GAP INFRASTRUCTURE CORPORATION
Changing Lives

Province of the EASTERN CAPE TRANSPORT

TENDER NO: SCMU10-25/26-0016

FOR

UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)

VOLUME 3

COMPULSORY BRIEFING: 02 DECEMBER 2025 AT 14H00

CLOSING DATE AND TIME

11:00 on Thursday 15 January 2026

ISSUED BY:	**ON BEHALF OF:**
GAP Infrastructure Corporation (Pty) Ltd. 1st Floor Acacia House, Palm Square Business Park, Bonza Bay Road **EAST LONDON** 5241	Eastern Cape Department of Transport 32 Cowan Close, Flemming Street Stellenbosch Park Building Schornville **QONCE** (*formerly* King William's Town) 5601

FOR RESPONDENT:
Name of Respondent Entity:

CSD No.:

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

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THE TENDER

PART 1 (OF 2): TENDERING PROCEDURES

T1.1 TENDER NOTICE AND INVITATION TO TENDER

T1.2 TENDER DATA

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-25/26-0016

UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)

T1.1 TENDER NOTICE AND INVITATION TO TENDER

A. TENDER INVITATION:

GAP Infrastructure Corporation (Pty) Ltd. on behalf of The Department of Transport of the Province of Eastern Cape hereby invites tenders from experienced Civil Engineering Contractors for:

Contract No. SCMU10-25/26-0016
UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)

Tenderers must be registered with the CIDB and have a valid CIDB contractor grading designation of **GRADE 9 CE** for a CE class of construction work.

In order to be considered for a Contract in terms of this Tender, the tenderer must be able to demonstrate the completion of at least **two (2)** similar SURFACED ROAD UPGRADING PROJECT(S) in the past ten (10) years to the value of at least R 150 million each, within the South African Development Community (SADC) region. Refer to T1.2: TENDER DATA of the document for the tender specific definition of a similar BITUMINOUS SURFACED ROAD UPGRADING PROJECT(S).

In order to be considered for a Contract in terms of this Tender, the tenderer must have in its employment or intend to employ, for the duration of the contract the following key personnel who comply with the minimum requirements as referred to T1.2: TENDER DATA of the document:

- Construction Manager (GCC 2015 term for Site Agent) with minimum of ten (10) years' experience in surfaced road upgrading project(s) as a Construction Manager and professionally registered.
- Construction Health and Safety Officer to manage the contractor's health and safety obligations on site with minimum of five (5) years' experience on road projects and professionally registered.

Access to the tender box will be from 09:00-17:00 during workdays (Mondays-Fridays). Tenders with the relevant bid number, bid description and closing date, must be deposited in the bid box not later than 11h00 on the 15 January 2026.

The tender document will be available to be downloaded from 21 November 2025 via the following method:
1. E-tenders Portal – https://www.etenders.gov.za

A compulsory clarification meeting will be held at the **Nyandeni Local Municipal Town Hall at 5 Municipality Building BN Nomandela Drive Libode 5160**
on **02 December 2025 at 14h00**. No tender documents will be available at the clarification meeting.

Attendees who are 20 minutes late to the Briefing will not be permitted to sign the Attendance Register and therefore will be prohibited from tendering as per clause F.2.7.

Tenderers may seek clarification from the Employer in terms of this tender within fourteen (14) days from the date of advert and the last day for accepting questions will be Friday **05 December 2025.**

Tenderers will receive any Addenda issued via the email addresses recorded at the Compulsory tender Briefing. Addenda will only be issued seven (7) days before the Tender Closing date and it is the Tenderers responsibility to check the addenda issued. Please note, **ONLY** addenda critical to the evaluation will be issued.

Furthermore, as a Condition of Contract the Contractor will be required to achieve minimum Employer's contract participation goals in terms of:

- 30% on Targeted subcontractors employed by the Contractor, for the execution of portions of construction works, in the performance of the Contract; and
- 10% on Targeted suppliers employed by the Contractor, subcontractor(s) and targeted subcontractors, for supplying materials, goods or services, in the performance of the Contract; and
- 10% on Targeted labour employed by the Contractor, subcontractor(s) and targeted subcontractors in the performance of the Contract.

Requirements for sealing, addressing, delivery, opening and assessment of tenders are stated in the Tender Data.

B. TENDER EVALUATION

This tender will be evaluated in two (2) phases as follows:
Phase One: Compliance and Eligibility in terms of tender rules and conditions, thereafter Phase Two.
Phase Two: Responsive tenders will be evaluated in terms of Method 1 (Price and Preference), including risk analysis.

Eligibility Criteria

1) Tenderer must have completed at least two (2) similar surfaced road upgrading project to the value of at least **R 150 000 000.00** each in the last **10 years**.

All such "similar" projects shall be located within the SADC (South African Development Community) region.

Details of roads related projects and supporting information must be entered in Form C in the Returnable Schedule. Copies of Completion Certificates and reference letters from the client must be attached, in order to qualify for this tender. **See Clause F2.1.4.3 defining what clearly should be done by tenderer as measure of confirming that a R 150 000 000 project has been done completely.**

2) The Tenderer must have in its employment the following **key personnel** who comply with the following minimum requirements:

- A suitably qualified and experienced **Construction Manager/Site Agent** who will be the single point accountable and responsible person for the full time management of the construction works on site, who is registered and has a valid registration certificate with ECSA as a Professional Engineer (Pr Eng.) or Professional Engineering Technologist (Pr Tech Eng) or Professional Engineering Technician (Pr Techni Eng.) or Registered and has a valid registration certificate with SACPCMP as Professional Construction Manager (Pr CM) and has a minimum of ten (10) years' experience in surfaced road upgrading project(s).

- A suitably qualified and experienced full time **Construction Health and Safety Officer** to manage the Contractor's health and safety obligations on site who is registered and has a valid registration certificate with SACPCMP as a Professional Construction Health and Safety Agent (Pr CHSA) or Professional Construction Health and Safety Manager (Pr CHSM) or Professional Construction Health and Safety Officer (Pr CHSO) and has a minimum of five (5) years' experience on road projects.

Details of key personnel and their relevant information must be entered in **Form J** of the Returnable Schedules. Copies of CV's of the key personnel (as per example on Form J) and certificates of qualifications and professional registration must be attached, in order to qualify for this tender.

3) The tenderer must be registered with the CSD and the tenderer or any of its directors is not listed in the Register of Tender Defaulters or the List of Restricted Suppliers managed by the National Treasury (www.treasury.gov.za) in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector.

C. PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT (PPPFA) POINTS WILL BE AWARDED AS FOLLOWS:

Maximum points on price - **90 points**
Maximum points for BBBEE - **10 points**
Maximum points - **100 points**

The points for specific goals will be distributed as per the table below.

PREFERENTIAL SPECIFIC GOALS POINTS TABLE		
The specific goals allocated points in terms of this tender	**Number of points allocated (90/10 system)**	**Number of points claimed (90/10 system)**
Specific Goals:		
Black ownership	2.5	% ownership as per CIPC / CSD
Woman ownership	2.5	% ownership as per CIPC / CSD
Locality: -		
(a) Company Head office based in the Eastern Cape (stated in the Company Profile and verified on CSD)	5	
(b) Regional Office in the Eastern Cape. Office is required to be fully operational, staffed and verifiable on CSD. Provide Staffing component.	3	
(c) Outside Eastern Cape no satellite office in Eastern Cape:	1	

To Score points for Black Ownership the following formula will be used to calculate the points out of 5 or 2.5 points Max.

$$SGP = \frac{\%BOE\ (from\ BBBEE)}{100}\ X\ MHDI(Max = 5\ or\ 2.5)$$

SGP= Specific goals points
MHDI= Maximum points for Historical disadvantaged individuals
BO = Black Ownership Equity

NB: Calculation of the specific goals points for a Joint Venture will be based as per the Joint Venture agreement, that must be submitted by the tenderers.

- **Historically Disadvantaged Individual (HDI): Black Ownership**

Means a South African Citizen: who, due to the apartheid policy that had been in place, had no franchise in national elections
Central Supplier Database (CSD) report will be used.

It is the onus of the bidder to provide proof of ownership equity status

- **Locality:**

Locality shall mean Fully functional office within the Province of the Eastern Cape. Satellite shall mean an office with minimum staff of not more than 3 personnel running the office on fulltime.
Locality Points will be allocated for proof of local office operations in Eastern Cape. The primary address on CSD and proof of ownership under the bidding company will be used for choice Locality.

D. TENDER SPECIFICATIONS, CONDITIONS AND RULES

The minimum specifications, eligibility and other tender conditions and rules are detailed in the bid document.

Note: Tender Validity Period is **120 days**.

TENDER SUBMISSIONS:

Completed tender documents (Volume 3 and any supporting documentation), placed in a sealed envelope and clearly marked **"CONTRACT NO.: SCMU10-25/26-0016 UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)"** must be deposited in the Tender Box at GAP Infrastructure Corporation's Office at 1st Floor Acasia House, Palm Square Business Park, Bonza Bay Road, East London, 5241.
(INCLUDING A SCANNED COPY ON A FLASH DRIVE)
not later than **11h00 on Thursday 15 January 2026**, when tenders will be opened in public.

SCM RELATED ENQUIRIES

Name: Mr P Loots
Tel No: 012 881 0210
Email Address: philip@gic.co.za

Name: Mr P Nqikashe
Cell No: 0674198001
Email Address: philasande.nqikashe@ectransport.gov.za

TECHNICAL ENQUIRES

Name: Mr M Hauptfleisch
Cell No: 012 881 0210
Email Address: meyer@gic.co.za

Name: Mr C.N Boshoff
Cell No: 082 854 3795
Email Address: clive.boshoff@ectransport.gov.za

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

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T1.2: TENDER DATA

The tender conditions are the Standard Conditions of Tender as contained in Annexure F of the CIDB Standard for Uniformity in Construction Procurement as per CIDB **Board Notice 136 of 2015 in Government Gazette No. 38960 of 10 July 2015** and as amended from time to time. (see www.cidb.org.za).

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 or inconsistency between it and the Standard Conditions of Tender.

Each item of data given below is cross-referenced to the clause marked "F" in the above mentioned Standard Conditions of Tender.

No	Clause	Wording
1	F.1.1	The Client is the **Eastern Cape Department of Transport**, represented by the Head of Department and/or such other person or persons duly authorized thereto by the Employer in writing. The Implementing Agent and Employer is **GAP Infrastructure Corporation (Pty) Ltd. (GIC)**, represented by the Chief Executive Officer and/or such other person or persons duly authorized thereto by the Employer in writing.
2	F.1.2	The following documents form part of this tender: VOLUME 1: The General Conditions of Contract for Construction Works [3rd Edition] 2015 are published by the South African Institution of Civil Engineering. This publication is available and tenderers must obtain copies at their own cost from the South African Institution of Civil Engineering [SAICE], Private Bag x200, Halfway House 1685, Tel: [011] 805 5971, email: civilinfo@saice.org.za VOLUME 2: The Standard Specifications for Road and Bridge Works for State Road Authorities prepared by the Committee of Land Transport Officials. This publication is available and tenderers must obtain copies at their own cost from the South African Institution of Civil Engineering [SAICE], Private Bag x200, Halfway House 1685, Tel: [011] 805 5947, Fax [011] 805 5971, email: civilinfo@saice.org.za VOLUME 3: The Tender Document issued by the employer, which comprises: **THE TENDER** **PART T1: TENDERING PROCEDURES** T1.1: Tender Notice and Invitation to Tender……..…..(White) T1.2: Tender Data……..….(Pink)

No	Clause	Wording
		PART T2: RETURNABLE DOCUMENTS T2.1: List of Returnable Documents……(Yellow) T2.2: Returnable Schedules……..(Yellow)
		<u>THE CONTRACT</u> **PART C1: AGREEMENTS AND CONTRACT DATA** C1.1: Form of Offer and Acceptance……(Yellow) C1.2: Contract Data……..(Yellow) C1.3: Performance Guarantee (pro forma)……..…(Yellow) C1.4: Occupational Health and Safety Act, Act 85 Of 1993 Contractors 37.2 Agreement……..…..(Yellow) C1.5: Application for Permit to do Construction Work (pro forma)……..…(Yellow) **PART C2: PRICING DATA** C2.1: Pricing Instructions……..(Yellow) C2.2: Pricing Schedule / Bill of Quantities....……..(Yellow) **PART C3: SCOPE OF WORKS** C3.1: Description of the Works……...(Blue) **PART C4: SITE INFORMATION** C4: Site Information……(Green) Volume 3: Tender Document duly completed, in accordance with F 2.13.3, and returned to the employer before the closing time for receipt of tenders, shall constitute the submission of a tender offer. VOLUME 4: Roadworks Drawings VOLUME 5: Standard Drawings VOLUME 6: Material Investigation Report VOLUME 7: Environmental Management Programme
3	F.1.4	The Employer is GAP Infrastructure Corporation: Name: Mr. Roelof Adriaan van den Berg Address: GIC 35 Tegel Avenue Highveld Centurion, 0157 Tel: 012 881 0210 E-mail: info@gic.co.za The language for communications is **English**.
4	F.1.5.1	The employer may accept or reject any variation, deviation, tender offer, or alternative tender offer, and may cancel the tender process and reject all tender offers at any time before the formation of a contract. The employer shall not accept or incur any liability to a tenderer for such cancellation and rejection but will give written reasons for such action upon written request

No	Clause	Wording
		to do so. It is a condition of this contract that the Employer reserves the right to limit the expenditure on the works due to possible budget restraints. Should the tender sum exceed the budgeted amount, the scope of works may be reduced at any time, before or during the contract period, to ensure that the final contract amount does not exceed the budgeted amount. Should these conditions be applied, such adjustments or limitations shall be deemed to be a variation of the form or quantity of the works or any part thereof in terms of Clause 6.3 of the General Conditions of Contract. The validity of the tender, the individual rates or sums tendered shall not be influenced by any such adjustments or limitations and no claim will be considered on the basis of such adjustments or limitations in terms of Clause 6.11 of the General Conditions of Contract. The successful Tenderer will be required to submit a valid and certified copy of their Letter of Good Standing from the Compensation Commissioner or FEMA within 21 days of receipt of their Letter of Award for this Tender. The successful Tenderer will be required to submit a valid and certified copy of their Letter of Good Standing from **Bargaining Council for Civil Engineering Industry (BCCEI)**, within 21 days of tender award.
5	F.2.1 F2.1.1 F2.1.3	**ELIGIBILITY** *Delete the clause and replace with the following:* Tenderers must submit a tender offer that complies in all aspects to the conditions as detailed in this document. Only those tenders that comply in all aspects with the tender conditions, specifications, pricing instructions and contract conditions will be declared responsive. *Add the following after F.2.1.2:* Only those tender submissions from which it can be established that a clear and unambiguous offer has been made to Employer, by whom the offer has been made and what the offer constitutes, will be declared responsive.
6	F2.1.4	Only those tenderers who satisfy the following test for responsiveness criteria are eligible to submit tenders:
7	F2.1.4.1	**[a] CIDB registration** Registered with the CIDB prior to the award of the tender, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25 [1B] or 25 [7A] of the Construction Industry Development Regulations, for a CE class of construction work. Note that in terms of CIDB Act 38 of 2000 a registered contractor must apply for renewal of registration three months before the existing registration expires. 1) Joint ventures are eligible to submit tenders provided that: a) every member of the joint venture is registered with the CIDB and in the **CE** class of work. b) the combined contractor grading designation calculated in accordance with the Construction Industry Development Board Regulations is equal to or higher than a contractor grading designation **Grade 9** . c) a signed Joint Venture Agreement must be attached with the tender. d) a valid copy of a consolidated B-BBEE for the Joint Venture must be attached with the tender in order to qualify for B-BBEE points as defined in SBD 6.1. 2) Tenderers must submit copy of Certificates of Qualifications and Professional Registration; otherwise they will not score the relevant points.

No	Clause	Wording
		3) Failure to comply with the above eligibility criteria will cause the tender to be deemed non-responsive.
8	F2.1.4.2	**Compliance with requirements of Employer's SCM Policy and procedures** a. Only those tenders that are compliant with the requirements below will be declared responsive: Full name of entity submitting tender to be provided; b. Identification number or company or other registration number to be provided; c. Tax reference number to be provided; d. VAT registration number (if any) to be provided; e. A completed returnable schedule SBD 1: INVITATION TO BID AND TERMS AND CONDITIONS FOR BIDDING to be provided. Failure to provide or comply with any of the particulars of this schedule may render the tender nonresponsive; f. A completed returnable schedule SBD 4: DECLARATION OF INTEREST to be provided. In the case of a joint venture (JV), a separate schedule is to be completed and provided by each JV member. Non-compliance with the requirements of the applicable returnable schedule will render the tender nonresponsive. Furthermore, should the declaration prove to be false the Employer may reject or act against the tenderer in terms of clause F.3.7 of the Conditions of Tender; g. A completed returnable schedule SBD 8: DECLARATION OF TENDERER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES to be provided and which does not indicate any conflict or past practices that renders the tender non-responsive. In the case of a joint venture (JV), a separate schedule is to be completed and provided by each JV member; h. A completed returnable schedule SBD 9: CERTIFICATE OF INDEPENDENT TENDER DETERMINATION to be provided and which does not indicate any non-compliance with the requirements of the applicable returnable schedule. i. A completed returnable schedule P: COMPULSORY ENTERPRISE QUESTIONNAIRE to be provided. In the case of a joint venture (JV), a separate schedule is to be completed and provided by each JV member; j. A completed CERTIFICATE OF AUTHORITY FOR SIGNATORY to be provided and attached to returnable schedule B: CERTIFICATE OF AUTHORITY FOR SIGNATORY. Compliance with the requirements of the applicable returnable schedule is deemed a material responsiveness criterion. k. A completed returnable schedule H: REGISTRATION ON NATIONAL TREASURY CENTRAL SUPPLIER DATABASE to be provided, including attached printed copy of the Active Supplier Listing on the National Treasury Central Supplier Database. In the case of a joint venture (JV), the tenderer shall provide printed copies of the Active Supplier Listing on the National Treasury Central Supplier Database for each member of the JV; l. In the case of a tender submission by a joint venture (JV). The tenderer must attach a signed copy of the JV Agreement to returnable schedule G: JOINT VENTURE AGREEMENT DISCLOSURE; m. The tenderer or any of its directors is not listed in the Register of Tender Defaulters or the List of Restricted Suppliers managed by the National Treasury (www.treasury.gov.za) in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector; n. The tenderer has not abused the Employer's Supply Chain Management System; o. The tenderer has not failed to perform on any previous contract with the Employer; p. The tenderer's tax matters with SARS are in order. q. The tenderer has provided a completed and signed Form of Offer in terms of C1.1.1 of PART C1: AGREEMENTS AND CONTRACT DATA, deemed as a material responsiveness criteria.
9	F2.1.4.3	**Company Experience in Roads Contract Management** Tenderer must have completed at least two surfaced road upgrading project to the value of at least **R 150 000 000.00** each in the last **10 years.**

No	Clause	Wording
		A similar road upgrade project shall be defined as a surfaced road upgrading project and includes at least the following: • Bulk earthworks operations • Road layer works and bituminous surfacing • Operation of quarry/source material • Stormwater drainage (major and minor culverts) • Targeted subcontractor management / development. All such projects shall be located within the SADC (South African Development Community) region. A completed returnable **Schedule D: SIMILAR PROJECT(S) COMPLETED BY THE TENDERER** to be provided. To demonstrate completion of a similar project(s) as defined in this clause, submit for each project listed a completed returnable **Schedule D (A): SIMILAR PROJECT COMPLETED VERIFICATION FORM** (respondent's stamp is critical). Furthermore, submit for each project listed a **COMPLETION CERTIFICATE.** Details of roads related projects & supporting information must be entered in **Form D** of the Returnable Schedules. Copies of Completion Certificates, appointment letters and reference letter from the client must be attached, in order to qualify for this tender. Failure to comply with the requirements or to complete Form D (A) will render the tender non-responsive.
10	F2.1.4.4	**Key Personnel** In order to be considered for a Contract in terms of this Tender, the tenderer must have in its employment or intend to employ, for the duration of the contract the following key personnel who comply with the following minimum requirements: 1. A suitably qualified and experienced **Construction Manager** (GCC 2015 term for Site Agent) who will be the single point accountable and responsible person for the full-time management of the construction works on site, who: a) is registered and has a valid registration certificate with ECSA as a Professional Engineer (Pr Eng) or Professional Engineering Technologist (Pr Tech Eng) or Professional Engineering Technician (Pr Techni Eng); OR b) is registered and has a valid registration certificate with SACPCMP as a Professional Construction Project Manager (Pr CPM) or Professional Construction Manager (Pr CM); AND c) has a minimum of ten (10) years' experience in surfaced road upgrading project(s). 2. A suitably qualified and experienced full time **Construction Health and Safety Officer**(s) to manage the Contractor's health and safety obligations on site who: i. is registered and has a valid registration certificate with SACPCMP as a Professional Construction Health and Safety Agent (Pr CHSA) or Professional Construction Health and Safety Manager (Pr CHSM) or Professional Construction Health and Safety Officer (Pr CHSO); AND ii. has a minimum of five (5) years' experience as a Construction Health and Safety Officer on road projects A completed returnable **Schedule E: TENDERER'S KEY PERSONNEL** to be provided. Attach to each schedule proof of indicated professional registration with the specified professional body. Where the key personnel are no longer available to undertake the necessary work after the Award of the Tender, the then Contractor shall within a period of fourteen (14) working days

No	Clause	Wording
		replace the key personnel listed in returnable Schedules E with personnel with equivalent competencies, subject to approval by the Employer. Such approval shall not be unreasonably withheld if compliant in terms of the requirements of this clause. Failure to comply with the requirements of this clause and applicable returnable schedule will render the tender non-responsive.
11	F.2.1.4.5	**Construction Equipment** In order to be considered for a Contract in terms of this Tender, the tenderer must be able to demonstrate his ability to provide (either by means of his own construction equipment or ability to hire construction equipment from others) construction equipment exclusively intended for the execution of the works as specified in the tender document. To demonstrate his ability, the tenderer is required to provide a completed signed declaration in terms of returnable **Schedule F: DECLARATION IN RESPECT OF CONSTRUCTION EQUIPMENT.**
12	F.2.1.4.6	**Local Content** Only those tenders that are compliant with the requirements of returnable **Schedule SBD 6.2**: **DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT FOR DESIGNATED SECTORS** will be declared responsive. For this tender the stipulated minimum threshold(s) for local production and content for “Steel Products and Component for Construction” is 100%. A completed returnable **Schedule SBD 6.2: DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT FOR DESIGNATED SECTORS** including applicable Annexures to be provided.
13	F.2.1.4.7	**Registration with Bargaining Council** Only those tenders submitted by tenderers who are registered with **the Bargaining Council for the Civil Engineering Industry (BCCEI)** will be declared responsive. A completed returnable **Schedule I: DECLARATION IN RESPECT OF COMPLIANCE WITH LABOUR LEGISLATION** to be provided and attach proof of registration with the applicable Bargaining Council to the applicable returnable schedule. In case of joint venture (JV) each member of the JV must provide proof of registration with the applicable Bargaining Council for Civil Engineering Industry. Failure to comply with the requirements of this clause and applicable returnable schedule will render the tender non-responsive.
14	F.2.1.4.8	**Fulfilment of the Construction Regulations, 2014** Only those tenders submitted by tenderers who demonstrate by means of completing and providing returnable **Schedule J: DECLARATION IN RESPECT OF FULFILMENT OF THE CONSTRUCTION REGULATIONS, 2014** may be deemed responsive if the tenderer’s declaration reasonably satisfy the Employer that the tenderer has, in terms of the Construction Regulations, 2014 of the Occupational Health and Safety Act, 1993, the necessary competencies and resources to carry out the work safely and have included in his tender rates and prices (in the appropriate payment items provided in the Pricing Schedules / Bill of Quantities) for all resources, actions, training and any other costs required for the due fulfilment of the Regulations for the duration of the construction and defects liability period.

No	Clause	Wording
15	F2.6	**Addenda** Tenderers will receive any Addenda issued via the email addresses recorded at the Compulsory tender Briefing. Addenda will only be issued seven (7) days before the Tender Closing date and it is the Tenderers responsibility to check the addenda issued. Please note, ONLY addenda critical to the evaluation will be issued. Failure to apply instructions contained in Addenda will render a tenderer's offer non-responsive in terms of Condition of Tender.
16	F.2.7	**Clarification meeting** The clarification meeting will be held on 02 December 2025 at 14h00. The venue for the compulsory clarification meeting will be the Nyandeni Local Municipality's Council Chamber in Libode town. No tender documents will be available at the clarification meeting. Attendees who are 20 minutes late to the clarification meeting will not be permitted to sign the Attendance Register and therefore will be prohibited from tendering. Failure to sign the attendance register of the compulsory clarification briefing will be rendered non-responsive.
17	F.2.8	**Seek clarification** *Delete the clause and replace with the following:* Request clarification of the tender documents, if necessary, by notifying the Employer before **05 December 2025**. The tenderer declares that it has: a) Inspected the Specifications and read and fully understood the Conditions of Contract. b) Read and fully understood the whole text of the Specifications and Pricing Schedules and thoroughly acquainted itself with the nature of the goods / services proposed and generally of all matters which may influence the Contract. c) Visited the site(s) where delivery of the proposed works will take place, carefully examined existing conditions, the means of access to the site(s), the conditions under which the delivery is to be made, and acquainted itself with any limitations or restrictions that may be imposed by the Employer or other authorities in regard to access and transport of materials, plant and equipment to and from the site(s) and made the necessary provisions for any additional costs involved thereby. d) Requested the Employer to clarify the requirements contained in the Specifications and Pricing Schedules, the exact meaning or interpretation of which is not clearly intelligible to the tenderer. e) Received any Addenda to the tender documents which have been issued in accordance with the Employer's SCM Policy. The Employer will therefore not be liable for the payment of any extra costs resulting from any claim submitted by the tenderer arising from any alleged ambiguity or uncertainty contained in the tender document.
18	F.2.12	**The criteria for alternative tenders are:** There will be no alternative tender accepted.
19	F.2.13	**Submitting a tender offer**
20	F.2.13.3	Add the following to F.2.13.3 at the end of the first sentence:

No	Clause	Wording
		Parts of each tender offer communicated on paper shall be submitted as an original, plus zero (0) copies.
21	F.2.13.5	Add the following to F.2.13.5 at the end of the first sentence: The tender submission details are stated in T1.1: TENDER NOTICE AND INVITATION TO TENDER.
22	F.2.13.6	A two-envelope procedure will not be followed.
23	F.2.13.9	*Add the following to F.2.13.9 at the end of the first sentence:* Telephonic, telegraphic, telex, facsimile or e-mailed tender offers will not be accepted.
24	F.2.13.10	The Employer shall issue the **Tender Documents** as per **F.1.2** (excluding Volumes 1 and 2) and supporting documentation electronically via email and downloadable link to all invited bidders, from the Database: Access to the tender box will be from 09:00-17:00 during workdays (Mondays-Fridays). Tenders with the relevant bid number, bid description and closing date, must be deposited in the bid box not later than 11h00 on the 15 January 2026. The tender document will be available to be downloaded from November 2025 via the following method: 1. E-tenders Portal – https://www.etenders.gov.za a. The tenderer is forbidden to make or attempt electronic alteration to the tender documents. b. Supporting documentation, issued as part of this tender, may be completed electronically. For submission of such supporting documentation the tender is required to submit with his tender submission a signed printed copy. c. The use of electronic signatures is not allowed. d. Where Addenda have been issued which amend the Pricing Schedules, then the printed Pricing Schedules shall take these into account by attaching the amended page to the front of the original page. The pages of the issued Pricing Schedules should not be removed from the tender document. e. The Employer accepts no responsibility or liability arising from any reliance on or use of the electronic supporting documentation provided in terms of this clause. The tenderer is required to review provided supporting documentation and inform the Employer of any errors or discrepancies found prior to submission of the tender offer. f. Any non-compliance with these provisions, including effecting any unauthorised alterations to the tender documents as contemplated in F.2.11, shall render the tender non-responsive. The Employer reserves the right to take any action against such tenderer allowed in law including, in circumstances where the tender had already been awarded, the right to cancel the contract.
25	F.2.15	**Closing time** *Add the following to F.2.15.1 after the last sentence:* The closing time for submission of tender offers is as stated in **T1.1: TENDER NOTICE AND INVITATION TO TENDER**. It is the responsibility of the tenderer to ensure that tender documents are submitted on or before the closing date and time and at the correct location as the Employer will not take responsibility for any wrong delivery.
26	F.2.16	*Add the following to F.2.16.1 at the end of the first sentence:* The tender offer validity period is **120 days.**
27	F.2.17	**Clarification of tender offer after submission** *Add the following to F.2.17 at the end of the third sentence:*

No	Clause	Wording
		A tender will be rejected as non-responsive if the tenderer fails to provide any clarification or supporting documents requested by the Employer within the time for submission stated in the Employer's written request for such clarification or documents.
28	F.2.23	**Certificates** *Add the following:* The tenderer is required to submit with his tender all certificates as required for in **T1.2: TENDER DATA and T2.2: RETURNABLE SCHEDULES**.
29	**F.3**	**The Employer's undertakings**
30	F.3.1	**Respond to requests from the tenderer** *Add the follow to F.3.1.1:* The Employer will respond to requests for clarification received up to **05 December 2025.**
31	F.3.2	**Issue Addenda** *Delete the first sentence and replace with the following:* If necessary, issue addenda that may amend or amplify the tender documents to each tenderer not later than **Friday 05 December 2025.** *Add the following to F.3.2 at the end of the paragraph:* Tenderers will receive any Addenda issued via the email addresses recorded at the Compulsory tender Briefing. Addenda will only be issued seven (7) days before the Tender Closing date and it is the Tenderers responsibility to check the addenda issued. Please note, **ONLY** addenda critical to the evaluation will be issued.
32	F.3.4	**Opening of tender submissions** *Add the following to F.3.4.2 at the end of the paragraph:* Tenders will be opened immediately after the closing time of tenders at the location and closing time as stated in **T1.1: TENDER NOTICE AND INVITATION TO TENDER.**
33	F.3.9	**Arithmetical errors, omissions and discrepancies** *Add the following after clause F.3.9.2:* F.3.9.3 In the event of tendered rates or lump sums being declared by the Employer to be unacceptable to it: a. because they are not priced, b. either excessively low or high, c. or not in proper balance with other rates or lump sums, The tenderer may be required to produce evidence and advance arguments in support of the tendered rates or lump sums objected to. If, after submission of such evidence and any further evidence requested, the Employer is still not satisfied with the tendered rates or lump sums objected to, it may request the tenderer to amend these rates and lump sums along the lines indicated by it. The tenderer will then have the option to alter and/or amend the rates and lump sums objected to and such other related amounts as are agreed on by the Employer, but this shall be done without altering the tender offer in accordance with this clause. Should the tenderer fail to amend his tender in a manner acceptable to and within the time stated by the Employer, the Employer may declare the tender as nonresponsive.
34	F.3.11	**Evaluation of tender offers**

<table>
<tr><th>No</th><th>Clause</th><th>Wording</th></tr>
<tr><td></td><td></td><td>The method for the evaluation of responsive tenders is Method 1 (Price and Preference). The following formula will be used to calculate the total number of tender evaluation points: $T_{EV} = N_{FO} + N_p$
<table>
<tr><th></th><th>Maximum number of tender evaluation points</th></tr>
<tr><td>Price Component (N_{FO})</td><td>90</td></tr>
<tr><td>Preferential Component (N_p)</td><td>10</td></tr>
<tr><td>Total evaluation points (T_{EV})</td><td>100</td></tr>
</table></td></tr>
<tr><td>35</td><td>F.3.11.7</td><td>Scoring price

The financial offer will be scored using the following formula: $N_{FO} = W_1 \times A$
<u>Scoring financial offers</u>
The value of W_1 is:
1] 90 where the financial value, inclusive of VAT, of all responsive tender offers received has a value in excess of R50 000 000.00; or
2] 80 where the financial value, inclusive of VAT, of one or more responsive tender offers has a value that equals or is less than R50 000 000.00.

The value of A will be calculated utilising Formula 2 (Option 1):
A=[1-[P-Pm]/Pm]
Where P is the comparative offer of the tender offer under consideration and Pm is the comparative offer of the most favourable comparative offer.

In the event that the calculated value is negative, the allocated score shall be zero (0).</td></tr>
<tr><td>36</td><td>F.3.11.8</td><td>Scoring preferences (max-10 points)

<table>
<tr><th colspan="3">PREFERENTIAL SPECIFIC GOALS POINTS TABLE</th></tr>
<tr><th>The specific goals allocated points in terms of this tender</th><th>Number of points allocated (90/10 system)</th><th>Number of points claimed (90/10 system)</th></tr>
<tr><td colspan="3">Specific Goals:</td></tr>
<tr><td>Black ownership</td><td>2.5</td><td>% ownership as per CIPC / CSD</td></tr>
<tr><td>Woman ownership</td><td>2.5</td><td>% ownership as per CIPC / CSD</td></tr>
<tr><td colspan="3">Locality: -</td></tr>
<tr><td>(a) Company Head office based in the Eastern Cape (stated in the Company Profile, and verified on CSD)</td><td>5</td><td></td></tr>
<tr><td>(b) Regional Office in the Eastern Cape. Office is required to be fully operational, staffed and verifiable on CSD. Provide Staffing component.</td><td>3</td><td></td></tr>
<tr><td>(c) Outside Eastern Cape no satellite office in Eastern Cape:</td><td>1</td><td></td></tr>
</table>
➢ Historically Disadvantaged Individual (HDI): Black Ownership (max= 5 points)</td></tr>
</table>

No	Clause	Wording
		Central Supplier Database (CSD) report will be used. To Score points for Black Ownership the following formula will be used to calculate the points out of 5 points Max. $$SGP = \frac{\%BOE\ (CIPC/\ CSD)}{100}\ X\ MHDI(Max = 2.5)$$ SGP= Specific goals points MHDI= Maximum points for Historical disadvantaged individuals BOE = Black Ownership Equity ➢ **Locality (max= 5 points)** Locality shall mean' Fully functional office within the Province of the Eastern Cape. Satellite shall mean an office with minimum staff of not more than 3 personnel running the office on fulltime.
37	F.3.11.10	*Add the following after F.3.11.9:* **Risk Analysis** Notwithstanding compliance with regard to CIDB registration or any other requirements of the tender, the Employer will perform a risk analysis in respect of the following: a) reasonableness of the financial offer b) reasonableness of unit rates and prices c) as per clause F.1.5.1 (C), the previous and the current contracts performance of the responsive bidders will be used to draw a conclusion to determine the acceptability of the tender offer. The Department reserves the right to consider other similar contracts undertaken by the prospective bidder that do not form part of this proposal. d) The risk analysis will not be limited to a-c above, should there be required information deemed necessary for finalisation of the award, the department will therefore request the information within the time frames stipulated in the tender document. The conclusions drawn from this risk analysis will be used by the Employer in determining the acceptability of the tender offer.
38	F.3.13	**Acceptance of tender offer** Tender offers will only be acceptable if: a) Tenderers must be registered on the Central Supplier Database at National Treasury prior to the Award of a tender and the Tenderer's **Tax Status must be compliant** (National Treasury SCM Instruction #4A of 2016/2017: Central Supplier Database), submit a copy tax compliance pin**;** b) Tenderers must submit proof of registration with the **Bargaining Council of Civil Engineering Industry (BCCEI)**. Good standing will be required within 21 days of tender award. c) the tenderer must be registered with the Construction Industry Development Board in an appropriate contractor grading designation (CE) (All parties to submit this information in the case of a Joint Venture); d) the tenderer or any of its directors is not listed in the Register of Tender Defaulters or the List of Restricted Suppliers managed by the National Treasury (www.treasury.gov.za) in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector; e) the tenderer has not abused the Employer's Supply Chain Management System; f) the tenderer has not failed to perform on any previous contract with the Employer; g) the tenderer has completed and signed Form B (Certificate of Authority for Signatory) if applicable;

No	Clause	Wording
		h) the **Form of Offer is duly completed and signed** (Note: **Any correction must be signed** by the authorised signatory); i) the tenderer has **completed and signed the Compulsory Enterprise Questionnaire** (Form T2.2R) (for each of the participating firms in the case of a joint venture); j) has completed and signed all SBD Forms (SBD1; SBD4; SBD6.1; SBD6.2; SBD8; SBD9) k) has completed and signed annexure C which goes with SBD6.2; l) all relevant certified information is submitted with the Tender; m) all other Tender Conditions are complied with; n) Tenderers are to meet the minimum eligibility requirements specified in Clause F2.1; and o) **Tender completed with erasable ink will be deemed / declared non-responsive.** *Add the following:* "Acceptance of the tender offer will be subject to the provisions of Clause F.1.5.1 and F.2.1." Note that the successful Tenderer will be required to submit a **valid** Letter of Good Standing from the Compensation Commissioner or FEMA within 21 days of receipt of Letter of Award.
39	F.3.17	**Provide copies of the contract** *Add the following after the first sentence:* The number of paper copies of the signed contract to be provided by the employer is one (1).
		ADDITIONAL CONDITIONS OF TENDER CLAUSES:
	Clause Number	Data
40		**Jurisdiction** 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.
41		**Employer's contract participation goals** Employer's contract participation goals are: The appointed Contractor will be required to spend a total of 50% of the accepted tender sum less VAT, allowances for contingencies and contract price adjustment and provisional and prime cost sum amounts in the Eastern Cape as defined in the Contract Data. The 50% Eastern Cape spend will consist of the following: • 30% on Targeted (SMME) sub-contractors appointed in terms of the Contract. • 10% on Targeted suppliers of materials, goods and services (from Local Resources) in terms of the Contract. • 10% on employment and training of Targeted (Local) Labour in terms of the Contract. It is a Condition of Tender that the successful tenderer [Contractor] will be required to engage SMME contractors as sub-contractors on the project. The total value of work that must be undertaken by the SMME sub-contractors must be at least 30% of the accepted tender sum less VAT, allowances for contingencies and contract price adjustment and provisional and prime cost sum amounts.

No	Clause	Wording
		A financial penalty will be applicable should the contractor fail to meet the minimum targeted goal. For further details in this regard refer to part C3: Section F: Development of SMME Contractors Specifications in the Project Document. It is also a Condition of Tender that the successful tenderer [Contractor] will be required to employ and provide training for Local Labour on the project. A minimum of 10% of the accepted tender sum less VAT, allowances for contingencies and contract price adjustment and provisional and prime cost sum amounts will be required to be spent on the local labour. A financial penalty will be applicable should the contractor fail to meet the minimum targeted goal. For further details in this regard refer to part C3: Section E: Labour Specification Specifications in the Project Document. It is a Condition of Tender that the successful tenderer [Contractor] will be required to engage Local Resources [other than the Principal Contractor and SMME contractors appointed] on the project. A minimum of 10% of the accepted tender sum less VAT, allowances for contingencies and contract price adjustment and provisional and prime cost sum amounts will be required to be spent on materials and services procured by the successful tenderer [Contractor] within the Eastern Cape Province for the execution of the project. A financial penalty will be applicable should the contractor fail to meet the minimum targeted goal. For further details in this regard refer to part C3: Section F: Development of SMME Contractors Specifications in the Project Document.

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-25/26-0016

UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32KM)

TENDER
PART T2: RETURNABLE DOCUMENTS

T2.1 LIST OF RETURNABLE DOCUMENTS

T2.2 RETURNABLE DOCUMENTS

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-25/26-0016

UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32KM)

T2.1: LIST OF RETURNABLE DOCUMENTS

T2.1.1 THE TENDERER MUST COMPLETE THE FOLLOWING RETURNABLE SCHEDULES IN NON-ERASABLE BLACK INK

SCHEDULE	DESCRIPTION	CHECKLIST
SBD 1	INVITATION TO BID AND TERMS AND CONDITIONS FOR BIDDING	Y ☐ / N ☐
A	DECLARATION OF TENDER BRIEFING	Y ☐ / N ☐
B	CERTIFICATE OF AUTHORITY FOR SIGNATORY	Y ☐ / N ☐
C	REGISTRATION WITH THE CONSTRUCTION INDUSTRY DEVELOPMENT BOARD	Y ☐ / N ☐
D	SIMILAR PROJECT(S) COMPLETED BY THE TENDERER (including TABLE A of this schedule)	Y ☐ / N ☐
D(A)	SIMILAR PROJECT COMPLETED VERIFICATION FORM (one verification form required for each listed project)	Y ☐ / N ☐
E	TENDERER'S KEY PERSONNEL (including TABLES A and B of this schedule)	Y ☐ / N ☐
F	DECLARATION IN RESPECT OF CONSTRUCTION EQUIPMENT	Y ☐ / N ☐
G	JOINT VENTURE AGREEMENT DISCLOSURE (if applicable)	Y ☐ / N ☐
H	REGISTRATION ON NATIONAL TREASURY CENTRAL SUPPLIER DATABASE	Y ☐ / N ☐
I	DECLARATION IN RESPECT OF COMPLIANCE WITH LABOUR LEGISLATION	Y ☐ / N ☐
J	DECLARATION IN RESPECT OF FULFILMENT OF THE CONSTRUCTION REGULATIONS, 2014	Y ☐ / N ☐
K	RECORD OF ADDENDA TO TENDER DOCUMENTS	Y ☐ / N ☐
L	CONTRACTOR'S ESTABLISHMENT ON SITE	Y ☐ / N ☐
M	RATES FOR SPECIAL MATERIALS	Y ☐ / N ☐
N	TENDERER'S BANKING AND AUDITOR DETAILS	Y ☐ / N ☐
O	TENDERER'S PROPOSED SUBCONTRACTORS (excluding targeted subcontractors)	Y ☐ / N ☐
P	COMPULSORY ENTERPRISE QUESTIONNAIRE	Y ☐ / N ☐
SBD 4	DECLARATION OF INTEREST	Y ☐ / N ☐

SCHEDULE	DESCRIPTION	CHECKLIST
SBD 6.1	PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022	Y ☐ / N ☐
SBD 6.2	DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT FOR DESIGNATED SECTORS (including guidance document for the calculation of local content)	Y ☐ / N ☐
SBD 8	DECLARATION OF TENDERER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES	Y ☐ / N ☐
SBD 9	CERTIFICATE OF INDEPENDENT TENDER DETERMINATION	Y ☐ / N ☐

T2.1.2 OTHER PARTS OF THE DOCUMENT TO BE COMPLETED AS PART OF THE TENDER SUBMISSION

C1.1 Offer part of the Form of Offer and Acceptance;

C1.2 Contract Data; and

C2.2 Pricing Schedules

NOTES TO TENDERER

(a) Returnable schedules have been based on the CIDB Standard for Uniformity in Construction Procurement and incorporate National Treasury requirements.

(b) Failure to submit fully completed relevant returnable documents may render such a tender offer non-responsive.

(c) Tenderers shall note that their signature appended to each returnable schedule represents a declaration that they vouch for the accuracy and correctness of the information provided.

(d) Notwithstanding any check or audit conducted by or on behalf of the Employer, the information provided in the returnable schedules and / or supporting documentation is accepted in good faith and as justification for entering into a contract with a tenderer. If subsequently any information is found to be incorrect such discovery shall be taken as wilful misrepresentation by that tenderer to induce the contract. In such event:

(i) the Employer shall inform the tenderer and give the tenderer an opportunity to make representations within fourteen (14) days as to why the tender submitted should not be disqualified in terms of the Conditions of Tender and as to why the Employer should not apply any other measures available;

(ii) if the Employer has already entered into a contract with the tenderer, the Employer has the discretionary right under the Conditions of Contract to terminate the contract.

(f) All supporting documentation and certificates shall be securely attached to the applicable returnable schedules. It is the responsibility of the tenderer to ensure no loose or unsecure pages are present in the submitted tender which may render the tender non-responsive.

(e) Where the space provided in the bound tender document is insufficient the tenderer, after giving written notice to the Employer, may draw up separate schedules in accordance with the given formats. These schedules shall then be bound together with a suitable contents page and submitted with the tender. All such schedules must be signed and clearly marked as appendices to the relevant returnable schedules. The Employer does not take any responsibility for any separate schedules lost during the tender evaluation process.

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-25/26-0016

UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32KM)

T2.2: RETURNABLE SCHEDULES

SBD 1: INVITATION TO BID AND TERMS AND CONDITIONS FOR BIDDING

PART A: INVITATION TO BID

BID NUMBER:	SCMU10-25/26-0016	CLOSING DATE:	15/01/2026	CLOSING TIME:	11H00
DESCRIPTION	UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)				
BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT *(STREET ADDRESS)*					
GAP Infrastructure Corporation,					
Acasia House,					
Palm Square Business Park, Bonza Bay Road,					
East London, 5241					

BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO		TECHNICAL ENQUIRIES MAY BE DIRECTED TO:	
CONTACT PERSON	Mr P Loots	CONTACT PERSON	Mr Meyer Hauptfleisch
TELEPHONE NUMBER	(012) 881-0210	TELEPHONE NUMBER	(012) 881-0210
FACSIMILE NUMBER	Not available	FACSIMILE NUMBER	Not available
E-MAIL ADDRESS	philip@gic.co.za	E-MAIL ADDRESS	meyer@gic.co.za

SUPPLIER INFORMATION						
NAME OF BIDDER						
POSTAL ADDRESS						
STREET ADDRESS						
TELEPHONE NUMBER	CODE		NUMBER			
CELLPHONE NUMBER						
FACSIMILE NUMBER	CODE		NUMBER			
E-MAIL ADDRESS						
VAT REGISTRATION NUMBER						
SUPPLIER COMPLIANCE STATUS	TAX COMPLIANCE SYSTEM PIN:		OR	CENTRAL SUPPLIER DATABASE No:	MAAA	
B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE	[TICK APPLICABLE BOX] ☐ Yes ☐ No		B-BBEE STATUS LEVEL SWORN AFFIDAVIT	[TICK APPLICABLE BOX] ☐ Yes ☐ No		

[A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE/ SWORN AFFIDAVIT (FOR EMES & QSEs) MUST BE SUBMITTED IN ORDER TO QUALIFY FOR PREFERENCE POINTS FOR B-BBEE]

ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED?	☐Yes ☐No [IF YES ENCLOSE PROOF]	ARE YOU A FOREIGN BASED SUPPLIER FOR THE GOODS /SERVICES /WORKS OFFERED?	☐Yes ☐No [IF YES, ANSWER THE QUESTIONNAIRE BELOW]

QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS	
IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)?	☐ YES ☐ NO
DOES THE ENTITY HAVE A BRANCH IN THE RSA?	☐ YES ☐ NO
DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA?	☐ YES ☐ NO
DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA?	☐ YES ☐ NO
IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION?	☐ YES ☐ NO

IF THE ANSWER IS "NO" TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO REGISTER FOR A TAX COMPLIANCE STATUS SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 BELOW.

SBD 1

PART B – TERMS AND CONDITIONS FOR BIDDING

1.	**BID SUBMISSION:**
1.1	BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.
1.2	**ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED–(NOT TO BE RE-TYPED) OR IN THE MANNER PRESCRIBED IN THE BID DOCUMENT.**
1.3	THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT, 2000 AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2022, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.
1.4	**THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (SBD7).**
2.	**TAX COMPLIANCE REQUIREMENTS**
2.1	BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.
2.2	BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VERIFY THE TAXPAYER'S PROFILE AND TAX STATUS.
2.3	APPLICATION FOR TAX COMPLIANCE STATUS (TCS) PIN MAY BE MADE VIA E-FILING THROUGH THE SARS WEBSITE WWW.SARS.GOV.ZA.
2.4	BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.
2.5	IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED, EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.
2.6	WHERE NO TCS PIN IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.
2.7	NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE, COMPANIES WITH DIRECTORS WHO ARE PERSONS IN THE SERVICE OF THE STATE, OR CLOSE CORPORATIONS WITH MEMBERS PERSONS IN THE SERVICE OF THE STATE."

NB: FAILURE TO PROVIDE / OR COMPLY WITH ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID INVALID.

SIGNATURE OF BIDDER: .....

CAPACITY UNDER WHICH THIS BID IS SIGNED: .....
(Proof of authority must be submitted e.g. company resolution)

DATE: .....

SIGNED BY TENDERER: .....

A: DECLARATION OF THE COMPULSORY TENDER BRIEFING

Notes to tenderer:

1. The Tenderers are required to attend the compulsory tender briefing as per the part T1.1 of the tender document. The location of the tender briefing is the Nyandeni Local Municipal offices in Libode town.

2. In the tender briefing venue, you are required to sign the attendance register. The briefing will start at 11h00, attendees who arrived 20 minutes late on the briefing will be prohibited from signing the attendance register and therefore will not be considered for tendering.

THE TENDERER HEREBY DECLARES:

(Name of tenderer), ...

.....

Has attended the compulsory briefing of the tender "SCMU10-25/26-0016 TENDER BRIEFING",

by (name of tenderer's representative) .....

(signature of tenderer's representative) .....

and that the information provided by the tenderer's representative are correct.

SIGNED BY TENDERER: .....
SIGNATURE

.....
NAME (PRINT)

WITNESS: .....
SIGNATURE

.....
NAME (PRINT)

SIGNED BY TENDERER: .....

B: CERTIFICATE OF AUTHORITY FOR SIGNATORY

Notes to tenderer:

1 The signatory for the tenderer shall confirm his/her authority thereto by attaching, to the returnable schedule, on the tendering company's letterhead a duly signed and dated copy of the relevant resolution of the board of directors/partners.

2. In the event that the tenderer is a joint venture, a certificate is required from each member of the joint venture clearly setting out authority for signatory.

3. The resolution below is given as an example of an acceptable format for authorisation, but submission of this page with the example completed shall not be accepted as authorisation of the tenderer's signatory.

EXAMPLE BELOW:

By resolution of the board of directors passed at a meeting held on .....

Mr/Ms .....

whose signature appears below, has been duly authorised to sign all documents in connection with the tender for **SCMU10-25/26-0016** and any contract that may arise therefrom on behalf of

.....
(name of tenderer in block capitals)

SIGNED ON BEHALF OF THE COMPANY: .....

IN HIS/HER CAPACITY AS: .....

DATE: .....

SIGNATURE OF SIGNATORY: .....

WITNESS: ....
SIGNATURE SIGNATURE

....
NAME (PRINT) NAME (PRINT)

EXAMPLE

SIGNED BY TENDERER: .....

