and not necessarily for the full duration of the contract. The

remuneration of the CLO shall be determined jointly by the contractor, Employer's Agent and the social facilitator.

C 11.03 Period of employment of the CLO

The period of employment of the CLO shall be as decided upon jointly by the contractor, Employer's Agent and the social facilitator.

C 12 MEASUREMENT AND PAYMENT

The Contractor will not be separately reimbursed or compensated in respect of the provision of the workforce and creation of temporary employment opportunities and all the Contractor's costs associated with compliance with the provisions of this part of the Project Specifications shall, except to the extent provided for as relevant, be deemed to be included in the rates tendered for in Section 1300 of the Bill of Quantities.

Item **Unit**

C12.01 Community Liaison:

- (a) Community Liaison Officer(s) Prime cost (PC) sum
- (b) Community Liaison Prime cost (PC) sum
- (a) Contractor's charge to allow for handling costs and profit
in respect of sub-item C12.01(a and b) % (Percentage)

Payment under the Prime cost (PC) sum provided in subitem C12.01(a) to cover the employment, remuneration of the Community Liaison Officer(s) and cell phone allowance.

Item C12.01(b) shall cover approved costs for community liaison and management by specialist consultant and cost shall be effected in accordance with the provisions of Clause 45.2 of the General Conditions of Contract.

The tender percentage in subitem C12.01(c) is the percentage of the amount actually spent under item C12.01(a) and (b) that will be paid to the Contractor in full compensation for the Contractor's handling costs and profit in respect of the employment and remuneration of the Community Liaison Officer.

C12.02 The contractor's obligation in respect of local and other labourers:

- (a) Provision of transport for local labourers..... Prime cost (PC) sum
- b) Contractor's charge to allow for handling costs and profit in
respect of subitem C12.02(a)%

Payment under the Prime Cost (PC) sum provided in subitem C12.02 (a) and (b) to cover the employment, hiring, remuneration and provision of rental transport for the provision of transport for local labourers.

C12.03 Contractor's obligation in respect of Emerging Contractors

- (a) Contractor's obligation in respect of Emerging Contractors.....Provisional (Prov) sum
- (a) Contractor's charge to allow for handling costs and profit in
respect of subitem C12.03(a)%

Payment under this Provisional Sum is to include all mentoring, training and coaching/ assistance to Emerging Contractors on items such as production rate, certificates and training in regards to all related works. All labour rates towards payment to Emerging Contractors for related works must be in line with rates as per the gazetted labour rates.

C12.04 Provision of EPWP branding and overalls:

- (a) E/O for the provision of ORANGE
overalls for EPWP labour Prime cost (PC) sum
- (b) E/O for the provision of EPWP branding on
overalls for EPWP labour Prime cost (PC) sum
- (c) Contractors charge to allow for handling costs and
profit in respect of sub-items C12.04 (a) and (b) Percentage (%)

Payment under the Prime cost (PC) sum provided in sub-item C12.04 (a) to cover the additional costs (over and above the costs involved for providing safety PPE including overalls) involved to provide orange-coloured EPWP overalls as requested.

Payment under the Prime cost (PC) sum provided in sub-item C12.04 (b) to cover the additional costs (over and above the costs involved for providing safety PPE including overalls) involved to provide EPWP-branding on the EPWP overalls as requested.

The tender percentage in subitem C12.04 (c) is the percentage of the amount actually spent under items C12.04 (a) and (b) that will be paid to the Contractor in full compensation for the Contractor's handling costs and profit in respect of the employment and remuneration of the Community Liaison Officer.

TENDER NO. DRT 26/07/2019

CONSTRUCTION OF NEW K73 (1.446km) BETWEEN MONTROSE ROAD AND K58 (ALLANDALE ROAD), UPGRADING OF 0.590km SECTION OF K71 (WOODMEAD DRIVE) THROUGH THE INTERSECTION WITH NEW K73, UPGRADING OF K58 (ALLANDALE ROAD) (2.859 km) BETWEEN HARRY GALAUN DRIVE AND K71 (PITTS AVENUE)

PROJECT SPECIFICATIONS

PART D: PROVISION OF COMPULSORY TRAINING

CONTENTS

D 01	SCOPE
D 02	INTERPRETATIONS
D 03	EMPLOYER'S AGENT SKILLS TRAINING
D 04	GENERIC TRAINING
D 05	ENTREPRENEURIAL SKILLS TRAINING
D 06	MEASUREMENT AND PAYMENT

D 01 SCOPE

This specification covers the requirements for the provision of training to Local Labour (as defined in Part C of the Project Specification) which includes Local Labour employed EME and QSE sub-contractors, as well as other unskilled and semi-skilled employees approved by the Employer's Agent..

D 02 INTERPRETATIONS

D 02.1 Supporting documents

The tender rules, conditions of contract, standard, supplementary and specific specifications and project specifications and drawings shall inter alia be read in conjunction with this specification.

D 02.2 Application

The provisions of this specification shall apply to Local Labourers, who are engaged on the execution of the works.

D 03 EMPLOYER'S AGENT SKILLS TRAINING FOR THE CONTRACTOR'S AND SUB-CONTRACTOR'S LOCAL LABOUR

D 03.1 The Contractor shall, from the commencement of the contract, implement a compulsory structured training programme comprising of training delivered by a selected subcontractor training provider and, in which the various skills required for the execution and completion of the works are imparted to the Contractor's and his sub contractor's Local Labour workers, in a programmed and progressive manner. Workers shall be trained progressively throughout the duration of the contract in the various stages of a particular type of work.