C: REGISTRATION WITH THE CONSTRUCTION INDUSTRY DEVELOPMENT BOARD

Notes to tenderer:

1. The tenderer shall attached to this returnable schedule a printed copy of the Active Contractor's Listing off the Construction Industry Development Board (CIDB) website (www.cidb.org.za).

2. Tenderers whose CIDB registration expires within 21 days after close of tender should attach proof of their application for re-registration.

3. In the case of a joint venture (JV):
   (a) a printed copy of the Active Contractor's Listing must be provided for each member of the JV; and
   (b) a signed copy of the JV Agreement must be attached to returnable schedule **G: JOINT VENTURE DISCLOSURE**

IN CASE OF SINGLE TENDERING ENTITY:

Name of Contractor: .....

Contractor Grading Designation: ..... **CE** class of construction work

CIDB Contractor Registration Number: .....

Expiry Date: .....

IN CASE OF A JOINT VENTURE:

Lead member if Joint Venture

Name of Contractor: .....

Contractor Grading Designation: ..... **CE** class of construction work

CIDB Contractor Registration Number: .....

Expiry Date: .....

Other member(s) of Joint Venture

Name of Contractor: .....

Contractor Grading Designation: ..... **CE** class of construction work

CIDB Contractor Registration Number: .....

Expiry Date: .....

Name of Contractor: .....

Contractor Grading Designation: ..... **CE** class of construction work

CIDB Contractor Registration Number: .....

Expiry Date: .....

(Attached additional pages if more space is required.)

SIGNED BY TENDERER: .....

D: SIMILAR PROJECT(S) COMPLETED BY THE TENDERER (including TABLE A of this schedule)

Notes to tenderer:

1. The tenderer must provide, in **TABLE A** of this returnable schedule, information of similar project(s) completed by the tenderer as defined in **CLAUSE F.2.1.4.4 OF T1.2: TENDER DATA.**

2. For each similar project listed by the tenderer in **TABLE A**, the tenderer must attach:
   (a) the **COMPLETION CERTIFICATE** of the project; and
   (b) a completed and signed returnable schedule **D(A): SIMILAR PROJECT COMPLETED VERIFICATION FORM**.

3. The tenderer shall indicate in **TABLE A**, were applicable, if the similar project was completed as:
   (a) a principal contractor (PC);
   (b) a joint venture (JV) member;

4. The tenderer must only list defined similar project(s) completed in **TABLE A** provided.
   DO NOT attach a separate list of projects; and **DO NOT** include projects which are not defined as similar project.

5. The information supplied by the tenderer in **TABLE A** and attached supporting documentation [similar project completed verification form(s) and completion certificate(s)] to this returnable schedule will be deemed material to the responsiveness and the Employer's risk analysis of the tender offer.

SIGNED BY TENDERER: .....

TABLE A: LIST OF SIMILAR PROJECTS COMPLETED FOR RETURNABLE SCHEDULE D

CONTRACT NAME AND CONTRACT NUMBER	EMPLOYER	WORK DONE AS A *(tick applicable box)*	SHORT DESCRIPTION OF WORKS COMPLETED	DURATION OF WORKS (months)	VALUE OF WORKS COMPLETED (incl. VAT)	COMPLETION DATE (mm/yyyy)
		☐ PC ☐ JV				
		☐ PC ☐ JV				
		☐ PC ☐ JV				
		☐ PC ☐ JV				
		☐ PC ☐ JV				

SIGNED BY TENDERER: .....

D(A): SIMILAR PROJECT COMPLETED VERIFICATION FORM (one verification form required for each listed project)

SIMILAR PROJECT VERIFICATION FORM (QUESTIONNAIRE)
FOR TENDER NO. SCMU10-25/26-0016
UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32KM)

NAME OF TENDERER: .....

VERIFICATION OF TENDERER'S INDICATED SIMILAR PROJECT BY CONSULTING ENGINEER OR EMPLOYER

(Note: Verification by Consulting Engineer or Employer in terms of the contract for the indicated similar project)

CONTRACT NO.: .....

CONTRACT NAME: .....

.....

EMPLOYER: .....

CONTRACTOR: .....

CONSULTING ENGINEER: .....

VALUE OF WORKS AT COMPLETION (INCL. VAT): R .....

MONTH/YEAR COMPLETED: .....

In terms of this Tender a similar project is defined as:

"A bituminous surfaced road upgrading project(s) completed in the past ten (10) years to the value of at least R 150 million, located within the SADC (South African Development Community) region, which included as a minimum the following:

Bulk earthworks operations
Road layerworks and bituminous surfacing
Operation of quarry/source material
Stormwater drainage (major and minor culverts)
Targeted subcontractor management / development.

1. Was a certificate of completion, in terms of the condition of contract, issued to the contractor?

YES	NO

(TICK APPLICABLE BOX)

If **NO**, please state reasons:

.....

.....

.....

CONTINUE TO NEXT PAGE

VERIFICATION OF TENDERER'S INDICATED SIMILAR PROJECT BY CONSULTING ENGINEER OR EMPLOYER

2. Was the project located within the SADC (South African Development Community) region?

YES	NO	*(TICK APPLICABLE BOX)*

3. Was the value of the Works, completed by the Tenderer (then Contractor) more or equal (≥) R 90 million (incl. VAT)

YES	NO	*(TICK APPLICABLE BOX)*

If **NO**, please write value below

R

4. Did the project include the following works and was the Tenderer (then Contractor) involved with said works?

4.1 Bulk earthworks operations

YES	NO	*(TICK APPLICABLE BOX)*	Involved	YES	NO

4.2 Road layerworks and bituminous surfacing

YES	NO	*(TICK APPLICABLE BOX)*	Involved	YES	NO

4.3 Operation of quarry/source material

YES	NO	*(TICK APPLICABLE BOX)*	Involved	YES	NO

4.4 Stormwater drainage (major and minor culverts)

YES	NO	*(TICK APPLICABLE BOX)*	Involved	YES	NO

4.5 Targeted subcontractor management / development

YES	NO	*(TICK APPLICABLE BOX)*	Involved	YES	NO

Details of respondent:

Verification information supplied by:
(state name & surname) .....

Designation on Project: .....

Company: .....

Signature: ..... Date: .....

Contact Details:

Tel No.: .....

Email: .....

Company Stamp:

(Please return both pages to Tenderer for submission with his Tender

E: TENDERER'S KEY PERSONNEL (including TABLES A and B of this schedule)

Notes to tenderer:

1. The tenderer must provide, in **TABLES A and B** of this returnable schedule, required information of the tenderer's key personnel as defined in **CLAUSE F.2.1.4.4 OF T1.2: TENDER DATA.**

2. For key personnel listed by the tenderer in **TABLES A and B**, the tenderer must attach:
   (a) proof of required professional registration with the specified professional body and that the professional registration is currently active.
   (b) if the key personnel listed by the tenderer is not currently in the employment of the tenderer, provide letter of intent as defined in **CLAUSE F.2.1.4.4 OF T1.2: TENDER DATA.**

3. **TABLES A** and **B** provides space for the tenderer to provide details of the key personnel and define experience required, as defined in **CLAUSE F.2.1.4.4 OF T1.2: TENDER DATA.**

4. A CV of the tenderer's key personnel is **NOT REQUIRED** in terms of this tender as **TABLES A and B**, completed by the tenderer as instructed, provides for the required information.

5. The information supplied by the tenderer in **TABLE A and B** and attached supporting documentation [proof of professional registration and letter of intent (if applicable)] to this returnable schedule will be deemed material to the responsiveness and the Employer's risk analysis of the tender offer.

SIGNED BY TENDERER: .....

TABLE A: TENDERER'S KEY PERSONNEL (CONSTRUCTION MANAGER) FOR RETURNABLE SCHEDULE E

NAME	KEY POSITION	ECSA Reg. No	ECSA Category	SACPCMP Reg No	SACPCMP Category	CURRENTLY EMPLOYMENT BE TENDERER *(YES or NO)*	NO. OF YEARS EXPERIENCE *(for defined type of works)*
	CONSTRUCTION MANAGER						

List only applicable information relevant to the type and duration of experience required (Start with latest experience)

CLIENT AND PROJECT NAME	DESCRIPTION OF PROJECT	PROJECT END DATE AND DURATION ON PROJECT	VALUE OF PROJECT	POSITION HELD	CONTACT PERSON AND FIRM	CONTACT NO.

SIGNED BY TENDERER: .....

TABLE B: TENDERER'S KEY PERSONNEL (CONSTRUCTION HEALTH AND SAFETY OFFICER) FOR RETURNABLE SCHEDULE E

NAME						NO. OF YEARS EXPERIENCE *(for defined type of works)*	
KEY POSITION	CONSTRUCTION HEALTH AND SAFETY OFFICER					CURRENTLY EMPLOYMENT BE TENDERER *(YES or NO)*	
SACPCMP Reg No							
SACPCMP Category							

List only applicable information relevant to the type and duration of experience required (Start with latest experience)

CLIENT AND PROJECT NAME	DESCRIPTION OF PROJECT	PROJECT END DATE AND DURATION ON PROJECT	VALUE OF PROJECT	POSITION HELD	CONTACT PERSON AND FIRM	CONTACT NO.

SIGNED BY TENDERER: .....

F: DECLARATION IN RESPECT OF CONSTRUCTION EQUIPMENT

Notes to tenderer:

1. The tenderer's declaration in terms of this returnable schedule and any supporting documentation will be deemed material to the responsiveness and the Employer's risk analysis of the tender offer.

DECLARATION IN RESPECT OF CONSTRUCTION EQUIPMENT

.....**(name of tenderer)** hereby declare the following:

1. The tenderer has available, either by means of his own construction equipment or ability to hire construction equipment from others, construction equipment exclusively intended for the execution and successful completion of the works as specified in the tender documentation.

by (name of tenderer's representative) .....

(signature of tenderer's representative) .....

and that the information provided by the tenderer's representative are correct.

SIGNED BY TENDERER: .....
SIGNATURE

.....
NAME (PRINT)

WITNESS: .....
SIGNATURE

.....
NAME (PRINT)

SIGNED BY TENDERER: .....

G: JOINT VENTURE AGREEMENT DISCLOSURE (if applicable)

Notes to tenderer:

1. If submitting a tender offer as a joint venture (JV), attach a signed copy of the JV Agreement to this returnable schedule.

2. Failure to provide a JV Agreement will render the tender non-responsive.

3. In case of a JV please note additional requirements in terms of Returnable Schedules:

   B: CERTIFICATE OF AUTHORITY FOR SIGNATORY
   C: REGISTRATION WITH THE CONSTRUCTION INDUSTRY DEVELOPMENT BOARD
   H: REGISTRATION ON NATIONAL TREASURY CENTRAL SUPPLIER DATABASE
   I: DECLARATION IN RESPECT OF COMPLIANCE WITH LABOUR LEGISLATION
   N: TENDERER'S BANKING AND AUDITOR DETAILS
   P: COMPULSORY ENTERPRISE QUESTIONNAIRE
   SBD 4: DECLARATION OF INTEREST
   SBD 6.1: PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022
   SBD 8: DECLARATION OF TENDERER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

SIGNED BY TENDERER: .....

H: REGISTRATION ON NATIONAL TREASURY CENTRAL SUPPLIER DATABASE

Notes to Tenderer:

1. The tenderer must be registered the National Treasury Central Supplier Database and tax status must be compliant, in terms of National Treasury requirements. Failure to comply will render the tender offer non-responsive.

2. The tenderer shall complete this returnable schedule and attach a printed copy of the Active Supplier Listing on the National Treasury Central Supplier Database (www.treasury.go.za). In the case of a joint venture (JV), the tenderer shall provide printed copies of the Active Supplier Listing on the National Treasury Central Supplier Database for each member of the JV.

IN CASE OF SINGLE TENDERING ENTITY:

Name of Supplier: .....

Central Supplier Database Supplier Number: .....

IN CASE OF A JOINT VENTURE:

Lead member if Joint Venture

Name of Supplier: .....

Central Supplier Database Supplier Number: .....

Other member(s) of Joint Venture

Name of Supplier: .....

Central Supplier Database Supplier Number: .....

Name of Supplier: .....

Central Supplier Database Supplier Number: .....

(Attached additional pages if more space is required.)

SIGNED BY TENDERER: .....

I: DECLARATION IN RESPECT OF COMPLIANCE WITH LABOUR LEGISLATION

Notes to tenderer:

1. The tenderer must be registered with the **Bargaining Council for the Civil Engineering Industry (BCCEI)**. Failure to comply will render the tender offer non-responsive.

2. The tender must attach to this returnable schedule proof of registration with applicable Bargaining Council. In case of a joint venture (JV) each member of the JV must attach proof of registration.

3. The tenderer's declaration in terms of this returnable schedule will be deemed material to the responsiveness and the Employer's risk analysis of the tender offer.

DECLARATION IN RESPECT OF COMPLIANCE WITH LABOUR LEGISLATION

.....**(name of tenderer)** hereby declare the following:

1. The tenderer and his subcontractors shall be registered with the **Bargaining Council for the Civil Engineering Industry (BCCEI)** prior to closing of the Tender.

2. The tenderer and his subcontractors shall apply the rates for wages and conditions of labour agreed by the **Bargaining Council for the Civil Engineering Industry (BCCEI).**

3. The tenderer has included in the tendered rates and prices of the completed Pricing Schedules for all costs related to applying the rates for wages and conditions of labour agreed by the **Bargaining Council for the Civil Engineering Industry (BCCEI).**

by (name of tenderer's representative) .....

(signature of tenderer's representative) .....

and that the information provided by the tenderer's representative are correct.

SIGNED BY TENDERER: .....
SIGNATURE

.....
NAME (PRINT)

WITNESS: .....
SIGNATURE

.....
NAME (PRINT)

SIGNED BY TENDERER: .....

J: DECLARATION IN RESPECT OF FULFILMENT OF THE CONSTRUCTION REGULATIONS, 2014

In terms of Regulation 7(1)(a) of the Construction Regulations, 2014 (hereinafter referred to as the Regulations), promulgated on 7 February 2014 in terms of Section 43 of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) the Employer shall not appoint a Contractor to perform construction work unless the Contractor can satisfy the Employer that his/her firm has the necessary competencies and resources to carry out the work safely and has allowed adequately in his/her tender for the due fulfilment of all the applicable requirements of the Act and the Regulations.

Definition of a Competent Person as in Construction Regulations 2014

"Competent person" means a person who:

(a) has in respect in the work or the task to be performed the required knowledge, training and experience and, where applicable, qualifications and training are registered in terms of the provisions of the National Qualification Framework Act, 2000 (Act No.67 of 2000), those qualifications and that training must be regarded as the required qualifications and training; and
(b) is familiar with the Act and with the applicable regulations made under the Act.

Tenderers shall answer the questions below:

1. I confirm that I am fully conversant with the OHS Act and Regulations and that my Company has (or will acquire/procure) the necessary competencies and resources to timeously, safely and successfully comply with all of the requirements of the Regulations. (Tick)

Signature :…….. : Name : …….

YES	
NO	

2. Indicate which approach shall be employed to achieve compliance with the Regulations (Tick)

Own resources, competent in terms of the Regulations (refer to 3 below)	
Own resources, still to be hired and/or trained (until competency is achieved)	
Specialist subcontract resources (competent) – specify:	

3. Provide details of proposed key persons, competent in terms of the Regulations, who will form part of the Contract team as specified in the Regulations (CVs to be attached):

.....

.....

.....

.....

CONTINUE ON THE NEXT PAGE

4. Provide details of proposed training (if any) that will be undergone:

.....

.....

.....

.....

5. List potential key risks identified and measures for addressing risks:

See the Baseline Hazard Identification and Risk Assessment contained in Part C3.3 of the Scope of Work.

Note: The successful tenderer must submit a Project Specific Occupational Health and Safety Plan approved by the Employer within 14 days of being awarded the contract.

6. I have fully included in my tender rates and prices (in the appropriate payment items provided in the Pricing Schedules) for all resources, actions, training and any other costs required for the due fulfilment of the Regulations for the duration of the construction and defects liability period.

(Tick)

YES	
NO	

Signature : …… Name : ……..

and that the information provided by the tenderer's representative are correct.

SIGNED BY TENDERER: .....
SIGNATURE

.....
NAME (PRINT)

WITNESS: .....
SIGNATURE

.....
NAME (PRINT)

SIGNED BY TENDERER: .....

K: 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:

	Date	Title of Details
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		

(Attach additional pages if required.)

SIGNED BY TENDERER: .....

L: CONTRACTOR'S ESTABLISHMENT ON SITE

Should the combined, extended total tendered for Item B13.01 The contractor's obligations:

(a) Fixed obligations
(b) Value-related obligations
(c)(i&ii) Time-related obligations

exceed a maximum of **15%** of the tender sum (excluding; provisional and prime cost sums and its related % mark-up amount in the bill of quantities, total amount for Section B1800: Dayworks, allowances for contingencies and contract price adjustments and VAT), **the tenderer shall clearly set out his reasons for tendering in this manner in a letter attached to this returnable schedule.**

The Employer will duly consider these reasons but reserves the right to consider the tendered rates or lump sums to be unacceptable or imbalanced and to deal with them in terms of **CLAUSE F.3.9.2 OF T1.2: TENDER DATA**.

Total tender for Item B13.01 expressed as a percentage of the tender sum (excluding; provisional and prime cost sums and its related % mark-up amount in the bill of quantities, total amount for Section B1800: Dayworks, allowances for contingencies and contract price adjustments and VAT)%.

The information supplied by the tenderer in this returnable schedule and attached supporting documentation (if applicable) to this returnable schedule will be deemed material to the responsiveness and the Employer's risk analysis of the tender offer.

SIGNED BY TENDERER: .....

M: RATES FOR SPECIAL MATERIALS

Notes to tenderer:

1. Each material dealt with as a special material in terms of **CLAUSE 6.8.3 OF C1.2 CONTRACT DATE** is stated by the Employer, in the table below.

2. If **NO** special materials are stated by the Employer, in the table below, then **NO** special materials are applicable to the tender.

3. Where special material is stated by the Employer, in the table below, the tenderer shall provide the unit (indicating whether the material will be delivered in bulk or in containers) and rate for such special materials.

4. Such rates and prices shall not include VAT but shall include all other obligatory taxes and levies.

5. Fuel is **NOT** classified as a special material.

6. When called upon to do so by the Employer, the tenderer shall substantiate the tenderer special material rates and prices with acceptable documentary evidence.

7. Only special material, stated by the Employer, for which the tenderer has provided units, tendered rates and prices in the table below shall be carried forward to **CLAUSE 6.8.3 OF C1.2 CONTRACT DATA (PART 2).**

SPECIAL MATERIAL	UNIT	RATE
Bitumen – 70/100 penetration grade bitumen		
Bitumen – 50/70 penetration grade bitumen		

SIGNED BY TENDERER: .....

N: TENDERER'S BANKING AND AUDITOR DETAILS

Notes to tenderer:

1. The tenderer shall provide his banking and auditor details as indicated below.

2. In the case of a joint venture (JV), the tenderer shall provide banking and auditor details for each member of the JV.

3. The information supplied by the tenderer in this returnable schedule and any additional financial information of the tenderer as may be requested by the Employer will be deemed material to the Employer's risk analysis of the tender offer.

Bank Details - Bank Name: .....

Address: .....

Account Number: .....

Contact Person: .....

Tel No.: .....

Fax No.: .....

Auditor Details - Firm Name: .....

Address: .....

Account Number: .....

Contact Person: .....

Tel No.: .....

Fax No.: .....

(Attach additional pages if required.)

SIGNED BY TENDERER: .....

O: TENDERER'S PROPOSED SUBCONTRACTORS (excluding targeted subcontractors)

Project Title:	UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)
Contract Number:	SCMU10-25/26-0016

We notify you that it is our intention to employ the following subcontractors for work in this contract.
If we are awarded a contract we agree that this motivation does not change the requirement for us to submit the names of proposed Subcontractors in accordance with the requirements in the contract for such appointments. If there are no such requirements in the contract, then your written acceptance of this list shall be binding between us.

	Name and address of proposed subcontractor (s)	BBBEE – level of subcontractor *(Proof must be submitted with the tender)*	Nature and extend of Work	Previous experience with subcontractor	Estimated R-value of subcontract works	Subcontracting % based on R-Value of total Bid price
1					R ……	_____ **%**
2					R ……	_____ **%**
3					R ……	_____ **%**
4					R ……	_____ **%**
5					R ……	_____ **%**
TOTAL R- VALUE AND PERCENTAGE OF WORK OF SUB-CONTRACTORS					R ……	_____ **%**

Signed: ..... Date: .....
(Signature of tenderer)

Name: ..... Position: .....
(Name of authorised signature) *(Position of authorised signature)*

Name of tenderer: .....

This schedule will be read and apply in conjunction with the provisions of SBD 6.1, paragraph 7. **In the event that the total subcontracting exceeds 25% of the tender sum, a valid BBBEE-certificate must be submitted with the bid for each proposed sub-contractor.**

DO NOT INCLUDE TARGETED SUBCONTRACTOR(S) TO BE APPOINTED AS A CONDITION OF CONTRACT IN TERM OF THIS TENDER.

SIGNED BY TENDERER: .....

P: 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, if any: .....

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 more than 3 partners

Section 5: Particulars of companies and close corporations

Company registration number .....

Close corporation number .....

Tax reference number .....

Section 6: The attached SBD4 must be completed for each tender and attached as a tender requirement

Section 7.1: The attached SBD6.1 must be completed for each tender and attached as a tender requirement

Section 7.2: The attached SBD6.2 must be completed for each tender and attached as a tender requirement

Section 8: The attached SBD8 must be completed for each tender and attached as a tender requirement

Section 9: The attached SBD9 must be completed for each tender and attached as a tender requirement

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

i) authorizes the Employer to verify Tax Compliance status from the South African Revenue Services or the Centralised Suppliers Database (CSD);
ii) confirms that neither the name of the enterprise or the name of any partner, manager, director or other person, who wholly or partly exercises, 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 2004;
iii) confirms that no partner, member, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears, 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; and
iv) confirms 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: .....

SIGNED BY TENDERER: .....

SBD 4: DECLARATION OF INTEREST

1. Any legal person, including persons employed by the State, 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 tender (includes a price quotation, advertised competitive bid, limited bid or proposal). In view of possible allegations of favouritism, should the resulting tender, 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 tenderer or his/her authorised representative declare his/her position in relation to the evaluating/adjudicating authority where:

the tenderer is employed by the State; and/or
the legal person on whose behalf the tender document is signed, has a relationship with persons/a person who are/is involved in the evaluation and or adjudication of the tender, 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 tender.

2. Definitions:

2.1 "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.

2.2 "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.

3. In case of a joint venture (JV), separate declaration of interest returnable schedule is to be completed and submitted by each JV member.

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

4.1 Full Name of tenderer or his or her representative: .....

.....

4.2 Identity Number: .....

4.3 Position occupied in the Company (director, trustee, shareholder): .....

4.4 Company Registration Number: .....

4.5 Tax Reference Number: .....

4.6 VAT Registration Number: .....

4.6.1 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 5 below.

4.7 Are you or any person connected with the tenderer presently employed by the State? **YES / NO**

4.7.1 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 tenderer is employed : .....

Position occupied in the State institution:.....

Any other particulars:

.....

.....

.....

4.7.2 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**

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

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

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

.....

.....

.....

4.8 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**

4.8.1 If so, furnish particulars:

.....

.....

.....

4.9 Do you, or any person connected with the tenderer, 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 tender? **YES / NO**

4.9.1 If so, furnish particulars.

.....

.....

.....

4.10 Are you, or any person connected with the tenderer, aware of any relationship (family, friend, other) between any other tenderer and any person employed by the State who may be involved with the evaluation and or adjudication of this tender? **YES/NO**

4.10.1 If so, furnish particulars**.**

.....

.....

.....

4.11 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 tendering for this contract? **YES/NO**

4.11.1 If so, furnish particulars:

.....

.....

.....

5 Full details of directors / trustees / members / shareholders.

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

6 DECLARATION

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

CERTIFY THAT THE INFORMATION FURNISHED IN PARAGRAPHS 4 and 5 ABOVE IS CORRECT.

I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME IN TERMS OF CLAUSE F.3.7 OF THE CONDITIONS OF TENDER SHOULD THIS DECLARATION PROVE TO BE FALSE.

.....	.....
Signature	**Date**
.....	.....
Position	**Name of bidder**

SIGNED BY TENDERER: .....

SBD 6.1: PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022

This preference form must form part of all tenders invited. It contains general information and serves as a claim form for preference points for specific goals.

NB: BEFORE COMPLETING THIS FORM, BIDDERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF B-BBEE, AS PRESCRIBED IN THE PREFERENTIAL PROCUREMENT REGULATIONS, 2022.

---

1. GENERAL CONDITIONS

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

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 **To be completed by the organ of state**

(a) The applicable preference point system for this tender is the 90/10 preference point system.

1.3 Points for this tender (even in the case of a tender for income-generating contracts) shall be awarded for:

(a) Price; and
(b) Specific Goals.

1.4 **To be completed by the organ of state:**

The maximum points for this tender are allocated as follows:

	POINTS
PRICE	**90**
SPECIFIC GOALS	**10**
TOTAL POINTS FOR PRICE AND B-BBEE MUST NOT EXCEED	**100**

1.5 Failure on the part of a tenderer to submit proof or documentation required in terms of this tender to claim points for specific goals with the tender, will be interpreted to mean that preference points for specific goals are not claimed.

1.6 The organ of state reserves the right to require of a tenderer, either before a tender is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the organ of state.

2. DEFINITIONS

(a) **"tender"** means a written offer in the form determined by an organ of state in response to an invitation to provide goods or services through price quotations, competitive tendering process or any other method envisaged in legislation;
(b) **"price"** means an amount of money tendered for goods or services, and includes all applicable taxes less all unconditional discounts;
(c) **"rand value"** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;
(d) **"tender for income-generating contracts"** means a written offer in the form determined by an organ of state in response to an invitation for the origination of income-generating contracts through any method envisaged in legislation that will result in a legal agreement between the organ of state and a third party that produces revenue for the organ of state, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auctions; and
(e) **"the Act"** means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000).

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:

80/20 **or** **90/10**

$$Ps = 80\left(1 - \frac{Pt - P\min}{P\min}\right) \quad \text{or} \quad Ps = 90\left(1 - \frac{Pt - P\min}{P\min}\right)$$

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 SPECIFIC GOALS

4.2 In cases where organs of state intend to use Regulation 3(2) of the Regulations, which states that, if it is unclear whether the 80/20 or 90/10 preference point system applies, an organ of state must, in the tender documents, stipulate in the case of—

(a) an invitation for tender for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system; or

(b) any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system,

then the organ of state must indicate the points allocated for specific goals for both the 90/10 and 80/20 preference point system.

Table 1: Specific goals for the tender and points claimed are indicated per the table below.

(Note to organs of state: Where either the 90/10 or 80/20 preference point system is applicable, corresponding points must also be indicated as such.

Note to tenderers: The tenderer must indicate how they claim points for each preference point system.)

PREFERENTIAL SPECIFIC GOALS POINTS TABLE		
The specific goals allocated points in terms of this tender	**Number of points allocated (90/10 system)**	**Number of points claimed (90/10 system)**
Specific Goals:		
Black ownership	2.5	% ownership as per CIPC / CSD
Woman ownership	2.5	% ownership as per CIPC / CSD
Locality: -		
(a) Company Head office based in the Eastern Cape (verified in Company Profile, CIPC and on CSD)	5	
(b) Regional Office in the Eastern Cape. Office is required to be fully operational, staffed and verifiable on CSD. Provide Staffing component.	3	
(c) Outside Eastern Cape no satellite office in Eastern Cape:	1	

DECLARATION WITH REGARD TO COMPANY/FIRM

Name of company/firm…….

Company registration number: ……...

TYPE OF COMPANY/ FIRM

- ϒ Partnership/Joint Venture / Consortium
- ϒ One-person business/sole propriety
- ϒ Close corporation
- ϒ Public Company
- ϒ Personal Liability Company
- ϒ (Pty) Limited
- ϒ Non-Profit Company
- ϒ State Owned Company

[TICK APPLICABLE BOX]

3.4. I, the undersigned, who is duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the specific goals as advised in the tender, qualifies the company/ firm for the preference(s) shown and I 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 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;

iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –

(a) disqualify the person from the tendering process;

(b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;

(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 tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted 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, if deemed necessary.

……
SIGNATURE(S) OF TENDERER(S)

SURNAME AND NAME: …….
DATE: ……

ADDRESS: ……

……

……
……

SBD 6.2: DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT FOR DESIGNATED SECTORS

SBD 6.2

LOCAL CONTENT DECLARATION
(REFER TO ANNEX B OF SATS 1286:2011)

LOCAL CONTENT DECLARATION BY CHIEF FINANCIAL OFFICER OR OTHER LEGALLY RESPONSIBLE PERSON NOMINATED IN WRITING BY THE CHIEF EXECUTIVE OR SENIOR MEMBER/PERSON WITH MANAGEMENT RESPONSIBILITY (CLOSE CORPORATION, PARTNERSHIP OR INDIVIDUAL)

IN RESPECT OF BID NO.: .....

ISSUED BY: (Procurement Authority / Name of Institution):

.....

NB

1 The obligation to complete, duly sign and submit this declaration cannot be transferred to an external authorized representative, auditor or any other third party acting on behalf of the bidder.

2 Guidance on the Calculation of Local Content together with Local Content Declaration Templates (Annex C, D and E) is accessible on http://www.thdti.gov.za/industrial development/ip.jsp. Bidders should first complete Declaration D. After completing Declaration D, bidders should complete Declaration E and then consolidate the information on Declaration C. **Declaration C should be submitted with the bid documentation at the closing date and time of the bid in order to substantiate the declaration made in paragraph (c) below.** Declarations D and E should be kept by the bidders for verification purposes for a period of at least 5 years. The successful bidder is required to continuously update Declarations C, D and E with the actual values for the duration of the contract.

I, the undersigned, ……..... (full names),

do hereby declare, in my capacity as …… ……..

of .....(name of bidder entity), the following:

(a) The facts contained herein are within my own personal knowledge.

(b) I have satisfied myself that:
  (i) the goods/services/works to be delivered in terms of the above-specified bid comply with the minimum local content requirements as specified in the bid, and as measured in terms of SATS 1286:2011; and

(c) The local content percentage (%) indicated below has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 4.1 above and the information contained in Declaration D and E which has been consolidated in Declaration C:

Bid price, excluding VAT (y)	R
Imported content(x), as calculated in terms of SATS 1286:2011	R
Stipulated minimum threshold for local content (paragraph 3 above)	
Local content %, as calculated in terms of SATS 1286:2011	

If the bid is for more than one product, the local content percentages for each product contained in Declaration C shall be used instead of the table above.

The local content percentages for each product has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 4.1 above and the information contained in Declaration D and E.

SBD 6.2

(d) I accept that the Procurement Authority / Institution has the right to request that the local content be verified in terms of the requirements of SATS 1286:2011.

(e) I understand that the awarding of the bid is dependent on the accuracy of the information furnished in this application. I also understand that the submission of incorrect data, or data that are not verifiable as described in SATS 1286:2011, may result in the Procurement Authority / Institution imposing any or all of the remedies as provided for in Regulation 14 of the Preferential Procurement Regulations, 2022 promulgated under the Preferential Policy Framework Act (PPPFA), 2000 (Act No. 5 of 2000).

SIGNATURE: _____ DATE: _____

WITNESS No. _____ DATE: _____

WITNESS No. _____ DATE: _____

SIGNED BY TENDERER: .....

SATS 1286.2011

Annex C

Local Content Declaration - Summary Schedule

(C1)	Tender No.	SCMU10-21/22-0030									Note: VAT to be excluded from all calculations	
(C2)	Tender description:	UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)										
(C3)	Designated product(s)	Steel Products and Component for Construction										
(C4)	Tender Authority:	Eastern Cape Department of Transport										
(C5)	Tendering Entity name:											
(C6)	Tender Exchange Rate:	US Dollar		Pound Sterling		Euro			Yen		Other	
(C7)	Specified local content %	100%										

			Calculation of local content						Tender summary			
Tender item no's	List of items	Tender price - each (excl VAT)	Exempted imported value	Tender value net of exempted imported content	Imported value	Local value	Local content % (per item)	Tender Qty	Total tender value	Total exempted imported content	Total Imported content
(C8)	(C9)	(C10)	(C11)	(C12)	(C13)	(C14)	(C15)	(C16)	(C17)	(C18)	(C19)
SCHEDULE B											
22.10(a)	Mild steel bars			R 0.00		R 0.00	#DIV/0!	1	R 0.00	R 0.00	R 0.00
22.10(b)	High-tensile steel bars			R 0.00		R 0.00	#DIV/0!	5	R 0.00	R 0.00	R 0.00
22.10(c)	Welded steel fabric			R 0.00		R 0.00	#DIV/0!	2 500	R 0.00	R 0.00	R 0.00
23.12(a)	Mild steel bars			R 0.00		R 0.00	#DIV/0!	1	R 0.00	R 0.00	R 0.00
23.12(b)	High-tensile steel bars			R 0.00		R 0.00	#DIV/0!	1	R 0.00	R 0.00	R 0.00
23.12(c)	Welded steel fabric			R 0.00		R 0.00	#DIV/0!	2 500	R 0.00	R 0.00	R 0.00
B54.01(a)(i)	Guardrail on timber posts			R 0.00		R 0.00	#DIV/0!	1 100	R 0.00	R 0.00	R 0.00
B55.02(a)	Zinc-coated barbed wire			R 0.00		R 0.00	#DIV/0!	2 100	R 0.00	R 0.00	R 0.00
B55.02(b)	Zinc-coated smooth wire			R 0.00		R 0.00	#DIV/0!	1 500	R 0.00	R 0.00	R 0.00
B55.02(d)	Wire netting			R 0.00		R 0.00	#DIV/0!	29	R 0.00	R 0.00	R 0.00
B71.25(c)	Welded steel fabric			R 0.00		R 0.00	#DIV/0!	500	R 0.00	R 0.00	R 0.00
SCHEDULE D											
22.10(c)	Welded steel fabric			R 0.00		R 0.00	#DIV/0!	500	R 0.00	R 0.00	R 0.00
SCHEDULE E											
MS4/B71.25(c)	Welded steel fabric			R 0.00		R 0.00	#DIV/0!	500	R 0.00	R 0.00	R 0.00
MS5/54.11(a)	Guardrails			R 0.00		R 0.00	#DIV/0!	500	R 0.00	R 0.00	R 0.00

(C20) Total tender value		
(C21) Total Exempt imported content		
(C22) Total Tender value net of exempt imported content		
(C23) Total Imported content		
(C24) Total local content		
(C25) Average local content % of tender		

Signature of tenderer from Annex B

Date:

GUIDANCE DOCUMENT FOR THE CALCULATION OF LOCAL CONTENT

1. DEFINITIONS

Unless explicitly provided in this guideline, the definitions given in SATS 1286:2011 apply.

2. GENERAL

2.1. Introduction

This guideline provides tenderers with a detailed description of how to calculate local content of products (goods, services and works) by components/material/services and enables them to keep an updated record for verification requirements as per the SATS 1286:2011 Annexure A and B.

The guideline consists of two parts, namely:
a written guideline; and
three declarations that must be completed:

- Declaration C: “Local Content Declaration – Summary Schedule” (see Annexure C);
- Declaration D: “Imported Content Declaration – Supporting Schedule to Annex C” (see Annexure D); and
- Declaration E: “Local Content Declaration – Supporting Schedule to Annex C” (see Annexure E).

The guidelines and declarations should be used by tenderers when preparing a tender. A tenderer must complete Declarations D and E, and consolidate the information on Declaration C.

Annexure C must be submitted with the tender by the closing date and time as determined by the Tender Authority. The Tender Authority reserves the right to request that Declarations D and E also be submitted.

If the tender is successful, the tenderer must continuously update Declarations C, D and E with actual values for the duration of the contract.

NOTE:

Annexure A is a note to the purchaser in SATS 1286:2011; and
Annexure B is the Local Content Declaration IN SATS 1286:2011.

2.2. What is local content?

According to SATS 1286:2011, the local content of a product is the tender price less the value of imported content, expressed as a percentage. It is, therefore, necessary to first compute the imported value of a product to determine the local content of a product.

2.3. Categories: Imported and Local Content

The tenderer must differentiate between imported content and local content. Imported content of a product by components/material/services is separated into two categories, namely:
products imported directly by the tenderer; and
products imported by a third party and supplied to the tenderer.

2.3.1. Imported Content

Identify the imported content, if any, by value for products by component/material/services. In the case of components/materials/services sourced from a South African manufacturer, agent, supplier or subcontractor (i.e. third party), obtain that information and Declaration D from the third party.

Calculate the imported content of components/materials/services to be used in the manufacture of the total quantity of the products for which the tender is to be submitted.

As stated in clause 3.2.4 of SATS 1286:2011: “If information on the origin of components, parts or materials is not available, it will be deemed to be imported content.”

2.3.1.1. Imported directly by the tenderer:

When the tenderer import products directly, the onus is on the tenderer to provide evidence of any components/materials/services that were procured from a non-domestic source. The evidence should be verifiable and pertain to the tender as a whole. Typical evidence will include commercial invoices, bills of entry, etc.

When the tenderer procures imported services such as project management, design, testing, marketing, etc. and makes royalty and lease payments, such payments relating to the tender must be included when calculating imported content.

2.3.1.2. Imported by a third party and supplied to the tenderer:

When the tenderer supplies components/material/services that are imported by any third party (for example, a domestic manufacturer, agent, supplier or subcontractor in the supply chain), the onus is on the tenderer to obtain verifiable evidence from the third party.

The tenderer must obtain Declaration D from all third parties for the related tender. The third party must be requested by the tenderer to continuously update Declaration D. Typical evidence of imported content will include commercial invoices, bills of entry etc.

When a third party procures imported services such as project management, design, testing, marketing etc. and makes royalty and lease payments, such payments relating to the tender must be included when calculating imported content.

2.3.1.3. Exempt Imported Content:

Exemptions, if any, are granted by the Department of Trade and Industry **(the dti)**. Evidence of the exemptions must be provided and included in Annexure D.

2.3.2. Local Content

Identify and calculate the local content, by value for products by components /materials/ services to be used in the manufacture of the total quantity of the products.

3. ANNEXURE C

3.1. Guidelines for completing Annexure C: Local Content Declaration – Summary Schedule

Note: The paragraph numbers correspond to the numbers in Annexure C.

C1. Tender Number
Supply the tender number that is specified on the specific tender documentation.

C2. Tender description
Supply the tender description that is specified on the specific tender documentation.

C3. Designated products
Supply the details of the products that are designated in terms of this tender (i.e. buses).

C4. Tender Authority
Supply the name of the tender authority.

C5. Tendering Entity name
Provide the tendering entity name (for example, Anybody Bus Builders (Pty) Ltd).

C6. Tender Exchange Rate
Provide the exchange rate used for this tender, as per the Standard Bidding Document (SBD) and Municipal Bidding Document (MBD) 6.2.

C7. Specified local content %
Provide the specified minimum local content requirement for the tender (i.e. 80%), as per the Standard Bidding Document (SBD) and Municipal Bidding Document (MDB) 6.2.

C8. Tender item number
Provide the tender item number(s) of the products that have a local content requirement as per the tender specification.

C9. List of items
Provide a list of the item(s) corresponding with the tender item number. This may be a short description or a brand name.

Calculation of local content

C10. Tender price
Provide the unit tender price of each item excluding VAT.

C11. Exempted imported content
Provide the ZAR value of the exempted imported content for each item, if applicable. These value(s) must correspond with the value(s) of column D16 on Annexure D.

C12. Tender value net of exempted imported content
Provide the net tender value of the item, if applicable, by deducting the exempted imported content (C11) from the tender price (C10).

C13. Imported value
Provide the ZAR value of the items' imported content.

C14. Local value
Provide the local value of the item by deducting the Imported value (C13) from the net tender value (C12).

C15. Local content percentage (per item)
Provide the local content percentage of the item(s) by dividing the local value (C14) by the net tender value (C12) as per the local content formula in SATS 1286.

Tender Summary

C16. Tender quantity
Provide the tender quantity for each item number as per the tender specification.

C17. Total tender value
Provide the total tender value by multiplying the tender quantity (C16) by the tender price (C10).

C18. Total exempted imported content
Provide the total exempted imported content by multiplying the tender quantity (C16) by the exempted imported content (C11). These values must correspond with the values of column D18 on Annexure D.

C19. Total imported content
Provide the total imported content of each item by multiplying the tender quantity (C16) by the imported value (C13).

C20. Total tender value
Total tender value is the sum of the values in column C17.

C21. Total exempted imported content
Total exempted imported content is the sum of the values in column C18. This value must correspond with the value of D19 on Annexure D.

C22. Total tender value net of exempted imported content
The total tender value net of exempt imported content is the total tender value (C20) less the total exempted imported content (C21).

C23. Total imported content
Total imported content is the sum of the values in column C19. This value must correspond with the value of D53 on Annexure D.

C24. Total local content

Total local content is the total tender value net of exempted imported content (C22) less the total imported content (C23). This value must correspond with the value of E13 on Annexure E.

C25. Average local content percentage of tender
The average local content percentage of tender is calculated by dividing total local content (C24) by the total tender value net of exempted imported content (C22).

4. ANNEXURE D

4.1. Guidelines for completing Annexure D: "Imported Content Declaration – Supporting Schedule to Annexure C"

Note: The paragraph numbers correspond to the numbers in Annexure D.

D1. Tender number
Supply the tender number that is specified on the specific tender documentation.

D2. Tender description
Supply the tender description that is specified on the specific tender documentation.

D3. Designated products
Supply the details of the products that are designated in terms of this tender (i.e. buses).

D4. Tender authority
Supply the name of the tender authority.

D5. Tendering entity name
Provide the tendering entity name (i.e. Unibody Bus Builders (Pty) Ltd).

D6. Tender exchange rate
Provide the exchange rate used for this tender, as per the Standard Bidding Document (SBD) and Municipal Bidding Document (MBD) 6.2.

Table A. Exempted Imported Content

D7. Tender item number
Provide the tender item number(s) of the product(s) that have imported content.

D8. Description of imported content
Provide a list of the exempted imported product(s), if any, as specified in the tender.

D9. Local supplier
Provide the name of the local supplier(s) supplying the imported product(s).

D10. Overseas supplier
Provide the name(s) of the overseas supplier(s) supplying the exempted imported product(s).

D11. Imported value as per commercial invoice
Provide the foreign currency value of the exempted imported product(s) disclosed in the commercial invoice accepted by the South African Revenue Service (SARS).

D12. Tender exchange rate
Provide the exchange rate used for this tender as per the Standard Bidding Document (SBD) and Municipal Bidding Document (MBD) 6.2.

D13. Local value of imports
Convert the value of the exempted imported content as per commercial invoice (D11) into the ZAR value by using the tender exchange rate (D12) disclosed in the tender documentation.

D14. Freight costs to port of entry
Provide the freight costs to the South African Port of the exempted imported item.

D15. All locally incurred landing costs and duties
Provide all landing costs including customs and excise duty for the exempted imported product(s) as stipulated in the SATS 1286:2011.

D16. Total landed costs excl VAT
Provide the total landed costs (excluding VAT) for each item imported by adding the corresponding item values in columns D13, D14 and D15. These values must be transferred to column C11 on Annexure C.

D17. Tender quantity
Provide the tender quantity of the exempted imported products as per the tender specification.

D18. Exempted imported value
Provide the imported value for each of the exempted imported product(s) by multiplying the total landed cost (excl. VAT) (D16) by the tender quantity (D17). The values in column D18 must correspond with the values of column C18 of Annexure C.

D19. Total exempted imported value
The total exempted imported value is the sum of the values in column D18. This total must correspond with the value of C21 on Annexure C.

Table B. Imported Directly By Tenderer

D20. Tender item numbers
Provide the tender item number(s) of the product(s) that have imported content.

D21. Description of imported content:
Provide a list of the product(s) imported directly by tender as specified in the tender documentation.

D22. Unit of measure
Provide the unit of measure for the product(s) imported directly by the tenderer.

D23. Overseas supplier
Provide the name(s) of the overseas supplier(s) supplying the imported product(s).

D24. Imported value as per commercial Invoice
Provide the foreign currency value of the product(s) imported directly by tenderer disclosed in the commercial invoice accepted by the South African Revenue Service (SARS).

D25. Tender rate of exchange
Provide the exchange rate used for this tender as per the Standard Bidding Document (SBD) and Municipal Bidding Document (MBD) 6.2.

D26. Local value of imports
Convert the value of the product(s) imported directly by the tenderer as per commercial invoice (D24) into the ZAR value by using the tender exchange rate (D25) disclosed in the tender documentation.

D27. Freight costs to port of entry
Provide the freight costs to the South African Port of the product(s) imported directly by the tenderer.

D28. All locally incurred landing costs and duties
Provide all landing costs including customs and excise duty for the product(s) imported directly by the tenderer as stipulated in the SATS 1286:2011.

D29. Total landed costs excl VAT
Provide the total landed costs (excluding VAT) for each item imported directly by the tenderer by adding the corresponding item values in columns D26, D27 and D28.

D30. Tender quantity
Provide the tender quantity of the product(s) imported directly by the tenderer as per the tender specification.

D31. Total imported value
Provide the total imported value for each of the product(s) imported directly by the tenderer by multiplying the total landed cost (excl. VAT) (D29) by the tender quantity (D30).

D32. Total imported value by tenderer
The total value of imports by the tenderer is the sum of the values in column D31.

Table C. Imported by Third Party and Supplied to the Tenderer

D33. Description of imported content
Provide a list of the product(s) imported by the third party and supplied to the tenderer as specified in the tender documentation.

D34. Unit of measure
Provide the unit of measure for the product(s) imported by the third party and supplied to tenderer as disclosed in the commercial invoice.

D35. Local supplier
Provide the name of the local supplier(s) supplying the imported product(s).

D36. Overseas supplier
Provide the name(s) of the overseas supplier(s) supplying the imported products.

D37. Imported value as per commercial invoice
Provide the foreign currency value of the product(s) imported by the third party and supplied to the tenderer disclosed in the commercial invoice accepted by SARS.

D38. Tender rate of exchange
Provide the exchange rate used for this tender as per the Standard Bidding Document (SBD) and Municipal Bidding Document (MBD) 6.2.

D39. Local value of imports
Convert the value of the product(s) imported by the third party as per commercial invoice (D37) into the ZAR value by using the tender exchange rate (D38) disclosed in the tender documentation.

D40. Freight costs to port of entry
Provide the freight costs to the South African Port of the product(s) imported by third party and supplied to the tenderer.

D41. All locally incurred landing costs and duties
Provide all landing costs including customs and excise duty for the product(s) imported by third party and supplied to the tenderer as stipulated in the SATS 1286:2011.

D42. Total landed costs excluding VAT
Provide the total landed costs (excluding VAT) for each product imported by third party and supplied to the tenderer by adding the corresponding item values in columns D39, D40 and D41.

D43. Quantity imported
Provide the quantity of each product(s) imported by third party and supplied to the tenderer for the tender.

D44. Total imported value
Provide the total imported value of the product(s) imported by third party and supplied to the tenderer by multiplying the total landed cost (D42) by the quantity imported (D43).

D45. Total imported value by third party
The total imported value from the third party is the sum of the values in column D44.

Table D. Other Foreign Currency Payments

D46. Type of payment
Provide the type of foreign currency payment. (i.e. royalty payment for use of patent, annual licence fee, etc).

D47. Local supplier making the payment
Provide the name of the local supplier making the payment.

D48. Overseas beneficiary
Provide the name of the overseas beneficiary.

D49. Foreign currency value paid
Provide the value of the listed payment(s) in their foreign currency.

D50. Tender rate of exchange
Provide the exchange rate used for this tender as per the Standard Bidding Document (SBD) and Municipal Bidding Document (MBD) 6.2.

D51. Local value of payments
Provide the local value of each payment by multiplying the foreign currency value paid (D49) by the tender rate of exchange (D50).

D52. Total of foreign currency payments declared by tenderer and/or third party
The total of foreign currency payments declared by tenderer and/or a third party is the sum of the values in column D51.

D53. Total of imported content and foreign currency payment
The total imported content and foreign currency payment is the sum of the values in column D32, D45 and D52. This value must correspond with the value of C23 on Annexure C.

5. ANNEXURE E

5.1. Guidelines to completing Annexure E: "Local Content Declaration - Supporting Schedule to Annexure C"

The paragraph numbers correspond to the numbers in Annexure E

E1. Tender number
Supply the tender number that is specified on the specific tender documentation.

E2. Tender description
Supply the tender description that is specified on the specific tender documentation.

E3. Designated products
Supply the details of the products that are designated in terms of this tender (for example, buses/canned vegetables).

E4. Tender authority
Supply the name of the tender authority.

E5. Tendering entity name
Provide the tendering entity name (for example, Unibody Bus Builders (Pty) Ltd) Ltd).

Local Goods, Services and Works

E6. Description of items purchased
Provide a description of the items purchased locally in the space provided.

E7. Local supplier
Provide the name of the local supplier that corresponds to the item listed in column E6.

E8. Value
Provide the total value of the item purchased in column E6.

E9. Total local products (Goods, Services and Works)
Total local products (goods, services and works) is the sum of the values in E8.

E10. Manpower costs:
Provide the total of all the labour costs accruing only to the tenderer (i.e. not the suppliers to tenderer).

E11. Factory overheads:
Provide the total of all the factory overheads including rental, depreciation and amortisation for local and imported capital goods, utility costs and consumables. (Consumables are goods used by individuals and businesses that must be replaced regularly because they wear out or are used up. Consumables can also be defined as the components of an end product that are used up or permanently altered in the process of manufacturing, such as basic chemicals.)

E12. Administration overheads and mark-up:
Provide the total of all the administration overheads, including marketing, insurance, financing, interest and mark-up costs.

E13. Total local content:
The total local content is the sum of the values of E9, E10, E11 and E12. This total must correspond with C24 of Annexure C.

SBD 8: DECLARATION OF TENDERER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

1. The declaration:
   (a) must form part of all tenders submitted.
   (b) in the case of a joint venture (JV), must be completed and submitted by each member of the JV.

2. This returnable schedule 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 tender of any tenderer may be disregarded if that tenderer 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 tender.

ITEM	QUESTION	RESPONSE	
4.1	Is the tenderer 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 *audi alteram partem* 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 ☐	No ☐
4.1.1	If so, furnish particulars:		
4.2	Is the tenderer or any of its directors listed on the Register for Tender Defaulters in terms of Section 29 of the Prevention and Combating of Corrupt Activities (No 12 of 2004)? **The Register for Tender 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 ☐	No ☐
4.2.1	If so, furnish particulars:		
4.3	Was the tenderer 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 ☐	No ☐
4.3.1	If so, furnish particulars:		
4.4	Was any contract between the tenderer and any organ of state terminated during the past five years on account of failure to perform on or comply with the contract?	Yes ☐	No ☐
4.4.1	If so, furnish particulars:		

SBD 8

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 tenderer**

SIGNED BY TENDERER: .....

SBD 9: CERTIFICATE OF INDEPENDENT TENDER DETERMINATION

1. The certificate:
   (a) must form part of all bids[1] submitted.

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.

SBD 9

CERTIFICATE 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 consortium[3] will not be construed as collusive bidding.

[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.

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 bids and contracts, bids 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.

.....	.....
Signature	**Date**
.....	.....
Position	**Name of bidder**

SIGNED BY TENDERER: .....

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-25/26-0016

UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)

THE CONTRACT

PART 1 (OF 4) : AGREEMENTS AND CONTRACT DATA

C1.1 FORM OF OFFER AND ACCEPTANCE

C1.2 CONTRACT DATA

C1.3 PERFORMANCE GUARANTEE (PRO FORMA)

C1.4 OCCUPATIONAL HEALTH AND SAFETY ACT, ACT 85 OF 1993 CONTRACTORS 37.2 AGREEMENT

C1.5 APPLICATION FOR PERMIT TO DO CONSTRUCTION WORK (PRO FORMA)

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-25/26-0016

UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)

C1.1: FORM OF OFFER AND ACCEPTANCE

1. OFFER

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

SCMU10-25/26-0016:

UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)

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 Agreement 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 terms of the Conditions of Contract identified in the Contract Data.

OFFER SIGNATURE BLOCK

For The Tenderer:

Signature(s) .....

Name(s) .....

Capacity .....

for the **Tenderer**
(Name and address of organization)

Name and signature
of witness ..... Date

2. ACCEPTANCE

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

Part C1 : Agreements and Contract Data (which includes this Agreement)

Part C2 : Pricing data

Part C3 : Scope of Work

Part C4 : Site Information

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

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

The Tenderer shall within two weeks after receiving a completed copy of this Agreement, including the Schedule of Deviation (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. Failure to fulfil any of the obligations in accordance with these 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 (5) 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.

ACCEPTANCE SIGNATURE BLOCK

For the Employer:

Signature(s) .....

Name(s) .....

Capacity .....

for the **Employer:** **GAP Infrastructure Corporation (Pty) Ltd.**

1st Floor Acasia House, Palm Square Business Park

Bonza Bay Road

East London

5241

Name of witness ……..... and signature
..... Date

3. 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 Tender'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.

1. Subject .....

   Details

2. Subject .....

   Details

3. Subject .....

   Details

4. Subject .....

   Details

5. Subject .....

   Details

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

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

SCHEDULE OF DEVIATIONS SIGNATURE BLOCK

For The Tenderer:

Signature(s) .....

Name(s) .....

Capacity .....

for the **Tenderer**
(Name and address of organization)

Name and signature
of witness ..... Date

For the Employer:

Signature(s) .....

Name(s) .....

Capacity .....

for the **Employer:** **GAP Infrastructure Corporation (Pty) Ltd.**

1st Floor Acasia House, Palm Square Business Park

Bonza Bay Road

East London

5241

Name and signature
of witness ……..... Date

4. CONFIRMATION OF RECEIPT

The Tenderer, (now Contractor), identified in the Offer part of this Agreement hereby confirms receipt from the Employer, identified in the Acceptance part of this Agreement, of one fully completed original copy of this Agreement, including the Schedule of Deviations (if any) today:

the ..... (day)

of ..... (month)

20..... (year)

at ..... (place)

For the Contractor:

Signature: .....

Name: .....

Capacity: .....

Signature and name of witness:

Signature: .....

Name: .....

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-25/26-0016

UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)

C1.2: CONTRACT DATA (PART 1OF 4)

PART 1 : DATA PROVIDED BY THE EMPLOYER

CONDITIONS OF CONTRACT

The General Conditions of Contract for Construction Works, Third Edition (2015) [hereinafter referred to as GCC2015], published by the South African Institution of Civil Engineering, Private Bag X200, Halfway House, 1685, are applicable to this contract.

CONTRACT SPECIFIC DATA

The following contract specific data, amendments, additions, or omissions, referring to the GCC2015 are applicable to this Contract.

No.	Clause	Description
1	1.1.1.13	The Defects Liability Period is twelve (12) months measured from the date of the Certificate of Completion.
2	1.1.1.14	The time for achieving Practical Completion is forty-five (45) months including all relevant special non-working days and an estimated two (2) months for the construction work permit to be issued by the Department of Labour.
3	1.1.1.15	The Implementing Agent and Employer is **GAP Infrastructure Corporation (Pty) Ltd. (GIC)**, represented by the Chief Executive Officer and/or such other person or persons duly authorized thereto by the Employer in writing.
4	1.1.1.16	The name of the Employer's Agent is Nako Iliso Zutari Joint Venture
5	1.1.1.26	The Pricing Strategy is a Re-measurement Contract.
6	1.1.1.35	*Add the following new sub-clause:* ""Value of Works" means the value of Works certified by the Employer's Agent as having been satisfactorily executed and shall include the value of the work done, the value of the materials and/or goods and Contract Price Adjustments."
7	1.2.1.2	The address of the Employer is: Physical address: GIC 35 Tegel Avenue Highveld Centurion, 0157 E-mail address: info@gic.co.za Tel number: 012 881 0210

No.	Clause	Description
8	1.2.1.2	The address of the Employer's Agents are: **<u>During Tender Stage:</u>** Physical address: Nako Iliso Zutari Joint Venture 1 Pearce Street Berea East London 5241 E-mail address: jaco.bruwer@zutari.com Telephone number: 021 526 9400 **<u>During Construction Stage:</u>** Physical address: Nako Iliso Zutari Joint Venture 1 Pearce Street Berea East London 5241 E-mail address: anton.strydom@zutari.com Telephone number: 021 526 9400
9	1.3.7	*Add the following new subclause:* "All information, documents, recommendations, programmes and reports collected or compiled must be regarded as confidential and may not be communicated or made available to any person outside the Employer's service and may not be published either during the currency of this Contract or after termination thereof without the prior written consent of the Employer."
10	2.4.1	*Add the following:* "In the event of any ambiguity, conflict, or discrepancy between the various contract documents, lists and schedules, the order of precedence (from highest to lowest) shall be as follows: 1. Contract Data. 2. Form of Offer and Acceptance and Schedule of Deviations. 3. General Conditions of Contract (2015). 4. Scope of Works. 5. Standard Specifications of Roads and Bridgeworks (1998). 6. Site Information. 7. Construction Drawings. 8. Bill of Quantities. 9. The Returnable Schedules.
11	3.2.3	The Employer's Agent shall obtain specific written approval from the Employer before carrying out any of his functions or duties according to the following Clauses of the General Condition of Contract: • Nominating the Employer's Agent's Representative in terms of Clause 3.3.1. • The issuing of instructions for dealing with fossils and the like in terms of Clause 4.7. • Authorising the Contractor to repair and make good, excepted risks in terms of Clause 7.5.5. • The issuing of variation orders in terms of Clause 6.3.2.

No.	Clause	Description
		• The issuing of an instruction to accelerate progress in terms of Clause 5.12.4. • The approval of any extension of time for completion in terms Clause 5.12.1. • The reduction of a penalty for delay in terms of Clause 5.13.2. • The issuing of penalties in terms of Clause 5.13. • The determination of additional or reduced costs arising from changes in legislation in terms of Clause 6.8.4. • The giving of a ruling on a Contractor's claim in terms of Clause 10.1.5. • The agreeing of the adjustment of the sums for general items in terms of Clause 6.11.
12	3.2.4	Delete the last sentence of clause 3.2.4.
13	3.3.6	*Add the following:* "The time limit for referring the matter to the Employer's Agent by the Contractor shall be twenty-one (21) days after the decision in question was given by the Employer's Agent's Representative".
14	4.3.3	*Add the following new subclause:* "The Employer and the Contractor hereby agree, in terms of the provisions of section 37 (2) of the Occupational Health & Safety Act, 1993 (Act 85 of 1993, hereinafter referred to as 'the Act'), that the following arrangements and procedures shall apply between them to ensure compliance by the Contractor with the provisions of the Act, namely: (a) The Contractor undertakes that the appropriate officials and employees of the Contractor will fully acquaint themselves with all relevant provisions of the Act and the Regulations promulgated in terms of the Act; (b) The Contractor undertakes that all relevant duties, obligations and prohibitions imposed in terms of the Act and Regulations will be fully complied with; (c) The Contractor hereby accepts sole liability for such due compliance with the relevant duties, obligations and prohibitions imposed by the Act and Regulations, and expressly absolves the Employer from itself being obliged to comply with any of the aforesaid duties, obligations, and prohibitions; with the exception of such duties, obligations and prohibitions expressly assigned to the Employer in terms of the Act and its associated Regulations; (d) The Contractor agrees that any duly authorised official of the Employer shall be entitled (although not obliged) to take such steps as may be necessary to ensure that the Contractor has complied with his undertakings as set out more fully in paragraphs (a) and (b) above, which steps may include, but will not be limited to, the right to inspect any appropriate site or premises occupied by the Contractor, or to inspect any appropriate records or Safety Plans held by the Contractor; (e) The Contractor shall be obliged to report forthwith to the Employer any investigation, complaint or criminal charge which may arise as a consequence of the provisions of the Act and regulations, pursuant to work performed in terms of this Contract, and shall, on written demand, provide full details in writing of such investigation, complaint or criminal charge. (f) The Contractor shall furthermore, in compliance with the Construction Regulations of 2014 (i) Acquaint himself with the requirements of the Employer's Health and Safety Specification as laid down in regulation 5(1)(b) of the Construction Regulations of 2014, and prepare a suitably and sufficiently documented Health and Safety Plan as contemplated in Construction Regulation 7(1)(a) of the Construction Regulations of 2014 for approval by the Employer or his assigned Agent. The Contractor's Health and Safety Plan and risk assessment shall be submitted to the Employer for approval within 14 days from the date of signing the Form of

No.	Clause	Description
		Acceptance and shall be implemented and maintained from the Commencement of the Works. (ii) The Employer, or his assigned Agent, reserves the right to conduct periodic audits, as contemplated in the Construction Regulations 2014, to monitor that the Contractor is compliant in respect of his obligations. Failure by the Contractor to comply with requirements of these Regulations shall entitle the Employer's Agent, at the request of the Employer or his Agent, to suspend all or any part of the Works, with no recourse whatsoever by the Contractor for any damages incurred as a result of such suspension, until such time as the Employer or his Agents are satisfied that the issues in which the Contractor has been in default have been rectified."
15	4.3.4	*Add the following new subclause:* "The Contractor shall assume responsibility for compliance with the Environmental Management Programme (EMPR) and all other relevant environmental Acts and regulations in respect of the sites and shall ensure that the sites are rehabilitated before the conclusion of the Contract. a) The Contractor undertakes that the appropriate officials and employees of the Contractor will fully acquaint themselves with all relevant environmental documentation relevant to this project, which may include: i. NEMA Authorisations for the project; ii. MPRDA authorisations for the project; iii. DAFF permits for the project; iv. DWS authorisations for the project; and v. DEDEAT approved EMPr. b) The Contractor undertakes that the appropriate officials and employees of the Contractor will fully acquaint themselves with all relevant environmental legislative provisions of the relevant Acts as listed in Section B1232 of the Contract Document; c) The Contractor undertakes that all relevant duties, obligations and prohibitions imposed in terms of the various environmental Acts and regulations will be fully complied with; d) The Contractor hereby accepts sole liability for such due compliance with the relevant duties, obligations and prohibitions imposed by the Act and Regulations, and expressly absolves the Employer from itself being obliged to comply with any of the aforesaid duties, obligations, and prohibitions; with the exception of such duties, obligations and prohibitions expressly assigned to the Employer in terms of the Act and its associated Regulations. e) The Contractor agrees that any duly authorised official of the Employer shall be entitled (although not obliged) to take such steps as may be necessary to ensure that the Contractor has complied with his undertakings as set out more fully in paragraphs (a) and (b) above, which steps may include, but will not be limited to, the right to inspect any appropriate site or premises occupied by the Contractor, or to inspect any appropriate records or Environmental Method Statements held by the Contractor; f) The Contractor shall be obliged to report forthwith to the Employer any investigation, complaint or criminal charge which may arise as a consequence of the provisions of the Act and regulations, pursuant to work performed in terms of this Contract, and shall, on written demand, provide full details in writing of such investigation, complaint or criminal charge."
16	4.12.2	*Add the following:* "Employer's minimum requirements for approval of the Construction Manager:

No.	Clause	Description
		i) A suitably qualified and experienced Construction Manager/Site Agent who will be the single point accountable and responsible person for the full time management of the construction works on site, who is registered and has a valid registration certificate with ECSA as a Professional Engineer (Pr Eng.) or Professional Engineering Technologist (Pr Tech Eng.) or Professional Engineering Technician (Pr Techni Eng.) or Registered and has a valid registration certificate with SACPCMP as Professional Construction Manager (Pr CM) and has a minimum of ten (10) years' experience in surfaced road upgrading project(s). Employer's minimum requirements for approval of the Construction Health and Safety Officer: ii) A suitably qualified and experienced full time Construction Health and Safety Officer to manage the Contractor's health and safety obligations on site who is registered and has a valid registration certificate with SACPCMP as a Professional Construction Health and Safety Agent (Pr CHSA) or Professional Construction Health and Safety Manager (Pr CHSM) or Professional Construction Health and Safety Officer (Pr CHSO) and has a minimum of five (5) years' experience on road construction projects."
17	5.3.1	The documentation required from the Contractor before commencement of the Works are: i) An approved, project specific Health and Safety Plan (Refer Clause 4.3). ii) Initial programme (Refer Clause 5.6). iii) Security (Refer Clause 6.2). iv) Insurances (Refer Clause 8.6). v) Signed agreement in terms of Section 37.2 of the OHS Act, 1993. vi) A valid Letter of Good Standing from the Compensation Commissioner or FEMA. *Add the following:* "The documentation required from the provincial director (Department of Labour) before commencement with Works execution are: Construction work permit and site-specific number for each construction site in terms of Regulation 3(3) of Construction Regulations, 2014. In terms of Regulation 3(1) of Construction Regulations, 2014 the Employer must apply to the provincial director (Department of Labour) in writing for a construction work permit at least 30 days before Commencement of the Works. Said application must be in terms of Regulation 3(2) of Construction Regulations, 2014 and including documentation in terms of Regulation 3(2) of Construction Regulations, 2014. Commencement of the Works is estimated to be two (2) months after the Commencement of the Contract."
18	5.3.2	The Contractor shall submit the documentation required under subclause 5.3.1, including that required for the application for the Construction Work Permit and commencement with Works, within fourteen (14) days from the Commencement Date.
19	5.4.4	*Add the following new subclause:* "The Contractor shall bear all costs and charges for special and temporary rights of way required by him in connection with access to the Site. The Contractor shall also provide at his own cost any additional facilities outside the Site required by him for the purpose of the Works."
20	5.8.1	The non-working days are Sundays.

No.	Clause	Description
		The special non-working days are: 1. All gazetted public holidays. 2. The contractor's year-end break as advertised in the Government Gazette.
21	5.11.2	*In the third line, after the word* "progress", *insert* "or alter the order".
22	5.13.1	The penalty for failing to complete the Works is 1.5 cents / R 100.00 of Contract Sum per calendar day or part thereof.
23	5.14.1	The requirements for achieving Practical Completion are as stated in the clause B1210 of Section 1200 of Section B of C3.4 of Part 3 of 4 of the Contract.
24	5.16.3	The latent defects period is ten (10) years.
25	6.2.1	The security to be provided by the Contractor shall be a Fixed Performance Guarantee of 10% of the Contract Sum.
26	6.3.1	*In the fifth line, after the word* "shall", *insert* "with the approval of the Employer".
27	6.6.1.2	*After all references to the word* "sums", *insert* "excluding VAT"
28	6.8.1	*Add the following:* "The tender rates and prices shall also be exclusive of Value Added Tax (VAT). Provision is made for the addition of VAT in the summary of the Bill of Quantities."
29	6.8.2	The value of the certificates issued shall be adjusted in accordance with the Contract Price Adjustment Schedule with the following values: The value of "x" is 0.15 The values of the coefficients are: a = 0.20 (Labour) b = 0.40 (Contractor's equipment) c = 0.25 (Material) d = 0.15 (Fuel) The indices for "L", "P", "M" and "F" are the following as published by Statistics South Africa: 1. "L" is the "Labour Index" and shall be the "Consumer Price Index (CPI) for Eastern Cape: Province" as published in the Statistical News Release P0141Table A the "Consumer Price Index: Main Indices" of Statistics South Africa. 2. "P" is the "Contractor's Equipment Index" and shall be the price index for "Plant and equipment" as published in the Statistical Release P0151.1 Table 4 the "Mining and construction plant and equipment price index" of Statistics South Africa. 3. "M" is the "Materials Index" and shall be the price index for "Civil Engineering Material – Roads, General (Excluding bitumen)" as published in the Statistical Release P0151.1 Table 6 the "Civil Engineering material price indices" of Statistics South Africa. 4. "F" is the "Fuel Index" and shall be the price index for "Coal and petroleum products: Diesel" as published in the Statistical Release P0142.1 Table 1 the "PPI for final manufactured goods" of Statistics South Africa. The base month and year is the month prior to the month in which tender closed.
30	6.8.3	The Contract Price shall be subject to price adjustment for variations in the cost of special materials. The following materials are classified as a special materials:

No.	Clause	Description
		• Net bitumen content of all penetration grade bituminous products measured in ton. The net amount of any variation incurred shall be determined from the ex-refinery rate for bitumen at time of purchase relative to that of the base month for the supplier (refinery) of bitumen actually used to produce the relevant bituminous product. The base month for the purposes of calculating the variation in the cost of special materials shall be the month prior to the tender closing date.
31	6.10.1.5	The percentage advance on materials not yet built into the Permanent Works is 80%.
32	6.10.1.9	*Add the following sub subclause:* "The Contractor is required to submit an accurately completed and signed monthly Contractor Monthly Local Labour Report in accordance with clause E1.4.4 of Section E of Part 3 of 4 of the Contract.
33	6.10.2	*Add the following:* "Payment for materials on site will only be considered for those materials which are physically on site. Any statement in which a claim for materials off site is included, shall have attached a declaration that the materials listed in the statement are owned by the Contractor, accompanied by proof of ownership. The ownership of materials shall be transferred to the Employer in accordance with the relevant pro-forma"
34	6.10.3	The percentage retention on the amounts due to the Contractor is 10% of the Contract Price. *Add the following:* "A retention money guarantee in lieu of retention is not permitted."
35	6.10.4	*Replace clause 6.10.4 with the following:* The Employer's Agent shall deliver to the Employer and the Contractor the payment certificate referred to in Clause 6.10.1 within 7 days of the receipt by the Employer's Agent of the Contractor's said statement. Any dissatisfaction in respect of such payment certificate shall be dealt with in terms of Clause 10.2. The Employer shall pay the amount due to the Contractor within 30 days of receipt by the Employer of the payment certificate signed by the Employer's Agent. Payment shall be subject to Employer having received payment for the services from the Eastern Cape Department of Transport and the Contractor submitting a tax invoice, if required by law, to the Employer for the amount due.
36	6.11	*Replace all references to "*15 per cent*" with "*20 per cent*".* *Replace last paragraph after "*6.11.1.6 Daywork*, with the following:* "then the Value related portion of General Items shall be adjusted by such sums (if any)."
37	7.2.1	*Add the following at the end of the paragraph:* ",subject to approval of the Employer's Agent".
38	8.2.1	*Add the following:* "The Contractor shall protect the Works properly and shall so arrange his operations that the minimum danger and inconvenience are caused to the public and to vehicle and pedestrian traffic. For this purpose, he shall, inter alia, provide and maintain sufficient road

No.	Clause	Description
		traffic signs, lights, barricades, fencing and guarding as may be necessary or required by the Employer's Agent or by any act, regulation, or statutory authorities. All operations required in connection with the execution and completion of the Works shall, as far as the provisions of the Contract permit, not unnecessarily or in any improper manner encroach upon the use of public roads or upon access to private property, and the Contractor hereby indemnifies the Employer against any claims, demand, damage and costs that may arise in this regard. Compensation for such obligations shall be included in the Contractor's prices for provisional and general costs, except in as far as provision is made in the specifications for payment in respect of specific items pertaining to these obligations."
39	8.2.2.3	*Add the following to the end of Clause 8.2.2.3* "risk arising from political riot and malicious damage, unless these risks are insurable with The South African Special Risk Insurance Association at the time of tendering and it is stipulated in the Contract that the Contractor is to effect insurance against these risks."
40	8.6.1.1.2	The value of Plant and materials supplied by the Employer to be included in the insurance sum is R 0.00.
41	8.6.1.1.3	The amount to cover professional fees for repairing damage and loss to be included in the insurance sum is R 500 000.00.
42	8.6.1.3	The limit of indemnity for liability insurance is R 20 000 000.00 for any single claim with the number of claims to be unlimited.
43	8.6.1.5	Where the Contract involves manufacturing and/or fabrication of the Works or part thereof at premises other than the Site, the Contractor shall satisfy the Employer that all materials and equipment for incorporation in the Works are adequately insured during manufacture or fabrication. In the event the Employer having an insurable interest in such Works during manufacture or fabrication then such interest shall be noted by endorsement to the Contractor's policies of insurance.
44	10.5.3	The number of Adjudication Board Members to be appointed is one (1). The dispute shall be referred to ad-hoc adjudication.
45	10.7.1	The determination of disputes shall be by arbitration.

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-25/26-0016

UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)

C1.2 : CONTRACT DATA (PART 2 OF 4)

PART 2 : DATA PROVIDED BY THE CONTRACTOR

<table>
<tr><th>No.</th><th>Clause</th><th>Description</th></tr>
<tr><td>1</td><td>1.1.1.9</td><td>The Contractor is .....
[The Legal name of the Contractor].</td></tr>
<tr><td>2</td><td>1.2.1.2</td><td>The Contractor’s address for receipt of communications and notices is :
Telephone: ..... Facsimile: .....
E-mail : .....
Address (Postal) : ..... Address (Physical) :
....
....
....
....</td></tr>
<tr><td>3</td><td>6.2.1</td><td>The security to be provided by the Contractor shall be:
<table>
<tr><th>Type of Security</th></tr>
<tr><td>Fixed Performance Guarantee of 10% of the Contract Sum</td></tr>
</table>
</td></tr>
<tr><td>4</td><td>6.8.3</td><td>The variation in cost of special materials is (if applicable)
<table>
<tr><th>Type of special material</th><th>Unit</th><th>Rate</th></tr>
<tr><td>Bitumen - 80/100 penetration grade bitumen</td><td>tonne</td><td></td></tr>
<tr><td>Bitumen - 50/70 penetration grade bitumen</td><td>tonne</td><td></td></tr>
</table>
</td></tr>
</table>

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-25/26-0016

UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)

C1.3 : PERFORMANCE GUARANTEE (PRO FORMA)

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

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means: .....

Physical address: .....

"Employer" means: GAP INFRASTRUCTURE CORPORATION (PTY) LTD.

"Contractor" means: .....

"Employer's Agent" means: As appointed by the Employer

"Works" means: UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)

"Site" means: The land and other places made available by the Employer, for the purpose of the Contract, on, under, over, in or through which the Works are to be carried out

"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: .....

Type of Performance Guarantee: **Fixed**

"Expiry Date" means …… or any other later date set by the Contractor and/or Employer provided such instruction is received prior to the Expiry Date as indicated her

CONTRACT DETAILS

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

1. FIXED PERFORMANCE GUARANTEE

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

1.2 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.

1.3 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.

2. CONDITIONS APPLICABLE TO VARIABLE AND FIXED PERFORMANCE GUARANTEES

2.1 The Guarantor hereby acknowledges that:

2.1.1 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.

2.1.2 Its obligation under this Performance Guarantee is restricted to the payment of money.

2.2 Subject to the Guarantor's maximum liability referred to in 1.1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 2.2.1 to 2.2.3:

2.2.1 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 2.2.2;

2.2.2 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 2.2.1 and the sum certified has still not been paid;

2.2.3 A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum certified in 2.2.

2.3 Subject to the Guarantor's maximum liability referred to in 1.1, 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:

2.3.1 the Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 2.3; or

2.3.2 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 2.3; and

2.3.3 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.

2.4 It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 2.2 and 2.3 shall not exceed the Guarantor's maximum liability in terms of 1.1.

2.5 Where the Guarantor has made payment in terms of 2.3, 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.

2.6 Payment by the Guarantor in terms of 2.2 or 2.3 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.

2.7 Payment by the Guarantor in terms of 2.3 will only be made against the return of the original Performance Guarantee by the Employer.

2.8 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.

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

2.10 This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 1.2, 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.

2.11 This Performance Guarantee, with the required demand notices in terms of 2.2 or 2.3, shall be regarded as a liquid document for the purposes of obtaining a court order.

2.12 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) .....

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-25/26-0016

UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)

C1.4 : OCCUPATIONAL HEALTH AND SAFETY ACT, ACT 85 OF 1993 CONTRACTORS 37.2 AGREEMENT

AGREEMENT WITH MANDATORY
In terms of Section 37(1) and (2)

WRITTEN AGREEMENT ENTERED INTO AND BETWEEN

DEPARTMENT OF TRANSPORT
(Hereinafter referred to as the "Client")

AND

_____
PRINCIPAL CONTRACTOR
(Hereinafter referred to as the "Principal Contractor")

Compensation Fund Number: _____

Valid Letter of Good Standing to be attached to this Mandatory Document

PRINCIPAL CONTRACTOR'S UNDERTAKING AND INDEMNITY

1. The Principal Contractor hereby agrees and undertakes, in terms of Section 37(2) of the Act, to accept full responsibility for all health and safety matters for the duration of its carrying out the work, including but not limited to:-

    1.1 providing for the health and safety of its personnel and ensuring that its personnel at all times adhere to the provisions of the Act and the terms and conditions of the Agreement; and
    1.2 ensuring that no third party's health and safety is endangered in any way by the Principal Contractor's activities or conduct on the Clients premises.

2. The Principal Contractor hereby indemnifies and holds the Client harmless against any loss, action, expense, claim, harm or damage of whatsoever nature suffered or sustained by the Client pursuant to a breach by the Principal Contractor or its Personnel and/or Contractors, of the provisions of the agreement and the Act.

The Principal Contractor's obligations include, without limitation, the following: -

1. The Principal Contractor shall not cause, as far as is reasonably practicable, any harm to or endanger any Clients personnel or other persons on the Clients premises at which the Principal Contractor is carrying out the work.

2. The Principal Contractor shall ensure that its personnel have access to an updated edition of the OHS Act at all times.

3. The Principal Contractor agrees to co-operate with the Client and provide the Client with all information relating to occupational health and safety issues where the Client requests such information, including any non-compliance with the requirements of the Act.

4. The Principal Contractor shall ensure that the Personnel, when on Clients premises, at all times adhere to the standard health, safety and security procedures and guidelines as laid down by the Client for its own personnel in terms of the Act, as varied and conveyed by the Client to the Principal Contractor from time to time.

5. The Principal Contractor shall ensure that, where applicable in terms of the Act, members of its personnel involved in carrying out the work undergo thorough medical examinations prior to commencing any activity on the Clients premises and continue to undergo routine medical examinations for the duration of the work.

6. The Principal Contractor shall ensure that the work carried out on The Client premises shall be carried out under strict supervision by qualified members of the Principal Contractors personnel who are trained to understand the hazards associated with the work and who are authorized to take such precautionary measures as are necessary. Further, the Principal Contractor shall enforce disciplinary measures where any members of its Personnel do not comply with the provisions of the Act.

7. The Principal Contractor shall ensure that all members of its personnel report any unsafe or unhealthy work situations to the Principal Contractor immediately. The Principal Contractor will in turn report such situations to the Client's appointed Agent immediately.

8. In the event of an incident occurring on the Client premises, the Principal Contractor shall immediately notify the Client thereof and shall inform the relevant provincial director at the Department of Labour thereof within 7 (seven) days of the incident occurring. The Client reserves the right to retain an interest in any such incident. Accordingly, the Principal Contractor shall provide the Client with copies of all documentation relating to the incident and any formal investigations or inquiries conducted in terms of the OHS Act.

9. The Principal Contractor shall under no circumstances bring any intoxicating substances onto The Client premises. Where the Client has reason to believe that any member of the Principal Contractors personnel is under the influence of an intoxicating substance, the Client shall be entitled to deny such person access to or remove such person from the Clients premises.

10. In terms of Section 10(4) of the Act, the Principal Contractor undertakes that where it uses an article sourced from a third party in the course of carrying out the work, it shall ensure that such article complies with the prescribed requirements.

11. The Principal Contractor undertakes that all vehicles used on the Clients premises shall be in a roadworthy condition and shall be fully licensed and adequately insured. The Principal Contractor undertakes further that it shall use suitably skilled and licensed drivers/operators for such vehicles and that no passengers shall be carried in these vehicles unless the vehicle in question has been specifically designed for carrying passengers. Further, the Principal Contractor shall comply with the requirements of the Hazardous Substances Act No 15 of 1973, as amended from time to time, where hazardous substances are carried on any of its vehicles.

12. The Principal Contractor undertakes, at all times, to adhere to the minimum requirements for environmental standards as set out in the OHS Act, including but not limited to lighting requirements, thermal requirements, ventilation, flooding precautions, fire precautions and noise conservation and further undertakes not to cause any impairment to the existing environmental conditions on The Clients premises.

13. The Principal Contractor shall at all times have an adequate supply of fire protection equipment at the Clients premises on which the work is in progress. The Principal Contractor shall also ensure that all personnel on the Clients premises are familiar with the Client's fire precautions and procedures; including alarm signals and emergency exits and that they adhere to such precautions.

14. The Principal Contractor shall provide and maintain in good condition, a satisfactorily equipped first aid box where there are more than five personnel members at the Clients premises.

15. The Principal Contractor shall ensure that all personnel are trained and provided with instructions and information on health and safety aspects relating to the work and that they understand the hazards associated with the work being carried out on the Clients premises, if applicable.

16. The Principal Contractor shall ensure that where needed, health and safety equipment shall be provided or installed.

17. The Principal Contractor shall further ensure that all personnel using any machinery or other equipment are properly trained and qualified to use such machinery or other equipment and that precautionary measures are taken when using any machinery or equipment.

18. The Principal Contractor shall not permit any person to enter the Clients premises where the work is being carried out where the health and safety of such person is at risk or may be at risk. Where the Client deems it necessary, the Principal Contractor agrees to post a notice at the Clients premises prohibiting the entry of unauthorized persons onto the premises.

19. If the Principal Contractor is to engage in construction work on the Client premises and if the nature of such construction work falls within the ambit of Section 3 of the Construction Regulations to the OHS Act, it shall inform the relevant provincial director at the Department of Labour thereof and provide the provincial director with the information required in the aforementioned Section 3.

20. The Principal Contractor shall at all times allow inspectors access to The Client premises and shall allow them to inspect the work. The Principal Contractor shall not prevent any inspector from removing any article, substance, machinery or documentation and shall allow an inspector to provide assistance where such inspector deems necessary.

21. Should the Client at any time have reason to believe that any member of the Principal Contractors personnel is failing to comply with the provisions of the OHS Act or that such Personnel-member poses a threat or risk to the Client, the Client shall be entitled to deny such personnel-member access to any or all of the Client's premises and require the Principal Contractor to replace such member of its personnel without delay.

Principal Contractor WARRANTIES

The Principal Contractor hereby warrants that it shall at all times:-

1. comply with all provisions of the OHS Act and the Regulations thereto;

2. be in possession of all required permits to carry out the work, such permits to remain valid for the full duration of the work;

3. be in possession of a valid registration with the Compensation Commissioner in terms of the Compensation for Occupational Injuries Act No 130 of 1993 and have paid all monies due to the Compensation Commissioner. The Principal Contractor must ensure that its cover under the abovementioned OHS Act remains in force for the duration of the work;

4. be in possession of and present to the Client on signing hereof, a letter of Good Standing from the Compensation Commissioner;

5. have correctly trained personnel with the required certifications and qualifications as prescribed by the Act;

6. maintain acceptable levels of hygiene and cleanliness in carrying out the work;

7. carry out and comply with all requirements prescribed in terms of the General Safety Regulations in the Act, including but not limited to:-

    7.1 using adequate personal protective equipment where applicable; and
    7.2 using machinery which is in good order and is fit for the purpose for which it is intended; and

8. as far as reasonably practicable, ensure that any persons other than the Personnel who may be directly affected by the Principal Contractor activities shall not be exposed to health and safety dangers as a result of the work which the Contractor is carrying out.

ACCEPTANCE BY MANDATORY

SIGNED at ..... on ..... 20.....

_____ _____
For and on behalf of the **Client** Name & Office

WITNESSES:

1 _____ _____
Signature Name

2 _____ _____
Signature Name

SIGNED at ..... on ..... 20.....

_____ _____
For and on behalf of the **Contractor** Name & Office

WITNESSES:

1 _____ _____
Signature Name

2 _____ _____
Signature Name

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-25/26-0016

UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)

C1.5: APPLICATION FOR PERMIT TO DO CONSTRUCTION WORK (PRO FORMA)

ANNEXURE 1

APPLICATION FOR A PERMIT TO DO CONSTRUCTION WORK

In terms of Regulation 3(2) of Construction Regulations, 2014

This application must be submitted with the following documents

1. Health and Safety Specification
2. Health and Safety Plan
3. Baseline Risk Assessment

1. Name, Postal Address and Telephone Numbers of the Client:

   .....

   .....

2. Details of the Construction Health and Safety Agent:

   a) Title, Surname and Initials: .....
   b) Identity Number / Passport Number .....
   c) Registration Number with SACPCMP: .....
   d) Office Tel. Number and / or Mobile Number: .....
   e) Postal Address: .....

   .....

3. Name, Postal Address and Telephone Numbers of the appointed Principal Contractor:

   .....

   .....

4. Name, Postal Address and Telephone Numbers of Designer of the Project:

   .....

   .....

5. Name, Postal Address and Telephone Numbers of the following Persons:

   a) Construction Manager: CR 8.1 .....

   .....

b) Construction Health and Safety Manager: .....
.....

c) Construction Health and Safety Officer: CR 8.5 .....
.....

6. Exact Physical Address of Construction Site and Site Office: .....
.....
.....

7. Nature of Construction Work: .....
.....
.....

8. Expected Commencement Date: .....

9. Expected Completion Date: .....

10. Estimated Maximum Number of Persons on the Construction Site: .....

11. Planned Number of Contractors on Site accountable to the Principal Contractor: .....

12. Names of Contractors Appointed:
.....
.....
.....
.....
.....

……

13. Signature of Client / Client's CHS Agent

……..

14. Signature of Principal Contractor

FOR OFFICE USE ONLY

Authorization / Unique Number	Labour Centre	Official Approval Stamp

15. Date of Application: ……

16. Submitted Documents Prescribed in Construction Regulation 5.4 (Please Tick ✓)

CR 5.1(a)		CR 5.1 (b)		CR 5.1 (c – s)	

17. Result of the Application (Please Tick ✓)	**Approved**		**Declined**	

18. Reason for Declining the Application:

……...
……
……
……
……
……...

……

19. Signature of Supervisor

……

20. Signature of Revoking Officer / Inspector

Construction Regulations 2014

THIS DOCUMENT IS TO BE FORWARDED TO THE OFFICE OF THE DEPARTMENT OF LABOUR

30 DAYS PRIOR TO COMMENCEMENTOF WORK ON SITE

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-25/26-0016

UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)

THE CONTRACT

PART 2 (OF 4) : PRICING DATA

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-25/26-0016

UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)

C2. PRICING DATA

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C2.1 PRICING INSTRUCTIONS C2.3
C2.2 PRICING SCHEDULE C2.5

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-25/26-0016

UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)

C2.1 PRICING INSTRUCTIONS

C2.1.1 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) as amended in the Scope of Works.

C2.1.2 The units of measurement described in the Pricing Schedule are metric units. Abbreviations used in the Pricing Schedule are as follows:

%	=	percent	m^3-km	=	cubic metre-kilometre
h	=	hour	MN	=	meganewton
ha	=	hectare	MN.m	=	meganewton-metre
kg	=	kilogram	MPa	=	megapascal
kl	=	kilolitre	No.	=	number
km	=	kilometre	Prov sum	=	Provisional sum
km-pass	=	kilometre-pass	PC Sum	=	Prime Cost sum
kPa	=	kilopascal	R/only	=	Rate only
kW	=	kilowatt	sum	=	lump sum
ℓ	=	litre	t	=	tonne (1000kg)
m	=	metre	W/day	=	Work day
mm	=	millimetre	LI	=	Labour Intensive
m^2	=	square metre			
m^2-pass	=	square metre-pass			
m^3	=	cubic metre			

C2.1.3 For the purpose of the Pricing Schedule, the following words shall have the meanings 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 payment per unit of work for which the Service Provider tenders to do the work.

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

Lump Sum: An amount tendered for an item, the extent of which is described in the Pricing Schedule, the Scope of Work or elsewhere, but of which the quantity of work is not measured in units.

C2.1.4 Unless otherwise stated, items are measured nett in accordance with the drawings, and no allowance is made for waste.

C2.1.5 It will be assumed that prices included in the bills of quantities are based on Acts, Ordinances, Regulations, By-laws, International Standards and National Standards that were published 28 days before the closing date for tenders. (Refer to www.stanza.org,za or www.iso.org for information standards)

C2.1.6 The prices and rates in the Pricing Schedule are fully inclusive prices for the work described under the items. Such prices and rates cover all costs and expenses that may be required in and for the execution of the work described in accordance with the provisions of the Scope of Work, and shall

cover the cost of all general risks, liabilities and obligations set forth or implied in the Contract Data, as well as overhead charges and profit. These prices will be used as a basis for assessment of payment for additional work that may have to be carried out.

C2.1.7 Where the Scope of Work requires detailed drawings and designs or other information to be provided, all costs associated therewith are deemed to have been provided for and included in the unit rates and sum amount tendered such items.

C2.1.8 An item against which no price is entered will be considered to be covered by the other prices or rates in the Pricing Schedule. A single lump sum will apply should a number of items be grouped together for pricing purposes.

C2.1.9 The quantities set out in the Pricing Schedule are approximate and do not necessarily represent the actual amount of work to be done. The quantities of work accepted and certified for payment will be used for determining payments due and not the quantities given in the Pricing Schedule.

C2.1.10 The short descriptions of the items of payment given in the Pricing Schedule 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.

C2.1.11 The item numbers appearing in the Pricing Schedule refer to the corresponding item numbers in the COLTO Standard Specification for Road and Bridge Works for State Authorities (1998 edition).

C2.1.12 Those parts of the contract to be constructed using labour-intensive methods have been marked in the bill of quantities with the prefix LI filled in against every item so designated. The works, or parts of the works, including those parts requiring the use of selected subcontractors, so designated are to be constructed using labour-intensive methods only. The use of plant to provide such works, other than plant specifically provided for in the scope of work, is a variation to the contract. The items marked with the letters LI are not necessarily an exhaustive list of all the activities which must be done by hand, and this clause does not over-ride any of the requirements in the generic labour-intensive specification in the Scope of Works.

C2.1.13 Payment for items which are designated to be constructed labour-intensively (either in this schedule or in the Scope of Works) will not be made unless they are constructed using labour-intensive methods. Any unauthorised use of plant to carry out work which was to be done labour-intensively will not be condoned and any works so constructed will not be certified for payment. These items are marked L1 in the bill of quantities.

C2.1.14 Mathematical errors in the Tender will be dealt with according to “Practice Note H2, August 2006 Version 3 – February 2008” as published by the CIDB.

C2.1.15 Note on B12.12: The Tender has to calculate the total for the relevant Section and then calculate the percentage markup amount. This means that the Tenderer is required to insert Quantity, Rate and Amount.

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-25/26-0016

UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)

C2.2 PRICING SCHEDULE

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SCHEDULE B	STRUCTURES (not applicable)	N/A
SCHEDULE C	OCCUPATIONAL HEALTH AND SAFETY	C2-51
SCHEDULE D	HIV/AIDS AWARENESS	C2-54
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PROVINCE OF THE EASTERN CAPE

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UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)

CALCULATION OF TENDER SUM

DESCRIPTION		**AMOUNT**
TOTAL SCHEDULE A:	ROADWORKS	
TOTAL SCHEDULE B:	STRUCTURES (NOT APPLICABLE)	
TOTAL SCHEDULE C:	OCCUPATIONAL HEALTH AND SAFETY	
TOTAL SCHEDULE D:	HIV/AIDS AWARENESS	
TOTAL SCHEDULE F:	SMME SUBCONTRACTOR EMPLOYMENT	
TOTAL OF SCHEDULES:		

CONTINGENCIES
The sum provided here is under the sole control of the Employer's Agent and may be deducted in whole or in part.
Add 10% of TOTAL OF SCHEDULES……..

SUBTOTAL A……....

CONTRACT PRICE ADJUSTMENT
Sum provided in terms of the provisions of the Contract Price Adjustment Schedule of the General Conditions of Contract.

Add 15% of SUBTOTAL A…….

SUBTOTAL B……...

VALUE ADDED TAX (VAT)
Add 15% of SUBTOTAL B……..

CONTRACT SUM CARRIED TO FORM OF OFFER AND ACCEPTANCE:

SIGNED ON BEHALF OF TENDERER: ……..…….

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-25/26-0016

UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)

THE CONTRACT

PART 3 (OF 4) : SCOPE OF WORKS

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-25/26-0016

UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)

SECTION C3.1: DESCRIPTION OF THE WORKS

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SECTION B:	**PROJECT SPECIFICATION AMENDMENTS TO THE STANDARD SPECIFICATIONS**	**C3.5**
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SECTION F:	**SPECIFICATION FOR SMME SUBCONTRACTOR EMPLOYMENT**	**C3.245**

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

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UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)

PART C3 : SCOPE OF WORK

SECTION A: STANDARD AMENDMENTS ISSUED BY COLTO

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-25/26-0016

UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)

PART C3 : SCOPE OF WORK

SECTION A: STANDARD AMENDMENTS ISSUED BY COLTO

Notes to tenderer

1. 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 in Section A, together with additional amendments as set out in Section B.

2. Where reference is made to the General Conditions of Contract and Sub-Clauses thereof in the abovementioned Standard Specifications, they refer to the appropriate edition of the 'General Conditions of Contract for Road and Bridge Works for State Road Authorities," issued by COLTO (Clause 1115 of the Standard Specifications refers).

   The General Conditions of Contract applicable to this contract are the "Conditions of Contract for Construction Works (Third Edition) 2015 (SAICE), as published by the South African Institute of Civil Engineering and the necessary amendments to the Standard Specifications have been made and included in the Project Specifications contained in this document.

3. **The terms "Schedule of Quantities", (used throughout the Standard Specifications) and "Bill of Quantities", (used in all other documents forming part of this contract), and "Pricing Schedule" are synonymous.**

PROVINCE OF THE EASTERN CAPE

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TENDER NO. SCMU10-25/26-0016

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PART C3 : SCOPE OF WORK

SECTION B: PROJECT SPECIFICATION AMENDMENTS TO THE STANDARD SPECIFICATIONS

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

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UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)

PART C3 : SCOPE OF WORK

SECTION B: PROJECT SPECIFICATION AMENDMENTS TO THE STANDARD SPECIFICATIONS

Notes to tenderer:

1. 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.

2. 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.

3. The tenderer shall note that the COLTO Standard Specifications are based on the General Conditions of Contract for Road and Bridge Works for State Road Authorities (1998 Edition) (COLTO), prepared by the Committee of Land Transport Officials . Reference to specific clauses in these COLTO General Conditions of Contract shall need to be exchanged for the equivalent clause in the General Conditions of Contract for Construction Works 3rd Edition 2015 (SAICE), as published by the South African Institute of Civil Employer's Agenting, as amended in the Contract Data (C1.2) of this document. Table 1115/1 showing details of the equivalent clause numbers is included in Clause B1115 of the Project Specifications.

   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 SAICE General Conditions of Contract for Construction Works, as amended in the Contract Data (C1.2), shall apply and the Contractor shall be responsible for interpretation of the equivalent clause.

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-25/26-0016

UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)

PART C3: SCOPE OF WORK

SECTION B: PROJECT SPECIFICATION AMENDMENTS TO THE STANDARD SPECIFICATIONS

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SECTION 4100: PRIME COAT C3.119

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SECTION 5100: PITCHING, STONEWORK AND PROTECTION AGAINST EROSION C3.137

SECTION 5200: GABIONS C3.139

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SECTION 6600: NO-FINES CONCRETE, JOINTS, BEARINGS, BOLT GROUPS FOR ELECTRIFICATION, PARAPETS AND DRAINAGE FOR STRUCTURES C3.168

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SECTION 8200: QUALITY CONTROL (SCHEME 1) C3.178

SECTION 9200: PRECAST CONCRETE PRODUCTS, BRICK AND BLOCK MAKING C3.184

SECTION 1100: DEFINITIONS AND TERMS

B1111 CULVERT

Add the following to this Clause:

"Culverts are specified either as being prefabricated or of cast in situ concrete. Prefabricated culverts, together with their associated inlet and outlet structures are specified under Section 2200 while cast in situ concrete culverts are treated as structures under the 6000 Series."

B1115 GENERAL CONDITIONS OF CONTRACT

Replace Clause 1115 with the following:

“The General Conditions of Contract for Construction Works 3rd edition 2015 (abbreviated as “GCC 2015” or as “General Conditions of Contract 2015”) published by the South African Institution of Civil Engineering (SAICE), as amended in the Contract Data (C1.2) shall apply to and form part of this contract.”

All references in the Standard Specifications for Road and Bridge Works for State Road Authorities COLTO are to the General Conditions of Contract for Road and Bridge Works for State Road Authorities COLTO. Consequently, all references in the COLTO Standard Specifications have to be amended accordingly to reflect the SAICE General Conditions of Contract that is applicable to this contract. The COLTO Standard Specifications have been scrutinized and the clauses, which refer to the COLTO General Conditions of Contract, were identified. Each COLTO clause reference is tabulated in Table B1115 below (context of reference is also given) together with the relevant equivalent clause in the SAICE General Conditions of Contract that is applicable to this contract.

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 SAICE General Conditions of Contract for Construction Works, as amended in the Contract Data (C1.2), shall apply and the Contractor shall be responsible for interpretation of the equivalent clause."

TABLE B1115: REFERENCES IN COLTO STANDARD SPECIFICATIONS TO THE COLTO GENERAL CONDITIONS OF CONTRACT AND RELEVANT SAICE GENERAL CONDITIONS OF CONTRACT FOR CONSTRUCTION WORKS 3rd EDITION 2015

COLTO Standard Specification		COLTO General Conditions of Contract 1998		SAICE General Conditions of Contract for Construction Works 3rd edition 2015	
Clause No	**Page No**	**Clause No**	**Description or Reference**	**Clause No**	**Description or Reference**
1204	1200-2	15	Programme	5.6	Programme
1209(e)	1200-5	52: 52(1)(e) 52(2)	 Monthly payments (documentary evidence of ownership of materials) Valuation of material brought onto Site	6.9 & 6.10: 6.9 6.10.2	 Vesting of plant and materials Valuation of material brought onto Site
1210	1200-5	54: 54(1) 54(2) 54(3)	 Certificate of practical completion	5.14: 5.14.1 5.14.2 5.14.3	 Certificate of Practical Completion
1212(l)	1200-7	49: 49(2)	 Contract Price Adjustment Factor	6.8: 6.8.2	 Contract Price Adjustment Factor
1215	1200-9	45	Extension of time for completion	5.12	Extension of time for practical completion
1217	1200-10	35	Care of the Works	8.2	Care of the Works
1303	1300-1 and 1300-2	49 & 53: 49(2) and 49(3) 53	 Contract Price Adjustment Factor and special materials Variations exceeding 20%	6.8 & 6.11: 6.8.2 and 6.8.3 6.11	 Contract Price Adjustment Factor and special materials Variations exceeding 15%
1303	1300-2	12 &45: 12 45	 Commencement of Works and Commencement Date Extension of time for completion	5.3 & 5.12: 5.3 5.12	 Commencement of the Works Extension of time for practical completion
1403 (c)(ii)	1400-4	40(1)	Valuation of variations	6.4.1	Value of variations
1505	1500-3	40: 40(1)	 Valuation of variations	6.4: 6.4.1	 Value of variations
1507 Items: 15.08 15.09 15.11	1500-8	48: 48.1	 Provisional Sums	6.6: 6.6.1	 Provisional Sums
3108 Note (2)	3100-4	40: 40(1)	 Valuation of variations	6.4: 6.4.1	 Value of variations
3204 (b)(iii)	3200-2	40: 40(1)	 Valuation of variations	6.4: 6.4.1	 Value of variations

COLTO Standard Specification		COLTO General Conditions of Contract 1998		SAICE General Conditions of Contract for Construction Works 3rd edition 2015	
Clause No	**Page No**	**Clause No**	**Description or Reference**	**Clause No**	**Description or Reference**
3303(b)	3300-2	2	Employer's Agent and Employer's Agent's Representative	3	Employer's Agent
5803(c)	5800-3	40: 40(1)	Valuation of variations	6.4: 6.4.1	Value of variations
5805(d)	5800-4	40: 40(1)	Valuation of variations	6.4: 6.4.1	Value of variations
5809 Item 58.10	5800-10	48: 48.1	Provisional Sums	6.6: 6.6.1	Provisional Sums
8103(c)	8100-1	40: 40(1)	Valuation of variations	6.4: 6.4.1	Value of variations
8117 Item 81.03	8100-26	22	Clearance of site on completion	5.15	Clearance of site

The relevant definitions of the SAICE General Conditions of Contract (Third Edition) 2015 shall apply to this contract with the following reference to the terms used in the COLTO Standard Specifications:

SAICE General Conditions of Contract (Third Edition) 2015 : Sub-clause 1.1 Definitions

Replace clause 1.1.1.2 with the following:

"1.1.1.2 "**Bill of Quantities**" means the Schedule of Quantities document so designated in, and forming part of, the Tender. The Schedule of Quantities forms part of the Pricing Data that lists the items of work and the quantities and rates associated with each item to allow the Contractor to be paid at regular intervals an amount equal to the agreed rate for the work multiplied by the quantity of work completed."