D 03.2 The skills training programme to be implemented by the selected subcontractor shall comply with the following minimum standards:

- a) Be accredited by the Civil Employer's Agent Training Authority (CETA) or other institutions recognised by the Department of labour, as being appropriate for application on this project. Accredited training refers to both the trainers as well as to the training materials.
- b) Be delivered by suitably qualified and experienced trainers accredited to do so.

- D 03.3** The Contractor shall be responsible for the provision of the necessary items for the delivery of the specified skills training programme, including the following:
- (a) Sufficient skilled, competent and accredited trainers to deliver the training programme to workers in accordance with the training programme
 - (b) A suitably furnished venue
 - (c) Transport of the workers as required
 - (d) Tools, equipment, and teaching aids
 - (e) Stationery and all other necessary materials.
- D 03.4** Selection of candidates
- (a) Members of the Local Labour workforce will be selected by the Employer's Agent, assisted by the Contractor and the CLO, to receive specific training as approved by the Employer's Agent.
 - (b) The following will be taken into account in the selection of the workers to receive the specified training:
 - i. Previous experience (if any)
 - ii. Previous courses completed (if any)
 - iii. Module specific requirements
 - iv. All Local Labour should receive training during the Contract Period.
- D 03.5** Duration of training
- (a) The Contractor shall allow in his programme for the Local Labourers to be engaged in the specified training modules over the duration of the Contract Period.
 - (b) All specified skills-related training shall take place only during normal working hours and the Contractor shall ensure that the selected workers are available at the appropriate times to undergo such training.
- D 03.6** Employer's Agent skills training shall be arranged in a manner which will allow theoretical training to be followed promptly by practical training with actual appropriate and relevant work on the site,
- D 03.7** The selected subcontractor's programme shall be subject to the approval of the Employer's Agent, and if so instructed by the Employer's Agent shall alter or amend the programme and course content to suit changing conditions on site and all changes in the Contractor's programme of work.
- D 03.8** The contractor shall keep comprehensive records of the training given to each worker involved in training as well as the nature and number of each task executed by the worker and whenever required, shall provide copies of such records to the Employer's Agent. The format of such records shall be subject to the Employer's Agent's approval.
- D 03.9** Local Labourers shall be remunerated in respect of all time spent undergoing the specified training in terms of Clause D03.02, at the minimum specified wage rate for the area of the Works and the Contractor shall ensure that his sub-contractors are bound by this contractual requirement. Such compensation shall be claimable for separate payment. The P.C. sum allowed in the item B12.04 makes provision for this.
- D 03.10** **Use of workers**
- The Contractor shall, in so far as it is reasonably feasible take due cognisance of the nature of the works to be executed at any given time, and use trained workers on those aspects of the works for which they have been trained.
- D 04** **ENTREPRENEURIAL SKILLS TRAINING FOR QSE's AND ESE's**
- D 04.01** Training needs assessments of the Contractor's, QSE and ESE sub-contractors will be undertaken during the course of the Contract by a sub-contractor to be nominated by the Employer's Agent, on the instruction of the Employer's Capex Programme Manager. The training needs assessments shall have as their focus contractor development, and shall

identify needs for business development, business management and technical construction management skills. Such training needs may only be identified amongst Local Labour, and QSE and ESE subcontractors.

- D 04.02** Once needs assessments have been completed, training to meet the needs identified in the assessment phase will be provided, again by a sub-contractor to be proposed by the Contractor, in consultation with the Employer's Agent, or, on the instruction of the Employer's Capex Programme Manager.
- D 04.03** The Contractor shall assist in facilitating in the delivery of the training, by instructing and motivating personnel and subcontractors regarding attendance and participation therein.
- D 04.04** The Contractor shall further make all reasonable efforts to co-ordinate the programming of the subcontractor's work with that of the delivery of the training.
- D 04.05** Following completion of the training, members that have demonstrated understanding of and competence in the training material are to be appropriately certified by the accrediting body.
- D 04.06** The Contractor shall be responsible for the provision of the necessary items for the delivery of the entrepreneurial training programme, including the following:
- (a) A suitably furnished venue
 - (b) Transport of the subcontractors as required
 - (c) Tools, equipment, and teaching aids
 - (d) Stationery and all other necessary materials.
- D 04.07** All specified entrepreneurial training shall take place within normal working hours.
- D 04.08** The Contractor's training programme, if any, shall be subject to the approval of the Employer's Agent, and if so instructed by the Employer's Agent shall alter or amend the programme and course content.
- D 04.09** The Contractor shall keep comprehensive records in an acceptable format of all training given to personnel and subcontractors involved in training and whenever required shall provide copies of such records to the Employer's Agent. 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.
- D 04.10** No remuneration in respect of time spent undergoing specified training in terms of this Clause will be made to any of the QSE and EME subcontractors.

D 05 **TRAINING PROGRAMME**

The contractor shall provide a programme to the Employer's Agent setting out :

- (i) Training courses, clearly identifying Employer's Agent and entrepreneurial skills training,
- (ii) Dates of various courses,
- (iii) Dates when practical training will be done,
- (iv) Names of trainees,
- (v) Any other appropriate information instructed

The programme shall be in an acceptable format, shall be revised to reflect the latest available information and a register of revisions shall be enclosed with the programme.

D 06 **MEASUREMENT AND PAYMENT**

D 06.01 Training

The Contractor shall only be reimbursed for the amounts actually paid by the Contractor to the selected sub-contractor training providers, appointed as directed by the Employer, in execution of the Employer's Agent's written instruction, plus a percentage as tendered to cover all his charges and profits.