Replace Sub-clause 1.1.1.8 with the following:

"1.1.1.8 "**Contract Data**" means the specific data in the document so designated in, and forming part of, the Tender. The Contract Data together with the General Conditions of Contract and the Special Conditions of Contract collectively describe the risks, liabilities and obligations of the contracting parties and the procedures for the administration of the Contract."

Replace Sub-clause 1.1.1.25 with the following:

"1.1.1.25 "**Pricing Data**" means the document that contains the Schedule of Quantities and provides the criteria and assumptions which it will be assumed in the Contract that were taken into account by the Contractor when developing the Contract Sum."

Add the following new Definitions:

"1.1.1.35 "**Project Specifications**" means any specifications appearing under this heading and forming part of the Contract, and containing any amendments to, omissions from or additions to the Standard Specifications that may be required in connection with a specific project."

"1.1.1.36 "**Special Conditions**" means any addition to, departure from or amendment of the General Conditions of Contract as set out in the Contract Data forming part of the Tender Documents."

"1.1.1.37 "**Works Specifications**" means all specifications forming part of the Contract whether they appear in the Standard Specifications, the Project Specifications or on the Drawings, or be they instructions given to the Contractor, or any other specifications referred to in the above-mentioned Specifications.

B1155 WORK IN RESTRICTED AREAS

Delete the contents of Clause 1155 and replace with the following:

"Notwithstanding any reference in any specification to work in restricted areas, no additional payment will be made for work in restricted areas.

The Contractor will be deemed to have included any cost relating to work in restricted areas in the tendered rates."

Add the following additional clauses:

"B1156 PROCESS CONTROL

Process control is the responsibility of the Contractor and refers to all testing required to be carried out on the Works in order to ensure that the completed permanent works comply with the specifications and drawings. All such testing will be subject to inspection and approval by the Employer's Agent.

Process control will be carried out at the cost of the Contractor.

B1157 ACCEPTANCE CONTROL

Acceptance control means whatever testing the Employer's Agent carries out over and above the process control testing already carried out in order to decide on the acceptability of any work submitted by the Contractor.

Process control tests can be used as acceptance control if the Employer's Agent is satisfied with the results as presented to him.

The Employer shall not pay claims for delays to the works resulting from the awaiting of test results.

B1158 VALUE OF WORK DONE

The value of work done referred to in Section 1300 shall be defined as the total of the work done measured in the Bill of Quantities including items 13.01(a) to (c) (when calculated to include themselves), all day work done, all work done due to variation orders and eighty percent of the value of all materials on site but excluding any payment made for Contract Price Adjustment and VAT.

B1159 COMMERCIAL SOURCE

A commercial source is a source of material for which the Contractor is responsible for proving compliance with all relevant specifications. The tendered rate shall include full compensation for all required testing, transport and processing.

Should the Contractor elect not to utilise material for the proposed sources and instead utilise an alternative source then all material products from such source shall be deemed to be as from a "commercial source" for purposes of responsibility of specification compliance and payment."

B1160 AGGREGATE SIZE

Where reference is made in this specification or the standard specifications to aggregate size, nominal aggregate size or maximum aggregate size, the aggregate size as listed shall be replaced with the new corresponding aggregate size as indicated in the following table:

Aggregate size	New aggregate size
26.5	28
19	20
13.2	14
9.5	10
6.7	7.1
4.75	5
2.36	2
1.18	1

B1161 COMPACTION

The standard for compaction efforts shall change from Modified AASHTO Density as per TMH1 Test Method to Maximum Dry Density (MDD) as per SANS 3001. Where reference is made to compaction or of Modified AASHTO Density in the contract documentation or the standard specifications or wherever there is conflict between the contract documentation and the standard specifications, the SANS 3001 specification and terminology shall govern.

B1162 SANS TEST METHODS AND SPECIFICATIONS

Where reference is made to TMH test methods in this project specification or the standard specifications, it shall be replaced with the relevant currently published SANS test methods (including the 3001 and 4001 series).

On this contract where a SANS specification exists, all products shall conform to the specification and shall bear the inspection seal or brand mark of the SABS (South African Bureau of Standards)."

SECTION 1200: GENERAL REQUIREMENTS AND PROVISIONS

B1202 SERVICES

Add the following at the end of clause 1202:

"A provisional sum is included in the Schedule of Quantities to cover the costs of relocating the known services. This provisional sum shall be used to effect payments for the services relocation work carried out by the service provider in consultation with the Employer."

Add the following to the second paragraph:

"The Contractor shall immediately inform the Employer's Agent's representative of any services encountered and which he discovers during the contract."

Insert the following paragraphs after the fifth paragraph:

"All services which exist or are presumed to exist by the Contractor or the Employer's Agent must be searched for and exposed by the Contractor so that the Employer's Agent can take a final decision about possible protection or shifting.

It is also a condition of this contract that the Contractor notify the Employer's Agent in writing at least one week in advance of the intention to search and expose any existing services. During this period the Contractor must assist the Employer's Agent in gathering any information about these services."

Add the following after the sixth paragraph of Clause 1202 of the Specifications:

"The Contractor's attention is drawn to the relevant clauses of the General and Special Conditions of Contract regarding liability for damage to the works, or property, or injury to persons arising from the construction of the works. His attention is also drawn to Clause 8.6 of the General Conditions of Contract regarding insurance to be effected by the Contractor. Special attention is drawn to the exclusions in this insurance policy and particularly to the exclusions regarding consequential damage."

In the second paragraph (now the third paragraph), delete the word "utility" *at the end of the second line.*

In the final paragraph delete the second and third sentences starting with "Should" *and replace with the following:*

Before any work can commence the Contractor shall verify the actual position of each service and bring to the attention of the Employer's Agent any service that is not recorded. As the Contractor is not authorised to remove or replace these facilities he 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 and their locations and
  b) the proposed dates when works will commence in the vicinity of each service.

(ii) In addition to the above preliminary notice, give the service provider thirty days written notice of the intention to commence work in the vicinity of each facility.

(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 may be reinstated.

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.

Table B1202/1: List of Known Services

km	Position	Service Type		Description
17.1	LHS	Eskom	Pole	Outside road reserve
17.81	LHS	Eskom	Pole	Outside road reserve
17.88	LHS	Eskom	Pole	Within road reserve
17.98 - 18.04	LHS	Eskom	Overhead	Outside road reserve
18.17	Crossing	Eskom	Overhead	Clearance = 5.25m
18.29	LHS	Eskom	Pole	Within road reserve
18.35 Intersection	RHS	Eskom	Overhead	Clearance = 5.33m
18.37	Crossing	Eskom	Overhead	Clearance = 5.80m
18.37 - 18.73	LHS	Eskom	Overhead	Within road reserve
18.73	Crossing	Eskom	Overhead	Clearance = 9.35m
18.73	LHS	Eskom	Pole	Outside road reserve
18.855	Crossing	Eskom	Overhead	Clearance = 6.51m
18.855	LHS	Eskom	Pole	Within road reserve
18.855 - 18.90	Crossing	Eskom	Overhead	Within road reserve
19.4	Crossing	Eskom	Overhead	Clearance = 7.20m
19.4	LHS	Eskom	Pole	Within road reserve
19.4 - 20.14	LHS	Eskom	Overhead	Within road reserve
19.735	Crossing	Eskom	Overhead	Clearance = 6.43m
19.76	LHS	Eskom	Pole	Within road reserve
19.88	LHS	Eskom	Pole	Within road reserve
19.89	LHS	Eskom	Pole	Within road reserve
19.91	LHS	Eskom	Pole	Within road reserve
20.05	LHS	Eskom	Pole	Within road reserve
20.44	Crossing	Eskom	Overhead	Clearance = 6.57m
20.66 - 20.69	RHS	Eskom	Overhead	Outside road reserve
20.69	Crossing	Eskom	Overhead	Clearance = 5.50m
21.56 - 21.63	Crossing	Eskom	Overhead	Clearance = 8.21m
22.30 - 22.40	RHS	Eskom	Overhead	Outside road reserve
22.37 Intersection	RHS	Eskom	Overhead	Clearance = 7.82m
22.58	LHS	Eskom	Pole	Within road reserve
22.59	Crossing	Eskom	Overhead	Clearance = 7.90m
22.59	RHS	Eskom	Pole	Within road reserve
23.025	Crossing	Eskom	Overhead	Clearance = 7.98m
23.45	Crossing	Eskom	Overhead	Clearance = 8.02m. Crossing diagonal
23.47	RHS	Eskom	Pole	Within road reserve
23.47 - 23.76	RHS	Eskom	Overhead	Within road reserve
23.755	Crossing	Eskom	Overhead	Clearance = 4.58m
23.76	RHS	Eskom	Pole	Within road reserve
23.78	Crossing	Eskom	Overhead	Clearance = 7.18m
24.01 - 24.29	LHS	Eskom	Overhead	Within road reserve
24.15	LHS	Eskom	Pole	Within road reserve
24.3	RHS	Eskom	Pole	Within road reserve
24.8	Crossing	Eskom	Overhead	Clearance = 8.04m. Crossing diagonal
24.86	LHS	Eskom	Pole	Outside road reserve
25.6	Crossing	Eskom	Overhead	Clearance = 9.32m. Crossing diagonal.
25.62	RHS	Eskom	Pole	Outside road reserve

km	Position	Service Type		Description
25.73	Crossing	Eskom	Overhead	Clearance = 8.91m
26.03	Crossing	Eskom	Overhead	Clearance = 5.17m
26.18	Crossing	Eskom	Overhead	Clearance = 8.82m. Crossing diagonal
26.23	Crossing	Eskom	Overhead	Clearance = 8.88m. Crossing diagonal
26.29	Crossing	Eskom	Overhead	Clearance = 8.28m
26.29	RHS	Eskom	Pole	Within road reserve
26.30 - 26.50	RHS	Eskom	Overhead	Within road reserve
26.50 - 26.57	Crossing	Eskom	Overhead	Clearance = 7.65m. Crossing diagonal
26.29	Crossing	Eskom	Overhead	Clearance = 8.28m
26.6	LHS	Eskom	Pole	Within road reserve
26.62	Crossing	Eskom	Overhead	Clearance = 5.73m
26.8	Crossing	Eskom	Overhead	Clearance = 10.45m
26.86	Crossing	Eskom	Overhead	Clearance = 12.63m
27.34 - 27.375	Crossing	Eskom	Overhead	Clearance = 8.89m. Crossing diagonal
28.10 - 28.20	Crossing	Eskom	Overhead	
28.15	Crossing	Eskom	Overhead	Outside road reserve
28.22 Intersection	RHS	Eskom	Overhead	Clearance = 5.77m
28.24	Crossing	Eskom	Overhead	Clearance = 4.95m
28.23 Intersection	LHS	Eskom	Overhead	
29.95 Intersection	LHS	Eskom	Overhead	
29.955	Crossing	Eskom	Overhead	
29.955	RHS	Eskom	Pole	Within road reserve
29.955 - 30.02	LHS	Eskom	Overhead	Outside road reserve
30.08	LHS	Eskom	Pole	Within road reserve
30.08	Crossing	Eskom	Overhead	
30.11	Crossing	Eskom	Overhead	Crossing diagonal
30.13 Intersection	RHS	Eskom	Overhead	
30.16 - 30.265	RHS	Eskom	Overhead	Within road reserve
30.265	Crossing	Eskom	Overhead	
31.29	RHS	Eskom	Pole	Within road reserve
31.29 - 31.38	RHS	Eskom	Overhead	Outside road reserve
31.45	RHS	Eskom	Pole	Outside road reserve
31.63 - 31.85	RHS	Eskom	Overhead	Outside road reserve
31.65	RHS	Eskom	Pole	Within road reserve
31.65 Intersection	RHS	Eskom	Overhead	Outside road reserve
31.85	Crossing	Eskom	Overhead	
32.21	Crossing	Eskom	Overhead	
32.24 - 32.34	LHS	Eskom	Overhead	Outside road reserve
32.33 Intersection	LHS	Eskom	Overhead	
32.46 Intersection	LHS	Eskom	Overhead	
32.5	Crossing	Eskom	Overhead	
32.5 - 34.74	LHS	Eskom	Overhead	Within/outside road reserve
32.5 - 32.80	RHS	Eskom	Overhead	Outside road reserve
32.64	Crossing	Eskom	Overhead	
32.69	LHS	Eskom	Pole	Within road reserve
32.8	RHS	Eskom	Pole	Within road reserve
33.06	Crossing	Eskom	Overhead	

km	Position	Service Type		Description
33.16	LHS	Eskom	Pole	Within road reserve
33.44	Crossing	Eskom	Overhead	
33.46	Crossing	Eskom	Overhead	Crossing diagonal
33.47 Intersection	RHS	Eskom	Pole	Within road reserve. Within intersection
33.55 - 33.67	RHS	Eskom	Overhead	Outside road reserve
33.73 - 33.80	RHS	Eskom	Overhead	Within road reserve
33.945	Crossing	Eskom	Overhead	
34.15	Crossing	Eskom	Overhead	
34.28	Crossing	Eskom	Overhead	Crossing diagonal
34.29	RHS	Eskom	Pole	Within road reserve
34.38	Crossing	Eskom	Overhead	
34.5	Crossing	Eskom	Overhead	
34.58	Crossing	Eskom	Overhead	
34.58	LHS	Eskom	Pole	Within road reserve
34.58	RHS	Eskom	Pole	Within road reserve
34.58 - 34.66	RHS	Eskom	Overhead	Within road reserve
34.86	Crossing	Eskom	Overhead	Crossing diagonal
35.09	Crossing	Eskom	Overhead	
35.3	Crossing	Eskom	Overhead	
35.8	Crossing	Eskom	Overhead	
36.18	Crossing	Eskom	Overhead	Crossing diagonal
36.235	Crossing	Eskom	Overhead	
36.34 - 36.42	LHS	Eskom	Overhead	Within road reserve
36.36 Intersection	LHS	Eskom	Overhead	
36.39	Crossing	Eskom	Overhead	Crossing diagonal
36.4	LHS	Eskom	Pole	Within road reserve
36.44	RHS	Eskom	Pole	Within road reserve
36.5	Crossing	Eskom	Overhead	
36.5	RHS	Eskom	Pole	Within road reserve
36.5 - 36.54	RHS	Eskom	Overhead	Outside road reserve
36.6 - 36.8	LHS	Eskom	Overhead	Within road reserve
36.63	LHS	Eskom	Pole	Within road reserve
36.68	LHS	Eskom	Pole	Within road reserve
36.755	LHS	Eskom	Pole	Within road reserve
36.865	Crossing	Eskom	Overhead	
37.02	Crossing	Eskom	Overhead	Crossing diagonal
37.18 - 37.24	LHS	Eskom	Overhead	Within road reserve
37.6	LHS	Eskom	Pole	Within road reserve
37.6	Crossing	Eskom	Overhead	
37.7	Crossing	Eskom	Overhead	Crossing diagonal
37.425	Crossing	Eskom	Overhead	
37.55	Crossing	Eskom	Overhead	Crossing diagonal
37.78	Crossing	Eskom	Overhead	
38.2	Crossing	Eskom	Overhead	
38.3	Crossing	Eskom	Overhead	Crossing diagonal
38.525	Crossing	Eskom	Overhead	
38.83	Crossing	Eskom	Overhead	
38.83	LHS	Eskom	Pole	Within road reserve
39.075	Crossing	Eskom	Overhead	Crossing diagonal

km	Position	Service Type		Description
39.11 - 39.20	RHS	Eskom	Overhead	Within road reserve
39.46	Crossing	Eskom	Overhead	
39.68	Crossing	Eskom	Overhead	Crossing diagonal
39.7 - 39.86	LHS	Eskom	Overhead	Within road reserve
39.755	LHS	Eskom	Pole	Within road reserve
39.8	LHS	Eskom	Pole	Within road reserve
39.86	LHS	Eskom	Pole	Within road reserve
40.01	LHS	Eskom	Pole	Within road reserve
40.01 - 40.36	LHS	Eskom	Pole	Outside road reserve
40.04	Crossing	Eskom	Overhead	Crossing diagonal
40.12	Crossing	Eskom	Overhead	Crossing diagonal
40.16	Crossing	Eskom	Overhead	
40.36 - 40.62	LHS	Eskom	Overhead	Within road reserve
40.53	RHS	Eskom	Pole	Within road reserve
40.62	Crossing	Eskom	Overhead	
40.98	Crossing	Eskom	Overhead	
41.08 - 41.16	RHS	Eskom	Overhead	Within road reserve
0.12	LHS	Eskom	Pole	Within road reserve
0.23 - 0.33	RHS	Eskom	Overhead	Within road reserve
0.37	Crossing			
0.37	RHS	Eskom	Pole	Within road reserve
0.38 - 0.68	LHS	Eskom	Overhead	Within road reserve
0.68	Crossing	Eskom	Overhead	
0.68	LHS	Eskom	Pole	Within road reserve
0.68 - 1.38	RHS	Eskom	Overhead	Within road reserve
1.03 Intersection	LHS	Eskom	Overhead	
1.09	Crossing	Eskom	Overhead	Crossing diagonal
1.28	Crossing	Eskom	Overhead	Crossing diagonal
1.88 - 2.06	RHS	Eskom	Overhead	Within road reserve
1.93	Crossing	Eskom	Overhead	
2.10	Crossing	Eskom	Overhead	Crossing diagonal
2.10 - 2.20	LHS	Eskom	Overhead	Within road reserve
2.18	Crossing	Eskom	Overhead	Crossing diagonal
2.22	Crossing	Eskom	Overhead	Crossing diagonal
2.23	Crossing	Eskom	Overhead	Poles within road reserve
2.23 - 2.61	LHS	Eskom	Overhead	Within road reserve
2.25 - 2.51	RHS	Eskom	Overhead	Within road reserve
2.42	Crossing	Eskom	Overhead	Poles within road reserve
2.52	Crossing	Eskom	Overhead	Poles within road reserve
2.52 Intersection	RHS	Eskom	Overhead	
2.57	Crossing	Eskom	Overhead	
2.66	RHS	Eskom	Pole	Within road reserve
2.76	Crossing	Eskom	Overhead	Crossing diagonal
2.76 - 2.96	LHS	Eskom	Overhead	Within road reserve
2.91 - 3.12	LHS	Eskom	Overhead	Within/Outside road reserve
2.95 - 3.36	RHS	Eskom	Overhead	Within road reserve
3.12	Crossing	Eskom	Overhead	Crossing diagonal
3.36	Crossing	Eskom	Overhead	Crossing diagonal
3.53 - 3.57	RHS	Eskom	Overhead	Within road reserve
3.97 - 4.08	LHS	Eskom	Overhead	Within road reserve

km	Position	Service Type		Description
3.97 - 4.28	RHS	Eskom	Overhead	Within road reserve
4.38	LHS	Eskom	Pole	Within road reserve
4.38	RHS	Eskom	Pole	Within road reserve

For further details and positions of these services refer to Drawings in Volume 4

Any cost of repairs, replacement and/or installation of services and equipment resulting from the Contractor's negligence or unauthorised action shall be to the Contractor's account."

Add the following to this Clause:

"The cost of alterations to services necessitated by the construction will be borne by the Employer.

The Contractor shall allow all reasonable access to any authority or department for the purpose of maintaining, laying and/or altering any service cables or mains during the construction period.

(a) Owing to the possible inaccuracy of records of existing services (water mains, electric cables, telephone cables, etc.) the Contractor shall locate services that may be affected by this Contract prior to the commencement of excavations.

Payment for the exposure of services by excavation will be on the basis of the tendered rates or, if no appropriate rate exists, on a Dayworks basis.

(b) The Contractor shall not damage adjoining fences and buildings when depositing spoil and/or materials. All claims arising from such causes shall be settled by the Contractor.

The Contractor shall prevent damage to buildings, fences and other objects in the vicinity of the Works, as a result of the execution of this Contract. The Contractor shall supply and erect shoring, screens, barricades, temporary supports and other items necessary for preventing such damage."

Add the following to the eight paragraph:

"Eskom and Telkom will be responsible for the relocation of all the electrical and telecommunication services under their control while the Contractor will be responsible for the relocation and / or protection of all other services. The list of known services (Part C3) indicated in the schedule are indicative only and must be confirmed by the Contractor."

B1203 ROAD INTERSECTIONS AND JUNCTIONS

In the first sentence of the first paragraph of this Clause insert ", public transport embankments" *after the words* "farm accesses".

Add the following Subclauses to this Clause:

"**(a) Treatment at gravel road intersections and other accesses**

The base layer as well as the surfacing shall end at the specified limit of construction shown on the drawings for proclaimed roads and such other roads as directed by the Employer's Agent.

Each of the underlying layers of the new road shall project a distance at least 600 mm beyond the termination of the layer immediately above it.

The void shall be backfilled with approved wearing course gravel or shoulder material compacted in layers by hand operated vibrating compactors.

Prior to placing the surfacing, an edge beam of 200 mm wide and 100 mm deep neatly excavated over the full width of the junction. This trench shall be filled with concrete, as specified in Section 2300 of the Specifications.

The concrete shall be finished off level with the finished base and the surfacing for the new road shall be extended over this thickened edge."

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 the Contract Data (C1.2).

(ii) The expected delays defined in clause B1215: Extension of time resulting from abnormal climatic conditions.

(iii) The following restricted working conditions:

- Limitations in terms of weather conditions;
- Minimum spacing between two consecutive sections of half width construction shall be 2,0 km (no construction activities will be allowed in this section and traffic will flow uninterrupted);
- Maximum number of three sections of half width construction with closures (day/night and/or day only) at any one time;
- Maximum length of half width construction shall be 4,5 km; and
- It is a condition of the Contract that the full width of road will be open to two-way traffic the duration of the Contractors' year end closure.

(iv) Physical conditions and artificial obstructions and their effects.

(v) The accommodation and safeguarding of public traffic.

(vi) Dealing with, altering and installing services, including services which have to be relocated by others.

(vii) All the training requirements specified.

(viii) All other actions required in terms of this Contract.

(ix) All programme implications of employing SMME subcontractors in accordance with the requirements of Part 3: Section F.

The Contractor shall clearly indicate the following:

(i) Proposed production rates.
(ii) Sequence of activities and dependencies.
(iii) The critical path activities.
(iv) Non-working days i.e. special non-working days, pay weekends, year-end break etc.

This initial programme shall realistically account for the forecast cash flow within the defined contract period. If an alternative contract period is offered, the Contractor shall submit a separate programme with the alternative tender."

The following details shall be submitted together with the programme:

(i) The number of working hours per day, working days per week, assumed holiday or shut down periods on which the programme is based.

(ii) The overall labour and major plant resource levels on which the programme is based.

(iii) The detailed traffic accommodation proposals on which the programme is based (road or lane closures, lengths of sections to be worked, timing etc.)

The Contractor shall base his programme of work on the scope of the work that he has determined from his own design and as described in the Project Specification. The Contractor shall take full responsibility for the programming of the work and make the necessary allowances for any factors that he considers relevant.

Should the Employer's Agent believe that a major revision of the programme is required, the Contractor will be required to submit a revised programme within two weeks of a written notification to this effect.

Progress reports and charts required in terms of the Contract shall be submitted at least three working days before each monthly site meeting. The format of the reports shall be agreed in advance with the Employer's Agent and shall contain amongst others the following information:

(i) The contract programme with progress charts and programme graphs updated to reflect the actual progress to date.

(ii) A summary of progress on site over the month preceding the site meeting. The report shall be in the form of a detailed narrative to the contract programme.

(iii) Details of activities running late, indicating what steps have been or will be taken to ensure that the work is completed within the specified time.

(iv) Details of subcontracts running late.

(v) A report on all labour, plant and materials on site.

(vi) A report on the training aspects of the contract.

It should be noted that it is in the Contractor's best interest to provide a comprehensive programme giving as much information as possible about the times allowed for the various activities as well as resource or other limitations affecting the programme.

Add the following new sub-clauses:

"(c) Limitations

The Contractor shall take into account the following when drawing up his construction programme:

(i) Working time

The entire works shall be completed within the time for completion stated in the Contract Data.

(ii) Construction limitations

Requirements for safety and accommodation of traffic, seals and road marking as set out in the Project Specifications shall be strictly enforced.

In compiling the programme of work, the Contractor shall take into account the weather and operational limitations regarding the application of bituminous products as specified in Series 4000 of the specifications.

(iii) Access to site

The whole of the site will be handed over at commencement and there are no restrictions anywhere work may be carried out at any one time (Refer to Clause B1224).

It is a condition of the Contract that the road or temporary bypass will be open to two-way traffic during the end of year Contractor's closure.

(iv) In compiling the programme of work, the Contractor shall incorporate the following:

a) Weather and operational limitations.
b) The maximum lengths of road allowed to be occupied at any one time.

(d) Programme revisions

The programme will be reviewed at the monthly 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 instruct the Contractor to carry out a major revision of the programme. Such a revision shall be submitted for approval within fourteen days of the instruction."

B1205: WORKMANSHIP AND QUALITY CONTROL

Add the following after the title:

"The Contractor shall 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. **See Part C3 – Scope of Works – Quality Assurance Framework for Road Works** for a guideline in preparing the quality plan / system.

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 method statement for that activity."

Delete the second, third, fourth and fifth paragraphs and replace 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."

Add the following at the end of this clause:

"Quality control as detailed in section 8200 (scheme 1) will be used for determining the acceptance levels with respect to the properties of the materials and workmanship executed by the Contractor. Where small quantities of work are involved, a lot shall mean a full day's production for a specific item of work subject to acceptance control testing."

B1206: THE SETTING OUT OF WORK AND PROTECTION OF BEACONS

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 deemed to be included in the tendered 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:

"The scope of Clause B1206 shall be extended to include the appointment of Professional Land Surveyors to survey the final road reserve fence and frame SG Diagrams of the subdivided portions. The Contractor shall obtain quotations from a minimum of three (3) Professional Land Surveyors approved by the Employer's Agent to undertake this work. The final selection of Land Surveyor shall be approved by the Employer's Agent. Payment items for this work as well as for the Contractor's handling costs and is deemed to be included in the tendered rates.''

B1207 NOTICES, SIGNS AND ADVERTISEMENTS

Delete the 4th paragraph and replace with the following:

"All signboards erected in accordance with the drawings or as approved advertisements for the Contractor's establishment, shall be removed at the same time as the Contractor's de-establishment. Payment under sub-item 13.01 for the final instalment of 15 % of the tendered lump sum shall not be made unless all the advertisements, notices and temporary signs have been removed."

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) Rates to be inclusive

*In the first paragraph of this subclause insert the following between the words “*temporary work,” *and “*testing*,”*

“Complying with the OHS Act and in particular with its Construction Regulations, providing the required health and safety measures,”.

Add the following to the first paragraph:

*“*VAT shall be excluded from the rates.”

(c) The meanings of certain phrases in payment clauses

(i) Procuring and furnishing (material)

Delete the words: ’but excluding overhaul’ *in the first paragraph.*

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:

(i) the site selected for this purpose is approved by the Employer’s Agent;
(ii) such land is physically separated from any production plant or operation;
(iii) only materials for use under this contract are stockpiled on such land; and
(iv) 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 sub-clauses:

"(g) Trade names

Where materials are specified under trade names, tenders must be based on those materials. Alternative materials may be submitted as an alternative tender and the Employer's Agent may, after receipt of tenders, approve the use of equivalent materials.

(h) Payment Certificates

With reference to Clause 6.10.1 of the General Conditions of Contract, the Contractor shall, at his own expense, submit to the Employer's Agent three sets of A4-size paper copies of the monthly statement for payment.

(i) Value Added Tax (VAT)

No value added tax shall be included in the Contractor's tendered rates or amounts. Payment of value added tax (VAT) shall be made as a separate item in the Bill of Quantities Summary.".

(j) Working in confined areas

Except where provided for in the Standard Specification and the Bill of Quantities no extra payment shall be made nor shall any claim for additional payment be considered for construction in confined areas. The omission of standard pay items from the Bill of Quantities shall be taken to be deliberate and any additional costs incurred shall be deemed to be included in the bulk rate.

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.

(k) Rates to remain unchanged when scope of work changes

The Employer intends to increase or reduce the scope of work to match the budget allowed for this project. The value of such increase or reduction in the scope of works shall not give cause for the contractor to vary the offered rates and prices, which shall remain final and binding for the duration of the contract, excluding items under section B1300 of the pricing schedule, provided that:

(i) Notification of the change to the scope of work is given in writing in the Appendix to the Form of Acceptance.
(ii) The value of the increase or reduction in the scope of work does not alter the tendered sum, excluding all provisional sums, by more than 20%.

The Employer reserves the right to negotiate with the contractor rates and prices for items under section B1300, as provided for in this clause."

B1210 CERTIFICATE OF PRACTICAL COMPLETION OF THE WORKS

Add the following paragraph:

"In addition to the listed specified items of work and regardless of the degree of beneficial occupation by the employer, no sections of the works, individually or collectively, shall be considered for practical completion unless the following criteria have also been met:

(i) In the case of partial completion, the estimated cost to complete the outstanding work is less than 2 % of the estimated cost to construct the whole section or sections, excluding CPA, Contingencies and VAT.

(ii) In the case of the whole works, 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, contingencies and VAT.

(iii) It must be possible for the Contractor to complete the written list of outstanding items of work within 28 days of the list having been issued to the Contractor."

(iv) Any information in the Contractor's possession, that is required by the Employer's Agent and has been requested in writing, has been supplied.

B1214 CONTRACTOR'S ACTIVITIES IN RESPECT OF PROPERTY OUTSIDE THE ROAD RESERVE AND OF SERVICES MOVED, DAMAGED OR ALTERED

Add the following to Sub clause (a):

"(iii) any land outside the road reserve which the Contractor, with the approval of the Employer's Agent, wishes to temporarily use or occupy, for the purpose of a borrow pit, spoil area, haul or construction road, traffic diversion, stockpiling of material or a bridge camp site, will be temporarily expropriated by the Employer, as specified in Clause B1230.

In all such cases the Contractor shall not be required to pay compensation to the owner of the land, directly, nor will he give any undertaking or make any promises towards landowners in this regard. The Employer will enter into negotiations with landowners and will then authorise the Contractor to pay under Item B12.07(a) such compensation directly to the owners.

(iv) The Contractor shall be responsible for serving notice on the owner, in writing, of his intentions to use a borrow pit and the Employer's Agent shall be supplied with a copy of such notice. If applicable, the Contractor shall fence the area and access road according to the details of the temporary expropriation, prior to the excavation and removal of borrow materials."

Replace sub-subclause (b)(ii) with the following:

"Compensation, if applicable, for the land taken or for land temporarily used or occupied outside the area provided by the Employer."

Add the following to the last paragraph of subclause (d)

"Copies of these written agreements shall be handed to the Employer's Agent before the final certificate will be issued. Failing to obtain these written agreements from all landowners and authorities concerned, the Defects Liability Period will be extended including all conditions related to such an extension, until such time that all these agreements are obtained.

The obtaining of any such written agreements will not relieve the Contractor of the execution of any of his obligations to the satisfaction of the landowner or authority concerned, and to the approval of the Employer's Agent".

Under subclause (e) replace the opening paragraph with:

"Should the Contractor use land not provided by the Employer for the purpose of his own establishment, Employer's Agent's offices and laboratory, or storing of equipment or materials required for construction or disposal, it shall be subject to the following:",

Add the following sub-subclauses:

"(vi) That lease agreements are concluded with the owner or owners of such land for the full period that such areas are required. The leases shall provide for possible extensions to match the duration of the Contract. The lease agreements shall also provide for the Contract being terminated by Contractor's default or liquidation and the resulting possibility for them to be taken over by a succeeding Contractor.

(vii) That copies of lease agreements shall be submitted to the Employer's Agent prior to signature by the signing parties, and copies lodged with the Employer's Agent after signing. Notwithstanding the Employer's Agent's approval of the conditions of a lease the Contractor shall be solely responsible for adhering to the terms of the agreements."

Add the following subclauses to this clause:

"**(f) Alterations to existing works**

Under no circumstances shall the Contractor alter or in any way interfere with existing works or overhead or underground services which are not to be relocated, replaced or removed. Where such works are required to be moved on account of unsuitable levels or situations, adequate notice shall be given to the Employer's Agent, who will arrange with the department and/or statutory authority concerned for the alterations to be carried out.

Where existing works are of such a nature that the Employer's Agent may require them to be moved by the Contractor, the cost of such work will be paid for at scheduled rates or as Dayworks."

(g) Clearance agreements from landowners

The Contractor shall provide the Employer's Agent with copies of all written clearance agreements obtained from landowners under subclauses (b) to (e) before the final certificate will be signed. Should any of the written clearance agreements not be obtained from any of the landowners, the Defects Liability Period, together with all its obligations, will be extended until such time as all the written clearance agreements are obtained.

The acquiring of any written clearance agreement shall not free the Contractor from the carrying out of his obligations to the affected landowner."

B1215 EXTENSION OF TIME RESULTING FROM ABNORMAL RAINFALL

Replace the expressions "Abnormal rainfall" *and* "rainy weather" *with* "abnormal climatic conditions" *wherever these expressions appear in this clause.*

In the second sentence of the third paragraph insert after the words "been granted' *the following:*

"but excluding the period of the contractors holidays in December and January."

Extensions of time resulting from abnormal climatic conditions under this contract shall be calculated according to the requirements of Method (i) (Rainfall formula).

Add the following:

"The rainfall records at the nearest representative registered rainfall station no0129/06BA4 (Port St. Johns – AER 1888 - 1984) are reproduced in the table below, and the monthly averages (Nn and Rn) for the specified periods shall, for the purposes of this contract, be taken to be the normal rainfall for the site. The appropriate values of the constants in the rainfall formula shall be those given in the Standard Specifications. The values of Nn and Rn as shown in the table below shall apply:

Month	Rn (mm)	Nn (days)
January	117	3.4
February	130	3.4
March	147	4.1
April	86	2.3
May	66	1.7
June	38	1
July	40	1.4
August	49	1.5
September	87	2.2
October	119	2.8
November	120	3.7
December	121	3.3
TOTAL	1120	30.8

AVERAGE AND EXTREME MAXIMUM AND MINIMUM TEMPERATURES
STATION NO. 0129/06BA4 (Port St. Johns – AER 1888 - 1984)

Month	Temperature		Ave. of Monthly Extremes	
	Max	Min	Max	Min
January	25.1	19.6	29	15.8
February	25.4	19.9	28.8	16.2
March	24.8	19.2	28.8	15.2
April	24	17.6	29.4	13.8
May	23.1	15.7	29.8	11.6
June	22	14	28.1	10.1
July	21.4	13.4	28.6	9.7
August	21.1	13.9	29.1	9.8
September	21.2	15	29	10.5
October	21.7	16	27.4	11.6
November	22.9	17.3	27.1	13.1
December	24.3	18.7	28.2	14.5

B1216 INFORMATION FURNISHED BY THE EMPLOYER

Add the following before the first paragraph

“The reduced drawings that form part of the tender document (Volume 4 : Book of Drawings) shall be used for tender purposes only.

The Contractor will be supplied with three (3) paper copies of each of the construction drawings. These paper copies will be issued free of charge and the Contractor shall only be provided with additional copies on request and for his account.

Any information in the possession of the Contractor, which the Employer’s Agent’s representative requires for completing his as-built drawings, shall be supplied to the Employer’s Agent’s representative 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 all figured dimensions omitted from the drawings.

The levels given on drainage/structural drawings are subject to confirmation on site, and the Contractor shall submit all levels to the Employer’s Agent for confirmation before he commences with the construction of drainage or other structures. The Contractor shall also check all clearances given on the drawings and shall inform the Employer’s Agent of any discrepancies in accordance with the requirements specified in the paragraph below:

If the Contractor discovers any discrepancy of any sort in the information supplied by the Employer or Employer’s Agent he shall, within 7 calendar days of such discovery, submit full details of the discrepancy to the Employer’s Agent in writing. The Employer’s Agent, in turn, will give a written ruling on rectification of the discrepancy within 7 calendar days of receipt of the Contractor’s submission.”

Add the following after the second paragraph:

"Drawings and quantities regarding the distribution and extent of repair 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 significant variations at the construction stage. Such variations shall, however, not form grounds for a claim by the Contractor in terms of Clause 10 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.”

B1219 WATER

Add the following:

"The Contractor must identify suitable water sources. The Contractor shall arrange for chemical tests to be carried out to confirm the suitability of his proposed water sources for use as drinking water and for use in the concrete construction. The Contractor shall ensure that these tests also include testing for salinity and sugar content levels.

The Contractor shall note that the necessary permission must be obtained from the Department of Water Affairs for the abstraction of water from streams and rivers."

TABLE B1219: WATER CLASSIFICATION OF CONSTRUCTION TESTING

		Water Quality Classification Code						
		H0	H1	H2	H3	H4	H5	
Property	Unit	Pure water (AR)	Clean water (Rain)	Treated water (Municipal)	Silty (muddy) water with low salt content	Highly mineralised chloride sulphate water (brackish)	Waste brack, sewage, marsh, sea, etc water	Method
PH*	-	7.0	5.7 – 7.9	4.5 – 6.5	4.5 – 8.5	9.0	-	SABS M113 SM 11 - 1990
Dissolved solids*	ppm	0	1000	1500	3000	-	-	SABS 213 SM213 - 1990
Total hardness*	-	None	None	Temporary	Temporary	Permanent	-	SABS 215 SM 215 – 1971
Suspended matter	ppm	0	2000	2000	5000	-	-	SABS 1049 SM 1049 – 1990
Electrical conductivity	mS/m	0	200	200	500	-	-	SABS 1057 SM 1057 – 1982
Sulphates (SO_4)	ppm	0	200	300	500	1000	-	SABS 212 SM 212 – 1971
Chlorides (Cl)	ppm	0	500	1000	3000	5000	-	SABS 202 SM 202 – 1983
Alkali Carbonates (CO_3) & Bicarbonates (HCO_3)	ppm	0	500	1000	1000	2000	-	SABS 241 – 1999
Sugar	-	Negative	Negative	Negative	Negative	Negative	-	SABS 833
Quality of water required		Untreated layer works	✔	✔	✔	✔	Investigate the effect on the quality of the material	
		Chemically treated layer works	✔	✔	✔	Investigate the effect on the quality of the material		
		Concrete mass	✔	✔	✔	Investigate the effect on the quality of the material		
		Concrete prestressed	✔	✔				
		Slurry & emulsion	✔	✔	References: 1. Concrete Technology – Dr S Fulton (1989) 2. Materials Manual (PAWC)			
		Soil/gravel tests	✔	✔				
		Chemical or control tests	✔	✔				

* A primary property. The quality of the water is that quality where all three of the primary properties are within the limits.

The tabulated single values are maximum values except in the case of the pH value for pure water, which must be 7.0"

B1222 USE OF EXPLOSIVES (see clause 1518)

Add the following subclauses to this clause:

"(h) The Contractor shall submit to the Employer's Agent, at least thirty days before the commencement of excavation, full details of his proposed methods and sequence of excavation and programme for

the use of explosives. These shall comply both with the Explosives Act (15 of 2003) and the Occupational Health and Safety Act and Regulations

The method to be used for blasting shall be discussed with the Employer's Agent who will specify the use to which the blasted material shall be put. The blasting method must be such as to produce the type and size of rock material required for the specified use. Failure to achieve the required product will result in a no payment for extra over and hard material as Items 33.03(b) and 33.04(c).

The work shall be programmed so as to minimise blasting adjacent to previously constructed sections of the Works.

The Employer's Agent reserves the right to reject the proposals if, in his opinion, undesirable damage to permanent rock surfaces or existing structures will result from carrying out the blasting as proposed. No such approval will be unreasonably withheld and a trial section of blasting shall be undertaken to confirm the efficacy of the proposed method. If acceptance is withheld following a failed trial blast, new proposals in whole or in part shall be submitted. No drilling or blasting shall be carried out in areas for which the proposals have not been accepted by the Employer's Agent.

Each separate blast shall then be designed in accordance with modern blasting practice to break out the rock with the minimum explosive force.

The consent by the Employer's Agent to any blasting proposals shall not relieve the Contractor of his responsibilities under the Contract and in law.

There must be a qualified person on site to take seismic readings until such time that the Employer's Agent is satisfied.

The Contractor shall notify the Employer's Agent of the intention to blast at least twenty-four hours beforehand, and at the same time shall advise if any changes will be made to the previously agreed methods.

The Contractor shall distribute written notification to all organisations and communities adjacent to the site twenty-four hours prior to undertaking blasting. Any delay or postponement of any blasts shall be notified to all organisations and communities immediately.

In addition to any statutory requirements the firing of explosives will, unless otherwise approved by the Employer's Agent in writing, be restricted to between 10:00 and 15:00, Monday to Friday.

(i) Unless otherwise agreed by the Employer's Agent all blasting work shall be carried out using controlled blasting techniques.

Use shall be made of approved special explosives and/or blasting techniques which will minimise blasting induced fractures, or disturbance, on the rock faces outside the excavation line so preserving the rock in the soundest possible condition.

The rocky face after blasting shall exhibit a regular fracture plane between barrels without back break and with half barrels visible over the major portion of the surface. The surface shall be scaled down of all loose and hollow sounding rock to leave a solid, intact surface. Light charges shall be used for enlarging or correcting the excavated profile and also for excavating trenches.

If in the opinion of the Employer's Agent, the methods of blasting are at any time causing excessive or undesirable disturbance of the rock mass surrounding the excavated space, he may order the Contractor to change his methods of blasting and/or carry out blasting trials until the desired results are achieved. No additional payment shall be made for any change or trials ordered by the Employer's Agent or any delays resulting there from.

(j) In each and every case where the Contractor wishes to blast within 15 m of a structure, he shall prepare a proposal for this blasting and submit it to the Employer's Agent for consent. No blasting work of this nature may be carried out without the written consent of the Employer's Agent. The Contractor is to make a photographic record of every structure/houses within a 500 metre radius of the blast.

No separate payment will be made for any restrictions regarding blasting near structures which may be imposed by the Employer's Agent in terms of the Specifications.

(k) The Contractor shall keep records of all blasting carried out showing the time and location of each blast, the type and amount of explosive used, together with any other relevant data. Two copies of these records shall be sent to the Employer's Agent weekly relating to the previous week's work.

l) All requirements of the Occupational Health and Safety Act and Regulations, as amended from time to time must be complied with. All method statements and risk analyses must be signed off by the Employer's Agent's representative as well as the OHS agent.

B1224 THE HANDING-OVER OF THE ROAD RESERVE

Add the following:

"The entire road reserve as well as all other roads within the construction limits of the contract will be handed-over to the Contractor at the commencement of the contract. The Contractor shall then be responsible for the accommodation of traffic and all routine maintenance of these roads from the date of the handing-over of the site until the date of issue of the certificate of completion of the works.

Once the certificate of completion of the works has been issued the responsibility for normal maintenance of the road (e.g. collection of litter, clearing of drains, repair of road signs damaged by the public, etc.) shall revert to the Employer.

Upon the handing-over of the site the Contractor shall immediately assume responsibility for the road reserve within the limits of this Contract as set out in the specifications.

Prior to the commencement of work the Contractor and the Employer's Representative shall together carry out a joint inspection of the road section. During such an inspection, notes shall be made of all damaged fences, guardrails, signs and any other notable problems or features that exist at the time of hand-over. The following matters should be agreed at the time of handing-over:

(1) The limits, lengths, widths and areas of construction.
(2) The location of kilometre markers and reference beacons.
(3) The scope of remedial/repair or preparatory work measures to be executed by the Contractor.
(4) The location of stockpile areas and the responsibilities of the Contractor with regard to the road reserve area and the stockpile sites (fencing, re-establishment, height of stockpile, etc.).
(5) The method of accommodation of public traffic with regard to safety, sight distances, interference with existing road signs and road markings both within the work area and providing advance warning before the work area.
(6) The method of construction and supervisory control measures."

B1228 LEGAL PROVISIONS

Add the following to this Clause:

"The Contractor shall comply with the requirements of the Provincial Department of Environmental Affairs and Tourism (DEAT) and Department of Minerals and Energy (DME). The requirements are contained in DEAT's

Record of Decision and the Environmental Management Programme Report (EMPR) as approved by DME, which is incorporated into the Materials Report."

B1229 SABS CEMENT SPECIFICATIONS

Add the following:

"All cement used during construction shall comply with SANS 50197-1:2013 for common cements and SANS 50413-1:2004 for masonry cement. Any reference to SABS 471 in the standard specifications shall be replaced with the new specification SANS 50197-1:2013 Part 1: Compositions, specifications and conformity criteria for common cements.

Where the old SABS 471 product nomenclature has been used in the standard specifications, the Contractor shall supply and use the relevant new product, in compliance with SANS 50197-1."

The product names available in the Eastern Cape and Northern Cape, obtained from The Concrete Institute, and are provided in the table below.

Cement Grade	***Cement Type***	***Afrisam Eastern Cape***	***Afrisam Northern Cape***	***Lafarge Eastern Cape***	***Lafarge Northern Cape***
52.5 R	*CEM I*	*Rapid Hard Cement*	*Rapid Hard Cement*	*-*	*-*
52.5 N	*CEM II A-V*	*-*	*-*	*-*	*Rapidcem / Fastcast*
42.5 R	*CEM II A-M*	*High Strength Cement*	*High Strength Cement*	*-*	*-*
	CEM II A-M (V-L)	*-*	*-*	*Powercrete Plus*	*Powercrete Plus*
32.5 R	*CEM II B-L*	*All Purpose Cement*	*All Purpose Cement*	*-*	*-*
	CEM IV B-V	*-*	*-*	*Buildcrete / Civilcrete*	*Buildcrete / Civilcrete*
32.5 N	*CEM II B-L*	*Roadstab Cement*	*Roadstab Cement*	*-*	*-*
	CEM II B-M (V-S)	*-*	*-*	*-*	*RoadCem*

The blending of cements on site shall not be permitted."

Add the following new clauses:

"B1230 SAFETY

The Contractor must comply with the Occupational Health and Safety Act (Act No 85 of 1993) as amended as well as all the publications pertaining to the act or as specified in the Contract Document: A staff member will be appointed as the Construction Health and Safety Representative and will need to complete a site inspection register on a daily basis. Payment for the Construction Health and Safety Officer will be made under Item EB1.05. Payment for the Traffic Safety Officer will be under Item B15.16. The Traffic Safety Officer will report to the Construction Officer.

The Contractor shall nominate a Construction Health and Safety Officer who will be responsible at all times, including after hours, nights, weekends and public holidays, for the safety of the work area and the Contractor's adherence to the Health and Safety Specification and Plan. The accommodation of traffic will be supervised by the Traffic Safety Officer. All standard safety procedures and documentation must be adhered to.

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

The Contractor may not commence construction activities before adequate provision has been made to accommodate traffic in accordance with the requirements of the specifications and drawings.

Failure to maintain road signs, warning signs and flicker lights in good working conditions shall constitute ample reason for the Employer's Agent to suspend work until such road signs and road safety ancillaries have been repaired or reinstated to the Employer's Agent's satisfaction.

The Contractor shall ensure that all plant left in the work area overnight is parked safely in accordance with the requirements of specifications.

All construction vehicles and equipment must be highly visible with flashing lights, reflective markings, stickers, etc. Operators must be aware of the public at all times.

In areas of steep embankments where public access cannot be limited, temporary guardrails will be erected where instructed by the Employer's Agent so that pedestrians can proceed safely. All open excavations to be clearly demarcated with plastic mesh etc.

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

B1231 MATERIALS

The Contractor, when using materials that are required to comply with any standard specification, shall, if so ordered, furnish the Employer's Agent with certificates showing that the materials do so comply. Where so specified, materials shall bear the official mark of the appropriate authority. Samples ordered or specified shall be delivered to the Employer's Agent's office on the Site free of charge.

Where proprietary products have been specified, equivalent equal products may be used subject to the prior written approval of the Employer's Agent.

Unless otherwise specified, all proprietary materials shall be used and placed strictly in accordance with the relevant manufacturer's current published instructions.

Unless anything to the contrary is specified, all manufactured articles or materials supplied by the Contractor for the permanent works shall be unused.

Earth, stone, gravel, sand, and all other materials excavated or present on the Site or in borrow areas provided by the employer shall not become the property of the Contractor, but will be at his disposal only in so far as they are approved for use on the Contract.

Existing structures on the Site shall remain the property of the Employer and except as and to the extent required elsewhere in the Contract, shall not be interfered with by the Contractor in any way.

No materials to be included in the works shall be damaged in any way and, should they be damaged on delivery or by the Contractor during handling, transportation, storage, installation or testing they shall be replaced by the Contractor at his own expense.

All places where materials are being manufactured or obtained for use in the Works, and all the processes in their entirety connected therewith shall be open to inspection by the Employer's Agent (or other persons authorised by the Employer's Agent) at all reasonable times, and the Employer's Agent shall be at liberty to suspend any portion of work which is not being executed in conformity with these specifications.

(a) Ordering of Materials

Immediately upon his Tender being accepted, the Contractor shall order materials which are in short supply or for which the delivery period may be long.

The quantities set out in the Bill of Quantities have been determined from calculations based on data available at the time and should therefore be considered to be only approximate quantities. The Contractor shall therefore, before ordering materials of any kind, check with the Employer's Agent the quantities required. No liability or responsibility whatsoever shall attach to the employer for materials ordered by the Contractor except if they have been ordered in accordance with written confirmation issued by the Employer's Agent.

B1232 ENVIRONMENTAL MANAGEMENT (see 1302 (i))

The Contractor will be responsible for managing a non-specific Environmental Management Plan (EMP) in terms of Volume 7. Apart from the EMP in Volume 7, the Contractor should also adhere to an Environmental Management Programme Report (EMPR) for the use of material abstracted from borrow pits. The EMPR is legally binding and shall be adhered to at all times.

The Contractor shall take the utmost care to minimize the impact of his establishment and other construction activities on the environment and shall adhere to the requirements as set out in Volume 7.

The Contractor will be required to submit a Method Statement to the Environmental Control Officer (ECO) 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 cost and to the satisfaction of the Employer's Agent.

B1233 CONSTRUCTION SITE CONTROL

In addition to normal good construction practices expected of the Contractor, the Contractor shall also observe the following:

(a) Restriction of working areas

Working in areas defined as those areas reasonably required by the Contractor to execute the Contract as agreed with the Employer. These shall generally be restricted to within the road reserve but where this is not possible, they shall be kept to a minimum in order to minimise damage to areas outside the road reserve.

Before commencing any other work the Contractor shall, in order to prevent unauthorised movement of persons or vehicles outside the designated working areas and access road servitudes, erect and maintain temporary fences along the boundaries of the working areas, access roads, spoil and stockpile areas etc. in conformity with the environmental specifications. Movement of vehicles and personnel outside the designated working areas will not be permitted and discipline on site and in the camp shall be to such a degree as to indemnify the Employer from all complaints.