Payment of trainees wages during training (the contractor will be reimbursed for these wages by way of the Provisional Sum allowances in the Bill of Quantities).

Wages for appointed labourers and subcontractors who have successfully completed accredited training and are appointed on productive work during the duration of the Contract shall be paid for by the Contractor as Contractor's employees or subcontractors, and will not be reimbursed under this item.

No wages for trainees will be paid during entrepreneurial skills training

The Contractor will be required to obtain three quotations from the training service providers for each course to be undertaken and appoint the most suitable training provider as a sub-contractor, giving preference to locals and BB-BEE- entities with a rating between 3 and 1.; The Employer's Agent will require an adjudication report with recommendations from the contractor prior to approval of the appointment of the training provider.

No additional payment shall be made for informal training

Payment items are included in the Schedule of Quantities under this Section for the provision of the compulsory training. Any additional training as viewed by the Contractor to be necessary shall be viewed to be included under Section 1300 and shall not be paid for separately.

PROJECT SPECIFICATIONS

PART E : HEALTH AND SAFETY SPECIFICATION

Refer to the following Annexures:

- Annexure D – Baseline Risk Assessment
- Annexure E – Health and Safety Specification
- Annexure F – Covid19 Construction Site Management Procedure

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.

E10. MEASUREMENT AND PAYMENT

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 required during the construction process.

(a) Safety personnel

The Construction Supervisor, the Construction Safety Officer, Health and Safety Representatives, Health and Safety Committee and Competent Persons 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 is regarded as a normal duty of the Contractor for which payment is deemed to be included in the Contractor's tendered rates and prices, and for which no additional payment will be considered.

Item	Unit
E10.1 Contractor's initial general obligations in respect of the Occupational Health and Safety Act, and Construction Regulations and COVID19 Construction Site Management Procedures.	Lump Sum

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

- The Contractor has timely submitted and approval by the Employer's Agent, of documentation required before commencing to carry out the Works and before the Employer applying for a permit to do construction work, as set out in the Contract Data,
- The Contractor has made the required initial appointments of employees and sub-Contractors and he has ensured that all of his employees have a valid medical certificate of fitness specific to the construction work to be performed.
- The Client has approved the Contractor's Health and Safety Plan.
- the Contractor has set up his Health and Safety File.
- Initial setup of all COVID19 Construction Site Management Procedures

A contractor who tenders zero for this pay item shall not be relieved of his statutory obligations. A nil rate offered shall be deemed not as an omission but as deliberate notice that

costs have been included in the tendered rates for individual items of work or in the other preliminary and general pay items”

E10.2 Contractor’s time related obligations in respect of the Occupational Health and Safety Act, Construction Regulations and COVID19 Construction Site Management Procedures..... Month

The tendered monthly amount shall represent full compensation for that part of the Contractor’s general obligations in terms of the Occupational Health and Safety Act and the Construction Regulations, Part E – Health and Safety Specification and COVID19 Construction Site Management Procedures, which are mainly a function of time. This includes inter alia payment of all costs for the appointment of all staff contemplated in the construction regulations and the transport of employees on site. Payment will be monthly only after payment for Item E10.1 has been made.

A contractor who tenders zero for this pay item shall not be relieved of his statutory obligations. A nil rate offered shall be deemed not as an omission but as deliberate notice that costs have been included in the tendered rates for individual items of work or in the other preliminary and general pay items”

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PROJECT SPECIFICATIONS

PART F: HIV/AIDS SPECIFICATION

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F 03	BASIC METHOD REQUIREMENT
F 04	HIV/AIDS AWARENESS EDUCATION AND TRAINING
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F 07	APPOINTMENT OF AN HIV/AIDS AWARENESS CHAMPION
F 08	MONITORING
F 09	MEASUREMENT AND PAYMENTS

F 01 SCOPE

F 01.1 This specification contains all requirements applicable to the Contractor for creating HIV/AIDS awareness amongst all of the Workers involved in this project for the duration of the construction period, through the following strategies:

F 01.2 Raising awareness about HIV/AIDS through education and information on the nature of the disease, how it is transmitted, safe sexual behavior, attitudes towards people affected and people living with HIV/AIDS, how to live a healthy lifestyle with HIV/AIDS, the importance of voluntary testing and counseling, the diagnosis and treatment of Sexually Transmitted Infections, and the closest health service providers

F 01.3 Informing Workers of their rights with regard to HIV/AIDS in the workplace

F 01.4 Providing Workers with access to condoms and other awareness material that will enable construction Workers to make informed decisions about sexual practices

F 02 DEFINITIONS AND ABBREVIATIONS

F 02.1 Definitions

Service Provider: The natural or juristic person recognised and approved by the Department of Public Works as a specialist in conducting HIV/AIDS awareness programmes

Service Provider Workshop Plan: A plan outlining the content, process and schedule of the training and education workshops presented by a Service Provider, which has been approved by the Representative/Agent

Worker: Persons in the employ of the Contractor or under the direction or supervision of the Contractor or any of his sub-contractors, who are on site for a minimum period of 30 days in all

F 02.2 Abbreviations

HIV : Human Immunodeficiency Virus
AIDS : Acquired Immune Deficiency Syndrome
STI : Sexually Transmitted Infection

F 03 BASIC METHOD REQUIREMENT

F 03.1 The Contractor shall, through a Service Provider, conduct onsite workshops with the Workers

F 03.2 The Service Provider shall develop and compile a Service Provider Workshop Plan to be presented at the workshops and which will be best suited for this project to achieve the specified objectives with regards to HIV/AIDS awareness. The Contractor shall submit the Service Provider Workshop Plan for approval within 21 days after the tender acceptance date. After approval by the Department's Tender Committee, the Contractor shall make available an appropriate venue that will be conducive to education and training.

F 03.3 The Service Provider Workshop Plan shall address, but will not be limited to the following:

- a) The nature of the disease;
- b) How it is transmitted;
- c) Safe sexual behaviour;
- d) Post exposure services such as voluntary counselling and testing (VCT) and nutritional plans for people living with HIV/AIDS;
- e) Attitudes towards other people with HIV/AIDS;
- f) Rights of the Worker in the workplace;
- g) How the awareness champion will be equipped prior to commencement of the HIV/AIDS awareness programme with basic HIV/AIDS information and the necessary skills to handle questions regarding the HIV/AIDS awareness programme on site sensitively;
- h) How the Service Provider will support the awareness champion;
- i) Location and contact numbers of the closest clinics, VCT facilities, counselling services and referral systems;
- j) How the workshops will be presented, including frequency and duration;
- k) How the workshops will fit in with the construction programme;
- l) How the Service Provider will assess the knowledge and attitude levels of attendees to structure workshops accordingly;
- m) How the video will be used;
- n) How the Service Provider will elicit maximum participation from the Workers;
- o) A questions and answers slot (interactive session)

The Service Provider Workshop Plan shall encompass the Specific Learning Outcomes (SLO) as stipulated

F 04 HIV/AIDS AWARENESS EDUCATION AND TRAINING

F 04.1 Workshops

The Contractor shall ensure that all the Workers attend the workshops.

The workshops shall adequately deal with all the aspects contained in the Service Provider Workshop Plan. In order to enhance the learning experience, groups of not exceeding 25 people shall attend the interactive sessions of the workshops.

F 04.2 Recommended practice

Workshop Schedule

Presenting information contained in the Service Provider Workshop Plan can be divided in as many workshop sessions as deemed practicable by the Contractor, provided that all Workers are exposed to all aspects of the workshops as outlined in the Service Provider Workshop Plan.

Breaking down the content of information to be presented to Workers into more than one workshop session however, has the added advantage that messages are reinforced over time while providing opportunity between workshop sessions for Workers to reflect and test information. Workers will also have an opportunity to ask questions at a next session.

An attendance register should be kept by the Service Provider at every workshop and should be handed to the Department's Project Manager on a monthly basis together with Process Indicator Forms.

Service Providers

A data base of recommended Service Providers is available from the Department of Public Works, Private Bag X65, Pretoria, 0001, located at the Central Government Offices, corner of Bosman and Vermeulen Streets, Pretoria and at all Public Works Regional Offices

HIV/AIDS Specific Learning Outcomes and Assessment Criteria

Workers shall be exposed to workshops for a minimum duration of two-and-a-half hours. In order to set a minimum standard requirement, the following specific learning outcomes and assessment criteria shall be met

(a) UNIT I: The nature of HIV/AIDS

After studying and understanding this unit the Worker will be able to differentiate between HIV and AIDS and comprehend whether or not it is curable. The Worker will also be able to explain how the HI virus operates once a person is infected and identify the symptoms associated with the progression of HIV/AIDS.

Assessment Criteria:

1. Define and describe HIV and AIDS
2. List and describe the progression of HIV/AIDS

(b) UNIT 2: Transmission of the HI virus

After studying and understanding this unit the Worker will be able to identify bodily fluids that carry the HI virus. The Worker will be able to recognise how HIV/AIDS is transmitted and how it is not transmitted.

Assessment Criteria:

1. Record in what bodily fluids you will find the HI virus.
2. Describe how HIV/AIDS can be transmitted.
3. Demonstrate your ability to distinguish between how HIV/AIDS is transmitted and misconceptions around transmittance of HIV/AIDS.

(c) UNIT 3: HIV/AIDS preventative measures

After studying and understanding this unit the Worker will comprehend how to act in a way that would minimise the risk of HIV/AIDS infection and to use measures to prevent the HI virus to enter the blood stream.

Assessment Criteria:

1. Report on how you could minimise your risk of HIV/AIDS infection.
2. Report on precautions that can be taken to prevent HIV/AIDS infection.
3. Explain or demonstrate how to use a male and female condom.
4. List of factors that could jeopardize the safety condoms provide against HIV/AIDS transmission.

(d) UNIT 4: Voluntary HIV/AIDS counseling and testing

After studying and understanding this unit the Worker will be able to recognise methods of testing for HIV/AIDS infection. The Worker will be able to understand the purpose of voluntary HIV/AIDS testing and pre- and post-test counseling.

Assessment Criteria:

1. Describe kinds of testing for HIV/AIDS infection.
2. Report on why voluntary testing is important.
3. Report on why pre- and post-test counseling is important.

(e) UNIT 5: Living with HIV/AIDS

After studying and understanding this unit the Worker will be able to recognise the importance of caring for people living with HIV/AIDS and be able to manage HIV/AIDS.

Assessment Criteria:

1. List and describe ways to manage HIV/AIDS.
2. Describe nutritional needs of people living with HIV/AIDS.
3. Describe ways to embrace a healthy lifestyle as a person living with HIV/AIDS.
4. Explain the need of counseling and support to people living with HIV/AIDS.

(f) UNIT 6: Treatment options for people with HIV/AIDS

After studying and understanding this unit the Worker will be familiar with the various treatments available to HIV/AIDS infected or potentially HIV/AIDS infected people.