(b) Protection of fauna and flora

All flora and fauna whether within or outside the road reserve, or in borrow areas, shall be dealt with in accordance with the environmental specifications.

No domestic animals shall be permitted on site.

B1234 SITE CLEANLINESS AND PRECAUTIONS AGAINST NUISANCE

Wherever machinery is excavating or loading material which is liable to form a dust nuisance, an effective method of spraying the excavation area and loaded material with water shall be installed.

No separate or additional payment will be made for dust prevention measures.

The costs incurred by the Contractor for the provision of these measures shall be deemed to have been included in the rates for the operations requiring such measures.

The Site shall be maintained in a clean, orderly and sanitary condition as required and to the satisfaction of the Employer's Agent."

B1235 USE OF LABOUR

It is an objective of the Employer to create employment on this contract and therefore all the requirements in this respect contained in the contract will be rigorously monitored and enforced.

B1236 MEASUREMENT AND PAYMENT

Item **Unit**

B12.01 Community Liaison Officer (CLO)

(a) Salary plus expenses incurred by the CLO ..... provisional sum (Prov Sum)

(b) Handling cost and profit in respect of sub-item B12.01 (a) ..... percentage (%)

A provisional sum is provided for the cost of community liaison, which shall include the salary of the Liaison Officer for the duration of the Contract, as well as costs with respect to the provision of use of a cell phone and site-related travel for the duration of the contract. The Liaison Officer will be required on a full-time basis and this provisional sum shall be expended as approved by the Employer's Agent.

The tendered percentage is a percentage of the amount actually spent under sub item B12.01 (a), which shall include full compensation for the handling costs and the profit of the Contractor."

Item **Unit**

B12.02 The protection, removal, realignment and replacement of services and other payment

(a) Utility Services

(1) Telkom ..... provisional sum (Prov Sum)
(2) Eskom ..... provisional sum (Prov Sum)
(3) Water ..... provisional sum (Prov Sum)
(4) Other ..... provisional sum (Prov Sum)
(5) Handling Cost and profit in respect of sub items B12.02 (a)(1), (2), (3) and (4) ..... percentage (%)

Expenditure shall be made in accordance with the provisions of the General Conditions of Contract.

The tendered rate for item B12.02(a)(5) is a percentage of the amount actually spent under items B12.02 (a)(1), (2), (3) and (4). Both percentage rates shall include full compensation for handling cost and profit of the Contractor.

Item **Unit**

B12.03 Project Liaison Committee (PLC)

(a) Payment of expenses/disbursements to the members of the PLC ..... provisional sum (Prov Sum)

(b) Handling cost and profit in respect of sub items B12.03 (a) ..... percentage (%)

Payment of the provisional sum provided in sub item B12.03(a) is to reimburse members of the PLC for costs of travelling and subsistence for each meeting attended.

Item **Unit**

B12.04 Provision of accredited training

(a) Wages and salaries of local labourers employed by the Contractor in respect of training periods for on-site training by the Contractor during which no productive work is executed ..... lump sum

(b) Accredited and approved training courses for selected local labourers including wages during training ..... prime cost (PC) sum

(c) Contractor's charges to allow for handling costs and profit in respect of sub item B12.04(b) ..... percentage (%)

Payment of the lump sum tendered for sub item B12.04(a) shall include full compensation for the wages and salaries of local labourers for the periods during which they attend courses and receive training that are arranged and paid for by the Contractor in terms of the Contractor's training schedule and are thus not available for the execution of productive work.

The lump sum tendered for sub item B12.04(a) will be paid monthly in equal instalments.

Payment for the prime cost (PC) sum provided in sub item B12.04(b) to cover the costs incurred for the attendance by selected and approved local labourers in the employ of the Contractor and Selected Subcontractors of approved training courses presented by accredited institutions shall be effected in accordance with the provisions of Clause 6.6.2 of the General Conditions of Contract. The payment shall cover the applicable course fees as agreed to by the Employer's Agent as well as wages and transport costs expended by the Contractor or Selected Subcontractor related to the approved training courses.

The tendered percentage tendered for sub item B12.04(c) is the percentage of the amounts actually expended under sub items B12.04(a) and B12.04(b) that will be paid to the Contractor in full compensation for the Contractor's handling costs and profit in respect of sub items B12.04(a) and B12.04(b).

No additional payment will be made for any of the extra costs which will be incurred as a result of the additional supervision required for managing labour and for providing informal training to the workers. The Contractor shall make suitable allowance for these costs in his tendered rates for the various items of work. Additional allowance must also be made for the involvement of senior staff members, directors and managers in training and guidance of emerging Contractors and attendance at meetings and discussions in respect of all training matters.

Except as specifically provided for in the relevant pay items included in the Bill / Schedule of Quantities no additional payment will be made to the Contractor in respect of the execution of the prescribed and approved training programme. Full compensation for the costs of training not covered by the above pay items shall be deemed to be included in the rates tendered for the Contractor's general obligations.

Item **Unit**

B12.05 Provision of structured training

(a) Provision of training

(i) Engineering skills training ..... provisional sum (Prov Sum)

(ii) Entrepreneurial skills training ..... provisional sum (Prov Sum)

(iii) Generic skills training..... provisional sum (Prov Sum)

(b) Handling costs and profit in respect of Sub Item B12.05 (a) ..... percentage (%)

The stated Provisional Sum shall be expended only as ordered and approved by the Employer's Agent. Training of candidates shall be provided by an accredited Subcontractor or institute approved by the Employer and all costs involved in the training of such personnel shall be reimbursed from the stated Provisional Sum.

The percentage tendered for handling costs and charges shall cover all additional costs for the Contractor over and above the sums paid under Sub Item (a).

Payment will be made for training of personnel as specified in Section E of this document.

Item **Unit**

B12.06 Land acquisition survey by Professional Land Surveyor

(a) Survey Road Reserve Fence after final erection and frame SG Diagrams of the resulting subdivisions ..... provisional sum (Prov Sum)

(b) Handling cost and profit in respect of sub item B12.06(a) above ..... percentage (%)

All payments made under sub item B12.06(a) above shall be made upon receipt of an Invoice from the Professional Land Surveyor approved in writing by the Employer's Agent.

The tendered percentage tendered for sub item B12.06(b) is the percentage of the amounts actually expended under sub item B12.06(a) that will be paid to the Contractor in full compensation for the Contractor's handling costs and profit in respect of sub item B12.06(a).

Item **Unit**

B12.07 Compensation for expropriation of property

(a) Compensation payments to affected landowners ..... provisional sum (Prov Sum)

(b) Handling costs and profit in respect of subitem B12.07 (a)..... percentage (%)

All payments made under sub-item B12.07(a) shall be made upon receipt of a written instruction from the Employer's Agent.

The tendered percentage for sub-item B12.07(b) is the percentage of the amounts actually expended under sub-item B12.07(a) that will be paid to the Contractor in full compensation for the Contractor's handling costs and profit in respect of item- B12.07(a)

Item **Unit**

B12.08 Provision of Learnerships

(a) Provision of learnerships …… ..... provisional sum (Prov Sum)

(b) Handling cost and profit in respect of sub item B12.08 (a) ..... percentage (%)

The stated provisional sum shall be expended only as ordered and approved by the Employer's Agent.

The percentage tendered for handling costs and profit shall cover all additional costs for the Contractor over and above the sum paid under item B12.08 (a).

Item **Unit**

B12.09 Contractor's obligations in respect of Local Labour

(a) Provision of transport for Local Labour..... prime cost (PC) sum

(b) Handling cost and profit in respect of sub item B12.09(a)..... percentage (%)

Payment under the prime cost (PC) sum provided in sub item B12.09(a) shall cover the costs incurred in complying with the requirements in respect of the provision of transport of Local Labourers between their place of residence and the Site on work days. Payment under this sub item shall be made in accordance with the provisions of Clause 6.6.2 of the General Conditions of Contract.

The tendered percentage tendered for sub item B12.09(b) is the percentage of the amounts actually spent under sub item B12.09(a) that will be paid to the Contractor in full compensation for the Contractor's handling costs and profit in respect of the provision of transport for Local Labour.

Item **Unit**

B12.10 Additional construction costs associated with community works provisional sum (Prov Sum)

The stated Provisional Sum under item B12.10 shall be expended only as approved by the Engineer on community works as ordered by the Employer.

Payment under this item shall be made in accordance with the provisions of Clause 6.6.1 of the General Conditions of Contract.

Item **Unit**

B12.11 Relocation of affected properties

(a) Provision for the relocation of an affected property ..... prime cost (PC) sum

(b) Handling cost, profit and all other charges in respect of item B12.11(a) ..... percentage (%)

The prime cost sum shall be paid in accordance with the provisions of Clause 6.6.2 of the General Conditions of Contract. The tendered percentage is a percentage of the amount actually spent under the prime cost item which shall include full compensation for all the handling costs and profit in connection with providing the specified service."

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

B1302 GENERAL REQUIREMENTS

(a) Camps, construction plant and testing facilities

Add the following after the first paragraph of subclause 1302(a) of the Specifications:

"No specific land has been made available for the camp and offices and the Contractor shall make his own arrangements concerning a suitable site and location, as well as the provision of water, electricity and other services for the campsite. Where necessary the Contractor shall make his own arrangements with land-owners."

No direct payment will be made for the provision of water, electrical and other services and 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.

The Contractor is responsible for obtaining the water extraction permit."

Add the following new subclauses after subclause 1302(c) of the Specifications:

"**(d) Contractor's ablution facilities**

The Contractor shall, at each construction section, provide sufficient portable chemical latrine units. Furthermore the Contractor shall also provide a portable chemical latrine unit at each temporary traffic control facility. The latrine units shall be serviced daily and kept in a hygienic and orderly state to the approval of the Employer's Agent. 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."

(e) Housing

The Contractor shall not erect any housing or other accommodation facilities on the site of the Works and shall make all the necessary arrangements for accommodation of his personnel and site staff off the site of the Works.

(f) Services

The Contractor shall at his own expense, make the necessary connections to any utility services required by him for the execution of the works.

(g) Sanitation and waste management

The Contractor shall provide suitable sanitary and waste management arrangements for his staff at his campsite. If outside latrines are provided, they shall be of a neat construction and shall be provided with doors and locks. They shall be to the satisfaction of the Employer's Agent's Representative and the Local Authorities and comply with the requirements of the specifications.

The Contractor shall provide portable chemical latrines on Site, as agreed by the Employer's Agent for use by construction workers. The latrines shall be serviced daily and maintained in good condition. No separate payment shall be made for any costs incurred in this regard and the Contractor shall allow for these costs in his tendered rates for establishment.

The Contractor shall be responsible for providing all necessary services to keep the latrines for himself, the Employer's Agent's Representative and the subcontractors on the Site in a clean, neat and hygienic condition, including the cost of refuse removal and disposal from the Site and from all accommodation provided by him.

The use of liquids containing formaldehyde in chemical toilets is not allowed.

If the Contractor fails to provide and/or maintain all Site sanitation facilities in a clean and hygienic condition the Employer's Agent's Representative may order the Contractor to suspend any or all work on the Site until the requirements of the Specifications are met. No payment shall be made for any delays or disruption of the Works caused thereby nor shall extensions of time be granted for such delays.

On completion of the Contract, the Contractor shall remove the sanitation system and reinstate the area to the satisfaction of the Employer's Agent's Representative and in compliance with the requirements of the specifications.

(h) Security

The Contractor shall provide adequate security and strict control of access to the campsite on a 24-hour basis including weekends and public holidays. The campsite area shall be adequately fenced with security fencing and security lights placed at strategic points. Notices to indicate that unauthorised persons may not enter the campsite area shall be erected at prominent locations as required by the Occupational Health and Safety requirements or agreed with the Employer's Agent's Representative.

(i) Environmental protection (see item B1232)

Construction will take place within the existing road reserve and every precaution must be taken to protect the established vegetation and roadside facilities notwithstanding the provision set out in Volume 7 of these documents.

The following conditions apply:

(i) Personnel and plant shall not enter property beyond the road reserve boundary irrespective of whether the boundaries are fenced off or not.

(ii) The Contractor shall, to the satisfaction of the Employer's Agent, take every necessary precaution to prevent the contamination of any watercourses.

(iii) The Contractor shall plan his activities so that materials, in so far as is possible, can be transported direct to and placed at the point where they are to be used. However, where utilising materials in this manner is impractical, it shall be temporarily stockpiled for later loading and transportation to where it will be used.

(iv) Stockpiling areas shall be indicated to and approved by the Employer's Agent. Before any stockpiling of material may be done, the site shall be cleaned, and all loose stones or any plant or other material which may cause pollution shall be removed. After the stockpiled material has been removed, the site shall be reinstated as closely as possible to its original condition.

(v) The Contractor shall be responsible for the establishment of a refuse control system for the collection and removal of refuse from the campsite and working areas.

(vi) The Contractor shall ensure that waste and surplus food, food packaging plastic and organic waste are not deposited by his employees anywhere on the site except in refuse bins for removal. If his employees are to eat elsewhere on site than in the campsite, the Contractor shall designate restricted places for eating in his working areas, shall provide adequate refuse containers in all these places and shall remove the refuse and clean up any remaining food containers immediately after mealtimes.

(vii) The Contractor has no right to the trees and shrubs on the Site.

(viii) No bituminous material or waste material shall be dumped within the road reserve, even if only as a temporary measure. Provision shall be made to remove such excess material directly off the site to suitable waste sites as instructed by the Employer's Agent or Environmental Officer. "

B1303 PAYMENT

B13.01 The Contractor's general obligations

Insert the following paragraph after the fourth paragraph:

"Should the combined total tendered for sub-items (a), (b), and (c) exceed 15 % of the tender sum (excluding VAT), the tenderer shall state his reasons in writing for tendering in this manner. The tenderer's attention is drawn to Form L, (bound in this Volume), to be completed by the tenderer."

Delete the 17th paragraph commencing "The tendered rate per month for sub-item 13.01(c) …… " *and replace with:*

"The tendered rate per month for sub-item 13.01 (c) represents full compensation for that part of the Contractor's general obligations, which are mainly a function of construction time. The tendered sum will be paid monthly, pro rata for parts of a month, from the Commencement Date (as defined in the General Conditions of Contract under sub-clause 1.1.1.5) until the end of the period for completion of the works, plus any extension thereof as provided in clause 42 of the general conditions of contract, provided that"

Add the following after the 19th paragraph:

"The amount payable to the Contractor for time related costs arising from extensions of time granted by the employer, where the Contractor is fairly entitled to such compensation in terms of clause 5.12 of the General Conditions of Contract, shall be calculated as follows:

Account shall be taken of all time related items scheduled in Sections 1300, 1400 and 1500.

All pay items for which the unit of measurement is "month" shall be deemed to be based upon an average of 23 working days per month.

Payment will be made only for items for which the unit of measurement is "month."

OHS Specifications are to be found in Section C and the Schedule of Quantities are in Schedule C."

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 taken as included in the relevant tendered rates for the provision of the specified building. In addition, the offices and any living accommodation are to be separated by at least 200m."

(b) Offices

Delete the first sentence of the first paragraph and add the following:

"The office requirements for the Employer's Agent's Representative are as follows:

i) One office for the Employer's Agent's Representative.
ii) Two offices for the Assistant Employer's Agent's Representatives.
iii) One office for the Assistant Employer's Agent's Material Technician.
iv) Four offices for the technical staff.

The office size and other requirements are specified elsewhere in this sub clause."

Add the following to sub-clause (xii):

"The services shall consist of a telephone in the Resident Employer's Agent's office, four extensions to offices and laboratory to be indicated by the Employer's Agent as well as a dedicated line for the fax apparatus."

Add the following to sub-clause (xv):

"Each office as well as the conference room shall be provided with a white board, minimum size 1,3m², which shall be fastened securely to the wall."

Add the following to sub-sub-clause (xvii):

"A fax apparatus coupled to a separate dedicated telephone line shall be installed in the Resident Employer's Agent's office, for the exclusive use of the Employer's Agent. The fax apparatus shall be CCIT Group 3 and Group 2 compatible, capable of scanning A4 documents with automatic feed of maximum 30 sheets and able to operate at temperatures between 5 and 35 Deg. C. Ownership of the fax apparatus will revert to the Contractor on completion of the contract. The prime cost sum shall include the cost of installation and consumables in connection with contract administration and the cost of the telephone charges for outgoing faxes."

Add the following sub-sub-clauses:

"(xviii) Steel plan cabinets shall be provided and shall be able to accommodate 30 A0 - sized drawings hanging vertically from approved holders.

(xix) Two electric refrigerators of at least 300 liter capacity shall be provided for the use of the Employer's Agent. The Employer's Agent's kitchen shall be provided with a fitted sink with the necessary taps and drains, a microwave oven and a three-plate/ring stove with an oven.

(xx) Provision of floodlights, which are to be controlled by a photocell for security purposes at the offices and laboratory of the supervisory staff.

(xxi) Provision of cellular telephones together with original manufacturer's hands-free kits shall be supplied to the Employer's Agent's site staff for the duration of the contract. The prime cost sum shall also include for the cost of all telephone calls in connection with contract administration, and full insurance cover for the duration of the contract.

(xxii) Provision of approved photocopier capable of making A4 and A3 copies, as well as paper and toner for making up to 1000 copies per month.

All equipment shall revert back to the Contractor on completion of the Contract."

Add the following:

"Specifications for Offices

The Employer's Agent's Representative's office, which shall serve as a back-up conference room and shall have a floor area of thirty (30) square metres. The Assistant Employer's Agent's Representative's office shall each have a floor area of fourteen (14) square metres while the remaining offices shall each have a floor area of twelve (12) square metres.

Each office shall be furnished with the following items:

The Employer's Agent's Representative's Office shall be provided with the following:

(i) An office desk with a surface area of at least 1,5 m² with six drawers, two of which can be locked.

(ii) One steel general purpose cabinet with a shelf area of at least 1,5 m². The cabinet shall be lockable with two keys.

(iii) One steel filing cabinet with four drawers, a lock with two keys. The cabinet shall be 1 300 mm high, 480 mm wide and 800 mm from front to back.

(iv) One drawing table with a smooth top of at least 2 400 mm x 900 mm, and the upper surface shall be 950 mm above floor level.

(v) Two bookshelf units with at least three shelves each, capable of holding lever arch files. Units to be at least 900 mm wide x 900 mm high.

(vi) Three sturdy and comfortable chairs.

(vii) One height-adjustable draughtsman's stool with padded seat and backrest.

(viii) One wash hand basin.

(ix) One conference table (approximately 3,2 m x 1,3 m) and 10 chairs.

The Assistant Employer's Agent's Representatives' offices shall be provided with the following:

(i) An office desk with a surface area of at least 1,5 m² with six drawers, two of which can be locked.

(ii) One steel general purpose cabinet with a shelf area of at least 1,5 m². The cabinet shall be lockable with two keys.

(iii) One steel filing cabinet with four drawers, a lock with two keys. The cabinet shall be 1 300 mm high, 480 mm wide and 800 mm from back to front.

(iv) One drawing table with a smooth top of at least 2 400 mm x 900 mm, and the upper surface shall be 950 mm above floor level.

(v) Two book shelf units with at least three shelves each, capable of holding lever arch files. Units to be at least 900 mm wide x 900 mm high.

(vi) Two sturdy and comfortable chairs.

(vii) One height-adjustable draughtsman's stool with padded seat and backrest.

(viii) One wash hand basin.

The remaining offices shall be provided with the following:

(i) An office desk with a surface area of at least 1,5 m² with six drawers, two of which can be locked.

(ii) One steel general purpose cabinet with shelf area of at least 1,5 m². The cabinet shall be lockable with two keys.

(iii) One steel filing cabinet with four drawers, a lock with two keys. The cabinet shall be 1 300 mm high, 480 m wide and 800 mm from front to back.

(iv) One drawing table with a smooth top of at least 1 200 mm x 900 mm, and the upper surface shall be 950 mm above floor level.

(v) One book shelf units with at least three shelves each, capable of holding lever arch files. Units to be at least 900 mm wide x 900 mm high.

(vi) Two sturdy and comfortable chairs.

(vii) One height-adjustable draughtsman's stool with padded seat and backrest.

The offices shall be air-conditioned in the summer and heating shall be provided in the winter months.

Six carports shall be provided close to the offices."

(c) Laboratories

Delete the first and second paragraphs of this subclause and add the following:

"The site laboratory complex shall consist of:

(1) Offices
(2) Testing rooms for:
  (i) indicators
  (ii) UCS/MOD
  (iii) ovens
  (iv) aggregates
  (v) CBRs
  (vi) concrete
  (vii) chemistry
(3) Roofed work areas with concrete floors
(4) Kitchen
(5) Sample store
(6) Toilets (2 No)
(7) Car port
(8) Curing/soaking room/s

The layout shall be approved by the Employer's Agent, who will also indicate his preferred location of power points, work benches, windows, doors, furniture and laboratory apparatus. There shall be a clear height from floor to ceiling of at least 2,4 m. Separate cooking facilities shall be provided."

Add the following to the end of the first paragraph of Sub-clause (iii)(2) of this Sub-clause:

"Support shall be provided by single brick walls."

Add the following to the last paragraph of Sub-clause (iii)(2) of this Sub-clause:

", and include a robust timber shelf, mounted 400 mm above floor level, for the storage of samples."

Add the following to Sub-clause (vi) of this Sub-clause:

"The power consumption is estimated at 4000 KWh per month."

Add the following to Sub-clause (ix) of this Sub-clause:

"The water consumption is estimated at 100 kl per month."

Add the following to Sub-clause (xiv):

"The concrete test cube baths shall be automatically temperature controlled and fitted with a circulating pump of such capacity that it will maintain a constant temperature of 22° to 25°C, have an overflow at 0,5m above the metal grating, a drain, a hinged cover and a metal grating to support the cubes at 50mm above the floor."

Add the following new Sub-clauses to this Sub-clause:

"(xvii) A rack suitable for hanging clothes.

(xviii) A steel plate 1 m x 1 m x 13 mm thick with 100 mm high x 6,7 mm thick side plates and 19 mm diameter bars welded to the base plate as ordered by the Employer's Agent."

(g) Ablution units

Add the following:

"A dedicated ablution unit with a minimum floor area of 10 m² for the sole use of the Employer's Agent's supervisory staff shall be provided. The unit shall contain at least the following:

(i) One flush toilet and one urinal complete with running water and sewer pipes.

(ii) One shower complete with hot and cold running water.

(iii) One hand wash basin complete with hot and cold running water.

(iv) Mirrors, toilet roll holder, paper towels, soap etc."

(h) Communication system

Add the following:

"The Contractor shall provide two-way radio communication for the use of the Employer's Agent and his site staff. The communication system shall be sufficient to provide communication between his offices and vehicles at any point within the site. Should the Employer's Agent's staff change vehicles during the contract or should staff be replaced by new staff using different vehicles, the Contractor shall transfer the mobile stations between the vehicles. The system including the mobile stations in the Employer's Agent's vehicles shall be removed on completion of the contract. The Contractor shall maintain these sets in good working order at all times.

It may be necessary for the Contractor to supply one or more relaying stations at suitable locations along the route to ensure uninterrupted communication. Such relaying stations will not be paid for separately and compensation therefore shall be deemed to be included in the rates tendered for Section 1300 for the Contractor's establishment."

Add the following sub-sub-clauses:

"(j) Computers and printers

When instructed by the Employer's Agent, the Contractor shall provide approved new modems and printers for the exclusive use of the Employer's Agent's site staff. This shall include a network with the necessary cabling, an internet connection and e-mail facility.

Printer: HP Mono LaserJet MFP 137fnw (with 3yr Return to Depot Warranty included), Print, Copy, Scan and Fax Multi-Function unit, HP 106A Black Laser Toner or
HP LaserJet M1536dnf MFP 4:1 Print, Copy, Scan & Fax; A4 up to 25 pages per minute, 128MB, 600 x 600 dpi, HP FastRet 1200 ; USB2.0, 10/100 Ethernet, 35 page 1 x 250 sheet paper tray ADF, duplex, network, fax (1yr);

Internet & Email: MTN / Vodacom / Telkom LTE 5GB Data Contract & SIM + MiFi Device on 2yr Contract
The above to include an email address for use on site (if required), Provider with best signal at site location to be used.

All equipment shall be kept fully serviceable by the Contractor at all times. The Contractor shall repair/replace any defective equipment within 12 hours after notification by the Employer's Agent. The Contractor shall also provide all paper, ink cartridges and other consumables required by the Employer's Agent.

All computer equipment, peripherals, modems, UPSs and software packages shall be cleared with and approved by the Employer's Agent prior to provision.

All the above-mentioned equipment and software shall be handed to the Employer at the end of the Contract.

(k) Assistance to the Employer's Agent

The Contractor shall provide for the exclusive use of the Employer's Agent up to two (2) semi-skilled workmen trained or capable of being trained as survey hands, office messengers and laboratory hands. These workmen shall be available for the full Contract period as requested by the Employer's Agent.

All these labourers shall be available to the Employer's Agent and his staff throughout the duration of the Contract and in addition, should it be required by the Employer's Agent, a further period of time not exceeding one month, extending from the time of issue of the Certificate of Completion, at no additional cost to the employer.

(l) Emergency power supply

The Contractor will be required to provide emergency power supply to the Employer's Agent's offices, laboratories and kitchen. For that purpose a 25 kVA, 3-phase diesel-driven generator with an eight (8) hour fuel capacity will be required.

(m) Kitchen

The kitchen shall have:

(i) a concrete floor space of at least 8 m² in area.

(ii) a clear height from floor to ceiling of at least 2,4 m.

(iii) windows of at least 1 m² in total area of which 0,75 m² can be opened to admit air.

(iv) one door complete with lock and two keys

(v) one fixed stainless steel kitchen sink with draining board and cold water tap connected to a potable water supply system.

(vi) one kettle.

(vii) one kitchen table and two kitchen chairs."

B1403 HOUSING

The housing for the Employer's Agent's staff shall be rented accommodation to the approval of the Employer's Agent, provided in project area as agreed by the Employer's Agent.

(c) Rented accommodation

Replace the full stop at the end of the first sentence of sub-subclause (ii) of this subclause with a comma and add "and for all services connected with such accommodation."

Add the following sub-subclause:

"(v) Where either rented or prefabricated accommodation is provided, the following minimum furnishings are required:

i) A single bed with inner spring mattress
ii) A kitchen table and 2 upright chairs
iii) 2 easy chairs
iv) A television set with access to DSTV, only with the approval of the Employer's Agent, the Contractor will be responsible for all operating costs including licensing."

(d) Accommodation for labourers

Delete the word "labourers" *in the sub-heading and the words* "labourers" *or* "labourer" *in contents of the sub-clause and replace with the words* "Employer's Agent's laboratory staff".

Delete the first sentence in the third paragraph and replace with the following:

"The ablution unit shall be a well-ventilated room of 16m² area, provided with electric lighting, a section containing two flush-type latrines complete with WC pans and PVC seats and covers, another section containing two showers, two wash basins, two twin concrete wash tubs, and a stainless steel urinal, all complete with the necessary running hot and cold water, taps, drains and sewerage. Two 300mm x 300mm mirrors shall be fixed to the wall above each washbasin. A clothes line shall be provided outside the ablution unit. One ablution unit shall be provided for every 10 laboratory staff."

Add the following to the fourth paragraph:

"An additional cooking unit shall consist of a kitchen of 20m² area, to be provided as part of the laboratory.

The unit shall be of the same construction as specified for the ablution unit and shall be provided with electric lighting, a dining room table and ten dining chairs, a double stainless steel sink, a lockable storage cupboard of not less than 1,2m³ of shelving, ten gas/ring burners and four 45 kg gas cylinders. All the necessary taps, drains, sewerage and hot and cold water supply shall be provided.

The accommodation for employees shall be constructed as specified for offices and laboratory units or prefabricated housing units.

Sub-units of 16m² shall be provided. Each sub-unit shall be provided with opaque windows, all of which can open at least halfway, and a steel door with lock and padlock and three keys.

The sub-units shall be provided with vinyl floor covering and 220 Volt AC electricity. Each sub-unit shall be provided with:-

(a) Two 15amp power points.

(b) Two Fluorescent light fittings.

Each of the laboratory staff and shall be provided with:

(a) A sturdy spring-type bedstead. The bedsteads shall be provided with a new mattress of acceptable quality and shall have a minimum thickness of 75mm.

(b) A steel locker which shall not be manufactured from steel mesh, but be completely enclosed, and not less than 0,7m³ in size with hanging and shelf space, and which can be locked.

(c) A sturdy steel chair.

(d) A bedside chest with a top surface of at least 0,75m².

(e) A suitable heater shall be provided.

The allocation of people per sub-unit shall be as follows;-

(a) One foreman or artisan or operator or admin clerk or technician.

(b) Two laboratory staff.

(c) Women shall be provided with sub-units separate from those allocated to men."

Delete the fourth paragraph in the Standard Specifications and replace with the following:

"A cooking unit shall consist of a room of minimum floor area of 24m² and shall be of the same construction as specified for the ablution unit. It shall be provided with gas installations consisting of 4 x 45kg gas bottles and the necessary regulators, tubing and shut-off cocks. The gas bottles shall be enclosed in an expanded metal security cage on the outside of the unit.

The gas installation shall be connected to 10 ring gas burners. The cooking unit shall be provided with two stainless steel kitchen sinks with double basins, at least 6,0m² of concrete working top, a dining room table and 10 dining chairs, four lockable storage cupboards of 0,7m³ volume with shelves and two lockable fridge/freezer of 0,5m³ minimum size. The unit shall have electric lighting and five power plug points. All the necessary taps, drains, sewerage and hot or cold water supply shall be provided. One cooking unit shall be provided for every 10 laboratory staff. The contractor shall be responsible for the cost of the gas supply."

B1404 SERVICES

(b) Water, electricity and gas

Add the following:

"A suitable voltage regulator shall regulate the power supply in order to maintain a constant current and voltage level at all times to prevent damage to the office and laboratory equipment and related machinery during power surges. Payment for the voltage regulator shall be deemed to be included in the rates tendered for the supply of services under Items 14.08 (a)&(b). In the event of damage to the office and laboratory equipment and related machinery because of a faulty voltage regulator, the Contractor shall be liable for payment or 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."

(d) Cooking Facilities

Add the following:

A cooking unit shall consist of a hut at least 12 m² in size and at least 2 m² of window area, all of which can be opened. The hut shall be of the same construction as specified for the ablution unit. It shall be provided with an electric or gas stove, a double kitchen sink and at least 3,0 m² of concrete working slab, and 1,5 m² of shelving. All the necessary taps, drains, sewerage and hot and cold water supply shall be provided."

Add the following subclauses:

"(e) Semi-skilled labourers for the Employer's Agent's Representative

The Contractor shall from time to time be required to make available to the Employer's Agent's Representative two (2) suitably educated semi-skilled labourers for his exclusive use on and about the site. The Employer's Agent's Representative shall be at liberty to accept or reject such staff. The Contractor shall at his cost provide the labourers with accommodation, transport to and from the site and training as for other staff. No separate payment for such labour shall be made under this type of contract.

(f) First aid

The Contractor shall provide a first aid kit at the site offices in addition to any other requirements in terms of the Occupational Health and Safety Specification."

B1406 MEASUREMENT AND PAYMENT

Item	**Unit**
B14.01 Office and laboratory accommodation:	
Add the following sub-item:	
"(g) Kitchen (interior floor space only)	square meter (m²)"

Item	**Unit**
B14.02 Office and laboratory furniture:	
Add the following sub-item:	
"(g) Kitchen tables	number (No)

(h) Kitchen chairs ..... number (No)"

Item **Unit**

B14.03 Office and laboratory fittings installations and equipment

(a) Items measured by number:

Amend sub-subitem (v) to read:

(v) Single light fitting complete with CFC type 75 watt globes ..... number (No)

Amend the following sub-subitems to read:

"(xvi) Refrigerators (300 ℓ min.) ..... number (No)
(xviii) Uninterruptable power supply unit ..... number (No)"

Add the following sub-subitems:

“(xix) Steel plan cabinets ..... number (No)
(xx) Floodlights complete with poles and 500 Watt minimum globes ..... number (No)
(xxi) 3-plate stove unit oven ..... number (No)
(xxii) Kitchen sink complete with taps, outlets, water and sewer connections etc ..... number (No)
(xxiii) Kitchen cupboards ..... number (No)
(xxiv) Microwave oven (30lt) ..... number (No)
(xxv) Plan racks ..... number (No)
(xxvi) Rain gauge ..... number (No)
(xxvii) Minimum and maximum thermometer ..... number (No)

The tendered rate for subitem B14.03 (a)(xx) shall include for the operation of the lights from sunset to sunrise for the full duration of the Contract."

(b) Prime cost items and items paid for in a lump sum:

Amend the following items to read:

"(v) Provision of plain paper laser facsimile machine, Nashua 1400 L or similar ..... Provisional Sum"

Add the following sub-subitems:

(ix) Cost of cell phone calls on contract administration business and rental charges ..... Provisional Sum
(x) Handling costs and profit in respect of subitem 14.03 (b) (ix) above ..... percentage (%)”
(xi) Provision of ADSL Broadband Internet Access ..... Provisional Sum
(xii) Handling costs and profit in respect of subitem 14.03 (b) (xi) above ..... percentage (%)”

(c) Items measured by area:

Add the following to sub-subitem (iv) of this subitem:

"… galvanised iron or fibre cement complete with an insulated lid comprising of styrofoam with marine plywood backing, water depth 500 mm."

Amend sub-subitem (viii) of this sub item to read:

"(viii) Soft board notice board ..... square metre (m²)"

Add the following sub-subitem:

"(ix) White boards ..... square meter (m²)"

Item **Unit**

B14.05 Housing for labourers

Amend the item description to read "B14.05 Housing for Employer's Agent's laboratory staff".

B14.08 Services

Add the following sub-subitem:

"(f) The provision of a back up generator when the provision of electricity is under subitem (a) is from Eskom
(i) Fixed costs .....lump sum
(ii) Running costs .....hour (h)"

Add the following pay items:

"Item **Unit**

B14.11 Provision of semi-skilled labour for use by the Employer's Agent

(a) Wages, salaries and allowances ..... prime cost (PC) sum

(b) Handling costs and profit in respect of sub-item B14.11(a)..... ……..percentage (%)

Expenditure under this item will be in accordance with the general conditions of contract. Payment under sub-item B14.11(a) shall be made monthly. The amount due to the Contractor will be equal to the total of the actual amount paid to the Employer's Agent's semi-skilled labourers plus the direct cost of medical and pension benefits, Workmen's Compensation, sick leave and holiday pay, incurred by the Contractor in respect of the Employer's Agent's semi-skilled labourers. The Contractor shall advise the Employer's Agent of the full monthly cost for each semi-skilled labourer engaged. No payment other than that provided above will be made in respect of the employment of semi-skilled labourers for the Employer's Agent. Contract price adjustment will not apply to this item.

The tendered percentage is a percentage of the amount actually spent under sub-item B14.11(a), which shall include full compensation for the handling costs of the Contractor, plus the profit and all other incidentals, in connection with paying the Employer's Agent's assistants.

Item **Unit**

B14.12 Weather Station

(a) Prime Cost sum for the provision of a solar/battery powered portable weather station .....prime cost (PC) sum

(b) Handling Cost and profit in respect of sub item B14.12(a)..... Percentage (%)

A Prime Cost Sum is provided for the provision of a solar/battery powered portable weather station for the duration of the contract. The portable weather station shall be a completely self-contained system requiring no external power and will measure and record the following parameters:

- Wind speed
- Wind direction
- Temperature
- Humidity
- Dew point
- Barometer
- Rainfall
- Solar radiation”

SECTION 1500: ACCOMMODATION OF TRAFFIC

B1501 SCOPE

Add the following:

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

It is a condition of this contract that traffic is accommodated considering the provisions of the latest edition of the South African Road Traffic Signs Manual (SARTSM).

Copies of this publication are available from Government Printers attention Anna Steyn Tel. (012) 334-4500, e-mail: asteyn@print.pwv.gov.za"

B1502 GENERAL REQUIREMENTS

(a) Safety

Add the following at the end of the second paragraph of this subclause:

"The entire site will be handed over to the Contractor. The Contractor may, however, only occupy such areas on the site in accordance with the approved construction programme or as approved by the Employer's Agent.

The Contractor shall submit a programme for the accommodation of traffic to the Employer's Agent for approval."

Approval of temporary deviations

Add the following:

"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 after the second paragraph:

"The Contractor shall submit a CV of the candidate to the Employer's Agent for approval before the Traffic Safety Officer is appointed. The Traffic Safety Officer shall be made available to discuss road safety and traffic accommodation matters whenever required by the Employer's Agent." This Traffic Safety Officer may not be the same person as the Construction Safety Officer contemplated in Section C of this specification. If a Traffic Safety Officer is found to be incompetent, the Employer's Agent will instruct the Contractor to remove and replace him with a competent person. The Traffic Safety Officer will report to the Construction Safety Officer.

At the end of the subclause add the following:

"The duties of the responsible persons shall include liaison with the relevant traffic authorities and in the event of an accident on the section of road under construction, the Traffic Safety Officer or his assistants shall be responsible for contacting the traffic authority and South African Police Service."

Replace sub-subclauses (ii) and (iii) 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 of the above-mentioned signs and road marking features shall be adequately referenced to identifiable permanent features located along 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 be amended whenever changes are made in the field and the amended detailed sketches shall be submitted to the Employer's Agent. Such amendments shall record the position(s) 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 at least twice each day at 9h30 and at 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 the middle of the next working day at the latest. The Traffic Safety Officer shall keep a duplicate book for this specific purpose. The provision of daily photographs is advisable.

The Traffic Safety Officer shall also submit the daily labour returns of flagmen, stop/go and traffic signal control men employed, with this report.

Add the following sub-subclauses:

"(ix) The Traffic Safety Officer shall be equipped with a cellular telephone and shall have a vehicle and sufficient labourers at his disposal 24 hours a day, including special non-working days and shall not be available 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 South African Road Traffic Signs Manual.

The words "TRAFFIC CONTROL" shall be written on a warning sign in highly legible letters (not less than 150 mm in height) and the sign shall be mounted on the vehicle at a height of at least 1,5 m above ground level. The proposed sign with size of letters shall be submitted to the Employer's Agent for his approval before the sign is ordered.

The vehicle shall 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 aforementioned sign shall be displayed when the vehicle is used on site.

The Traffic Safety Officer shall have a direct line of communication with the police and traffic officers responsible for the area within the limits of the contract at all times. The provision of the road safety vehicle, driver, sufficient labourers and the cost of the cellular telephone shall be deemed to be included in the tendered rates."

(x) Ensure that all obstructions related to the Contractor's activities be removed before nightfall, where applicable or as instructed by the Employer's Agent and that the roads are safe for night traffic.

(xi) Be responsible for implementing actions requested in writing by the traffic authorities with regard to the work to be carried out and be responsible for the erection and maintenance of all traffic signs necessary for the accommodation of traffic.

(xii) In the event of an accident, the Traffic Safety Officer shall record details of the accident in a written report accompanied by photographs and a neat sketch plan which show identifiable permanent features, relevant dimensions and the position of all temporary road signs, barricades, delineators and other devices used for traffic accommodation."

(xiii) Also ensure full compliance with all the requirements of the Occupational Health and Safety Act and Construction Regulations which may pertain to the accommodation of traffic.

(xv) Keep the responsible traffic officers fully informed with regard to any changes in the accommodation of traffic planned by the Contractor due to construction activities."

Add the following subclauses:

"(j) 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, and the provision of 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:

(i) 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 works specifications.

(ii) In addition, a time-related penalty of R500,00 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 an instruction to this effect has been given by the Employer's Agent. 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.

(k) 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. Furthermore the above penalties will also be applied. 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.

(l) Use of the road by the public

The Contractor shall plan and conduct his activities so as to bring about the least possible disruption to the traffic on the roads on which he works. The Contractor shall deal with deliberate courtesy and understanding in any discussions or disputes at all points of contact with the travelling public.

(m) Extension of time for completion

No delays caused by the requirement that public traffic be accommodated during the construction of the works and that traffic flows be maintained as specified will be regarded as reason for an extension of time in terms of the General Conditions of Contract.

(n) Provision of safety equipment for the Employer's Agent

The Contractor shall provide the Employer's Agent with:

(1) Amber rotating flashing lights for mobile use which shall be approved by the Employer's Agent.

(2) Safety jackets (not bibs) for the Employer's Agent and visitors for moving around the site. The jackets shall be of an approved type, orange/yellow in colour and shall be in accordance with the South African Road Signs Manual (Volume 2, Chapter 13) on Figure 13.30 (Detail 13.30.2).

(o) Flagmen

Where required by the Employer's Agent, flagmen shall be provided for the control of traffic at lane closures and road accidents if and when they occur.

Flagmen shall be adequately trained in the standard flagging techniques as described in the South African Road Signs Manual (Volume 2, Chapter 13) on Figure 13.23 (Detail 13.23.1) and be provided with conspicuous clothing such as safety jackets utilising 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.

Flagmen shall be placed at positions as shown on the drawings or as directed by the Employer's Agent. Such positions shall be a sufficient distance from the work areas to allow vehicles to slow down before entering the work area but not so far away that the drivers tend to increase speed before entering the work areas. The minimum requirement shall be one flagman at the start of each closure.

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 at least 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. The traffic control site shall be well-lighted at night with at least one floodlight positioned so as to illuminate the area and not shine into the oncoming traffic.

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.

Flagmen shall be provided at all access exit points to the working areas.

(p) Access to the works

The Contractor's plant and equipment shall not stop on the trafficked carriageway except to unload or load traffic control facilities."

B1503 TEMPORARY TRAFFIC-CONTROL FACILITIES

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

"The Contractor shall provide, erect and maintain and remove when no longer required the necessary traffic-control devices, road signs, channelisation devices, barricades, warning devices and road markings (hereinafter referred to as traffic-control devices) in accordance with these special provisions and as shown on the drawings an 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 and are functioning properly at all times."

Delete the last sentence of the second paragraph and substitute the following:

"Traffic-control devices no longer required at the site of a deviation or a lane closure shall be moved for re-use. Traffic-control devices lost or damaged by the Contractor shall be replaced at his own cost. Where it can be proved that any traffic-control device has been damaged by others and its loss of effective performance is beyond the Contractor's control and not the result of his actions or omissions, the Employer's Agent may order the device to be replaced and paid for at scheduled rates."

Replace the third paragraph with the following:

"The type of construction, spacing and placement of traffic-control devices shall be in accordance with the latest edition of the South African Roads Traffic Signs Manual (SARTSM). The recommended arrangements of the traffic control devices illustrated and/or drawings shall not be departed from without prior approval of the Employer's Agent. The arrangements expected to be most commonly used on this contract are shown 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."

(a) Traffic-control devices

Add the following to this subclause:

"Flagmen shall be provided at all access exit points to the working areas."

Add the following to this subclause:

"An all-weather shelter of at least 3 m² capable of accommodating two operators with a clear window, a stable door, two chairs and a portable chemical toilet which shall be maintained regularly, shall be provided at each traffic control point. Each control point shall have a generator and a 2 x 400W metal halide floodlight mounted onto a 9 m winched fibreglass pole bolted to a 1,5 m buried galvanized stem to light up the traffic control point at night-time.

The Contractor shall be responsible for the removal of all litter at the traffic control points on a daily basis to an approved dumping site."

(b) Road signs and barricades

Add the following after the second paragraph of this subclause:

"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, or 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.

Temporary road signs and channelisation devices shall be manufactured in accordance with the South African Road Traffic Signs Manual (Volume 2, Chapter 13) and arranged along the road as shown on the drawings and in the Manual.

Add the following paragraphs:

"All road signs shall be new or approved by the Employer's Agent as new in accordance with the specifications. The Contractor shall have available on site sufficient extra road signs, barricades, delineators, channelization devices and traffic cones to replace items that have become defective or missing.

The Contractor shall be responsible for the protection and maintenance of all signs, and shall take all reasonable measures to ensure minimum damages to signs and other traffic control devices.

The covering of permanent road signs, if applicable, shall be by first utilising a hessian bag, which shall be pulled over the sign in the form of a hood and fastened to the signposts. Plastic bags or other materials fastened by means of adhesive tape shall not be permitted. The cost of covering of permanent road signs shall be deemed to be included in the tendered rates for items B15.01 and B15.10.

No work may proceed on any section where accommodation of traffic is required until such time as the relevant requirements with regard to sign posting and other detail shown on the Contractor's drawings are met and approved by the Traffic Safety Officer in writing."

(c) Channelisation devices and barricades

Add the following:

"The start of barricades shall be positioned such that a minimum sight distance of 150m, measured at a height of 1,05m from the road surface, is obtained.

The use of drums as channelization devices shall not be permitted. Drums may however be used to set up barriers. Collapsible delineators shall be used.

Delineator blades as well as blades used on channelization devices 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 the lower edge of the reflective portion of the delineator blade not lower than 250 mm above the road surface;

(iii) Have smooth and round edges and be mounted on stand-alone purpose made bases or purpose made interlockable channelizing base sections and assembled in accordance with the manufacturers' instructions as determined by the intended purpose of the installation;

(iv) Be capable to withstand air turbulence created by passing traffic as well as wind gusts up to 100km/h without getting blown away or falling over.;

- Bases for collapsible delineators shall be ballasted by a sufficient number of sandbags, filled with sand only with maximum aggregate size of 2 mm.
- Bases for heavy duty reboundable delineators shall be single moulded (not assembled or laminated) and, in addition to complying with the minimum dimensions, shall have a minimum mass of 20 kg per unit

(vi) Together with its mounting be designed such that it will collapse or rebound, as required, 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 750mm high. Lane closures which continue into the night-time shall be demarcated by delineators only.

The line of delineators along the centre line separating traffic exiting a closure from the contra-flow traffic queuing to enter the closure, shall be determined based on the maximum average queue length of the traffic plus 100 m, or 100 m whichever is the greater. The spacing of delineators in this zone shall not be more than 5 m."

(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.

Rotating lights 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, or 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 is 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. Those for the Employer's Agent's staff will be paid for under item B15.15.

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 not enter the site.

Two amber flashing lights shall be vertically mounted on top of the traffic signs (i.e. sign mounted flashing lights) 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

Replace this subclause with the following:

"Where the road is open full width to traffic and the new markings have not yet been painted on the new surfacing, where directed by the Employer's Agent, a temporary centreline of 100 mm wide broken white lines shall be painted along the centre of the road using PVA paint.

On curves and blind rises, the frequency of temporary broken white lines shall be increased by halving the intervals between the lines and painting barrier lines."

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 subclauses:

"(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 South African Road Traffic Signs Manual, 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 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) Cleanliness of traffic-control facilities

All delineators and traffic signs shall at all times be maintained in a clean and visible condition. Any bitumen or other material on delineators or traffic signs shall be removed by the Contractor, or they shall be replaced with new ones at his own cost.

(i) Temporary traffic-control signal systems

A complete traffic control signal system shall consist of four traffic control signals each with three aspects, and shall include the control device, power supply and mountings.

Temporary traffic-control signals shall be erected where directed by the Employer's Agent and shall comply with the following requirements:

i) The provisions of Volume 4, Chapter 10 of the South African Road Traffic Signs Manual.
ii) The signals shall be capable of operating under fixed time or linked control. Manual control shall also be possible. The signal timer shall control the cycle length, phase length and interval length. Amber times shall be a minimum of 3 seconds. Cycle times shall be adjustable up to at least 600 seconds.

iii) The signals and the power supply shall be capable of operating under all weather conditions for uninterrupted periods of at least 15 hours.
iv) Standard signal faces with 210 mm diameter red and green aspects shall be provided.
v) The traffic-control signal lights shall comply with SABS 1459-1988. Aspects shall be fitted with 50 W tungsten halogen lamps.
vi) Two standard signal faces, both erected on the right-hand side of the road, shall be provided to control each direction of traffic.

Traffic-control signal systems shall be used during the night and shall be operated manually. Sufficient staff, equipped with two-way radios, shall be provided to operate the traffic-control signal system, in shifts of not more than eight hours. The same personnel shall not be on duty throughout an entire night.

The Contractor shall provide a backup power supply such that the traffic control signals can be operated continuously at night-time. In addition, the Contractor shall have available on site adequate spares to effect immediate repairs to a traffic control signal unit in the event of breakdown. The Contractor shall provide backup two-way radios for use in the event of breakdowns."

B1504 WIDTH AND LENGTH OF TEMPORARY DEVIATIONS

*Replace "*10m*" and "*5m*" in the first paragraph with "*6m*" and "*4m*" respectively.*

Replace the second paragraph with the following:

"Where the road is constructed in half widths or in full width with single direction traffic, the roadway width for accommodating one-way traffic shall be at least 3,2 m wide. The length of the half-width construction or full width construction with single direction traffic controlled by STOP and GO/RY signs shall not exceed 4,5 km. The minimum spacing between two consecutive sections of half width construction shall be 2,0 km (no construction activities will be allowed in this section and traffic will flow uninterrupted), and a maximum number of three sections of half width construction with closures (day/night and/or day only) shall be allowed at any one time.

Along the sections where the road is constructed in half widths and the existing roadway width cannot accommodate one-way traffic on a width that is at least 3,2 m wide, the existing road will be widened by constructing a temporary gravel widening to allow the first half to be constructed, as per drawing 506969/AOT/002. The sections that require temporary gravel widening will be identified and instructed by the Employer's Agent.

The traffic shall be single direction controlled by STOP and GO/RY signs during daytime and temporary traffic signals at night as agreed by the Employer's Agent."

B1506 EARTHWORKS FOR TEMPORARY DEVIATIONS

Add the following to this clause:

"Wherever possible and to the thickness as instructed by the Employer's Agent topsoil shall be stripped off the area required for deviations. The topsoil shall be stockpiled in accordance with the specifications for later re-use to re-instate the deviations. Payment for the stockpiling and re-use of topsoil will be made under Section 5800."

B1513 ACCOMMODATION OF TRAFFIC WHERE THE ROAD IS CONSTRUCTED IN HALF WIDTHS

Add the following:

"Where the road is constructed in half widths or in full width with one-way traffic, the traffic shall be accommodated as follows:

One-way traffic during working hours with STOP and GO/RY control and open to accommodate two-way traffic after working hours where this is possible. In this instance the road shall be in a safe trafficable condition for two-way traffic over the entire width or sufficient width to accommodate two-way traffic at the end of each day's work.