Assessment Criteria:

1. Discuss anti-retroviral therapy
2. List methods of treatment to prevent HIV/AIDS transmission from mother-to-child.
3. Describe the need for treatment of opportunistic diseases for people living with HIV/AIDS.
4. Describe post exposure prophylactics.

(g) UNIT 7: The rights and responsibilities of Workers in the workplace with regards to HIV/AIDS

After studying and understanding this unit the Worker will be able to identify the rights and responsibilities of the Worker living with HIV/AIDS in the workplace. The Worker will recognise the importance of accepting colleagues living with HIV/AIDS and treating them in a non-discriminative way.

Assessment Criteria:

1. Discuss the rights of a person living with HIV/AIDS in the workplace.
2. Discuss the responsibilities of a person living with HIV/AIDS in the workplace.
3. Report on why acceptance and non-discrimination of colleagues living with HIV/AIDS is important.

F04.3 Displaying of plastic laminated posters and distribution of information booklets

- (a) The Contractor shall obtain a set of four posters conveying different key messages, and information booklets from the Construction Industry Development Programme Unit (CIDP), Room A520 located in the Central Government Offices, corner of Bosman and Vermeulen Streets, Pretoria or at all Regional Offices of the Department of Public Works. The postal address is the Department of Public Works, Private Bag X65, Pretoria, 0001.
- (b) The above-mentioned posters and information booklets have been prepared to raise awareness and to share information about HIV/AIDS and STI's.
- (c) Posters or display stands shall be displayed on site as soon as possible but not later than 14 days after the date of site hand over.
- (d) Posters shall be displayed in areas highly trafficked by Workers, including toilets, rest areas, the site office and compounds.
- (e) The posters on display should always be intact, clear and readable.
- (f) Information booklets must be distributed to all Workers as soon as possible but not later than 14 days after site hand over, or as soon as the Worker joins the site.

F05 PROVIDING WORKERS WITH ACCESS TO CONDOMS

F05.1 The Contractor shall provide and maintain condom dispensers and make both male and female condoms complying with the requirements of SABS ISO 4074 available at all times to all Workers at readily accessible points on site, for the duration of the contract. The

Contractor may obtain condom dispensers from the Department of Health and condoms may be obtained from the local clinic or the Department of Health.

F05.2 At least one male and one female condom dispenser and a sufficient supply of condoms, all to the approval of the Representative/Agent, shall be on site within 14 days of site hand over. Contractors should note that arrangements to obtain condoms from the Department of Health Clinics prior to site hand over may be necessary to ensure that condoms are available within 14 days of site hand over.

F05.3 Condoms shall be made available in areas highly trafficked by Workers, including toilets, the site office and compounds.

F06 **ENSURING ACCESS TO HIV/AIDS TESTING AND COUNSELING FACILITIES AND TREATMENT OF SEXUALLY TRANSMITTED INFECTIONS (STI)**

F06.1 The Contractor shall provide the Workers with the names of the closest Service Providers that provide HIV/AIDS testing and counseling and Clinics providing Sexually Transmitted Infection (STI) diagnosis and treatment. Information on these Service Providers and Clinics should be displayed on a poster of a size not smaller than A1 in an area highly trafficked by Workers.

F07 **APPOINTMENT OF AN HIV/AIDS AWARENESS CHAMPION**

F07.1 Within 14 days of site hand over the Contractor shall appoint an Awareness Champion, from, amongst the Workers, who speaks and understands all the languages spoken by the Workers and he/she shall be on site during all stages of the construction period. The Contractor shall ensure that the Awareness Champion has been trained by the Service Provider on basic HIV/AIDS information, the support services available and the necessary skills to handle questions regarding the HIV/AIDS programme in a sensitive way.

The Awareness Champion shall be responsible for:

- (a) Liaising with the Service Provider on organising awareness workshops;
- (b) Filling condom dispensers and monitoring condom distribution;
- (c) Handing out information booklets;
- (d) Placing and maintaining posters

F08 **MONITORING**

F08.1 The Contractor shall grant to the Representative/Agent reasonable access to the construction site in order to conduct unannounced site visits in order to establish that the Contractor complies with his obligations regarding HIV/AIDS awareness under this contract.

F08.2 The Representative/Agent shall conduct the site visits with the least possible disruption to the Contractor's daily routine.

F08.3 Contractors must report problems that they experience in implementing the HIV/AIDS requirements to the Representative/Agent.

F08.4 The attached SITE CHECKLIST (SCHEDULE A) shall be completed and submitted at every construction progress inspection to the Representative/Agent.

F08.5 The attached SERVICE PROVIDER REPORT (SCHEDULE B) shall be completed and submitted on a monthly basis to the Department's Project Manager through the Representative/Agent

F08.6 The Contractor shall, at the end of the contract, complete and submit a close out programme report CONTRACTOR HIV/AIDS PROGRAMME REPORT (SCHEDULE C)

F09 **MEASUREMENT AND PAYMENT**

F09.1 It is required of tenderers to thoroughly study the HIV/AIDS Specifications of the Department that must be read together with and is deemed to be incorporated in the Schedule of Quantities. Provision for pricing of HIV/AIDS awareness must be made under

Item F10.01 hereafter and it is explicitly pointed out that all requirements of the aforementioned specifications are deemed to be priced hereunder as the said item represents the only method of measurement and no additional items or extras to the contract in this regard shall be entertained.