Where it is not possible to open the full width of the road or sufficient width to accommodate two-way traffic after working hours, the traffic shall be accommodated as one-way traffic with stop and GO/RY control during working hours and temporary traffic signals at night.

The Contractor shall only work on one side of the road where traffic is accommodated as one-way traffic with stop and GO/RY control. Work on both sides of the road shall not be allowed where traffic is accommodated as one-way traffic with stop and GO/RY control.

All work on the travelled way and shoulders shall be done in such a way that the remaining portion of the roadway is available for traffic.

Construction shall be separated from traffic by means of barricades, guideposts, road signs, delineators and other arrangements in accordance with SARTSM and the drawings or as requested by the Employer's Agent.

The traffic flow shall be controlled during the daytime by flagmen with STOP and GO/RY signs and by manually operated traffic signals at night."

Add the following to the end of this clause:

"It may be required to close the road temporarily when blasting. The Contractor will be allowed to close the road for a maximum period of three (3) hours every day to allow for blasting and cleaning up after the blast before traffic is allowed through the pass again. The following will be required before the blasting operations can be commenced with:

(i) The local residents/road users shall be informed of the times for these temporary closures through the CLO and the PSC.
(ii) The public shall also be informed of the times for the temporary closures by means of a press release through the local media.
(iii) Special signs shall be erected at both ends of the road as well as possible other locations indicated by the Employer's Agent. The times for the temporary closures shall be indicated on these signs. The wording on these signs as well as the sizes shall be approved by the Employer's Agent before they are ordered.
(iv) Further signs that will indicate that the road is actually closed on a specific day shall also be displayed at the same locations as the signs mentioned in (iii) above.

Proper programming will be required to ensure that the blasting as well as cleaning of the road after the blast shall be completed within the four hours that the road will be closed.

The Contractor shall also ensure that these operations be programmed and executed in a way to reduce the impact on the flow of traffic to the minimum."

B1517 MEASUREMENT AND PAYMENT

Item	**Unit**
B15.01 Accommodating traffic and maintaining temporary deviations	kilometre (km)

Amend the second sentence in the second paragraph as follows:

"The provision of a full-time Traffic Safety Officer and all the duties performed by him shall be paid for under Item B15.14".

Item **Unit**

B15.02 Earthworks for temporary deviations

(a) Shaping of temporary deviations

Add the following sub-subitem to this subitem:

"(i) Temporary deviations (new construction)..... kilometre (km)"

Item **Unit**

B15.03 Temporary traffic control facilities

(a) Flagmen

In the payment refers clause (a), delete the first sentence: "The unit of measurement shall be a day worked by a flagman." *and replace with* "The unit of measurement shall be a full day and night shift worked by flagmen. A person day shall be deemed to comprise of 3 x 8 hour shifts, in a 24 hour period."

In the payment refers clause (a), amend "a flagman who is" to read "flagmen who are" *and at the end delete the full stop and add the following:*

", Stromberg Lightman xenon strobes and torches".

(b), (c), (d), (e), (f) and (h).

Delete the second paragraph and replace with the following:

"The tendered rates shall include full compensation for the provision, erection and eventual removal of the signs. The rates shall also include for the moving or covering of the signs as required throughout the Contract."

Add the following to this item:

"Note: For all road signs measurement and payment shall differentiate between signs fixed in the ground and mounted on stands."

Amend sub item (h) to read as follows:

Item **Unit**

"(h) Provision, maintenance and replacement of delineators and channelizers all complete with blades, bases and sandbag ballast as and where required:

(i) Collapsible delineators

(1) Delineator base, including ballast, only ……..……Number (No)

(2) Delineator blade only (single sided) (height and width (mm)) .....Number (No)

(3) Delineator blade only (double sided) (height and width (mm)) ……Number (No)

(ii) Reboundable (heavy duty) delineators

(1) Delineator base, including ballast, only ……..……Number (No)

(2) Delineator blade only (single sided) (height and width (mm)) .....Number (No)

(3) Delineator blade only (double sided) (height and width (mm)) ……..……Number (No)"

Amend the following notes in the measurement paragraphs as follows:

"The tendered rate for subitem (h) shall also include full compensation for each delineator, for the provision of two sandbags per delineator to hold it in position and for their replacement when necessary due to whatever reason. Only the standard plastic type TW 401/402 (old DTG 50 J) will be allowed on this Contract."

Add the following new subitems:

Item	**Unit**
"B15.03 (n) Other traffic control measures ordered by the Employer's Agent:	
(i) Provision of other traffic control measures	provisional sum (Prov Sum)
(ii) Contractor's handling charges and profit on sub-subitem B15.03(n)(i)	percentage (%)

The provisional sum has been provided to allow for the supply and installation of any additional signs or other traffic control measures requested by the Employer's Agent on instruction and in accordance with clause B1503, and press releases.

The tendered percentage is a percentage of the actual amount spent under sub-subitem B15.02(n)(i), and shall include full compensation for the handling costs of the Contractor, and profit in connection with the provision of other signs and facilities required by the Employer's Agent.

Item	**Unit**
B15.03 (o) Temporary information signs (TIN-series)	square metre (m²)

The unit of measurement shall be the square metre of sign face, measured on the face of each item provided.

The tendered rate shall include full compensation for providing and erecting each sign, complete with posts, and eventual removal of the signs. The rates shall also include for the moving or covering of the signs as required throughout the Contract."

Item	**Unit**
B15.10 Accommodation of traffic where the road is constructed in half-widths	kilometre (km)

In the second paragraph delete from the third line the expressions "flagmen", "guards", *and* "lights".

Add the following new paragraphs:

"Half-width construction is defined as the construction of the layers of the shoulder and the lane and only where two-way traffic cannot be accommodated. Also, no slurry, seal and asphalt overlay works shall in any circumstances be measured under this item and shall be included in item B15.01 for the payment thereof. Cognisance should be taken that for the maximum 2 km sections controlled by temporary traffic signals for half-width construction, payment shall be made once only and payment for the changeover of the trafficked lanes shall not be made.

Where payment is made for a section of road in item B15.10, payment shall not be made under item B15.01."

B15.11 Traffic signals

Replace this item with the following:

"Item **Unit**

B15.11 Temporary traffic-control signal systems:

(a) Provision, first erection on Site and final removal of traffic-control signal systems..... number (No)

The unit of measurement shall be the number of traffic-control signal systems provided and erected. A traffic-control signal system shall consist of all the equipment required to operate four traffic-control signals each with at least two aspects and shall include the control device, power supply and mountings.

The tendered rate shall include full compensation for the provision, first erection, maintenance and final removal of the traffic-control signal system. 75% of the rate will be payable when the signals have been provided and erected and 25% when finally removed from the Site.

(b) Re-use on Site of traffic-control signal systems ..... number (No)

The unit of measurement shall be the number of traffic-control signal systems removed once and re-erected.

The tendered rate shall include full compensation for the dismantling, storing if required, transportation and re-erection in an entirely new locality and no payment will be made for their removal to a fresh position at the same location.

(c) Manual operation

(i) Traffic-control signal systems..... hours (h)

(ii) STOP and GO-RY boards..... hours (h)

The unit of measurement shall be the number of hours the traffic-control signal system is manually operated.

The tendered rate shall include full compensation for the maintenance of the power supply, replacement of lamps as required, two-way radios, portable all-weather shelters, flood lights, toilets, chairs etc., and litter removal."

Add the following items:

"Item **Unit**

B15.14 Traffic Safety Officer .....month

The unit of measurement shall be the period in months that the approved Traffic Safety Officer is employed.

The tendered rate per month shall include full compensation for the cost of the Traffic Safety Officer to perform his duties as specified in subclause B1502 (i).

B15.15 Provision of traffic safety equipment for use by the Employer's Agent

(a) Amber strobe/rotating lights, complying with SARTSM 13 ..... number (No)
(b) High visibility jackets ..... number (No)
(c) Magnetic signs “Construction Vehicle” or “Road Inspection” ..... number (No)

The unit of measurement shall be the number of each item provided, as ordered by the Employer’s Agent, for the duration of the Contract.

Item **Unit**

B15.16 Amber flashing lights mounted on signs ..... number (No)

The unit of measurement shall be the number of amber flashing lights or sets of stroboscopic lights provided and erected.

The tendered rate shall include full compensation for the provision, erection and final removal of the amber flashing light.

Item **Unit**

B15.17 Media releases and public relations

(a) Media releases and public relations .....prime cost (PC) sum

(b) Handling costs and profits in respect of sub item B15.17(a).....percentage (%)

The Prime Cost sum is provided to cover costs related to public notices as instructed by the Employer's Agent. The tendered percentage for subitem (b) shall include full compensation for the handling costs and profit of the Contractor in connection with subitem (a)."

Add the following new clause:

"B1518 BLASTING OPERATIONS (see also B1222)

When blasting operations are to be carried out in such close proximity to roads being used by the public that it will be necessary to stop the public traffic for safety reasons the following procedure shall apply:

(a) The Contractor shall keep the Employer's Agent fully informed of his intentions and procedures. The Employer's Agent reserves the right to modify such procedures should he consider it to be in the interests of the Employer or safety of the public.

(b) Blasting shall be carried out only once a day around midday and on the same day(s) of the week (e.g. Wednesdays) so that the travelling public will become accustomed to certain days being blasting days and can arrange their trips accordingly. Blasting shall be restricted to three days in the week.

(c) The stoppage to the public traffic shall be minimised and limited to a maximum of three hours per blast.

In the event of the blast causing a partial or even complete blockage of the public road and the clearing of this blockage not being possible within the three hour time limit, then the Employer's Agent shall have the right to impose a penalty on the Contractor of R1 000-00 for every hour, or portion thereof, which the road is closed to traffic in excess of the three hour limit. In addition:

(i) The Contractor shall be responsible for attending to, and satisfactorily resolving, all claims from members of the public as a consequence of exceeding the three hour limit and as part of his obligations under clause 8.1 of the General Conditions of Contract.

(ii) The Contractor shall submit, if requested by the Employer's Agent, a written report on the reasons for the blockage and possible measures to prevent a recurrence.

(d) All fly rock and debris shall be thoroughly removed from the public road before reopening. This shall be subject to the Employer's Agent's inspection and approval.

(e) Notices of an approved language and format shall be erected at the positions agreed by the Employer's Agent in order to warn the traffic of delays due to blasting.

Suitable timeous notices shall also be inserted in the local newspapers and use made of local radio stations as agreed with the Employer's Agent.

(f) All advisory signs shall be paid for under Section 5600. All other costs involved with complying with the above requirements shall be the Contractor's responsibility and he shall allow for them in his rates."

SECTION 1600: OVERHAUL

B1602 DEFINITIONS

(a) Overhaul material

Add at the beginning of the first paragraph of this subclause:

"Except that no overhaul shall apply to materials from commercial sources ..."

Add as the last paragraph of this subclause:

"The tendered rates for all materials from commercial sources will be held to include full compensation for hauling the materials from source to point of use."

(b) Overhaul

Delete the text of the subclause and replace with:

“Payment shall only be made for material hauled in excess of 1 kilometre. Overhaul shall be measured as the product of the volume of material hauled and the overhaul distance.”

(c) Haul distance

Add the following to this sub clause:

"The haul distance of any material which is removed from existing pavements shall be measured along the shortest route from the place of excavation to the point of use (should the material be re-used directly) or to the approved stockpile, and the shortest distance from the approved stockpile to the point of use."

(d) Free-haul distance

Replace the last sentence with:

“This distance shall be 1 kilometre in the case of all overhaul materials.”

Add the following new paragraph:

“In the case of material hauled to a stockpile and then hauled again to point of use, the free-haul distance shall apply only once.”

B1603 MEASUREMENT AND PAYMENT

Amend item 16.02 to read as follows:

"Item		**Unit**
B16.02	**Overhaul on material hauled in excess of 1 km**	cubic metre-kilometre (m^3-km)”.

Delete the first paragraph of the first set of notes.

SECTION 1700: CLEARING AND GRUBBING

Add the following as a final paragraph:

“Clearing and grubbing for the construction of site offices shall not be measured separately and shall be deemed to be included in the rates tendered for item B13.01.”

B1702 DESCRIPTION OF WORK

(c) Conservation of topsoil

Add the following to the end of the 1st paragraph:

“The depth of topsoil removed shall be reliant on the terrain, suitability of material and topsoil requirements of the work. Generally, the contractor will not be required to remove topsoil to more than an average depth of 400mm unless approved by the Employer’s Agent before commencing with topsoil removal from any particular area.”

Replace the second paragraph of this clause with the following:

“After clearing and grubbing, all topsoil shall be removed to either windrows alongside the construction area or to stockpile. Where ordered by the Employer’s Agent, any topsoil that shall be required for the top soiling of new banks and cuts, but which cannot be accommodated within the construction site, shall be loaded and hauled to the designated stockpile area where it shall be placed in temporary stockpiles for later use in the rehabilitation of the site affected by construction activities. Where new borrow pits are to be opened up the topsoil shall first be removed (independently of the overburden) and placed in temporary stockpiles at the edge of the borrow pit. The moving of topsoil from windrow or the loading of topsoil from temporary stockpiles and the placing and spreading thereof on cut or fill slopes or on borrow pit spoil sites, is covered in Section 5800.”

B1703 EXECUTION OF WORK

Add the following as the new first paragraph:

"This section covers the clearing of the site and the grubbing necessary for the construction of the Works covered by the Contract."

(a) Areas to be cleared and grubbed

Delete "normally" *in the first line of the second paragraph of this subclause.*

B1704 MEASUREMENT AND PAYMENT

Item **Unit**

B17.01 Clearing and grubbing ..... hectare (ha)

Add the following to the measurement and payment paragraphs:

“Clearing and grubbing for the construction of camp sites shall not be measured separately. Payment shall be regarded as included in the rates tendered for the applicable items for the above-mentioned work.”

Add the following new items:

"Item **Unit**

B17.07 Demolition, removal and disposal off site of miscellaneous structures consisting of:

(a) Unreinforced concrete ..... cubic metre (m^3)

(b) Masonry and stone pitching..... cubic metre (m^3)

(c) Reinforced concrete..... cubic metre (m^3)

(d) Pipe culverts (state size) ..... metre (m)

The unit of measurement for sub items (a), (b) and (c) shall be the cubic metre prior to demolition of concrete, masonry or stone pitching demolished and disposed of. Subitem (a) also includes existing concrete beams under guardrails.

The unit of measurement for subitem (d) shall be the metre of pipe demolished.

The tendered rate shall include full compensation for all materials, labour, plant, tools, equipment and for all work necessary for and incidental to the demolition of the structures. The tendered rate shall include full compensation for the disposal of all material in an approved disposal site within a free-haul distance of up to 1,0 kilometre.

Excavation and backfilling will be measured separately. For the purposes of this item reinforced concrete shall be taken to mean concrete which contains at least 0,2% of steel by volume."

SECTION B1800: DAYWORKS

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 subclause 6.5 as amended by Special Condition, for use in determining payment for work which cannot be quantified in specific units in the Bill of Quantities, 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 Bill of Quantities.

B1802 ORDERING OF DAYWORK

No daywork shall be undertaken unless written authorisation has been obtained from the Employer's Agent. Work will be classified as daywork only if the Employer's Agent considers no other rate in the Schedule of Quantities to be appropriate for payment purposes.

An instruction regarding all work to be carried out under daywork in terms of subclause 6.5 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 Schedule of Quantities may possibly not be required for this contract.

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

B1803 MEASUREMENT AND PAYMENT

Item **Unit**

B18.01 Personnel

(a) Personnel (during normal hours)
(i) Unskilled labour ..... hour (h)

(ii) Semi-skilled labour ..... hour (h)

(iii) Skilled labour ..... hour (h)

(iv) Ganger ..... hour (h)

(v) Flagmen ..... hour (h)

(b) Personnel (outside normal working hours and Saturdays)
(i) Unskilled labour ..... hour (h)

(ii) Semi-skilled labour ..... hour (h)

(iii) Skilled labour ..... hour (h)

(iv) Ganger ..... hour (h)

(v) Flagmen ..... hour (h)

c) Personnel (outside normal working hours Sundays and public holidays)

(i) Unskilled labour ..... hour (h)

(ii) Semi-skilled labour ..... hour (h)

(iii) Skilled labour ..... hour (h)

(iv) Ganger ..... hour (h)

(v) Flagmen ..... hour (h)

The tendered rates shall include full compensation for overhead charges, profit, liabilities, obligations, site supervision, and the use of hand tools, appliances, and equipment and for consumable stores. The tendered rates shall be subject to the CPA factor as laid down in the General Conditions of Contract.

Item **Unit**

B18.02 Contractor's Equipment (state type & size) ..... hour (h)

The tendered rates submitted for vehicles, constructional plant and equipment shall include for maintenance, operating costs, establishment, insurance and all other contingency costs relating to the running of the vehicles, plant and equipment.

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

The tendered rate shall also include full compensation for all administrative costs, supervision, overheads liabilities and obligations related to the running of the vehicles, constructional plant and equipment, profit and shall be subject to the Contract Price Adjustment Factor as laid down in the General Conditions of Contract.

Item **Unit**

B18.03 Materials

(a) Procurement of materials ..... provisional sum (Prov Sum)

(b) Contractor's handling costs, profit and all other charges in respect of Sub item B18.03 (a) ..... percentage (%)

The prices for materials (excluding VAT) shall be based on the documented proof submitted to the Employer's Agent as specified in clause B1803 and expenditure shall be made 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, incidents 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 (8 ton).....kilometre (km)

The unit of measurement for items B18.01 and B18.02 shall be the hour for the item of equipment or personnel. Non-working hours or 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 equipment depart until return.

Measurement shall only be for work instructed and directed by the Employer's Agent, where the Employer's Agent considers no other appropriate rate is applicable in the Schedule of Quantities. Prior to the commencement of any work by the personnel described under item B18.01 the Contractor must obtain written consent from the Employer's Agent regarding their classification in terms of "unskilled", semi-skilled" and "skilled" personnel.

The tendered rates for labour under 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 unit of measurement for item B18.04 shall be the kilometre distance that the vehicle travelled for transporting personnel and/or plant. All travelling shall be approved by the Employer's Agent.

The tendered rate for item B18.04 shall include full compensation for the cost of the vehicle including fuel, driver, maintenance depreciation and insurance as well as running costs.

The above mentioned tendered rates shall be full compensation for the various items as specified and no further profit shall be paid.

SECTION 2100: DRAINS

B2101 SCOPE

Amend the first paragraph to read:

"This section covers all the work in connection with the excavation and construction of open drains, subsoil drainage and banks and dykes at the location and to the size, shapes, grades and dimensions as shown on the drawings or as directed by the Employer's Agent, and the test flushing of subsoil drains."

B2104 SUBSOIL DRAINAGE

(a) Materials

(i) Pipes

Amend the 1st paragraph as follows:

"Pipes for subsoil drainage …….. and shall be of the following type:

Perforated or slotted unplasticised PVC pipes complying with SABS 791"

(ii) Natural permeable material

Delete the 3rd paragraph and replace with the following:

"Crushed stone shall be coarse graded (20,0 mm nominal size) and shall conform to the following requirements:

Percentage passing through a 26.5 mm sieve: 100%
Percentage passing through a 19.0 mm sieve: 60-85%"

(iii) Geotextiles

Under item (4) Selection, of this sub-clause, replace the 1st paragraph with the following:

"The filter-fabric used for subsoil drains shall be grade 3 and shall satisfy the criteria for this grade of geotextile as given in Table 2104/2."

TABLE 2104/3

Properties		**Units**	**Core**	**Test Method**
POLYMER TYPE			HDPE	
MASS	(minimum)	g/m^2	500	EN ISO 9864
THICKNESS	(under 2 kPa)	mm	4.0	EN ISO 9863
TENSILE STRENGTH	(machine & across)	kN	5.0	EN ISO 10319
DISCHARGE CAPACITY OF GEOCOMPOSITE				
DISCHARGE CAPACITY	(under 50 kPa)	l/s/m	>0.1	EN ISO 12958

(b) Construction of subsoil drainage systems

(iv) Geocomposite Drains (Fin Drains) drainage systems shall be constructed in accordance with the details shown on the drawings or as directed by the Employer's Agent.

The fin drain is supplied in 30m rolls and the pipes supplied in 6m lengths. The geocomposite drainage system shall be laid out and assembled above ground. The pipe shall be placed within the geotextile flap component of the fin drain with the white soffit mark facing towards the geo-net and secured in place. The composite in-plane system shall be installed against a vertical trench side through which the subsoil flow is expected. The trench shall then be backfilled and compacted in layers with suitable material resulting from the excavation for the subsoil drain. The pipe shall be bedded in a minimum 1.6 x pipe diameter of non-plastic fill over pipe before compaction. Where insitu soils that are not compatible with geotextile filtration are encountered, the composite in-plane drainage system shall be backfilled using materials not less than G7 quality material.

B2107 MEASUREMENT AND PAYMENT

Item **Unit**

B21.01 Excavation for open drains

Add the following to the penultimate paragraph of the payment clause:

"The tendered rate shall also include full compensation for trimming the open drains."

Item **Unit**

B21.04 Impermeable backfilling to subsoil drainage systems

Delete the unit and add the following new subitems:

"(a) Unstabilised natural gravel ..... cubic metre (m³)

(b) G5 material stabilised with 4% cement as stabilising agent ..... cubic metre (m³)".

Item **Unit**

B21.12 Concrete outlet structures, manhole boxes, junction boxes, and cleaning eyes for subsoil drainage systems:

Add the following paragraph to the payment clause:

"The tendered rate for item B21.12(a) shall also include full compensation for procuring and finishing the galvanised mesh, cutting, waste, installing the mesh at outlets and keeping the mesh in the pipe openings clean for the duration of the contract period as specified on drawing No ECS/21/3/C4."

Amend item 21.17 as follows:

Item **Unit**

B21.17 Proving of pipes in subsoil drainage systems ..... metre (m)

The unit of measurement shall be the metre of subsoil drainage pipe proved and accepted by the Employer's Agent.

The tendered rate shall include compensation for the proving procedure as specified."

Item **Unit**

B21.19 Selected backfill material under concrete-lined side drains compacted to 93% of MDD

Delete the unit and add the following subitems:

"(a) Using the excavated material ..... cubic metre (m^3)

(b) Using imported selected material ..... cubic metre (m^3)

(c) Extra over subitems B21.19 (a) and (b) for soil cement (3%) ..... cubic metre (m^3)"

Add the following at the end of the payment clause of this item:

"In addition to the above, the tendered rate for (c) shall include for the supply and mixing in of the specified quantity of cement."

SECTION 2200: PREFABRICATED CULVERTS

B2201 SCOPE

Add the following to this clause:

“The information given on the drawings, long sections and drainage schedules may be altered to suit actual site conditions. Culverts shall only be constructed once the information on the drawings has been confirmed by the Employer’s Agent. Prefabricated units shall only be ordered once actual measurements of length have been confirmed on site."

B2203 MATERIALS

(b) Portal and rectangular prefabricated concrete culvert units

Delete the contents of this Subclause entirely and replace them with the following:

"Precast concrete units shall comply with the requirements of the latest SABS 986 specification.

Prior to the manufacture of any units the manufacturer shall submit his Quality Plan to be approved by the Employer’s Agent before delivery of any units to site. 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 Employer’s Agent. 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 Employer’s Agent's Representative may visit the factory at any stage to ascertain adherence to the quality plan as well as to check covers before delivery to site. Any substandard cover shall result in the batch being rejected. Should the manufacturer not be adhering to their Quality Plan the Employer’s Agent 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 pre-cast culverts all durability testing shall be done in accordance to Clause B6404 (h) shall fall within the severe category. For units within the 5km zone from the coast the very severe category shall be used and increased cover shall be as specified by the Employer’s Agent."

(d) Fine Granular Material

Add the following:

“Selected material, approved by the Employer’s Agent, may be used for the bedding.”

(f) Skewed ends

Replace the first and second paragraphs of this subclause with the following:

"No units shall be supplied with skew ends and no cutting of skew ends on site will be allowed."

Add the following subclause to this clause:

"(j) Steel reinforcement

All steel reinforcement work shall be carried out in accordance with the requirements of Section 6300.”

B2204 CONSTRUCTION METHODS

Add the following:

“In all cases where soft founding material is classified as suitable for culvert bedding construction, the in situ material shall be ripped, moistened and compacted to 90% or 93% MDD. The depth of preparation and compaction of founding material shall be as indicated on the drawings or as specified by the Employer Agent. Allowance for measurement and payment for this work is made in the schedule of quantities under this section.

All culverts shall be installed/constructed by the “trench method” as described under subclause (a) except where otherwise instructed by the Employer’s Agent. All these culverts shall be constructed and backfilled before the subbase is constructed.”

B2205 EXCAVATION FOR CONSTRUCTION BY TRENCH METHOD

(b) Width of excavation

Add the following paragraph after the first paragraph:

“The width of excavation shall be as indicated on the drawings. The specifications given elsewhere in this section for backfilling the culverts shall apply mutatis mutandis to pipe culverts, inlet and outlet structures, catch pits and manholes.”

B2207 UNSUITABLE FOUNDING CONDITIONS

Add the following to the first paragraph of this clause:

"Such material shall be classed as backfill for purposes of payment."

Amend the last three lines of the second sentence of the first paragraph of this clause to read as follows:

"... or other approved material, such as rock fill, compacted in accordance with Clause 3307."

Add the following to this clause:

"Unsuitable material excavated by the Contractor on the Employer’s Agent's instructions shall be measured under item 22.01. The backfilling of the excavated material below the bottom of the culvert shall be termed "foundation fill" shall be measured under fill material."

B2210 LAYING AND BEDDING OF PREFABRICATED CULVERTS

(a) Concrete pipe culverts

In the first line of the first paragraph amend “Class A, B, C or D” *to read* "Class A or C".

(iii) Class C Bedding

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

"The pipes shall be laid on a bedding cushion of lightly compacted selected material in accordance with the details as shown on the drawings or as prescribed by the Employer’s Agent."

B2204 CONSTRUCTION METHODS

Add the following:

“All culverts shall be installed/constructed by the “trench method” as described under subclause (a) except where otherwise instructed by the Employer’s Agent. All these culverts shall be constructed and backfilled before the subbase is constructed.”

B2205 EXCAVATION FOR CONSTRUCTION BY TRENCH METHOD

(b) Width of excavation

Add the following paragraph after the first paragraph:

“The width of excavation shall be as indicated on the drawings. The specifications given elsewhere in this section for backfilling the culverts shall apply mutatis mutandis to pipe culverts, inlet and outlet structures, catch pits and manholes.”

B2207 UNSUITABLE FOUNDING CONDITIONS

Add the following to the first paragraph of this clause:

"Such material shall be classed as backfill for purposes of payment."

Amend the last three lines of the second sentence of the first paragraph of this clause to read as follows:

"... or other approved material, such as rock fill, compacted in accordance with Clause 3307."

Add the following to this clause:

"Unsuitable material excavated by the Contractor on the Employer’s Agent's instructions shall be measured under item 22.01. The backfilling of the excavated material below the bottom of the culvert shall be termed "foundation fill" shall be measured under fill material."

B2210 LAYING AND BEDDING OF PREFABRICATED CULVERTS

(a) Concrete pipe culverts

In the first line of the first paragraph amend “Class A, B, C or D” *to read* "Class A or C".

(iii) Class C Bedding

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

"The pipes shall be laid on a bedding cushion of lightly compacted selected material in accordance with the details as shown on the drawings or as prescribed by the Employer’s Agent."

(b) Portal and rectangular culverts

(i) Cast in situ floor slabs

Add the following to this sub-subclause:

"Joints of the types detailed on the drawings shall be formed in the floor slabs, and between the floor slabs and the inlet and outlet structures."

(iii) Placing the portal portions of culverts

Add the following to this sub-subclause:

"The upper portion of portal and rectangular culverts shall not be placed until the in situ concrete floor slab has attained half its 28 day strength. Furthermore, on completion of backfilling, no traffic, including construction traffic, shall be permitted over the complete culvert until the in-situ concrete has achieved its 28 day strength."

B2211 BACKFILLING OF PREFABRICATED CULVERTS

Amend the first line of the second paragraph of this clause to read as follows:

"The material used for the backfilling alongside the culvert shall be selected material of at least G7 quality."

Add the following Clause to this Section:

B2212 INLET AND OUTLET STRUCTURES, CATCHPITS AND MANHOLES

Add the following subclause:

"(j) Subsurface drain outlet into catchpit and manholes

Where required, subsurface drain pipes shall discharge into stormwater catchpits or manholes as shown on the drawings or as directed by the Employer's Agent. Provision shall be made during construction of the stormwater structure."

Add the following new clause:

"B2219 CONSTRUCTION TOLERANCES

The installation of all culverts and ducts shall comply with the requirements stated below:

(a) Level

The permissible deviation from the specified level shall be + 25 mm.

(b) Alignment and grade

The permissible deviation of the alignment and grade of each culvert and pipeline shall be + 20 mm from the specified line and level, or from the line between culvert or pipe inverts at successive headwalls, manholes or catchpits, as applicable, when measured over any 6 m length, and all such deviations shall be gradual. Reverse falls are unacceptable."

B2218 MEASUREMENT AND PAYMENT

B22.01 Excavation

Add the following subitems:

"Item **Unit**

(c) Extra-over sub item B22.01(a) for excavation in intermediate material, irrespective of depth ..... cubic metre (m^3)

(d) Extra-over sub item B22.01 (a) for excavation in boulder material, irrespective of depth ..... cubic metre (m^3)

(e) Extra-over sub item B22.01 (a) for additional excavation required by the Employer's Agent after the excavation has been completed ..... cubic metre (m^3)

(f) Extra-over subitem 22.01(a) for excavating material by hand, irrespective of depth ..... cubic metre (m^3)

If, after a trench excavation has been completed, cleaned and trimmed ready for culvert laying to commence, the Employer's Agent orders further excavations to be made on account of changed dimensions and/or unsuitable founding conditions, an extra over payment (subitem 22.01(e)) on the additional excavation measured for payment shall be payable in full compensation for any incidentals to the Contractor over and above the normal excavation costs."

B22.03 Concrete pipe culverts

Add the following to the third paragraph to this item:

"Should a pipe unit be specified as half of the standard length, the actual length of the unit will be measured for payment as it is accepted that only certain lengths are available from the manufacturers. The tendered rate for concrete pipe culverts shall also include any additional cost with respect to units which are half the standard length. The standard length of a concrete pipe is 2,44 m."

Add the following items to this clause:

"Item **Unit**

B22.29 Bedding from sources on site (including free haul of 1,0 km)

(a) For culverts ..... cubic metre (m^3)

(b) For ducts ..... cubic metre (m^3)

The unit of measurement shall be the cubic metre of bedding material measured in place after compaction. The quantity shall be calculated from the dimensions shown on the typical detail drawings.

The tendered rate shall include full compensation for procuring, furnishing and placing the bedding material and for transporting the material for a free haul distance of 1,0 km where the material is obtained on site."

Add the following new clause:

"B2219 CONSTRUCTION TOLERANCES

The installation of all culverts and ducts shall comply with the requirements stated below:

(a) Level

The permissible deviation from the specified level shall be + 25 mm.

(b) Alignment and grade

The permissible deviation of the alignment and grade of each culvert and pipeline shall be + 20 mm from the specified line and level, or from the line between culvert or pipe inverts at successive headwalls, manholes or catchpits, as applicable, when measured over any 6 m length, and all such deviations shall be gradual. Reverse falls are unacceptable."

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

B2301 SCOPE

Add the following to clause 2301:

"This section also covers the construction of concrete paved footways and islands."

B2302 MATERIALS

(b) Kerbing and channelling

Add the following paragraph to this subclause:

"Precast kerb and channel units used in curved kerbs shall have the following lengths:

Kerb radii up to and including 20 m	0,3 m
Kerb radii exceeding 20 m and straight	1,0 m".

B2304 CONSTRUCTION

(a) Excavation and preparation of bedding

(i) Kerbs and channels

In the first sentence of this sub-subclause amend "approved bedding material at least 75 mm thick" to read "15 MPa concrete at least 50 mm thick".

Add the following to this sub-subclause:

"If necessary due to pavement layer thicknesses some of the layers on which the bedding material is to be placed will have to be removed in order to ensure that the minimum thickness of 50 mm bedding beneath the kerbs and channels can be placed. The Contractor will be deemed to have allowed for the removal of this material in the rates for kerbing and channelling."

(b) Prefabricated concrete kerbing and channelling

Add the following to this sub-subclause:

"Kerbing of radius 1m and less shall be cast in situ in accordance with sub-clause 2304(e) and as shown on the drawings.

All prefabricated 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 calculated as follows: 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 2/3h and the width of the haunch is h.

Where a line of kerb and marker meets a line of kerb with channel, the difference in top of kerb height shall be transitioned over a length of 4 m or 4 full kerb lengths. Over this length the channel shall be formed in 20 MPa cast in-situ concrete, varying uniformly from the marker to the channel."

(e) Cast in situ kerbs and channels

In the second sentence of the second paragraph of this subclause delete everything after the words "…shall then be finished…" *and replace with* "…with a steel trowel to a smooth, dense, uniform finish before the concrete has hardened and without the use of additional cement. Exposed edges shall be rounded to a radius of 5 mm."

Add the following to this sub-subclause:

"Where new kerbing and channelling or concrete v-drains has to be laid adjacent to an existing bitumen surface, the surface shall be neatly saw-cut to a straight line with approved means along the edge of the channel. The existing road foundation shall then be carefully removed over the width and depth required to construct the new kerb and channel or v-drain.

During the construction of the in situ channel, the contractor shall take care not to stain or damage the existing road surface. Any damage, excess overbreak, undermining or staining shall be repaired by the Contractor at his own expense."

(i) Construction sequence

(i) Where kerbs and channelling are constructed before the base.

In the last sentence of this sub-subclause after the words "…precautionary measures…" *insert* "…, including complete backfilling behind kerbs, …"

Add the following new subclause to Clause 2304:

"(l) Shrinkage joints for cast in-situ concrete work

Unless shown otherwise on the drawings, 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 expense."

B2307 MEASUREMENT AND PAYMENT

Add the following new items:

"Item **Unit**

B23.16 Demolition and removal of existing chutes, chute inlets and channels ..... **cubic metre (m^3)**

The unit of measurement shall be the cubic metre of concrete measured in situ before demolition/breaking up.

The tendered rates shall include full compensation for breaking up the existing concrete or reinforced concrete, removal from site to an approved spoil site, clearing the excavation of all loose debris and to backfill the excavation where new concrete is not required. Overhaul will be paid under item 23/B16.02.

Item	Unit

B23.17 Precast concrete bus shelters ..... number (No)

The unit of measurement shall be the number of bus shelters placed. The rate tendered shall include full compensation for the delivery of the shelter units on site and the placing of the units in accordance with the specifications."

SECTION 2400: ASPHALT AND CONCRETE BERMS

B2407 MEASUREMENT AND PAYMENT

Item **Unit**

B24.03 Prime and tack coats:

Add the following to the measurement clause:

"The nominal rate of application for the tack coat spray grade 65% emulsion shall be 0,7 l/m² at application temperature."

SECTION 3100: BORROW MATERIALS

B3103: OBTAINING BORROW MATERIALS

Add new paragraph:

“The Contractor shall adhere to the requirements within the Environmental Management Plan (EMP) as provided in Volume 7 for the preparation of the areas to be utilised as borrow pits. This shall include the removal and storage of the topsoil within the affected area, maintenance of the area during use and the rehabilitation of the area to its natural state on completion. A photographic record shall be kept of all borrow pit areas. Any construction materials spoiled within these sites shall be buried to a depth of not less than 300 mm below the surface soil. No construction material of any nature shall be left visible after top soiling. The Employer’s Agent shall confirm this before grassing commences. The area shall be kept free of all undesirable plant material (5807(e)).”

General

Add the following:

"The acquisition and compensation for land from which borrow material is obtained shall be negotiated and paid for by the Employer."

c) Use of borrow materials

Delete the last sentence of the second paragraph and replace with the following:

"Compensation to owners and arrangements with owners for taking material from alternative borrow pits proposed by the contractor shall be the contractor's responsibility and entirely at his own expense and risk. Such borrow pits may be accepted by the Employer Agent only if the material complies in all respects with the specifications, it is the best economic alternative, and the contractor can provide proof of compliance with all relevant legislation."

Add the following new paragraphs to the end of this sub-clause:

"The Employer’s Agent shall instruct the Contractor as to the applicable usage of borrow pits always employing the best economic alternative (lowest cost in terms of tendered rates) taking cognizance of the following:

Quality of material;
Haulage distance;
Hardness of material;
Overburden.

Under no circumstances shall the Contractor be entitled to any additional compensation in respect of any instruction by the Employer’s Agent as to the usage of borrow pit material.”

B3104 OPENING AND WORKING BORROW PITS AND HAUL ROADS

Add the following subclause to this clause:

“(h) Construction of haul roads

Access or haul roads to/from borrow pits shall be adequately constructed of suitable gravel thickness such that it can carry traffic without undue wear and tear. Only one access/haul road from any borrow-pit shall be constructed and/or used.”

B3105 FINISHING OFF BORROW AREAS AND HAUL ROADS

(a) Borrow areas

Add the following to this Clause:

"The Contractor shall be responsible for complying with the requirements of the Environmental Management Programme Report (EMPR) provided in Volume 7 and as indicated on the drawings. The Contractor shall be responsible for complying with the EMPR requirements irrespective of whether the rehabilitation required is as a result of his own activities or of the activities carried out in the designated borrow pits and stockpile areas prior to the hand-over of such areas for use during this Contract. The rehabilitation of any new areas disturbed by the Contractor, or areas previously rehabilitated and again utilized, shall also be the responsibility of the Contractor.

Work required by the Contractor at the borrow pits shall include, but not be limited to:

- The return of all oversize material, overburden and other residual or reject material to the borrow pits, whether generated by the Contractor or not.
- Covering all the slopes with overburden and topsoil and the establishment of vegetation.

(b) Haul roads

*In the second paragraph delete the comma after the words "*private access roads*" and insert "*and public village access roads*".*

B3108 MEASUREMENT AND PAYMENT

Item **Unit**

B31.01 Excess overburden..... cubic metre (m^3)

*Delete the word "*stripping*" in the 1st sentence of the 2nd paragraph under the payment description as payment for this item of work is covered under payment items 17.01 and B17.07(c).*

Item **Unit**

B31.03 Finishing-off borrows areas in:

Add the following subitem to this item:

"(d) In all materials as ordered by the Employer's Agent ..... provisional sum (Prov Sum)

Expenditure under this item will be made for additional rehabilitation requirements as ordered by the Employer's Agent, which are additional to the requirements as paid for under sub items (a) to (c).

The expenditure to be determined using tendered rates and daywork items as applicable."

Add the following to the measurement clause:

"The tendered rates shall include full compensation for complying with the rehabilitation requirements as reflected in the approved Environmental Management Programme Report in Volume 7."

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

B3203 STOCKPILING THE MATERIAL

*In the first paragraph, in the first sentence insert the following before "*borrow pits*":*

"commercial sources, existing pavement layers, ..."

In the third paragraph, replace the second and third sentences with:

"Before any stockpiling may be done the area shall be cleared of topsoil to a sufficient depth that will subsequently allow for the complete rehabilitation of the site with cover of topsoil that does not exceed 100mm in depth and is not less than 75mm in depth. If there is insufficient topsoil; the contractor shall acquire whatever balance is needed to rehabilitate the area at his own cost. No make-up topsoil shall be affected by construction activities nor impede the natural flow of water. The topsoil shall be windrowed or stockpiled and its surrounds shall be kept free of all undesirable vegetation. The Contractor shall not commence his stockpiling activities without prior written approval from the Employer's Agent that the site has been adequately prepared.

After the stockpiled material has been removed, the site shall be reinstated as closely as possible to its original condition by ripping of the affected areas, re-landscaping if necessary, re-instatement of the topsoil and re-vegetation."

B3204 BREAKING DOWN THE MATERIAL

(a) Initial breaking-down of the material in cuttings, borrow pits and existing pavement layers

Add the following to the end of the first sentence of the subclause:

"or cut across in a side cut to fill operation".

*Amend the line "*Pavement layers 300 mm maximum dimension*" to read* "Pavement layers 150 mm maximum dimension".

B3205 CRUSHING AND SCREENING

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

"It is strongly recommended that the Contractor use a vertical impact crusher in the multistage crushing process for the production of all crushed products at the project quarry."

B3208 PLACING AND COMPACTING THE MATERIALS IN LAYER THICKNESSES OF 200 mm AND LESS AFTER COMPACTION

Add the following before the 1st paragraph:

"In the case of in situ reconstruction of existing pavement layers, the contents of this clause shall apply regardless of the layer thickness after compaction."

Add the following subclauses to this clause:

"(d) Joints in new layers

Where joints are formed between adjacent portions of the same layer the following conditions shall apply:

(i) Wherever possible, joints shall be either at right angles or parallel to the road centreline or the kerb lines. Joints in upper layers shall not correspond with those of the layer below and shall be offset by not less than 250 mm from the joint below. The need for and positions of all proposed joints shall be approved by the Employer's Agent prior to commencement of work on any layer where a joint is required.

(ii) During the placement of layers adjacent to a joint the material previously placed which forms the first half of the layer shall either be cut back sufficiently to ensure the removal of any loose or disturbed material or ripped and compacted together with the second half layer placed or only recompacted together with the second half layer as may be required by the Employer's Agent to ensure that a sound fully compacted joint is formed. To ensure proper compaction of the joint the Employer's Agent may require the use of hand operated vibratory compactors or other suitable equipment.

(e) Joints at intersections and junctions

The base layer as well as the surfacing shall end at the specified limit of construction shown on the drawings for proclaimed roads and such other roads as directed by the Employer's Agent. Each of the underlying layers of the new road shall project a distance at least 600 mm beyond the termination of the layer immediately above it.

The void shall be backfilled with approved wearing course gravel or shoulder material compacted in layers by hand operated vibrating compactors.

Prior to placing the surfacing, an edge beam of 300 mm wide and 200 mm deep shall be neatly excavated over the full width of the intersecting road. This trench shall be filled with class 25/20 concrete, as specified in Section 2300 of the Specifications.

B3212 MEASUREMENT AND PAYMENT

*In the first sentence of the paragraph immediately below the heading of this clause, after the words "*given in this section*", insert "*including the forming of all joints as specified*".*

*In the introductory paragraph replace the comma after "*below*" in the penultimate line with a full stop and delete the remainder of the paragraph.*

Add the following as a 2nd paragraph:

"Separate payment for work applicable to these payment items shall be made under the relevant sections in these specifications pertaining to the construction material required. For example, material procured from borrow that is crushed and screened for use in selected and sub-base layers shall be measured for payment under Section 3400: PAVEMENT LAYERS OF GRAVEL MATERIAL as:

34/32.01(d) and 34/32.03(d) etc., whichever is the relevant pairing of pay items under sections 3200/3400."

Item **Unit**

B32.01 Providing a crushing and/or screening plant:

Amend subitem B32.01(b) to read:

"(b) Two-stage crusher and screening plant ..... number (No)"

Item **Unit**

B32.02 Re-erecting the crushing and/or screening plant:

Amend subitem B32.02(b) to read:

"(b) Two-stage crusher and screening plant ..... number (No)"

Item **Unit**

B32.03 Crushing and screening:

Amend subitem B32.03(b) to read:

"(b) Two-stage crushing and screening..... cubic meter (m^3)"

Item **Unit**

B32.06 Stockpiling of material ..... cubic metre (m^3)

Add the following to the end of the first paragraph of this item:

"measured in place after compaction where it is finally used."

Add the following to the second paragraph of this item:

"The tendered rate shall also include for removal of topsoil, stockpiling of topsoil, replacing topsoil and any sacrificial layer(s) of material placed to form a stable stockpiling platform and for the removal of such material including all haul. The tendered rate shall also include full compensation for spreading or mixing material as required and for any wastage in the stockpile."

SECTION 3300: MASS EARTHWORKS

B3302 MATERIALS

(b) Fill

Add the following to sub-subclause (i):

"At least 20% of rockfill material by mass shall pass the 5,00 mm sieve in order to attain maximum densities.".

Add the following to sub-subclause (ii):

"The minimum CBR of the material at 93% of MDD, at a depth between 0 m and 0,8 m below final road surface, shall be 7."

Replace the last paragraph of sub-subclause (ii) with the following:

"The Employer's Agent may allow or order the use of material not meeting these requirements, i.e. clay or clayey material with a CBR of less than 3% at 90% MDD, provided that such material shall be placed in the centre portion of fill so that at no place is it less than 2 m from any exposed face of the side slopes and not less than 6 m from the finished road level. The 2 m criterion may need to be increased depending on the outcome of stability analysis on the composite fill."

Add the following to the first paragraph of sub-subclause (iii):

"The minimum MDD of material, at a depth between 0,0 m and 0,8 m below final road surface, shall be 93%.".

Amend sub-subclause (iv) to read:

"The maximum swell at 100% MDD shall be not more than 2%."

B3305 TREATING THE ROADBED

(a) Removing unsuitable material

Add the following to the first paragraph of this subclause:

"Roadbed material within 0,8 m of the finished road level shall have a minimum CBR of 3 at 90% of MDD. Any material which does not meet this requirement shall be treated as unsuitable, removed and replaced with suitable fill material as specified in Clause B3302."

*Replace "*or*" in the eight line of the third paragraph with "*and*"*

d) In situ treatment of roadbed

Add the following after the second paragraph:

"Shales and mudstone shall be treated as directed by the Employer's Agent."

B3306 CUT AND BORROW

(a) Dimensions of cuts

Add the following new paragraph between the existing 2nd and 3rd paragraphs:

"As this is essentially an upgrading project all the cut earthworks contemplated in this project will effectively be widening of existing cuts. Item 33.08 for widening of cuts will therefore not be paid in respect of the initial earthworks cut widening. The paragraph below shall therefore only apply in the case of widening of cuts which have been completed or partly completed during the course of this contract."

(b) Use of cut material

Add the following at the end of the last paragraph of this subclause:

"The Contractor shall submit his detailed earthworks utilization plan to the Employer's Agent for approval before commencing with the permanent earthworks."

(e) The temporary stockpiling of material

Replace the contents of this subclause with the following:

"The Contractor shall plan his activities so that materials excavated from cuttings and borrow areas can be directly transported and placed at the designated points.

The temporary stockpiling of material to be re-used for layerworks will be measured and paid for under the various items of use. Any other temporary stockpiling will not be paid for."

(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."

Add the following paragraph:

"The Contractor's attention is drawn to the requirements of clause B1222 when blasting is required. The road shall be closed for traffic during blasting operations and blasting shall only be allowed during the periods as stated in clause B1222."

B3307 FILLS

(c) Constructing a pioneer layer

Add the following new paragraph after the first paragraph:

"When the road is in cut, all unsuitable material shall, in accordance with clause B3302(b), be cut to spoil to a depth of 800mm below the final road level (FRL) or to a depth as determined by the Engineer. The unsuitable material shall be replaced with a suitable fill material (gravel or rock) as directed by the Engineer.

If the use of gravel fill material is ordered it shall be placed in layers not exceeding 200mm in thickness and paid for under the relevant fill payment items.

If the use of rock is ordered, the layer thickness shall not exceed 350mm, as ordered by Engineer, and the layer shall be classified as a pioneer layer and paid for under the relevant pioneer layer payment items.

Pioneer layer material shall consist of blasted rock and/or crushed rock, in the size range 100 mm to 300 mm and a lack of material finer than 50 mm as approved by the Employer's Agent. The maximum size of rock used in the layer shall be 300mm. The surface of the layer of rock shall be blinded with finer material so that the following selected layer can be placed and compacted. "

(d) Benching

Add the following after the second paragraph:

"The method to be used for benching when existing fills or embankments are to be widened, or where new fills are to be constructed adjacent to existing fills or embankment shall be as indicated on the drawings or as otherwise agreed to on site between the Contractor and the Employer's Agent."

(i) Widening of fills

Add the following new paragraph between the existing 7th and 8th paragraphs:

"As this is essentially an upgrading project all the fill earthworks contemplated in this project will effectively be widening of existing fills. Items 33.16 and 33.17 for widening of fills will therefore not be paid."

B3312 MEASUREMENT AND PAYMENT

Delete items 33.16 and 33.17.

Note: The free haul distance for all items, where applicable, in this section has been changed to 1,0 km as per the revision in Clauses B1602(b) and (d).

Item **Unit**

B33.04 Cut to spoil, including free-haul up to 0,5km.
Material obtained from:
• Replace "0,5km" with "1,0km" as the free haul distance in the item description.
• Add to the paragraph starting "The tendered rates for cut to spoil shall include…" the following:
"…. and shall also where applicable allow for spoiling at sites where borrowing is taking place at the same time. No additional payment for temporary stockpiling or double handling will be made, the Contractor being compensated for any extra costs by the fact that his trucks are able to "double haul".

Add the following item:

Item **Unit**

B33.20 Provision for special geotechnical works (lateral support etc)……provisional (Prov) sum

Where ordered by the Engineer special geotechnical works shall be carried out (such as lateral support works) to deal with any unstable conditions that become evident during cut excavation etc. The work shall be carried

out in accordance with the details issued by the Engineer and, if necessary, it shall be completed by specialist subcontractors.

The provisional sum shall be paid in accordance with the provisions of subclause 6.6 of the General Conditions of Contract."

SECTION 3400: PAVEMENT LAYERS OF GRAVEL MATERIAL

B3402 MATERIALS

(a) General

*In Table 3402/1 under the "*G5*" column delete the words "*May contain approved natural fines not obtained from parent rock.*" in the "*Additional Fines*" row and replace it with the following:*

"May contain up to 15% by mass of approved natural fines (or sand) not necessarily obtained from the parent rock. Added fines shall have a LL not exceeding 25 and PI not exceeding 6."

Revise the relevant portion of Table 3402/5 as follows:

Table B 3402/5 : Requirements for Chemically Stabilized Pavement Layers

CRITERIA	C3	C4
Durability : Fines lost Wet-dry	20% maximum	30% maximum

(b) Compaction requirements

Replace the contents of this subclause with the following:

"The minimum in situ dry density of gravel material shall be as specified hereinafter for the respective layers in terms of a percentage of MDD.

Selected layer

Lower selected layer (G9)	:	93%, or 100% for sand
Upper selected layer (G7)	:	95%, or 100% for sand
Stabilized subbase	:	96%
Unstabilized subbase	:	97%
Selected material for Sidewalks, verges and medians (G7 or G5)	:	93% except where vehicle crossings are constructed where 95% is required.
Shoulders and wearing course	:	95%"

Add the following subclause:

(d) Crushed subbase

The gradation of the material in a crushed subbase layer, measured after compaction shall comply with the limits stated in Table B3402/6."

TABLE B3402/6: GRADATION OF CRUSHED SUBBASE MATERIAL

Nominal aperture size of sieve (mm)	% passing through sieve by mass
50,0	100
37,5	85 - 100
28,0	-
20,0	60 - 90
14,0	-
5,00	30 - 65
2,00	20 - 50
0,425	10 - 30
0,075	5 - 15

Add the following subclause:

"(e) Subbase using blended material

When subbase material is mixed from different sources, the aggregate of the homogenous blend, prior to compaction, shall have a maximum size of 63mm."

B3405 CONSTRUCTION TOLERANCES

(a) Level

Replace the table in the sub-sub-clause with the following:

Layer	H_{90}	H_{max}
Selected layers	25 mm	33 mm
Subbase layers	15 mm	20 mm
Base layers	12 mm	15 mm
Shoulders		25 mm"

Add the following:

"Level control for the various pavement layers shall be done at least at the following intervals in the longitudinal direction:

Layer	Interval
Selected layer, subbase, shoulders and wearing course	20 m
Base	10 m

(b) Layer thicknesses

Replace the table in the sub-sub-clause with the following:

Layer	D_{90}	D_{max}	D_{ave}
Selected layers	25 mm	35 mm	8 mm
Subbase layers	18 mm	24 mm	5 mm
Base layers	15 mm	22 mm	5 mm
Shoulders		30 mm	0 mm"

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 (Scheme 1)."

B3407 MEASUREMENT AND PAYMENT

Delete the note at the start of the measurement and payment clause dealing with work in restricted areas and replace with the following:

"On this Contract, no extra over payment will be made due to the nature of the site or the size of the work area available. All costs associated with carrying out the works are deemed to be included in the tendered rates for the items in the Schedule of Quantities."

Item **Unit**

B34.01 Pavement layers constructed from gravel taken from cut or borrow, including free haul up to 1,0 km.

Add the following subitem to this item:

"(i) Drainage layer compacted to:

(i) 93% of MDD 150 mm thick ..... cubic metre (m³)"

Add the following sentence to the first paragraph of this clause:

"The tendered rates for all work including partial width construction shall also include for all work and any extra materials required to form the centreline longitudinal joint including cutting back at least 150 mm into the first half width when constructed in partial widths."

Item **Unit**

B34.04 In situ reconstruction of existing pavement layers as:

Add the following subitem to this item:

"(m) Gravel shoulder wearing course compacted to 96% of MDD, using chemically stabilised material (100mm thick) cubic metre (m³)"

Add the following new payment item:

"Item **Unit**

B34.14 Pavement layers constructed from gravel or crushed-stone obtained from commercial sources

(a) Gravel selected layer compacted to:

(i) 95% of MDD G7 material 150 mm thick ..... cubic metre (m³)

(b) Crushed-stone subbase (chemically stabilized material) compacted to:

(i) 96% of MDD G5 material 150 mm thick ..... cubic metre (m³)

(c) Gravel upper fill layer compacted to:

(i) 93% of MDD G9 material 150 mm thick ..... cubic metre (m³)

The unit of measurement shall be the cubic metre of compacted pavement layer, and the quantity shall be calculated from the authorized dimensions of the completed layer.

The tendered rates shall include full compensation for procuring, furnishing and transporting the materials over an unlimited free-haul distance, 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 full haul distance to approved dumping sites provided

by the Contractor and the protection and maintenance of the layer and the conducting of control tests, all as specified."

SECTION 3500: STABILIZATION

B3501 SCOPE

Add the following as a 3rd paragraph:

"The use of recyclers for cold in situ recycling purposes is also covered in this section, which includes cement, lime, emulsion and foam stabilisation of base and subbase layers consisting of gravel and/or crushed stone material as described in sections 3400 and 3600."

B3502 MATERIALS

(a) Chemical stabilizing agents

Add the following:

"The stabilizing agent under normal circumstances shall be cement.

The Employer's Agent will specify to the Contractor the percentage and possibly the types of stabilizing agent after tests on the Site during construction."

(i) Road lime

Add the following:

"Road lime shall be calcium type lime."

Delete sub-clauses "(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 only CEM II 32.5 N cement shall be used for stabilization purposes."

B3503 CHEMICAL STABILIZATION

(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 Employer's Agent 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."

Add the following to this subclause:

“For subbase stabilization the minimum rate of application shall be 1.8% and the nominal rate is 2.5% by mass per mass of the specified stabilizing agent such that a G5 material will meet the requirements for a C4 quality material as specified after stabilization. The Employer’s Agent may order an increased rate of application. The spreading of stabilizing agent shall be done by placing sacks along the road and spreading by hand using rubber squeegees. Sacks which have become damaged or wet shall not be used and such sacks shall be replaced at the Contractor’s cost.

For base stabilization the minimum rate of application shall be 1.0% and the nominal rate is 1.5% by mass per mass of the specified stabilizing agent. The Employer’s Agent may order an increased rate of application. The spreading of stabilizing agent shall be done by placing sacks along the road and spreading by hand using rubber squeegees. Sacks which have become damaged or wet shall not be used and such sacks shall be replaced at the Contractor’s cost.”

(d) Mixing in the stabilizing agent

Add the following:

"The Contractor shall prepare a trial section for each type of material without any extra payment to demonstrate his proposed mixing process before extensive mixing commences.

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 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."

(e) Watering

The Contractor’s attention is drawn to the provisions of the third paragraph of this standard Clause, especially the second sentence, which states:

“The moisture content of the material during compaction shall never exceed 80% of the saturated moisture content of the natural material without stabilising agent…”

This requirement will be rigorously enforced on site to reduce the occurrence and magnitude of shrinkage cracks.

(h) Curing the stabilized work

Amend the first paragraph of this subclause to read:

“The stabilized layer shall be protected against rapid drying out. In the case of subbase, curing method (i) shall be used until method (ii) is implemented. Method (ii) shall be implemented within seven days of the completion of the underlying layer. In the case of base, curing method (i) shall be used until method (iii) is implemented. Method (iii) shall be implemented within seven days of the completion of the underlying layer.”

Add the following to the second paragraph of this subclause:

“Only methods (i) (ii) and (iii) for curing and protection of the layer shall be used.”

Delete "(iv), or (v)*" from the second sentence of subclause (i).*

Amend the final paragraph of this subclause to read:

"No additional payment will be made for curing as described above."

(i) Construction limitations

*In Table 3503/1, delete "*8 hours*" for "*Ordinary Portland cement, and/or approved Portland cement blends*" and replace with "*6 hours*".*

*Replace the fourth paragraph starting with "*No stabilization ...*" with the following:*

"No stabilization shall commence during windy conditions, wet weather or with falling air temperatures (7°C and dropping), or during rising air temperatures (when the air temperature is still below 3°C).

The surface temperature of a compacted stabilized layer should not fall below 1°C during the first three days after stabilization. The Contractor shall refrain from stabilizing when such temperatures become probable. When a sudden unforeseen temperature drop to a level below this limit occurs, the stabilized layer (stabilized subbase) shall be covered with the next layer as soon as possible. With regards to a stabilized base layer, the Contractor shall be responsible for taking the necessary precautions to prevent the layer from freezing.

All stabilized layers damaged by rain, frost or by the formation of ice in the layer shall be removed and replaced by the Contractor at his own expense.

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.

The vehicles required to cover the underlying layer according to curing method (ii) and (iii) will be permitted onto the layer 72 hours after the last work on the underlying layer was completed.

The Contractor shall make allowance for these requirements in his construction programme, and no claims in this connection will be considered."

Add the following sub-clauses:

"(j) General

The Contractor shall at all times supply all workers exposed to chemical stabilizing or modifying agents with approved protective apparel, eyewear and masks, and no person without such apparel, eyewear and masks may be permitted to work with or be exposed to the chemical agents. Precautionary measures shall also be taken to ensure that any livestock and the public will not be exposed to the chemical agents blown by the wind or under similar circumstances.

(k) Stabilization agent application rate

At least ten weeks before the programmed start of stabilization the Contractor shall submit samples of proposed subbase material and stabilization agent for the Employer's Agent's approval and strength design testing. Based on the testing the Employer's Agent will determine an application rate for the stabilization."

B3504 MECHANICAL MODIFICATION

(b) Mixing materials from various sources

Add the following to this subclause:

“The Employer’s Agent may instruct that a layer is to be constructed by mixing materials from various sources. Where mixing is required the material from each source, before mixing, shall comply with the specified requirements applicable to the type and quality of material that the Employer’s Agent instructs shall be obtained from the particular source i.e. natural gravel G6 material shall comply with the requirements of Section 3400 for a G6 Uncrushed material while a crushed G5 material shall comply with the requirements of Section 3400 G5 Crushed material etc.”

B3506 TOLERANCES

(b) Uniformity of mix (chemical stabilization)

Test method (ii) as prescribed in the clause 3506(b), shall be applied to assess the uniformity of the mix.

B3507 CONSTRUCTION OF TRIAL SECTION

Add the following to the first paragraph:

"The Employer’s Agent may instruct the Contractor to construct the trial section as part of the permanent layer works in lower layers of the pavement structure.”

Insert the following before the second paragraph:

To allow the Employer’s Agent sufficient time to assess all aspects of quality of the completed trial section and contingent on the results being satisfactory, the Contractor shall programme to start production recycling work no sooner than one week after constructing the trial section.

Should the Contractor make any alterations in the methods, processes, equipment or materials used, or if he is unable to comply consistently with the specifications due to variations in the in situ material, or for any other reason, he may be required to undertake further trial sections before continuing with the permanent work.”

Insert the following new paragraph after the third paragraph:

“For cold in situ recycling, provision is made for payment for the first approved trial section. Such payment will be made as an extra-over to the various payment items for recycling work together with all additives that will be measured and paid as normal production work. Any further trial sections ordered by the Employer’s Agent shall likewise be paid provided they are approved.”

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 Quality Control (Scheme 1).”

Add the following:

"The Employer's Agent shall be notified in good time to enable him to conduct tests himself.

Where the stabilizing agent is to be spread by hand, pockets of the stabilizing agent shall be placed on the layer at regular intervals. However, spreading shall only commence when the Employer's Agent 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.

The Employer's Agent will use unconfined compressive strength (UCS) test for evaluation layer compliance. The Contractor shall note that this method requires the samples to be taken immediately after the material has been mixed with water and stabilizer and spread, but before the layer is compacted, and shall therefore make the necessary arrangements timeously and allow for the time to collect the samples.

Any delamination of the completed layer (biscuiting), identified by the hollow sound caused when a chain is dragged over the stabilized layer, shall be removed and repaired prior to the construction of subsequent layers. The repair method shall be approved by the Employer's Agent. No payment will be made for repairs.

(a) Process control for cold in situ recycling

The Contractor shall establish a comprehensive process control system for the recycling work.

The following daily reports shall be submitted as a minimum:

- The production plan;
- The completed pre-start check list;
- Weather conditions and temperature measurements;
- Details of the recycling work completed during the day with the following information for each cut that was made:
  - start and end chainage;
  - depth of cut (including a schedule of dip measurements);
  - width of application of stabilising agent(s);
  - nozzle settings (closures) for each spraybar (where relevant);
  - computer data input;
  - cement / lime spreading check measurements (where relevant); and
  - compaction data in electronic format from the integrated compactometer device fitted to the primary roller (if applicable):
- Relevant comments / information concerning the recycling operation. These shall include but shall not be limited to:
  - standing time and the reason(s);
  - sections where in situ pavement conditions changed together with a description of the change (e.g. thick asphalt between km 1+200 and km 1+230 in Cut #2);
  - details of any non-routine tests that were undertaken;
  - any changes in the weather during the day (e.g. strong wind from 13:00); and
  - relevant instructions received and from whom; and
- The location where the daily sample of material was taken."

B3510 MEASUREMENT AND PAYMENT

Item **Unit**

B35.01 Chemical stabilization extra over unstabilized compacted layers ..... cubic metre (m^3)

Add the following to the payment paragraph:

"The tendered rate shall also include full compensation for pre-shaping and preparing the layer (as required), working in restricted areas, or on top of and alongside culverts where necessary.

The tendered rate shall also include full compensation for blending any of the different stabilization agents, if required, and curing the stabilized layer as specified in subclause B3503(h).

The tendered rate shall also include full compensation for curing the stabilization layer as specified in Subclause B3503(h)."

Delete items 35.04 and 35.05.

Add the following new clauses:

"B3511 PLANT AND EQUIPMENT FOR COLD IN SITU RECYCLING

All cold in situ recycling shall be done utilising purpose-built wheel-mounted in situ recycling machines. The following specifications are applicable to such machines. Where the Contractor intends using any other type of machine to recycle (e.g. a modified track-mounted milling machine) he shall submit for the approval of the Employer's Agent a full motivation for using such a machine, including a detailed work plan describing the recycling / mixing process and subsequent compaction / levelling processes that will produce a layer that meets the specified end product requirements.

The treated material exiting from the rear of the recycler shall be processed using suitable compaction equipment and graders to achieve a layer that meets the specified requirements.

B3512 CONSTRUCTION OF LAYERS BY MEANS OF COLD IN SITU RECYCING

(a) Requirements before recycling commences

(i) Stabilisation mix design procedure for cold in situ recycling

The following mix design procedure shall be followed as a minimum requirement for each stabilisation type:

Within 30 days of the Contractor taking possession of the site, the Contractor shall commence with the work to obtain samples for the stabilization design process. This process shall be carried out on samples of neat materials extracted from the full depth of the recycling horizon blended with, as may be required, with imported materials. Samples shall be extracted by means of hand excavated test pits as determined by the Employer's Agent.

Stabilisation mix designs shall be undertaken by the Employer's Agent to determine:

- details for blending the recycled material with imported material (where necessary);
- application rates for stabilising agent(s);
- target strengths achieved from such application rates; and
- impact of material variations (sensitivity analysis)

The Contractor shall construct a trial section for the approved mix design developed for the first uniform section. Recycling work may only commence once the trial section has been approved by the Employer's Agent. Thereafter, it will be incumbent on the Contractor to obtain the necessary approval for the relevant mix design for each uniform section ahead of the recycling work. Should the situation arise where the Contractor has not followed the mix design procedure to obtain the required approval of the Employer's Agent recycling work shall cease until such time as the prescribed process for approval has been followed. The Contractor shall have no recourse for costs incurred as a consequence of such a delay.

(ii) Setting out and control of the work for cold in situ recycling

Unless otherwise stated in the specifications, the Contractor shall establish his own reference and level beacons for the setting-out and control of the works.

(1) Layers constructed utilising existing levels

The existing horizontal alignment shall be retained and only minor modifications made to the vertical alignment, as described below.

The Contractor shall establish a series of level control poles placed at a constant offset on both sides of the road at a maximum interval of 10m. At each level control location, the Contractor shall record the existing road surface levels at the centre-line and at the outer limits of each lane and prepare a series of graphs (for sections not less than 2.0km in length) with the recorded levels plotted at an exaggerated scale against the km distance. Final levels for the new stabilised layer shall be selected in accordance with a "best-fit" principle, taking into account the following:

- the required camber or super elevation details at each location;
- the minimum requirements governing changes in grade (longitudinal grade line);
- the thickness of the existing base layer; and
- minimising the amount of pre-work required (pre-treatment and/or importing new material) before recycling can commence.

At least two weeks before recycling work is scheduled to commence on any specific section, the Contractor shall select the best-fit design levels and submit these proposals to the Employer's Agent (both as a schedule of longitudinal grade, cross-fall and final surface levels, as well as a drawing with the design lines superimposed on the existing levels) for approval or amendment.

The Employer's Agent will take control measurements to determine the accuracy and adequacy of the reference beacons / control poles, and may instruct the Contractor to correct any faulty work and to take and provide such additional measurements and details as may be deemed necessary.

Survey work will not be measured and paid for separately and compensation for any work involved in staking, setting out, taking levels, determining the final surface elevations and transferring these design levels on to the level control poles (including the cost of all labour materials and reinstatement if required for any reason) will be deemed to be included in the rates for the relevant payment items for cold in situ recycling. No payment will be made for any inconvenience or delay caused by compliance with these requirements.

(2) Layers constructed utilising new levels

Layers shall be constructed according to new design levels as indicated on the drawings.

(iii) Production Plan

Prior to the start of a shift, the Contractor shall prepare a production plan detailing his proposals for the forthcoming shift's work. As a minimum, this plan shall include a sketch showing:

- the overall layout of the length and width of road intended to be recycled during the day, broken into the number of parallel cuts required to achieve the specified width of treatment;
- the location of and overlap width (minimum 150mm) at each longitudinal joint between adjacent cuts, together with the location of the inner and outer wheel paths of each lane affected by recycling;
- the sequence and length of each cut to be recycled before starting on the adjacent or following cut; and
- an estimate of the time required for recycling each cut and for finishing off the work.

(iv) Preparing the surface

Before any recycling work commences, the surface of the existing road shall be prepared by:

- cleaning all vegetation, garbage and other foreign matter including road studs from the full road width, including any adjacent lanes or shoulders that are not to be recycled;
- removing any standing water;

- pre-milling to remove high-spots and/or pre-pulverising where ordered;
- providing a reference line to assist the operator to accurately steer the recycling machine, and
- record the location of all road marking features (e.g. extent of barrier lines) that will be obliterated by recycling.

(v) Surface shape and level requirements

Where surface defects are to be corrected and/or modifications made to the grade line, instructions will be issued detailing the new surface level requirements. These may be achieved prior to recycling by either pre-milling to remove in situ material, by pre-pulverising, pre-shaping and pre-compacting the pulverised material, or by importing material and accurately spreading on the existing road surface, as described below.

(ix) Addition of imported material

Where instructed to import material for blending and/or as make-up material for the purpose of shape, level or material grading correction, the prescribed material shall be imported and spread on the existing road surface prior to recycling. The method of placing and spreading the imported material shall be such as to achieve the required surface levels and will require the use of a paver, motor grader or other such plant. All imported material shall be pre-compacted to a minimum of 95% of the mod AASHTO density.

Nowhere shall the thickness of imported material exceed the recycling depth.

(b) The recycling process

(i) Before starting

Prior to starting to recycle, the production planned for the day shall be approved by the Employer's Agent and the following checks carried out:

- All relevant temperatures shall be measured and recorded, including:
  - air temperature;
  - the material in the recycling horizon; and
  - the contents of all bulk supply tankers (including water).
- All plant and equipment is on site and the operators of the different machines are adequately trained and briefed on their particular tasks.
- The recycling machine has been prepared and set up for the first cut. Such preparations shall include:
  - checking that the mixing chamber is free of any material build-up that may affect the functioning of the application nozzles on all relevant spraybars;
  - the cutting tools have sufficient remaining life to complete the first cut without stopping;
  - all relevant liquid application systems are functioning, free of blockages and the in-line filters are clean. Where a bitumen stabilising agent is applied, a relevant check-sheet (similar to the example forms included in the Appendices of SAPEM and TG2) shall be diligently followed, signed off and submitted to the Employer's Agent;
  - the on-board computer has been correctly set up and the input data verified;
  - the spraybar is set up with the correct nozzles selected to achieve the required width of application;
- Bulk supply tanker(s) are coupled correctly to the recycling machine, all feed pipes are properly connected, bled of air and free of leaks. Where a bitumen stabilising agent is applied, the feed pipe shall only be connected immediately before work is about to start. Where the stabilising agent is foamed bitumen, the outlet plumbing on the tanker shall be checked and any "cold plug" of bitumen removed before attaching the feed pipe.
- Where cement or lime is spread by hand on the road surface ahead of the recycling machine, the bag spacing shall be checked at random intervals and recorded.

- A clear guideline is in place for the recycling machine to follow and is correctly aligned relative to the road geometry.
- The integrated compactometer system on the primary roller properly functioning and has been set up to record the correct relevant data.

(ii) Recycling

The recycling machine shall be set up and operated to ensure that:

- The speed of advance is regulated (below the maximum allowable of 10m/min) to achieve;
- adequate pulverisation of all bound materials in the existing pavement to produce a material that meets the grading requirements;
- operating pressures and flow rates in all liquid application systems that remain within the limits prescribed by the manufacturer of the machine.
- The depth of recycling coincides with the line and level specified for the bottom horizon of the new stabilised layer. The bottom of cut horizon shall be checked at least once every 100m of cut using a suitable T-bar to dip from a stringline pulled between the relevant final level reference marks on the level control poles.
- The planned width of overlap along all longitudinal joints is maintained and the line of cut does not deviate laterally by more than 50mm from that required (measured from the operator's guideline that shall be positioned for each and every cut).
- The process is continuous with a minimum number of stops. Transverse joints that occur every time the recycling machine stops are properly treated to achieve continuity of stabilisation and moisture across the resulting joint.
- The application rate of liquid stabilising agent(s) and water is uniformly continuous across the required width of treatment, including all longitudinal joints.
- The temperature across the width of material exiting the mixing chamber shall be checked at least once every 100m using a digital thermometer with a laser beam target held no more than 100mm above the material. Where the temperature varies consistently by more than 3°C along a particular longitudinal strip ± 200mm wide, the recycling machine shall be stopped and the relevant application nozzles on all spraybars that coincide with the offending strip shall be checked for blockages.
- The moisture content of the treated material is continuously monitored and the application of water adjusted to achieve a uniform moisture content as specified.
- The mixed material exiting from behind the recycling machine is struck off by the rear door of the mixing chamber with sufficient pressure applied to obtain a uniform surface that is free of valley lines, empty pockets and particle segregation.

The advance speed of the recycling machine and the speed of rotation of the recycling drum shall be set to obtain the required grading and sufficient mixing of all components (recycled material and additives) so that a homogeneous material is produced.

(c) Primary compaction

Recycling machines are configured such that their rear wheels run on top of the treated material towards the outer extremities of the cut. To prevent introducing a density differential across the width of cut, primary compaction shall be completed prior to any grader work commencing. If the treated material is pre-shaped by grader prior to being compacted, the work shall be summarily rejected.

A single-drum vibrating roller shall be deployed to compact the recycled material immediately behind the recycling machine. This roller shall travel forwards and backwards at a constant speed (maximum 3km/hr (50m/min)), remaining within the confines of the recycled cut. Recycled material covering the outer extremities of cut shall be moved at regular intervals (± 5m) to expose the cut line, thereby allowing the operator to remain within the cut width.

Successive lengths of recycled / treated material shall be compacted (each approximately 50m in length).

Rolling shall continue on each section until the maximum achievable density has been reached. Where an integrated compactometer device is utilised normally rolling have to continue until the device indicates that no further density is being achieved over at least 80% of the length of the section (i.e. maximum achievable density has been reached). Should the device indicate a consistent loss of density at any point during primary compaction (as indicated over two successive recording passes), rolling on that section normally has to be terminated and the roller moved forward to start compacting the next section.

After each day's production, the Contractor shall provide the Employer's Agent with his process control records of the densities achieved for primary compaction. Where a compactometer device was used an electronic copy of the data file containing detailed compaction records for the day's work shall be provided to the Employer's Agent. As a minimum, the records shall include the number of passes made on each section of every cut made by the recycling machine, the compaction achieved on every cut as well as the following data for each 2m interval along the length of each cut:

- the compactometer reading (where applicable);
- the amplitude of vibration; and
- the advance speed of the roller.

These records will constitute the Contractor's Process Control for primary compaction.

A "roller pass" shall be defined as a single unidirectional pass made by the roller. Where the roller travels forwards and backwards over the same point, it would have made "2 passes".

A "recording pass" is a roller pass where the compactometer readings are stored (recorded) and used for comparison purposes. Recording passes are always in one direction of travel only. Recordings shall be made commencing with the first pass and every alternative subsequent pass that is made (i.e. 1, 3, 5, 7, etc.).

The primary compaction process shall follow at the same rate as the recycling operation. The Contractor shall ensure that a sufficient number of rollers are available to achieve this.

(d) Final levels and secondary compaction

(i) After completing the primary compaction on all adjacent cuts that make up the width of pavement that is recycled in one shift, the surface shall be pre-shaped and final levels cut before final compaction is applied. Pre-shaping shall address the lateral shift of material resulting from the surface inclination (cross-fall). The moisture in the layer shall be controlled during this process. No roller will be allowed onto the layer during the pre-shaping process to prevent the lamination phenomenon (biscuiting) occurring.

Secondary compaction shall then be applied using the smooth-drum vibrating roller operating in low amplitude vibration mode. The outer cut extremities shall be exposed as a guide for the roller operator to ensure that the compaction effort is directed only on to the recycled material (thereby preventing any "bridging across" from the unrecycled pavement).

B3513 PROTECTION AND MAINTENANCE

(a) Trafficking the completed layer

(i) Cementitious stabilisation

Under no circumstance shall traffic be allowed to travel on layers of cement stabilised material.

(b) Application of surfacing

To prevent environmental degradation and/or abrasion damage, new base layers shall be surfaced as soon as the moisture content at all positions within the layer is below 50% of optimum moisture content.

The maximum time delay between completing a new base layer and applying the surfacing shall be 14 days (with due allowance made for inclement weather)."

SECTION 3600: CRUSHED-STONE BASE

B3602 MATERIALS

(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. Argillaceous rocks may only be used if specified in the project specifications, or with the Employer's Agent's written approval.

Soft or weathered particles shall be controlled by the Durability Mill Index values specified in B3602(e) Durability."

Amend Table 3602/1 as follows:

In table 3602/1 delete "85% of bulk relative density" *and replace with* "88% of bulk relative density".

In row 6, "DURABILITY", *delete the contents and replace with:*

"Durability requirements are to comply with the requirements of subclause B3602(d).".

*In column 2, row 7, "*FLAKINESS INDEX*" delete "*35*" and replace with "*25*".*

*In column 5, row 10, "*ATTERBERG LIMITS – 0,075*", delete "*12*" in the first two sentences and replace with "*8*" and delete "*8*" in the third sentence and replace with "*6*".*

After Table 3602/2 add the following:

"The minimum 10% FACT dry shall be 200 kN and the minimum 10% FACT wet shall be 150 kN for base and surfacing aggregate used on this Contract".

(c) Grading requirements

Replace entire clause with the following:

"The target grading, after compaction, for 37,5 mm maximum size aggregate base shall fall within the grading envelope in Table B3602/5.

TABLE B3602/5: ENVELOPE FOR TARGET GRADING

Nominal aperture size of sieve (mm)	Percentage passing sieve, by mass
37,5	100
28	86 – 95
20	78 – 81
14	66 – 71
5	41 – 46
2	27 – 34
0,425	17 – 21
0,075	7 – 9

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."

Replace sub-sub-sub-clause 3602(c)(i)(2) with the following:

"The –0,425 mm fraction shall not exceed 21%.".

Add the following new subclauses of this 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.

(f) Material from commercial sources

The following additional requirements shall apply:

(i) The use of aggregate derived from arenaceous or argillaceous rock groups will not be permitted.

(ii) The aggregate shall be subjected to the tests and their frequencies specified in Table 3602/5. The material may only be placed on the road when all of the specified tests have been completed and have passed.

Test Description	Frequency (test / m³ of compacted base)
Aggregate Crushing Values (10% Fact)	5 000
+ Ethylene glycol durability testing *	5 000
x Atterberg Limits	
PI –0,425	1 000
PI –0,075	2 000

* Test method B8105 durability index shall not exceed 4 (four).
x Pi -0,424 = Plasticity Index determination on - 0,425 mm material.
Pi -0,075 = Plasticity Index determination on - 0,075 mm material.
\+ The cost of these tests shall be for the Contractor's account.

(g) Chemical modification of the fines

Where the PI of the -0,075 mm material is greater than 8, the material, may by agreement with the Engineer be modified by the addition of lime."

B3604 CONSTRUCTION

(a) Spreading and mixing

Add the following to this subclause:

"Level control for the construction of the base layer shall be installed at 10 m intervals. Level control during construction may be done at every second control position (20 m intervals) provided that the starting position is alternated to ensure all control positions are utilized during the construction of the layer.

No additional payment shall be made for the installation or use of level control at 10 m intervals."

(b) Compaction

*In the 4th line of the first paragraph, replace the words "*after slushing*" with "*before slushing*".*

Add the following at the end of the first paragraph:

“The specified density shall also be obtained in the upper 50mm of the layer.”

(c) Surface preparation of the base

Subclause (i) shall be applicable to surface preparation of the base.

Replace the final paragraph in subclause 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.”

(h) Joints between existing layers and new or reconstructed layers

Add the following at the end of the first paragraph of this subclause:

"During the working of the first half-width, the surface of the base layer shall be constructed a minimum of 200 mm past the centre longitudinal joint position in order to obtain proper compaction on the joint position.

During the working of the second half-width, the centre longitudinal joint between any reworked or new layer shall be cut back at least 100 mm into the first half-width to remove any loose or disturbed material and to ensure a sound longitudinal joint between the two half-width sections.

The Contractor shall ensure that any gravel, crushed stone or fines carried onto the surfaced half width accommodating traffic during the working of the pavement layer is removed immediately by hand brooming. In addition, all soil fines arising from the slushing of the base and carried on to the surfacing of the first half width shall be removed before the second half width is primed."

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."

Add the following:

"No traffic shall be allowed on primed crushed-stone base layers except at intersections where specific protection arrangements shall be ordered by the Employer's Agent.

Sample holes in crushed stone base layers shall be backfilled as follows:

(1) Sieve crushed stone base material through 20,0mm sieve and discard + 20mm size material.
(2) Add 60% cationic emulsion to minus 20,0mm size material at an application rate of 1% of the loose mass of the material and mix properly. Add water and mix properly to bring material to optimum moisture content.
(3) Place material to fill sample hole to 1/3 of the layer thickness and ram down with tamper with a mass of at least 5kg until no movement of the material is evident.
(4) Repeat the filling and compacting operation for the next 2 x 1/3 layer thicknesses.
(5) Finish off the surface of the backfilling and enrich the surface with a light application of 60% emulsion using a soft brush.
(6) The density of the backfill material shall not be less than that of the surrounding base layer when tested with nuclear methods."

B3607 QUALITY OF MATERIALS AND WORKMANSHIP

*Delete "*or 8300*" in the second paragraph.*

B3608 MEASUREMENT AND PAYMENT

Delete the first paragraph and replace it with the following:

"Note: No additional or extra over payment shall be made for work in restricted or confined areas."

Amend the payment item to read as follow:

"Item **Unit**

B36.01 Crushed-stone base

(c) Constructed from type G2 material obtained from commercial sources and compacted to 88% of bulk relative density (layer thicknesses indicated) ..... cubic metre (m^3)"

The measurement and payment clauses as for item 36.01 shall apply.

B36.03 Crushed-stone base trial section (thickness indicated) constructed in accordance with the provisions of clause 3603

Add the following after the last sentence:

"If the trial section is constructed at the final base level and it is approved by the Employer's Agent, then this rate shall cover all the costs for this section of base and no further payment will be made for this section under item 36.01."

SECTION 4100: PRIME COAT

B4102 MATERIALS

(a) Priming material

Add the following after the last paragraph:

Conventional emulsion prime (quick drying) shall be a non-flammable, low viscosity emulsion prime with reduced drying time comply with the requirements in table 4102/1

TABLE 4102/1

Properties	Specification	Test Method
Water content % m/m	42 – 46	ASTM D244
Dynamic viscosity @ 25ºC MPa·s	10 – 35	ASTM D4402
Residue on sieving g/100 ml Particles > 710 µm Particles > 150 µm	 < 0.10 <0.25	SANS 4001 – BT4
Storage stability % 1 day 7 days	 < 1 < 5	NT 66 – 022
Rupture Index	> 120	NT 66 – 017
Particle charge	Positive	SANS 4001 – BT4

Add the following:

“The priming material shall be conventional emulsion prime. Conventional bitumen emulsion prime shall be applied at a minimum road surface temperature of 10ºC and rising.”

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

Delete paragraph (g) and replace with the following:

“When the moisture content of the upper 50mm of the layer is higher 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

Add the following to paragraph (c):

"The nominal rate of application of the prime coat shall be 0,7ℓ/m². Unless directed otherwise by the Employer’s Agent or indicated on the drawings, the width of the primed surface shall be 600 mm wider than the edges of the surfacing on each side, except where it abuts a concrete channel, in which case every precaution shall be taken to ensure that the concrete is protected from staining”.

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 Employer's Agent. The Employer's Agent may, at his discretion, conditionally accept application rates falling outside this tolerance at reduced payment in accordance with Table B4108/1.

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 Employer's Agent 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 4,75mm 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 Employer's Agent, 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

Item **Unit**

B41.01 Prime coat

Add the following subitem:

(f) Conventional bitumen emulsion prime (quick drying) ..... litre (l)"

SECTION 4300: SEALS: MATERIALS AND GENERAL REQUIREMENTS

B4301 SCOPE

Add the following Subclause to this Clause:

"Prior to the commencement of any seal work, a co-ordination meeting shall be arranged by all parties involved in the seal work including, but not limited to, the Employer's Agent, the Contractor, relevant subcontractors and the suppliers of bituminous products. The purpose of the meeting will be to clarify all technical, specification, management, plant and materials issues etc. related to the seal work."

"The contractor shall take and submit samples of materials and/or mixtures to the Employer's Agent who must approve designs before construction work can commence."

B4302 MATERIALS

Add the following to the first paragraph:

"Any tests referred to in the latest version of the publication "Technical Guideline: TG1 The Use of Modified Bituminous Binders in Road Construction: Asphalt Academy", shall supersede those specified in the COLTO Standard Specifications for Road and Bridge Works for State Road Authorities (1998 edition). This document is available from the Asphalt Academy."

a) Bituminous binders

(iv) Homogenous cold applied modified binders

Replace the entire sub-sub-clause with the following:

"(1) *Base bitumen*

The cationic emulsion shall be manufactured from bitumen complying with the requirements of SANS 4001-BT1:2012.

(2) Polymer

The contractor shall indicate, in the relative pay item in the Pricing Schedule, the type of polymer to be used in the blend.

(3) Polymer modified emulsion blend

All blending shall be done at the factory, where so ordered by the Employer's Agent, the modified binder for this project shall be Binder Class SC-E2 (70-73) (t) and shall comply with the requirements in table B4302/5.

The recovered binder residue shall be obtained using either the rotary vacuum evaporation or simple evaporation method. If there is any discrepancy in the test results then the results on recovered binder obtained from the rotary vacuum evaporation method shall be binding.

The use of a volatile solvent flux added to the bitumen shall not be permitted unless approved by the engineer."

Replace Tables 4302/5 and 4302/6 with the following:

TABLE B4302/5: PROPERTIES OF POLYMER MODIFIED EMULSIONS FOR SURFACE SEALS

Property		Unit	Test Method	Class			
				SC-E1		SC-E2	
Binder content (m/m)[1]		%	MB–22	65-68	70-73	65-68	70-73
Saybolt Furol viscosity @ 50°C		sec	MB–21	51-200	51-400	51-200	51-400
Residue on sieving[2] (/100 ml)	710µm sieve	g	MB-23	≤0.1		≦ 0.1	
	150µm sieve			≤ 0.5		≤ 0.5	
Particle charge			MB–24	positive		positive	
Sedimentation after 60 rotations			SANS 4001 BT3	nil		nil	
Properties of recovered binder residue Test Method (MB-20)[3]							
Softening point [4]		°C	MB–17	≧ 48		≧ 55	
Elastic recovery @ 15°C		%	MB-4	≧ 50		≥ 55	

[1] *For steep inclines, severe cross fall and higher application rates it is advisable to use the higher binder content emulsion to reduce runoff.*

[2] *Pour the emulsion through the larger sieve to remove the skin and larger particles before passing the emulsion through the finer sieve.*

[3] *Either the rotary vacuum or the simple evaporation method can be used. For on-site testing the simple method is more practical and is thus recommended. The simple method retains most of the fluxing oils whereas these are removed in the rotary vacuum method. The latter method renders a better indication of the binder properties after in-service curing.*

[4] *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 refereeing purposes no stirrers should be used.'*

(v) Homogeneous hot applied polymer modified binders

Replace the entire sub-sub-clause with the following:

"(1) Base bitumen

The base bitumen or blends thereof, shall comply with the requirements of SANS 4001-BT1:2012. In addition, the chemical composition of the bitumen shall be such as to permit blending with the proposed polymer to form a stable product.

(2) Polymer

The type and percentage of polymer to be blended with the bitumen is not prescribed, however the contractor shall indicate, in the relevant pay item in the Pricing Schedule, the type of polymer to be utilized.

(3) Polymer modified blend

The polymer modified bitumen shall be blended at the factory.

The polymer modified bitumen to be used on this project shall be S-E1 and shall comply with the requirements of table B4302/7.

The binder for the day's production shall be tested on site to determine the softening point before any seal work is commenced with. No claim for delays due to this requirement shall be considered. As a control, a hand held spindle viscometer shall be used to monitor the viscosity of the binder at the spray temperature.

Replace Table 4302/7 with the following table B4302/7:

TABLE B4302/7 PROPERTIES OF POLYMER MODIFIED BINDERS FOR HOT SEALING APPLICATIONS (SUMMER GRADES)

Property	Unit	Test Method	Class	
Before ageing			**S-E1**	**S-E2**
Softening Point [4]	°C	MB-17	50–70	60-80[1]
Elastic recovery @ 15°C	%	MB-4	>50	>60
Dynamic Viscosity @ 165°C	Pa.s	MB–18	≦ 0.55	≦ 0.60
Storage Stability @ 180°C[2]	°C	MB-6	≦ 5	≤ 5
Flash Point	°C	ASTM D92	≧ 230	≧ 230
After ageing (RTFOT)				
Mass change[3]	%	MB-3	≦ 1.0	≦ 1.0
Elastic recovery @15 °C	%	MB-4	>50	>60

[1] *The softening point values obtained for bitumen modified with SBS will tend to fluctuate over time and on reheating. Road surfaces could become too rigid at low overnight temperatures with resultant poor adhesion properties.*

[2] *Certain base bitumens, when used in the production of modified binders, are prone to cause segregation of the modified binder. The Storage Stability test result should be interpreted as an indicator of the compatibility of the base bitumen and the modifier used. In cases where compliance limits are not met, proposals of site agitation procedures of the binder to prevent segregation shall be submitted to the client for consideration. In all cases whenever there is any reason to believe that the composition of the base bitumen has changed, the test shall be repeated to ensure compliance or to determine the need for measures to prevent segregation*

[3] *Mass loss gives an indication of the presence of volatiles in the binder.*

[4] *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 refereeing purposes no stirrers should be used.'*

b) Aggregates

(i) Aggregates for seals

Add the following at the end of the sentence:

"and durability."

(1) *Grading*

Add the following:

"Only Grade 1 aggregate shall be used for the construction of seals on this project."

(3) *Shape*

Add Table B4302/13 and the following paragraph to this sub-subclause:

"Ninety-five (95%) percent of the particles shall have at least three fractured faces. The Average Least Dimension (ALD) of the relevant nominal aggregate sizes shall comply with the requirements of Table B4302/13."

TABLE B4302/13: MINIMUM ALD REQUIREMENTS

Nominal aggregate size (mm)	Minimum ALD (mm)
20,0	12,0
14,0	8,0

Replace Table 4302/8 with:

TABLE B4302/8: SINGLE-SIZED CRUSHED AGGREGATE GRADES 1, 2 AND 3

Sieve size (mm)	Grade	Percentage by mass passing						
		Nominal size (mm)						
		28	20	14	10	7	5	2
37,5	1 & 2	100						
28		85 – 100	100					
20		0 – 30	85 – 100	100				
14		0 - 5	0 – 30	85 – 100	100			
10			0 - 5	0 – 30#	85 – 100	100		
7				0 – 5##	0 – 30#	85 – 100	100	
5					0 – 5##	0 – 30#	85 - 100	100
3,35							0 – 30	
2,0						0 – 5##	0 - 5	0 – 100
	3	**Gradings shall comply with the requirements for Grades 1 and 2 with the following exceptions: # 0 – 50, ## 0 – 10**						
Fines content: passing 0,425 mm sieve	1	0,5	0,5	0,5	0,5	0,5	1,0	15
	2	1,5	1,5	1,5	1,5	1,5	2,5	15
	3	2,0	2,0	2,0	2,0	3,0	3,5	15
Dust content: passing 0,075 mm sieve	1	0,2	0,2	0,2	0,2	0,5	0,5	2,0
	2	0,5	0,5	0,5	0,5	1,0	1,0	2,0
	3	1,5	1,5	1,5	1,5	1,5	1,5	2,0

Note: Refer to standard COLTO table for COLTO grading if required

Replace Table 4302/9 with:

TABLE B4302/9: SAND

Sieve sizes (mm)	Percentage passing by mass
5	95 minimum
0,425	50 minimum
0,075	20 maximum
Plasticity index = Non-plastic	

Note: Refer to standard COLTO table for COLTO grading if required

Replace Table 4302/10 with:

TABLE B4302/10

Nominal size of aggregate (mm)	Maximum flakiness index (%)	
	Grade 1	Grade 2
20	25	30
14	25	30

Nominal size of aggregate (mm)	Maximum flakiness index (%)	
	Grade 1	Grade 2
10	30	35
7	30	35

Note: Refer to standard COLTO table for COLTO grading if required

Replace Table 4302/11 with:

TABLE B4302/11: GRADING LIMITS OF AGGREGATE FOR SLURRY SEALS

Sieve size (mm)	Percentage passing sieve by mass				
	Fine slurry			Coarse slurry	
	Fine grade	Medium grade	Coarse grade	Type 1	Type 2
14					**100**
10				**100**	**86 – 100**
7		**100**	**100**	**87 – 100**	**71 – 91**
5	**100**	**84 – 100**	**72 – 91**	**72 – 91**	**62 – 82**
2	**84 – 99**	**51 - 90**	**40 – 64**	**40 - 63**	**36 – 56**
1	**60 - 90**	**33 – 68**	**25 - 46**	**22 – 41**	**22 - 41**
0,600	**42 – 72**	**22 – 50**	**19 – 34**	**15 – 30**	**15 – 30**
0,300	**23 – 48**	**15 – 37**	**12 – 25**	**10 – 20**	**10 – 20**
0,150	**10 – 27**	**7 – 20**	**7 – 18**	**6 – 15**	**6 – 15**
0,075	**4 - 12**	**4 - 12**	**2 - 8**	**4 - 10**	**4 - 10**

Note: Refer to standard COLTO table for COLTO grading if required

Delete Table 4302/12 without replacement.

Add the following sub-subclause:

"(4) Durability

Aggregate used in seals and asphalt shall show a durability index of less than 4 as determined by the test method specified in Clause B8105 paragraph (g)."

(ii) Aggregate for slurry seals

In the first paragraph, add the following after the first sentence:

"The Employer's Agent may order the addition of an approved natural sand or additional cement to improve either the permeability or workability of the slurry."

Add the following sub-subclause:

"(iii) Aggregate for blinding

The aggregate used for blinding the single seal shall consist of 2,00 mm to 5,00 mm crushed aggregate or river sand. The aggregate shall be clean, hard and free from clay, silt or other deleterious matter."

d) Hydrophilic aggregates

(i) Precoating of aggregate for stockpiling or for immediate use:

In the second paragraph, delete "of 12 litre" *in the second sentence, and add the following sentence*:

"Precoating fluid shall be manufactured from petroleum based products. The use of tar based precoating fluids will not be permitted. For tender purposes the nominal quantity of precoating fluid for the relevant nominal aggregate sizes is specified in table B4302/14."

TABLE B4302/14: NOMINAL APPLICATION RATES FOR PRECOATING FLUID

Nominal aggregate size (mm)	Nominal precoating application rate (ℓ/m³)
20	12
14	16
10	19
7	22

Add the following subclauses:

"e) Water for diluting emulsions

Water used for the dilution of emulsions on site shall be suitable potable water, and each source of water used shall be tested for compatibility with the emulsion before it is added to the bulk emulsion.

f) Testing of polymer modified bitumen/emulsion

Testing shall be in accordance with the methods described in "Technical Guideline: The use of Modified Bituminous Binder in Road Construction (TG 1-2019)".

During spraying of each batch, the contractor shall draw off at least three test samples of the modified bitumen/emulsion product and submit them to the Engineer for acceptance testing purposes. The supplier shall submit all his tests results to the Engineer for correlation purposes, failing which the Engineer's results shall be binding in terms of acceptance or rejection of the product."

B4303 PLANT AND EQUIPMENT

(b) Binder distributor

Add the following to this subclause:

"Prior to the commencement of any work, a calibration certificate, not older than 12 months, for the binder distribution shall be presented to the Employer's Agent for approval.

The binder distributor shall be capable of spraying the binder to the specified application rates and to the satisfaction of the Employer's Agent. The pump of the distributor shall be capable of delivering the binder at the spray bar nozzles at the correct pressure to obtain the specified application rates, irrespective of the viscosity properties of the proposed binder. The spray bar of the distributor shall be fitted with fishplates at the outside edge of the bar to prevent over spraying onto shoulders or staining of concrete elements on the edge of the surfacing of the road.

In addition, the transverse distribution of the spray bar shall be field-verified by means of SANS 3001-BT24: Civil engineering test methods Part BT24: Measurement of transverse distribution ('Bucket test') for a binder distributor. The maximum permissible tolerance permitted between the troughs (excluding the outer 300mm) is dependent on the viscosity of the binder type being applied and shall be as follows:

Emulsion, cutback and penetration grade bitumens – 5%
Homogenous modified bitumens – 7%

The spray bar shall be of such design as to allow for any adjustments to be made in order to meet the above tolerances. This procedure shall be carried out each time the distributor is first established on site and once a week thereafter or when a problem with transverse distribution is suspected. The binder distributor shall thus have a set of troughs available in order to allow the execution of the test. For limited quantities of spray-work, the Employer's Agent may accept the results of a recently completed distribution test that has been recorded and approved by an independent supervisor on the distributor's test log book.

The binder distributor shall be fitted with a suitable valve or other access gate for taking of samples of the binder for testing purposes."

(c) Chip spreaders

Add the following at the end of the first paragraph of this subclause:

"The chip spreader shall be capable of delivering a proper and uniform transverse distribution of chips across the width of the hopper and conveyor belts. The chip distribution shall be tested by means of canvas patches, each 1,0 m by 1,0 m and placed side by side. The mass of chips spread onto each individual canvas patch shall not deviate by more than 10 % from the calculated average spread per canvas patch.".

Add the following to the last paragraph of this subclause:

"A non-self-propelled chip spreader may only be used in the event of a breakdown of the self-propelled chip spreader during a pull, and shall be limited to the completion of that pull. No further application of binder shall be permitted until such time as the self-propelled chip spreader is repaired or replaced."

i) Precoating plant

Delete the paragraph and replace with the following:

"The precoating of chips shall be done with a suitable purpose made precoating plant capable of uniformly coating, mixing and drying the chips. The use of equipment such as front-end loaders for mixing and drying shall not be permitted."

B4304 GENERAL LIMITATIONS AND REQUIREMENTS

a) Weather limitations

(iv) Homogenous cold applied modified binders.

Delete the two lines of this subsubclause and replace with:
"Polymer modified emulsion ..... 15ºC".

(v) Homogenous hot-applied modified binders (summer grade)

Delete the four lines of this subsubclause and replace with:
"Polymer modified hot binder..... 25ºC".

b) Moisture content

Replace "reseal" *with* "seal" *in the second line of the second sentence.*

Insert "and/or primed base" *after* "surfacing" *in the third line of the second 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 seal layer."

(i) General

Add the following:

"Seal work shall not be permitted on granular base layers if the moisture content in the upper 50mm exceeds 50% of the optimum moisture content, determined in accordance with SANS 3001-GR30 (replacing TMH1 Method A7). This limitation shall apply even if the layer has been previously primed.

Sealing work shall not commence until the engineer has approved all other works ordered on that section of road."

(e) Demarcation of the working areas

(i) New work

Add the following to this sub-subclause:

"Before the tack coat and application of aggregate may be applied, the centreline of the road shall be demarcated by means of a clearly visible weatherable fibre rope, pegged down at intervals of 15 m on straight sections and 3 m on curves by means of nails driven into the existing surface. The demarcating rope shall be removed prior to the application of the tack coat and aggregate on the adjacent lane."

B4305 HEATING AND STORAGE OF BITUMINOUS BINDERS

d) Homogeneous cold applied modified binders

Add the following:

"The requirements for short term handling, storage and application of these binders shall comply with the requirements listed in table B4305/5:"

TABLE B4305/5: TEMPERATURE/TIME LIMITS FOR POLYMER MODIFIED EMULSIONS

Binder Class	Short Term handling/ transportation[5]		Storage		Spraying / application		
	Max temp (ºC)	Max holding time (hrs)	Max temp (ºC)	Max holding time [4] (hrs)	Max temp (ºC)	Min temp (ºC)	Max holding time (hrs)
SC-E1/E2[1]	60	24	Ambient	>240[3]	70	50	6
SC-E1/E2[2]	70	24	Ambient	>240[3]	80	50	6

[1] *This applies to modified emulsions with a binder content of approximately 65% m/m.*
[2] *This applies to modified emulsions with a binder content of approximately 70% m/m.*
[3] *The modified emulsion should be gently circulated or stirred at regular intervals to avoid sedimentation over time.*
[4] *If the recommended maximum holding time has been exceeded, the binder should be resampled and tested to ensure compliance to the specification.*
[5] *Freshly manufactured product that is transported direct to site may exceed short term handling and transportation maximum temperatures.*

(e) Homogeneous hot-applied binders (summer grade)

In the second paragraph, replace table 4305/3 with "table B4305/3":

"TABLE B4305/3: TEMPERATURE/TIME LIMITS FOR HOT POLYMER MODIFIED BINDERS

Binder Class	Short Term Handling/ Transportation		Storage[1]		Spraying/Asphalt Mixing/Application		
	Max temp (ºC)	Max holding time (hrs)	Max temp (ºC)	Max holding time [2] (hrs)	Max temp (ºC)	Min temp (ºC)	Max holding time (hrs)
S-E1 (SBR)	180	24	150	240	210	175	8
S-E1 (SBS)	180	24	150	240	185	175	12
S-E2	180	24	150	240	185	175	12

[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"*

B4306 STOCKPILING OF AGGREGATE

(a) General

Add the following:

"The contractor shall heed the environmental requirements of Part C of this volume in the preparation, operation and closure of stockpile sites. The positions for stockpiling of aggregate and the proposed operation methods shall be approved by the Employer's Agent before delivery of the aggregate can commence.