F09.2 Contractor should take note that compliance with the HIV/AIDS Specification is compulsory. In the event of partial or total non-compliance, the Representative /Agent, notwithstanding the provisions of any other clause to the contrary, reserves the right to delay issuing any progress payment certificate until the Contractor provides satisfactory proof of compliance. The Contractor shall not be entitled to any compensation of whatsoever nature, including interest, due to such delay of payment

Item
Unit

F 10.01 HIV AIDS Awareness obligations Lump Sum

The tendered lump sum shall be in full compensation for the contractor providing an approved selected service provider to comply with the requirements and conditions of the Department's HIV AIDS Specifications, including the workshop education and training within an HIV AIDS Awareness programme and the Contractor's handling costs, profit, record keeping, reporting and all other charges in connection with providing the HIV AIDS Awareness programme.

Payment under item F10.01 will be made as follows:

80% of the amount will be paid once the service provider has complied with the requirements and conditions of the Department's HIV AIDS Specifications, including the workshop education and training within an HIV AIDS Awareness programme.

The outstanding 20% will be paid on completion of the contract, subject to the contractor's compliance in all respects with the requirements and conditions of the Department's HIV AIDS Specifications.

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C3.5 MANAGEMENT

C3.5.1 ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP)

C3.5.1.1 SCOPE

The EMP will address the environmental impacts during the design, construction and operational phases of a project. Due regard must be given to environmental protection during the entire road project. In order to achieve this, an environmental Management Programme has been prepared in order to set standards for environmental compliance.

C3.5.1.2 CONTRACTOR'S OBLIGATIONS

The EMP has been prepared by Environmental and Social Consultants NEMAI Consulting. A copy of the EMP is included as Annexure 5.1 to the Contract.

The contractor shall implement his works in such a manner that the environmental impact resulting from his construction activities are managed in accordance with the requirements set out in the EMP.

C3.5.1.3 OBJECTIVES OF THE EMP

The EMP has the following goals:

- Identifying those construction activities that may have a detrimental impact on the environment;
- Detailing the mitigation measures that will need to be taken, and the procedures for their implementation;
- Establishing the reporting system to be undertaken during the construction.

The EMP also serves to highlight specific requirements that will be monitored during the development and should the environmental impacts not have been satisfactory prevented or mitigated, corrective action will have to be taken. The document should, therefore, be seen as a guideline that will assist in minimising the potential environmental impact of activities.

C3.5.1.4 DESIGNATED ENVIRONMENTAL OFFICER

For the purpose of the EMP, a nominated representative of the contractor should be the designated environmental officer for the project. The nominated representative of the contractor will therefore be responsible for ensuring that the provisions of the EMP are complied with. The Employer's Agent will be responsible for issuing instructions to the contractor where environmental considerations call for action to be taken. The environmental officer will submit monthly reports to the Employer's Agent on site who will verify the information.

C3.5.1.5 MITIGATION MEASURES

In setting mitigation measures, the practical implications of executing these measures must be borne in mind. With early planning, both the cost and the impacts can be minimised.

C3.5.1.6 MEASUREMENT AND PAYMENT

Item		Unit
C100.01	Penalty for unnecessary removal or damage to trees for the following diameter sizes	
(a)	2600mm girth or less	R 5 000 per tree
(b)	Greater than 2600mm, but less than 6180mm girth	R 10 000 per tree
(c)	Greater than 6180mm girth	R 30 000 per tree

The unit of measurement shall be the number of trees by diameter removed unnecessary or damaged.

Item		Unit
C100.02	Penalty for serious violations	
(a)	Hazardous chemical/oil spill and/or dumping in non-approved sites	R 10 000 per incident
(b)	General damage to sensitive environments	R 5 000 per incident
(c)	Damage to cultural and historical sites	R 5 000 per incident
(d)	Pollution of water sources	R 10 000 per incident
(e)	Unauthorised blasting activities	R 5 000 per incident
(f)	Uncontrolled/unmanaged erosion (Depending on environment impacts, plus Rehabilitation at Contractor's cost)	R 1 000 per incident
(g)	Damage to sensitive vegetation within "no-go" areas (Depending on vegetation damaged, plus rehabilitation thereof at Contractor's cost)	R 5 000 per incident

The unit of measurement shall be the number of serious violation incidents.

Item		
C100.03	Penalty for less serious violations	
(a)	Littering on site:	R 1 000 per incident
(b)	Lighting of illegal fires on site	R 1 000 per incident
(c)	Persistent or un-repaired fuel and oil leaks	R 1 000 per incident

(d)	Any person related to the Contractor's operations found within the designated "no-go" areas	R 500 per incident
(e)	Any vehicles or equipment related to the Contractor's operations found within the designated "no-go" areas	R 3 000 per incident
(f)	Excess dust or excess noise emanating from site	R 1 000 per incident
(g)	Dumping of milled material in side drains or on grassed areas	R 1 000 per incident
(h)	Possession or use of intoxicating substances on site	R 500 per incident
(i)	Any vehicles being driven in excess of designated speed limits	R 500 per incident
(j)	Removal and/or damage to flora or cultural or heritage objects on site, and/or killing of wildlife	R 2 000 per incident
(k)	Illegal hunting	R 2 000 per incident
(l)	Urination and defecating anywhere except in designated areas	R 500 per incident

The unit of measurement shall be the number of serious violation incidents.

The Employer's Agent's decision with regard to what is considered a violation, its seriousness and the penalty imposed shall be final. The calculation shall include allied construction activities in the same way as the calculation of reduced payments under section 8200. The imposition of such a penalty shall not preclude the relevant provincial or national authority from applying an additional penalty in accordance with its statutory powers. Any non-compliance with the agreed procedures of the EMP is a transgression of the various statutes and laws that define the manner by which the environment is managed.

Failure to redress the cause shall be reported to the relevant authority for them to deal with the transgression, as it deems fit.

Item	Unit
C100.04 The contractor's obligations in respect of environmental management	
(a) Designated environmental officer (DEO)	month
(b) Environmental aspects and impacts heritage objects on site, and/or killing of wildlife	Provisional Sum

The monthly tendered rate under sub-item C100.04 (a) shall represent full compensation for that part of the contractor's general obligations in terms of the Environmental Management Plan which are mainly a function of time. This includes inter alia payment of all costs for the appointment of all staff contemplated and the transport of employees on site.

Expenditure under sub-item C100.04 (b) shall be made only on the instruction of the Employers Representative's instruction.

C3.5.2 MANAGEMENT MEETINGS

The following meetings will be required as the minimum for the management of the contract.

- (a) Monthly client site meeting (using standard agenda for management control).
- (b) Technical meetings as required for each phase of the work.
- (c) Monthly safety meetings in terms of the OHS requirements.
- (d) Weekly progress meetings
- (e) Special meetings as and when specified by the Employer's Agent
- (f) Project Steering Committee (PSC) Meetings

C3.5.3 QUALITY CONTROL

The Contractor shall submit details of his quality plan and procedures. These shall include:

- (a) Accommodation of traffic.
- (b) Inspection and test plans.
- (c) Stockpile Management
- (d) Approval process.
- (e) Hold-points.
- (f) Milestones.

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PART C4: SITE INFORMATION

C4.1	EXTRACT FROM THE TRANSPORT INFRASTRUCTURE ACT 2001 (ACT NO. 8 OF 2001)	C-310
C4.2	SITE INFORMATION - GENERAL.....	C-314
C4.3	LOCALITY PLAN	C-315

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C4.1 EXTRACT FROM THE TRANSPORT INFRASTRUCTURE ACT 2001 (ACT NO. 8 OF 2001)

The term “MEC” shall be interpreted to mean the “Member of the Executive Council for Public Transport, Roads and Works in the Gauteng Province”.

The Member of the Executive Council for Public Transport, Roads and Works in the Gauteng Province has made the regulations set out in the Schedule in terms of the Gauteng Transport Infrastructure Act, 2001 (Act No. 8 of 2001).

ENTRY UPON OR TAKING POSSESSION OF LAND FOR CERTAIN PURPOSES

20. (1) Subject to subsections (2), (4), (5) and (6), the MEC may enter upon any land with the necessary workers, machines, vehicles, equipment, tools, instruments or materials to perform or carry out on, below the surface of or in connection with that land, an investigation, survey, observation or other act that the MEC deems necessary for or in connection with the construction or maintenance of any transport infrastructure or take possession temporarily of land for a purpose in connection with the construction or maintenance of such infrastructure.
- (2) Where the owner or occupier of the land has not consented to the MEC acting in terms of subsection (1), the MEC must give the owner or occupier of the land written notice of the MEC's intention so to act not less than seven days before the land is entered, setting out the purpose for which entry upon the land is authorized, the acts that may be performed on the land in connection with that purpose and the persons by whom, the means whereby or the manner in which they are to be performed.
- (3) If the owner or occupier objects to the proposed actions, he or she may state those objections in writing not less than 48 hours before the proposed entry on the land, in which case the MEC must consider the objections. If the MEC is of the opinion that the objections are not well founded or it is in the public interest to act in spite of the objections, the MEC must notify the owner or occupier accordingly before entering on the land.
- (4) The provisions of subsection (1) may not be used to gain access to a dwelling house or other building on the land in use for residential purposes unless the occupier of the house or other building agrees to the MEC entering it for the purpose of performing or carrying out therein an activity mentioned in subsection (1).

CAMPS, STORAGE OF MATERIALS, TAKING OF WATER

20. (5). Where the MEC in terms of subsection (1) takes possession temporarily of land for -
- (a) the erection or construction of a building, hut, tent or other structure for the accommodation of workers employed on transport infrastructure or executing other work in connection therewith;

- (b) the storing thereon of stores, plant, machinery, equipment or anything else the MEC deems necessary for the construction and maintenance of transport infrastructure, the MEC must pay to the owner rental as is agreed upon, or, failing agreement as determined in accordance with section 30, in which case costs shall be calculated and awarded in accordance with section 31.

OPENING OF FENCES AND ROADS TO QUARRIES

- 20. (6) For the purpose of exercising the rights under this section, the MEC may, after notice to the owner, make roadways or openings in fences, walls and hedges, provided that such openings must be effectively closed against trespassing or straying animals during the operations and the fence properly restored on completion of the work, and that any excavation made in the course of the work which may be a source of danger must be securely fenced off, filled in or otherwise rendered safe on completion of the works.

ACQUISITION OF MATERIAL

- 21. (1) The MEC may, subject to subsection (2), take and remove or cause to be taken and removed from land material which is necessary for the construction or maintenance of transport infrastructure, and may take possession temporarily of such land for the purpose of acquiring the material.

ADMINISTRATOR MAY SELECT PLACE FOR OBTAINING MATERIAL

- 21. (2) (a) The MEC may select a place from which the material contemplated in subsection (1) may be taken, and must give the owner notice of the place; and
 - (b) the owner may, within 14 days after receipt of the notice, point out another place within the same cadastral boundaries on the land concerned and if the MEC is of the opinion that the other place is suitable and accessible and will provide suitable material, the materials must be taken from the place pointed out by the owner.
- (3) Where the MEC takes material under this section, the MEC must restore or rehabilitate the land in accordance with applicable environmental laws and -
 - (a) where such restoration or rehabilitation does not have the effect of restoring the land entirely to its former state; or
 - (b) where the owner has suffered loss or damage by the taking of the material;the MEC must pay to the owner such compensation for any loss or damage to the land, as may be agreed or failing agreement as determined in accordance with section 30, in which case costs shall be calculated and awarded in accordance with section 31.
- (4) Section 20(6) shall apply to the taking of material under this section.

CONTRACTORS MAY EXERCISE RIGHTS

56. (2) Subject to subsection (3), a power or duty granted to the MEC, provided that where compensation is payable as a result of exercising the right or power, it may be recovered from the MEC who may in turn recover it from the contractor or agent.

“MEC” INCLUDES AUTHORISED AGENT”

56. (2) Subject to subsection (3), a power or duty granted to the MEC, provided that where compensation is payable as a result of exercising the right or power, it may be recovered from the MEC who may in turn recover it from the contractor or agent.

OBSTRUCTION OF MEC

52. (1) Despite any other law, but subject to subsection (4), no person or institution, including an organ of state as defined in section 239 of the Constitution, may, unless authorized by this Act –
- (o) obstruct or hinder the MEC or an official, employee or agent of the Department or another person authorized by the MEC in the execution of his or her duties under this Act;
- (2) A person who contravenes a provision of subsection (1) or any other provision of this Act that is not elsewhere declared to be an offence, commits an offence.

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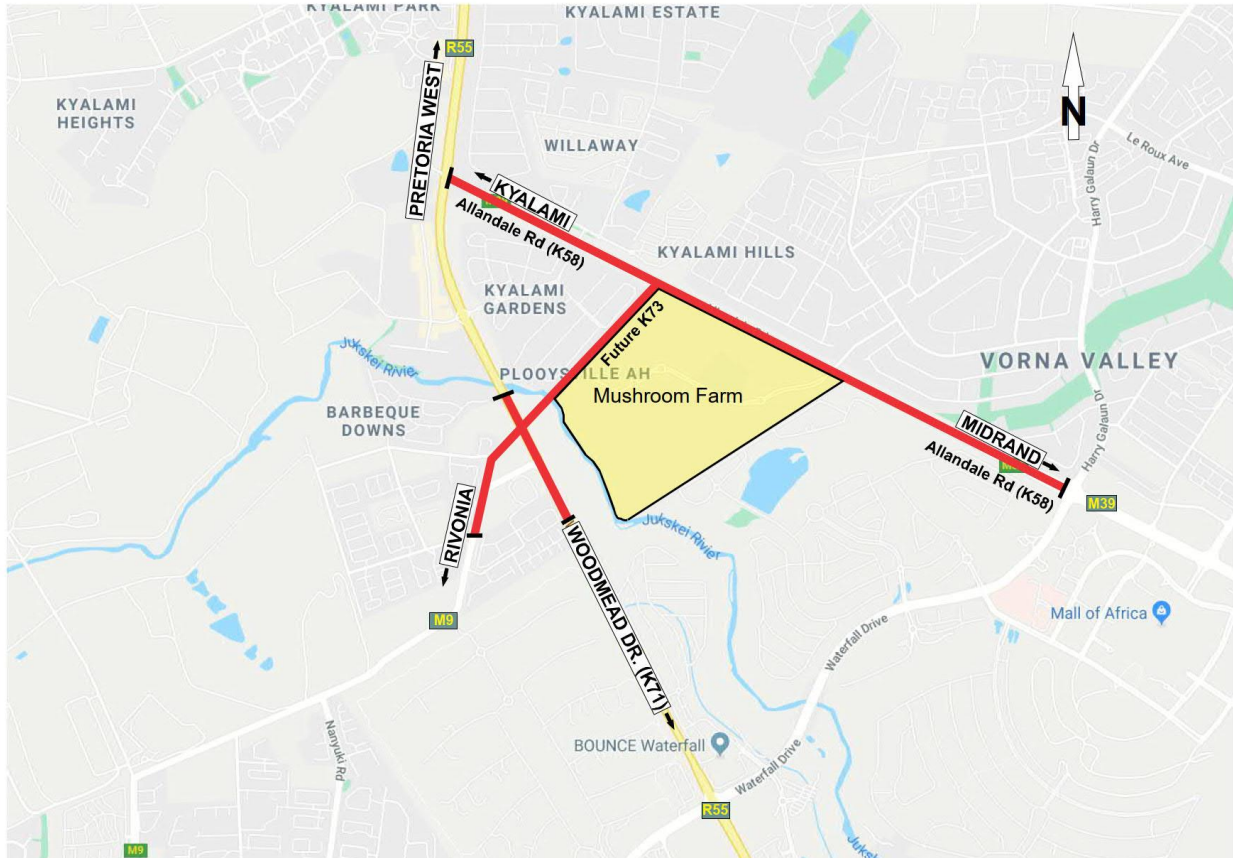
C4.2 SITE INFORMATION - GENERAL

Refer to Part C3 of the tender document and the tender drawings.

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C4.3 LOCALITY PLAN



Not to scale.

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PART C5: ANNEXURES

ANNEXURE A – ENVIRONMENTAL AUTHORISATION

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ANNEXURE B – WATER USE LICENSE

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ANNEXURE C – ENVIRONMENTAL MANAGEMENT PLAN

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ANNEXURE D – GEOTECHNICAL REPORT

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ANNEXURE E – BASELINE RISK ASSESSMENT

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ANNEXURE F – HEALTH AND SAFETY SPECIFICATION

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ANNEXURE G – COVID 19 CONSTRUCTION SITE MANAGEMENT PROCEDURE

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