After application of the seal all loose stones swept off the road surface are to be heaped either in the drain or gravel shoulder, whichever is applicable, and removed in one operation. No sweepings are to be left on site for more than 24 hours. No sweepings are to be heaped or stored on the vegetated areas of the road reserve. No loose stone is to be spoiled in the road reserve."

B4307 CONSTRUCTION OF SEAL

(b) Single and double aggregate seals

(i) Application of tack coat and aggregate

Replace the last sentence of the fourth paragraph with the following:

"The contractor shall so place the strips when constructing the seal that the joint between two adjacent aggregate applications shall be located along the centreline and at a lane-width from the centreline."

Add the following to the fourth paragraph:

"Joints shall be straight and aggregate shall be broomed back in a neat straight line before the next spray. String lines shall be used to demarcate joint edges. All stone-loss and "tram-lining/roping" shall be made good by the contractor at no additional cost."

(ii) Initial rolling of aggregate

Replace the second sentence with the following:

"In the case of modified emulsions, initial rolling by means of self-propelled 5-ton flat steel wheel rollers shall only be permitted if crushing of aggregate does not occur. Pneumatic-tyred rolling shall be delayed until the emulsion has been allowed to break sufficiently to firmly secure the aggregate. Rolling shall be postponed if there is any pick-up of aggregate on the tyres of the pneumatic type roller."

(iii) Broom drag and final rolling of aggregate

Add the following after the first paragraph:

“The contractor shall provide a back-chipping team, together with a pneumatic-tyred roller, of sufficient capacity to ensure that back-chipping and rolling of aggregate shall be completed within thirty minutes after initial application of the aggregate.”

Replace third paragraph with the following:

"After completing the spreading of the aggregate, final rolling shall consist of a minimum of four passes utilizing a 15-ton to 20-ton pneumatic-tyred roller, followed by one or two passes of a 6-8 ton flat steel wheel roller."

(iv) Joints between binder sprays

Add the following at the end of this sub-subclause:

"The protective sheets shall be made of reinforced building paper."

(v) Protection of kerbs, channels etc.

Add the following to this sub-subclause:

"Where bitumen binder is to be sprayed directly adjacent to existing concrete kerbs, channels, side drains, concrete edge beams and bridge balustrades, or over bridge joints, such concrete elements shall be covered with reinforced building paper of a proven proprietary brand. Likewise, the reinforced building paper shall be laid across the road in the transverse direction to achieve a square and straight cut off line at the start and end of bitumen application runs. No additional payment will be made for the use of reinforced building paper."

Add the following sub-subclauses to subclause (b):

“(vi) Trial section

Before the Contractor commences with the construction of any seal work he shall demonstrate that the equipment and processes he proposes to use are capable of producing the seal in accordance with the specified requirements by constructing a trial section off the Main Road with the approval of the Employer’s Agent.

At the commencement of the surfacing operation, a 200 m half-width section shall be considered as a trial. After completion of each phase of the seal on this 200 m section, the Employer’s Agent will review and then approve/reject the work method. If approval is granted for a specific operation i.e. application of tack coat, aggregate, fog or slurry, the Contractor may proceed with that approved operation.

Should the Contractor at any stage fail to deliver an acceptable product he shall rectify the problems at his own cost and demonstrate with a further trial section that he can carry out the operation successfully. No specific payment shall be made for conducting these trials and the cost thereof shall be deemed to be included in the tendered rates of Section 4600."

(vii) <u>Control of the slurry takes in the Cape Seal</u>

The Contractor shall adjust the slurry mix so that the first slurry take does not exceed 11 kg/m².

(viii) <u>Consolidation of the first slurry (Cape Seal) and application of second slurry</u>

The Contractor shall provide a Pneumatic Tyred Roller (PTR) for the slurry operations. Once the 1st slurry has been placed, the emulsion has broken, and is still pliable he shall commence with rolling the surface. The initial rolling is required to knead the slurry and consolidate it to reduce the permeability. When the slurry has completely dried and set the second slurry shall be applied, followed by PTR rolling. Alternatively the road may be opened to traffic for a period not exceeding 10 days and then closed so that the 2nd application of slurry may be applied."

B4308 RATES OF APPLICATION

In the first sentence of the first paragraph, delete the following after "conventional":

"or homogenous modified".

Add the following at the beginning of the second sentence:

"Homogenous and".

In the second paragraph, delete 4314 and replace with:

"B4314".

Add the following at the end of the second paragraph:

"In the case of single seals the Employer's Agent may, at his discretion, permit the application of a diluted emulsion fog spray in instances where application rates are below the minimum allowable tolerances. In such instances no additional payment over and above the unit rate tendered for the accepted seal, plus or minus any variation from the nominal, will be made. In the case of sand seals or graded seals the Employer's Agent may accept, at his discretion, an application of binder sprayed above the allowable tolerance subject to the Contractor, at his own cost, applying and rolling any additional sand/aggregate necessary as a result of such over application."

B4314 TOLERANCES AND FINISH REQUIREMENTS

(c) The rate of application

Delete the first paragraph and replace with the following:

"The maximum permissible variation from the rates of application of aggregate or slurry, as ordered by the Employer's Agent, shall be plus or minus 5%.

For binders, the maximum permissible variation, for any single spray, from that specified shall be 5% for conventional bitumen and all emulsions (measured net cold), and 5% for hot applied modified binders (measured at spray temperature). Provided he is satisfied that the seal will perform satisfactorily, the Employer's Agent may, at his discretion, conditionally accept out of tolerance variations at the reduced rates of payment listed in Table B4314/1 below. However, variations in total binder application rates in excess of those tabled shall be rejected. Rejected sprays will not be considered for payment unless corrected to the satisfaction of the Employer's Agent.

A lot for acceptance control purposes shall be at least 2000 litres. Lots smaller than 2000 litres shall be combined with succeeding lots until a combined lot not less than 2000 litres is obtained. "

Table B4314/1: PAYMENT REDUCTION FACTORS FOR CONDITIONALLY ACCEPTED BINDER APPLICATION RATES

Conventional bitumen and emulsion Deviation from specified spray rate net cold bitumen (%)	Hot applied homogenous and non-homogenous modified bitumen deviation from specified rate at spray temperature (%)	% Payment of tendered rate for seal
± 5,0	± 5,0	100%
± 6,0	± 6,0	97,5%
± 7,0	± 7,0	95%
± 8,0	± 8,0	90%
± 9,0	± 9,0	85%
± 10,0	± 10,0	80%
>± 10,0	>± 10,0	0% (rejected)

Add the following at the end of the last paragraph:

"The completed bituminous surfacing shall be of uniform texture without gaps or patches and shall be free from corrugations and any loose aggregate or binder spillage.

The edges of the completed bituminous surfacing shall be true to line."

(d) Conditional acceptance

Delete the entire subclause.

SECTION 4600: BITUMINOUS SINGLE SEAL WITH SLURRY (CAPE SEAL)

B4601 SCOPE

Add the following subclause to this clause:

"(a) Seal work start up meeting

Prior to the commencement of any seal work, a co-ordination meeting shall be arranged by all parties involved in the seal work including, but not limited to, the Employer's Agent, the Contractor, relevant sub-Contractors and the suppliers of bituminous products. The purpose of the meeting will be to clarify all technical, specifications, management, plant and materials issues etc. related to the seal work."

B4602 GRADES OF BINDER TO BE USED

(a) Tack coat

(iii) Homogeneous modified binders

Delete "(1) 5% latex cationic emulsion" *and replace with*:

"(1) Binder Class S-E1
(2) Binder Class SC-E2 (70-73) (t)"

B4603 CONSTRUCTION BEFORE SLURRY APPLICATION

(a) Application of tack coat and aggregate

Add after the first paragraph:

"If the bituminous binder used for the tack coat is of Class S-E1/S-E2, the 20mm aggregate for the first layer shall be pre-coated with a bituminous based pre-coating fluid, at 12ℓ/m^3 as specified in sub-clause 4302(d).

If the bituminous binder used for the tack coat is the 70% polymer modified spray grade emulsion of Class SC-E1(t)/SC-E2(t), no pre-coating of the 20mm aggregate shall be required. A second application of 35% cationic bitumen emulsion shall then be applied to the surface of the 20mm aggregate.

The aggregate to be used with the tack coat shall conform to the grading requirements for a 20mm nominal size Grade 1 surfacing aggregate."

Amend Table 4603/1 for 19,0 mm aggregate to read as follows:

"

Nominal size of aggregate (mm)	Nominal rates application		
	Litres of unmodified bitumen and all emulsions – net cold per m^2 (Net cold bitumen ℓ/m^2)	Litres homogenous hot mod. Bitumen at spray temp – per m^2	Aggregate (m^2/m^3)
20,0	1.35	1.4	80

"

b) Initial rolling

Replace "sub-sub-clause 4307(b)(ii)" *with*:

"Sub-sub-clause B4307(b)(ii)"

c) Broom drag and final rolling of aggregate

Replace "sub-sub-clause 4307(b)(iii)" *with*:

"Sub-sub-clause B4307(b)(iii)"

B4604 SLURRY

(c) Composition of slurry

Add the following:

"The aggregate used for slurry shall comply with the requirements of
Table B4302/11. The first slurry shall be a fine slurry "coarse" to "medium grade" and the second slurry shall be fine slurry "fine grade". For tender purposes the mix proportions of the slurry shall be based on mass."

After the second paragraph add the following:

"The slurry consistency when measured in accordance with ASTM D3910 Section 6.1 shall be between 30mm and 40mm."

(e) Application of slurry

In the first sentence of the third paragraph insert the words "one or" *before* "two layers".

Replace the fifth and sixth paragraphs with:

"The measurement of slurry application rate shall be the dry mass of aggregate in kg/m² applied per m² of surfacing and the total nominal rate of application shall be 13 kg/m^2 if only the 1st slurry layer is applied, and 15 kg/m^2 in total if the 1st and 2nd slurry layers are applied. Payment for slurry application variations shall be based only on the actual total rate of slurry application of the completed Cape Seal."

Add the following after the eighth paragraph (now the seventh paragraph):

"Both the first and second layer of slurry shall be spread to the full final width of the primed surface."

Change the eighth line of the tenth paragraph as follows:

"… pneumatic-tyred roller. However, each layer of slurry shall be …."

Add the following to this subclause:

"No traffic shall be permitted onto a section, unless permitted by the Engineer on limited areas due to traffic accommodation constraints, where only the tack coat and the first layer of aggregate has been applied. Normally traffic shall only be permitted to use a completed section once the first slurry has been completed and has cured.

Where partial width construction is carried out the application of the second layer of slurry shall be delayed until the full width of the surfacing has been constructed. The slurry shall be spread by hand."

B4605 MEASUREMENT AND PAYMENT

Item **Unit**

B46.01 Bituminous single seal with 20mm aggregate and slurry (Cape Seal)

In the heading to this item add the words:

"(excluding 2nd application of binder)."

Delete the unit and add the following subitems:

"(a) Grade 1 aggregate with first (coarse to medium grade)
slurry layer with a tack coat comprising:

(i) Polymer modified spray-grade emulsion of Class SC-E2 (70-73) (t)..... square metre (m^2)
(ii) Hot applied polymer modified bitumen binder of Class S-E1 ..... square metre (m^2)

(b) Extra over item B46.01(a) for 2nd (fine slurry fine grade) Slurry layer ……. square metre (m^2)"

In the measurement paragraph delete the word "complete", *and after the word* "slurry" *insert*;

"(excluding 2nd application of binder)".

Add the following at the end of the payment clause for this item:

"The cost of providing the first slurry seal over the final primed width shall be included in the rate for providing the seal with first slurry over the bituminous surfaced width."

Item **Unit**

B46.03 Bituminous binder variations

Amend (l) to read:

"(l) Polymer modified spray-grade emulsion of Class SC-E2 (70-73) (t) ..... litre (ℓ)"

Add the following subitem:

"(m) Hot applied polymer modified bitumen binder of Class S-E1 ..... litre (ℓ)"

Item **Unit**

B46.06 Slurry application rate variations ..... ton (t)

Replace the first paragraph of this item with the following:

"The unit of measurement for variations in the slurry application rate shall be the ton of dry, fine aggregate contained in the slurry. The variation in slurry application shall be based on the total final application of slurry including both layers together compared with the tendered or ordered rate as applicable."

Add the following new payment items:

“Item **Unit**

B46.09 Extra over sub-items B46.01 (a) and item B46.06 for the addition of natural sand from commercial sources to the aggregate of the slurry ..... **ton (t)**

The unit of measurement shall be the ton of natural sand from commercial sources, complying with the requirements of Table 4302/9, added to the slurry aggregate calculated from the proportion of natural sand ordered by the Employer’s Agent and the actual measured application of the slurry.

The tendered rate shall include full compensation for all additional cost for procuring and furnishing the sand from commercial sources, transporting the sand over an unlimited free-haul distance, and the mixing of the sand into the slurry aggregate.

B46.10 Second application of binder consisting of 30% spray grade cationic emulsion ..... litre (ℓ)

The unit of measurement shall be the litre of emulsion sprayed as specified and measured at the application temperature.

The tendered rate shall include full compensation for procuring and furnishing the binder and applying the second application of binder as specified."

SECTION 5100: PITCHING, STONEWORK AND PROTECTION AGAINST EROSION

B5101 SCOPE

Add the following paragraph to this section:

"This section also covers the furnishing of materials and the construction of cast in situ concrete paving for walkways."

B5102 MATERIALS

(a) Stone

Replace the 2nd paragraph with the following:

"Unless suitable stone can be located on site, the stone for pitching shall come from commercial sources but, from whatever source, its use shall be subject to the prior approval of the Employer's Agent."

(b) Cement

Delete the paragraph and replace with:

"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."

(c) Sand

(ii) Sand for bedding

Replace this sub-sub-clause with the following:

"Sand for bedding used for paving blocks shall not contain any deleterious impurities and shall comply with the requirements given in table B5102/1.

TABLE B5102/1

Sieve size (mm)	Percentage passing
10	100
5	95 – 100
2	73 – 86
1	43 - 78
0,600	25 – 60
0,300	10 - 30
0,150	5 – 15
0,075	5 - 10

Note: Refer to standard COLTO table for COLTO grading if required

B5108 MEASUREMENT AND PAYMENT

Amend this payment item to read as follows:

"Item **Unit**

B51.04 Concrete pavement

(a) Cast in situ concrete paving
(class of concrete and thickness of pitching indicated) ..... square meter (m^2)"

SECTION 5200: GABIONS

B5202 MATERIALS

(a) Rock

Add the following:

"The largest dimension of any rock shall not exceed 250 mm, and at least 85% by weight of the rock shall have a size equal to or larger than 125 mm. No rock shall pass through the mesh."

(b) Wire mesh

Add the following:

"The diameter of the wire and the size of the meshes shall be as follows:

Depth (m)	Mesh Size (mm)	Wire Diameter (mm)
Gabions : 0,5m and over	80 x 100	2,7
Mattresses : 0,2m to 0,3m	80 x 100	2,5

(f) Filter fabric below the gabions

Replace "subsubclause 2104(a)(iii) for grade 3 filter fabric" *in the first sentence with* "geotextile fabric grade 1 as specified below."

Add the following:

"(i) Composition and manufacturing

The synthetic-fibre filter fabric, or geotextile, shall be manufactured from a synthetic polymer processed into a permeable, homogenous sheet. Geotextile of non-woven construction is preferred, and woven geotextiles will be considered only if published data can be provided which show the satisfactory long-term performance of these geotextiles in an environment similar to that in which they are to be used.

On account of the temperature and moisture susceptibility of polyamide, this synthetic product is not considered acceptable.

(ii) Classification

The geotextile is classified according to the mechanical properties thereof, viz. its penetration load, puncture resistance and the minimum water-percolation rate as measured in the permeability test. The table below gives values for the properties.

Table B5202/2 Grade 1 Geotextile Properties

PROPERTY	GRADE 1	TEST METHOD
Penetration Load (minimum), N	3800	3,5 of SABS 0221-1988
Puncture Resistance (maximum), mm	14	Clause 8114
Water percolation (minimum) litre / m^2 / sec	20	3,7 of SABS 0221-1988
Mass per unit area (minimum), g/m^2	320	3,4 of SABS 0221-1988

Notes:

- The standard atmosphere for testing and the preconditioning atmosphere for all geotextile tests (SABS tests and others) shall have a relative humidity falling within the rate of 0 to 80% and a temperature within the range of 15ºC to 35ºC.

- The resistance of a geotextile to puncture is the average diameter of the hole formed when a 45º cone with a mass of 1 kg is dropped through 500 mm onto the geotextile fixed in the holding device.

(iii) Durability

A geotextile is required to comply with the following specification:

- Resistance to chemical attack."

B5203 CONSTRUCTING GABION CAGES

(c) Binding and Connecting Wire

Replace the existing paragraph with the following:

“Sufficient binding and bracing wire for all the tying to be done during construction of the gabions, as specified in clause 5204 below, shall be supplied with the gabions.

B5204 CONSTRUCTING GABIONS

(c) Assembly

Replace the existing first paragraph with the following:

“The method of constructing the gabion wall viz. stretching, placing in position, tensioning, supporting on temporary frames, bracing, filling with rock and tying by lacing shall generally be in accordance with the manufacturer’s instructions which have been approved by the Employer’s Agent. Nevertheless, a minimum of six internal bracing wires per square metre of face shall be tensioned between the vertical sides of all the outer visible cells to prevent the deformation of cages as they are being filled with rocks.

Tension on the cages shall be released only when fully packed at which point the temporary frames are removed and the lids laced down into place.

During assembly of the cages all sharp ends of wire shall be twisted towards the inside of the cages to prevent damage to the filter fabric.”

(d) Rock filing

(i) Boxes in gabion walls

Add the following:

“The practice of using sub-standard small stones in the upper levels of the basket to “make up” to the required level shall not be permitted.”

B5205 MEASUREMENT AND PAYMENT

Add the following items to this clause:

“Item **Unit**

Item	Unit
B52.05 Backfilling behind gabion retaining wall (G7)	cubic metre (m^3)

The unit of measurement shall be computed as the product of the height of the wall and the area between the back face of the wall and cut face, or as shown on the drawings.

The tendered rate shall be extra-over that for item B33.01 and shall include full compensation for all additional costs involved in protecting the walls, use of light compaction equipment and any other precautions necessary for the completion of the work.

Item	Unit
B52.06 Metallic reinforcing mesh: "gabion wire tails" (Terramesh or similar approved)	cubic metre (m^3)

The unit of measurement shall be the square metre of metallic mesh (Terramesh or similar approved) installed. The tendered rate shall include full compensation for the supplying of all the materials, labour, plant and equipment required for the operation.

SECTION 5400: GUARDRAILS

B5401 SCOPE

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

"and includes careful removal of all guardrails and posts for re-erection."

B5402 MATERIALS

a) Guardrails

At the end of the 1st sentence delete the full stop and add “or SANS 51317 and carry the SABS mark or a mark by any other SANAS approved certification body for the applicable SANS specification.”

(b) Guardrail posts

(i) Timber posts

Add the following to this sub-subclause:

“Timber posts and spacer blocks shall be treated with creosote.”

(ii) Steel posts

Replace the paragraph with the following:

“Where offered or instructed to be used, steel posts shall be part of an approved guardrail system as tested and complying with SANS 51317, and galvanized in compliance with the requirements of SABS 763 for type A1 articles, shall be used.

Where guardrails are placed on concrete retaining walls or concrete structures, the steel posts shall be of the type and size shown on the drawings or described in the project specifications.”

(c) Reflective plates

Replace “1,5 mm thick” in the second line with “1,2 mm thick, grade Z275 pre-galvanized sheet”

After the first sentence, add the following:

“Type D reflective plates shall be manufactured as follows: The base plate of 1,2 mm thick, grade Z275 pre-galvanized sheet and the front face reflector of 1,0 mm thick, grade Z275 pre-galvanized sheet.”

B5403 CONSTRUCTION

(a) Erection

In the second sentence of the first paragraph of this Sub clause amend "1 m" *to read* "1,2 m".

Replace the 7th paragraph with the following:

“Steel posts placed on concrete retaining walls or concrete structures shall be erected and fixed as shown on the drawings. For all other applications, steel posts shall be erected and fixed in compliance with the approved guardrail system as tested and approved in terms of SANS 51317.”

Add the following after the final paragraph:

"The Contractor shall complete the installation of all guardrails along a completed length of road constructed in half-width, before he will be permitted to open that length of road to traffic."

B5405 REMOVING, RENOVATING AND RE-ERECTING EXISTING GUARDRAILS

Add the following before the first paragraph to this clause:

"Where in situ reconstruction is to be carried out adjacent to guardrails, the Contractor shall carefully remove all elements to the guardrails, temporarily store the elements and re-erect them on completion of the layer works. The Employer’s Agent will indicate which materials are suitable for reuse. Any elements damaged as a result of negligent workmanship shall be replaced by the Contractor at his own cost. Materials that are suitable for reuse shall be cleaned and painted as instructed."

B5406 MEASUREMENT AND PAYMENT

Add the following new items to this clause:

“Item **Unit**

B54.14 Nailing of gang nail plates on top of timber guardrail posts..... number (No.)

The unit of measurement shall be the number of gang-nail plates supplied and fixed as specified.

The tendered rate shall include full compensation for supplying all materials and labour and for fixing to the top of the sealed guardrail post.”

SECTION 5500: FENCING

B5501 SCOPE

Add the following to this clause:

"This section also covers the repairing of existing fences that form part of the permanent work and/or routine maintenance."

B5502 MATERIALS

(a) Straining posts, stays, standards and droppers

Add the following:

"The straining posts, stays and intermediate posts shall be manufactured on site or at a location approved by the Employer's Agent.

(c) Wire

(i) Barbed wire

Add the following to this sub-subclause:

"Barbed wire shall be high-tensile-grade zinc-coated (heavy duty – fully galvanised) single-strand, 3,15 mm x 2,5 mm oval-shaped wire with a 2,82 mm equivalent diameter, for use at any height above ground.

Barbed wire shall be coloured yellow by a factory painting process integral with the galvanised process. No additional payment will be made and the cost thereof shall be deemed to be included in the tendered rates."

(ii) Smooth wire

Add the following:

"Smooth wire shall comply with the requirements of SABS 675 and shall be of the types specified below:

Straining wire shall be 4.0 mm diameter zinc-coated (fully galvanized) high-tensile grade steel wire.

Fencing wire shall be high-tensile grade steel 2.24mm diameter zinc-coated (fully galvanized) wire.

Fencing wire shall be coloured yellow by a factory painting process integral with the galvanizing process. No additional payment will be made and the cost thereof shall be deemed to be included in the tendered rates.

Tying wire shall be 2.5 mm diameter mild-steelcoated (heavy duty– fully galvanized) wire for tying fencing wire to standards and droppers and 1.6 mm mild-steel-zinc-coated wire for tying netting and mesh wire to the fencing wire."

(g) Gates

Add the following:

"Gates shall be zinc coated (fully galvanized)."

B5506 ERECTING STRAINING POSTS AND STANDARDS

To the second paragraph of this clause add the following:

"A 50 mm permeable drainage layer shall be placed below concrete backfill for timber posts."

Add the following to this clause:

"All vertical straining posts and corner posts shall be planted in holes backfilled with concrete in accordance with the details shown on the drawings."

B5514 MEASUREMENT AND PAYMENT

Item **Unit**

B55.02 Supply and erect new fencing material for new fences and for supplementing material in existing fences which are being repaired or removed

Replace subitem (i) of this item with the following:

"(i) Straining posts, corner posts, intermediate posts and anchors ..... number (No)"

*Wherever encountered in the measurement and payment clauses after "*straining post*", insert "*and corner posts,*".*

Add the following paragraph to the payment clauses:

"The tendered rate for items B55.02(a) and (b) shall include full compensation for colouring the wire yellow as specified."

Add the following items:

"Item **Unit**

B55.10 Concrete Class 20/20 as backfill to posts

The unit of measurement for concrete backfill for fencing shall be the cubic metre of concrete to the specified dimensions used of backfilling where ordered by the Employer's Agent. Where the specifications and drawings direct that concrete backfill shall be used in all cases, this concrete shall not be measured separately and the tendered rates for the various types of straining and corner posts, H-frame struts shall include for this concrete.

The rate tendered for each cubic metre of concrete backfill in position as ordered by the Employer's Agent shall allow for the procuring and furnishing of all materials needed, mixing and placing the concrete backfill and disposal of surplus excavated material."

Item **Unit**

B55.11 Repairing existing fences ..... kilometre (km)

The unit of measurement for repairing existing fences shall be the kilometre of existing fence repaired on the instruction of the Employer's Agent.

The tendered rate shall include full compensation for untying the existing fence (where necessary) and reinstating it. Tying of droppers and repairing and re-aligning of standards to the satisfaction of the Employer's

Agent as well as for coiling and stacking material unsuitable for re-use. Fencing material replaced shall be paid for under items 55.02 and 55.03.

If the existing fence is damaged by the Contractor's construction activities, the Contractor shall repair the fence at his own cost."

SECTION 5600: ROAD SIGNS

B5601 SCOPE

Replace “South African Road Traffic Signs Manual” *in the second paragraph with* “SADC Road Traffic Signs Manual”.

B5602 MATERIALS

(a) Structural steel

Substitute "Where specified, all structural steel" *in the second paragraph with* "All structural steel".

(c) Steel plate and steel profiles

i) Steel plate

Substitute "1,40 mm" *in the first paragraph with* "1,20 mm".

(g) Retro-reflective material

Add the following to this subclause:

“The retro-reflective material shall conform to a Class III material with a 7 year warranty grade.”

(e) Aluminium

Substitute "2,0 mm" *in the last paragraph with* "1,6 mm".

B5603 MANUFACTURING OF ROAD SIGN BOARDS AND SUPPORTS

Add the following to the third paragraph of this Sub-clause:

"All reinforcement frames required shall be supplied with an undercoat and a high quality sprayed finish. Where epoxy glue is used to fix sign boards to frames the glue shall last for the specified sign guarantee period."

a) Road signboards

Add the following:

“The contractor shall make every effort to ensure that signboards are correct in all respect and before dispatching the boards from the manufacturer’s factory shall provide the Employer’s Agent with a 100mm x 150mm colour photograph of each sign face for approval of the correctness of the legend. Such approval will not imply final acceptance of the board. If the contractor is in any doubt as to the correctness of the sign detail, the sign designer shall be contacted for verification.”

(ii) Steel profile road signboards

Add the following:

“Chromadek section shall be assembled in accordance with the details of Standard Plans 1051-04-RS-D14 to 1051-04-RS-D23.

Where the letter or legends cross the horizontal joints of the sign panels, the letter shall be cut on the joint and both ends folded around the radius.
Retro-reflective material to adjoining Chromadek panels on a sign shall be practical visual match of the specified colour."

(f) Road sign supports

Replace the first paragraph of this subclause with the following:

"Supports for large ground mounted signs (sign area > 2 m²) shall be constructed in accordance with the details shown on the drawings. Where the details provided do not suit the framework and attachment details of the road sign boards proposed for use, the Contractor shall design new supports and submit the details to the Employer's Agent for approval before manufacture. Small ground mounted signs (sign area < 2 m²) shall be constructed in accordance with the details shown on the drawings."

B5604 ROAD SIGN FACES AND PAINTING

(a) Colours, symbols and legends

Add the following paragraphs to this Sub-clause:

"All reflective signs shall be solid colours and not silk screened. Non-reflective borders, diagonals, letters and legends on non-reflective signs shall be made of cast vinyl material with a seven year durability. Colour impregnated reflective material shall be used and applied according to the requirements of the sheeting manufacturer.

All symbols, letters and numerals shall be applied with a single piece of material. All borders shall be restricted as follows:

Round signs - not more than four pieces
Octagonal signs - not more than eight pieces
Triangular signs - not more than three pieces

Diagonals and all other sign components shall be restricted to the minimum number of pieces required.

Overlap between adjacent pieces shall be a minimum of 10 mm."

Add the following sub-clause:

"**e) Application of retro-reflective material**

All sign faces shall be faced with retro-reflective material. Painted front sign faces shall not be used.

Where applied to Chromadek sections, retro-reflective material shall be applied as specified for aluminium section in Clause 5603(d) of the Standard Specification, and of Clause B5603(a)(ii) of this Project Specification."

B5605 STORAGE AND HANDLING

Add the following:

"The following shall not be allowed on the sign face:

- Drilling of holes, except for the fastening of overlays
- Application of any form of adhesive

- Cleaning with any chemicals that are not specifically approved by the manufacturer of the retro-reflective material
- Covering the sign face with an impermeable material that does not allow free circulation of air."

B5606 ERECTING ROAD SIGNS

(b) Excavation and backfilling

In the first sentence of the first paragraph of this Sub-clause after "shown on the drawings" *insert* "or as directed by the Employer's Agent."

Add the following:

"A 50 mm thick permeable drainage layer shall be placed below concrete or soil-cement backfill for timber posts. No additional payment will be made and the cost thereof shall be deemed to be included in the tendered rates".

c) Erection

Add the following:

"After erection the signboard shall be thoroughly cleaned with a cleaning agent approved by the retro-reflective material's manufacturer.

All vegetation obstructing the new or replaced sign board shall be removed and disposed of as instructed by the Employer's Agent."

B5608 DISMANTLING, STORING AND RE-ERECTING EXISTING ROAD SIGNS

Add the following:

"Existing overhead and ground mounted road signs that are being replaced by new signs shall be dismantled and disposed of by the contractor. Where possible the dismantling of the signs shall not be before the replacement sign is erected and displayed. Where dismantling of the sign is required before erection of the replacement sign, the dismantling shall not take place until immediately before work is to commence on the replacement, and the replacement shall be completed and the new sign displayed as soon as possible thereafter (within 72 hours).

Dismantling shall include sign panels and ground mounted sign supports.

Ground mounted sign supports shall be cut off just below ground level. Material excavated for removal of buried poles shall be replaced, and any depression made good using excess material from excavation for new signs.

Payitems are provided in the Pricing Schedule. Payment will differentiate between different types of sign panels."

B5609 MEASUREMENT AND PAYMENT

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 I retro-reflective material, where the sign board is constructed from:

(c) Pre-painted galvanized steel plate (Chromadek 1,2 mm thick or approved equivalent):

Add the following sub-item to this sub-item:

"(iv) Signs measured by number (state type and dimensions) ..... number (No)"

Amend the last two lines of the second paragraph of this item to read:

“completion, delivery, installation of the road sign board complete as specified, and the removal and disposal of all vegetation obstructing the motorists’ view of the new or replaced sign board.”

Item **Unit**

B56.05 Excavation and backfilling for road sign supports (not applicable to kilometre posts)

Substitute "not in concrete" *in the first paragraph with* "not in concrete or a soil/cement mixture".

Add the following pay items:

“Item **Unit**

B56.10 Danger plates at culverts/structures (state type and dimensions) ..... number (No)

The unit of measurement shall be the number of danger plates provided and erected in accordance with the drawings.

The tendered rate shall include full compensation for all labour and material, painting, posts, excavation, backfilling with soil etc., as may be necessary for completing the work in accordance with the details shown on the drawings.”

Item **Unit**

B56.11 Extra over item 56.05 for concrete backfill Class 20/20 (excluding marker signs) ..... cubic metre (m^3)

The tendered rate shall cover full compensation for the supply of concrete and for backfilling signpost holes with concrete as specified as shown on the drawings or as directed by the Employer’s Agent on site.”

SECTION 5700: ROAD MARKINGS

B5701 SCOPE

*Replace "*South African Road Traffic Signs Manual" *in the second paragraph with* "SADC Road Traffic Signs Manual".

Replace the words "ordinary road marking paint" *with* "solvent borne road marking paint".

Replace "BS 3262" *with* "EN 1436".

B5702 MATERIALS

Insert the following before subclause (a) Paint:

"The selection of the appropriate road marking paint and materials for permanent road markings to ensure conformance with the requirements of this specification rests with the Contractor. Such paint and material shall have technical characteristics (brightness, luminance, skid resistance, durability) equal to or greater than road marking paint and materials specified in subclauses 5702(a), (b) and B5702(c).

Where plastic road-marking material (hot-melt plastic (also known as thermoplastic) and two-component (also known as cold plastic)) is used, the contractor shall obtain an approved guarantee from the manufacturer that the paint complies with the specification. This shall be submitted to the Employer's Agent on request.

Information of the type of road marking material utilized and application rates for each order shall be included in the quality control processes.

Normally road markings applied within 3 months of bituminous surfacing are deemed to be temporary road markings. For the purposes of clarity within this project, however, permanent road marking shall be deemed to be those applied within 3 months of bituminous surfacing in their permanent positions. Temporary road markings shall be deemed to be road markings applied on surface treatments prior to placing of the final surfacing of the road, or those applied in a position which is not the final position."

(a) Paint

Replace sub-subclause B5702(a)(i) with the following:

"(i) Road marking paint

Road marking paint shall be Type 1 as specified in SANS 731-1. Only paint, manufactured in a SANS approved and accredited facility shall be accepted. The no-pick-up time of road-marking paint shall comply with the Class 1 requirement in accordance with SANS 731-1.

The paint shall be delivered at the site in sealed containers marked in accordance with SANS 731-1.

The viscosity of the paint shall be such that it can be applied without being thinned down."

(ii) Retro-reflective road-marking paint

Add the following:

"During actual painting the Contractor shall supply sealed samples of the paint to be used to the Employer's Agent together with details of the paint batch numbers and testing carried out on these particular batches by

the paint manufacturer to prove compliance with this specification. These samples shall be kept until the end of the defects liability period."

(iv) Colour

Change the title to read:

"(iv) Colour, luminance and coefficient of retro reflection"

Amend the last sentence to read as follow:

"The colour and luminance shall as specified in Chapter 7 of Volume 1, Part 3 of SADC Road Traffic Signs Manual. The coefficient of retro reflection shall be a minimum of 150 minicandelas/lux/m² for white new material, and 100 minicandelas/lux/m² for yellow new material, as tested within 2 to 6 weeks of application."

Add subclause (v):

"(v) Other road marking materials

The Contractor may use other road marking materials which would ensure more durable markings and which would meet the specified performance criteria.

Such materials should comply with a standard set by a recognized national standards institution. Information on such materials and the standards to which they comply shall be submitted to the Employer's Agent."

Add the following subclause:

"c) Retro-reflective beads

Retro-reflective glass beads shall be applied to the wet paint, thermoplastic and cold plastic.

The beads shall comply with Class A beads in accordance with EN 1424: 1998, with the following requirements or as approved by the Employer's Agent:

- Colour : crystal clear
- roundness : > 80%
- size range of : 14 – 200 US Mesh (75 – 1400 Microns)
- refractive index : > 1.5
- specific gravity : ± 2.5

Cumulative retained mass		
Sieve	**Minimum**	**Maximum**
1700	0	2
1400	0	10
1180	5	30
850	40	80
600	70	100
425	80	100
355	90	100
212	95	100
Pan	100	100

The beads shall be delivered to the site in sealed bags, marked with the name of the manufacturer, the batch number and an inspection seal of SANS, confirming that the beads form part of a lot tested by SANS and comply with the requirements of EN 1424: 1998. Alternatively, the Contractor shall at all times have a SANS certificate on the site, identifying the batches to which the inspection seals apply and certifying that they have been tested by SANS, and comply with the requirement of EN 1424: 1998."

B5704 MECHANICAL EQUIPMENT FOR PAINTING

Add the following sentence at the end of the first paragraph:

"The road-marking machine shall be fitted with a device to guide the operator to the centre of the line to be painted. This device shall be used at all times of operation."

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, dry and non-flaky 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."

B5706 SETTING OUT THE ROAD MARKINGS

Insert the following before the first paragraph:

"Where road markings are to be replaced after any construction activity, it is essential that all existing road marking be accurately surveyed and referenced before commencement of such construction activities which will obliterate the existing road markings. The position of barrier lines shall be re-assessed on site by the Employer's Agent before the Contractor commences with the road marking."

B5707 APPLYING THE PAINT

Insert the following before the first paragraph:

"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.

Provision is also made under item B57.07 for de-establishment and re-establishment in the contract or defects notification period if such action is required by delays not attributable to the Contractor and/or ordered by the Employer's Agent."

Replace the sixth paragraph with the following:

"All road marking materials shall be applied at a rate decided upon by the Contractor taking into cognisance of the conditions on the road and ensuring that the performance specifications are met, but shall be a minimum of 0.42 litres/m².

In order to ensure proper coverage on all types of surfaces the Employer's Agent may order an increase in the above nominal application rates. Payment for these variations in application rates shall be made under item 57.04.

A daily log-sheet, provided by the Employer, shall be completed and signed by the Contractor and the Employer's Agent's representative, recording the quantities of paint and glass beads used on that day and shall be available for inspection at all times. The completed and signed log-sheet for the period covered by a payment certificate shall be attached to the payment certificate."

Replace the last paragraph with the following:

"Solvent-based road marking as specified by the Employer's Agent shall be carried out within 14 days of opening the road full width to traffic after the completion of the surfacing.

If in the in the opinion of the Employer's Agent, conditions are unsafe, the centre-line shall be painted immediately after 2,0 km of continuous road has received a new asphalt layer, or 4,0 km of continuous road has received a new seal surfacing.

All road markings shall be applied with due cognisance of future road marking work, and shall be compatible with subsequent, envisaged road marking work."

B5708 APPLYING THE RETRO-REFLECTIVE BEADS

*In the first paragraph, replace the nominal application rate of 0,8kg/litre with "*400g/m²*".*

Add the following:

"Beads shall be applied in accordance with EN 1424.

The rate of application and the distribution of the beads on permanent road markings shall be sufficient to ensure that the retro-reflective requirements are met as specified, but shall not be less than 0.34 kg/m2 of marking."

B5710 TOLERANCES

(c) Alignment of markings

Add the following paragraphs to this subclause:

"When an unbroken line and a broken line are painted alongside each other, the beginning and the end of the unbroken line shall coincide with the beginning of one broken line and the end of another broken line. When existing lines are repainted, the new markings shall not deviate more than 100mm in the longitudinal direction nor 10mm in the transverse direction from the existing marking.

The alignment of the road studs shall not deviate from the true alignment by more than 10mm and shall be positioned so that the reflective faces are within 5° of a right angle to the centre line of the road."

Add the following subclause:

"e) Testing

(1) Plant

Before painting any permanent road markings, the Contractor shall satisfy himself and the Employer's Agent, by painting test lines on a section of pavement other than the section required to be marked:

- that the painting machine is in good working order and properly adjusted;
- that the operator is fully experienced; and
- that the machine sprays at the specified rate of paint application.

The Contractor shall bear the cost of all materials and workmanship required for the above plant tests.

In addition, the Contractor shall conduct random paint thickness tests and dip/spread tests as required by the Employer's Agent."

B5711 GENERAL

Replace the third paragraph with the following:

"The Contractor shall guarantee that permanent road markings shall meet the minimum initial requirements as specified in Chapter 7 of SADC Road Traffic Signs Manual."

Add the following:

"The Contractor shall ensure that all roadstuds which have been affected by the painting will be cleaned without damaging the lens elements of the roadstuds. Such cleaning will be done within 24 hours after the studs have been affected by the painting."

*Insert the following into the last sentence of the last paragraph between "*black paint*" and "*or chemical paint remover*":*

", bituminous emulsion, slurry"

Add the following to the last paragraph:

"Where black paint is used, it shall be matt."
Add the following clause:

"The Contractor shall provide temporary traffic control facilities in accordance with Section 1500 of the COLTO's standard specifications for road and bridge works to ensure traffic safety where work is being executed.

Property and/or road signs damaged by the Contractor, his personnel, his agents or sub-contractors shall be repaired or restored to their condition prior to the damage at his own cost."

B5712 FAULTY WORKMANSHIP OR MATERIAL

Add the following paragraphs to this item:

”The Contractor shall rectify in an acceptable manner and at his own costs; all marking that do not comply with the specified requirements.

While work is in progress, tests shall be carried out on materials and/or the quality of work to ensure compliance with the specified requirements. The sampling methods are specified in SANS 731-1. The sampling methods described in TMH5 shall be followed where applicable.”

B5713 PROTECTION

Add the following paragraph

”Traffic cones shall not be smaller than 750mm in height and shall be placed on the road not further than 48m apart. Cones shall not be removed before the paint on the road has hardened to such an extent that it will not be damaged by traffic and the adhesive of the road studs has hardened to such an extent that the studs will not turn or become loose. All marks on the road caused by traffic driving over wet paint shall be removed by the Contractor at his own cost.”

B5714 MEASUREMENT AND PAYMENT

Item **Unit**

B57.06 Setting out and pre-marking the lines (excluding traffic island markings, lettering and symbols) ..... kilometre (km)

Add the following to the payment clause:

“Referencing of existing barrier lines and other road marking lines prior to milling and other operations, shall be included in the tendered rate for setting out and pre-marking.”

Amend payitem 57.07 by replacing the payitem with the following:

“Item **Unit**

B57.07 Re-establishing the painting unit:

(a) During the contract period .....lump sum

(b) During the defects notification period, including accommodation of traffic .....lump sum”

In the 4th line of the 1st paragraph delete the word “maintenance” and replace with “defects notification”.

SECTION 5800: LANDSCAPING AND GRASSING

B5801 SCOPE AND DEFINITION

(a) Scope

Add the following to this subclause:

"Vegetation shall be established on deviations, borrow pits and other areas as directed by the Employer's Agent using hydro seeding techniques."

B5802 MATERIALS

(a) Fertiliser/soil-improvement material

The types of fertilisers shall be as follows:

Type	Application rate (kg/hectare)
2:3:2(30)	400
Super phosphate	500
Lime	250
L.A.N.	50
Total kg per hectare	1200

(c) Grass seeds

Add the following to this subclause:

"The grass seed mixture shall be as follows:

(1)	Cynodon dactylon	3.7 kg/ha
(2)	Tragus bertoronianus	2.5kg/ha
(3)	Heterogon contortus	15.0kg/ha
(4)	Chloris gayana	5.0kg/ha
(5)	Eragrositis curvula	7.5kg/ha
(6)	Chloris virgata	0.5kg/ha
(7)	Digitaria eriantha	2.5kg/ha
(8)	Melinis repens	2.0kg/ha
(9)	Aristida congesta subso, Congesta	0.8kg/ha
(10)	Cymbopogon excavatus	2.5kg/ha
	Total	42.0kg/ha

All seed used shall be labelled in accordance with the Government Seed Act No. 28 of 1961 or amendment thereof. The Contractor shall furnish the Employer's Agent with signed copies of a statement from the seed merchant certifying that each container of seed delivered is fully labelled in accordance with the Government Seed Act. This certification shall appear on, or be submitted with, all copies of invoices for the seed."

(f) Anti-erosion compounds

Add the following to this subclause:

“Where directed by the Employer’s Agent Surfasol soil stabilizer (or similar approved anti-erosion products) shall be applied at a rate of 150 kg/ha.”

(g) Topsoil

Add the following to this subclause:

"Prior to commencing any earthmoving operations, the Contractor shall strip and stockpile all topsoil, to a depth of 150 mm or as otherwise instructed by the Employer’s Agent, within the working area and construction camp for subsequent use in the rehabilitation and re-vegetation of the site. Topsoil shall be stripped in a phased manner, so as to retain vegetation cover for as long as possible. Topsoil from different soil types shall be stockpiled separately and replaced in the same areas from which they were taken.

Topsoil thickness in certain areas may exceed the thickness instructed by the Employer’s Agent but the Contractor shall not strip topsoil beyond the instructed thickness. Such material will be measured and paid for as “cut to spoil” or any other classification, as ordered by the Employer’s Agent.

The Contractor shall ensure that stockpiled material does not blow or wash away. If the topsoil is in danger of being washed or blown away, the Contractor shall cover it with a suitable material, such as mulch and/or seed it with a fast-growing annual grass.

Topsoil material shall be stockpiled for as short a period as possible. Stockpiles shall be monitored at weekly intervals to identify invasive plants, which shall be removed when they germinate, to prevent contamination of the seed bank. Stockpiles shall not be covered with materials, such as plastic, that may cause it to compost, or kill any seeds."

5804 PREPARING THE AREAS FOR PLANTS

(c) Areas which require topsoil

Add the following to this subclause:

"Prior to top soiling, the Contractor shall remove all remnants of building materials, concrete foundations, timber and other foreign debris from the site.

Before placing topsoil, the Contractor shall remove all visible weeds from the placement area and from the topsoil. The area to be re-vegetated shall be ripped or scarified as directed by the Employer’s Agent.

The stockpiled topsoil shall generally be spread evenly over the prepared surface to a depth of 75 to 150 mm on flat ground or to a minimum of 75 mm on slopes of 1:3 or steeper."

B5805 GRASSING

(c) Hydroseeding

Add the following to this subclause:

“A minimum of 4500 litres of water per hectare shall be applied with the hydroseeding mixture to ensure proper distribution of all the ingredients.

The hydroseeder shall be capable of pumping the specified seed mix, fertilizer and soil stabiliser (mixed in water) at the specified rates over the areas to be seeded. The slurry distribution lines shall be large enough to prevent stoppage, and the discharge line shall be equipped with a set of hydraulic spray nozzles suitable for the even distribution of the slurry on the various slopes to be seeded.

Hydroseeding machines shall be thoroughly cleaned after each operation and before different seed mixes of different origins are introduced into it. The mixture shall be kept uniform during the seeding operation by means of a power-driven agitator."

(f) Sowing by hand

Delete the following from this subclause:

"If approved by the Employer's Agent,"

Add the following to this subclause:

"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

(a) Time for planting

Add the following to this subclause:

"The Contractor shall not begin planting work until all construction activities in the area to be vegetated have been completed. Hydroseeding shall be carried out either during April, May or June."

(e) Responsibility of establishing acceptable cover

Add the following to this Sub clause:

"Establishment of acceptable cover shall include maintaining the surface to the required slopes and levels without erosion or sedimentation, watering, weeding, fertilising, disease and insect pest control and any other procedure consistent with good horticultural practice necessary to ensure normal, vigorous and healthy growth of the plant material on site.

In the absence of adequate rainfall, all seeded areas shall be watered once weekly, during the first month, and once every two weeks during the second month. Rainfall of less than 60 mm in the first month and less than 45 mm in the second month is regarded as inadequate water supply. Watering should be carried out from a tanker, using a fine nozzle spray to avoid erosion and disturbance of the vegetation. The Contractor shall supply all water required for irrigation during the establishment period and shall provide all plant necessary for the operation.

As part of establishment, the Contractor shall be responsible for topdressing the re-vegetated areas with L.A.N., at a rate of 150 kg/ha, in August/September and April. The Contractor shall also be responsible for monitoring and controlling all alien/invasive vegetation and implementing appropriate erosion control and remediation measures, as approved by the Employer's Agent."

B5809 MEASUREMENT AND PAYMENT

Add the following pay item:

"Item **Unit**

B58.12 Removal of undesirable vegetation

(a) Within the road reserves ..... kilometre (km)

(b) Borrow and quarry areas ..... hectare (ha)

The unit of measurement for sub items (a) and (b) above shall be the linear kilometre measured along the road centreline and within the road reserve, and the hectare measured in borrow and quarry areas respectively and measured each time the Contractor has been instructed by the Employer's Agent to remove the undesirable vegetation under these pay items. These items shall not be payable in respect of undesirable vegetation that has occurred within areas affected by construction activities, which are considered a contractual obligation (5807(e)).

The tendered rates 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 6100: FOUNDATIONS FOR STRUCTURES

B6105: EXCAVATION

(g) The safety of excavations

Add the following to this subclause:

"Where in the opinion of the Employer's Agent local conditions dictate, excavations will have to be temporarily shored by means of an approved lateral support system to safeguard the stability of the excavated faces, this being particularly imperative adjacent to road, rail or pedestrian traffic.

The Contractor shall submit to the Employer's Agent for his approval and prior to the commencement of the work, the design calculations and detailed drawings and installation procedures for all shoring. The design and detailing shall be undertaken in accordance with recognized current applicable design codes and good practice with due allowance for the effects of all loadings including that of traffic. Both the design and drawings and procedures shall be certified by a registered Professional Engineer, knowledgeable in such matters, as satisfying all the necessary requirements.

The installation of the shoring together with excavation and subsequent backfilling and progressive removal of the shoring shall be undertaken strictly in accordance with the approved drawings and procedures. Where called upon by the Employer's Agent, the work shall be inspected and approved in writing by the said Professional Engineer to be in accordance with the approved design. Any ground anchorage that may be used in the shoring system shall be proof loaded to at least 125% of the working load of the anchorage and accepted by the Employer's Agent prior to undertaking any further excavation stages. Such authority and acceptance shall not relieve the Contractor of his responsibility for the adequacy of the shoring and excavation.

The excavations shall be adequately protected by a barrier fence marked with reflective tape and of height at least 1,0 m erected as close to the excavation as practical. In addition red warning lights shall be provided at night. The Contractor shall employ watchmen to ensure that the barricades and lights are effective at all times.

No separate payment will be made for any cost incurred in complying with the above requirements, the cost thereof being deemed included in the relevant rates for excavation."

B6109 FOUNDATION FILL

Add the following 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 Employer's Agent."

SECTION 6200: FALSEWORK, FORMWORK AND CONCRETE FINISH

B6204 DESIGN

(a) General

Add the following:

"The Contractor shall submit the design calculations and drawings, certified by a registered Professional Engineer to comply with all applicable safety regulations regarding strength and stability for all loads that can be anticipated, of the false work and formwork required for all construction work to the Employer's Agent for consideration and approval. Final erection of the false work and formwork shall be inspected and approved in writing by the said Professional Engineer to be in accordance with the approved design prior to the casting of any concrete.

Notwithstanding anything to the contrary implied in the General Conditions of Contract, the Contractor takes sole responsibility for the safety and adequacy of the false work and formwork in accordance with clause 6203 of the Standard Specifications."

B6205 CONSTRUCTION

(b) Formwork

(ii) Formwork to exposed surfaces

Add the following:

"The formwork at construction joints shall have moulding strips 25mm x 25mm neatly butted and set at the position of the construction joint."

SECTION 6300: STEEL REINFORCEMENT FOR STRUCTURES

B6302: MATERIALS

(a) Steel bars

Add the following:

"Unless specified or directed otherwise by the Employer's Agent, all steel reinforcing bars shall be either high yield stress hot-rolled deformed bars (Y-bars) or mild steel hot-rolled plain round bars (R-bars) as indicated on the drawings.

Cold-worked reinforcing bars will not be permitted.

Substitution of mild steel reinforcement as indicated on the drawings by an equivalent area of high yield stress reinforcement or vice versa will not be permitted."

B6306 PLACING AND FIXING

Add the following:

"Spacing of steel bars shall be as specified on the drawings and shall be within the following tolerances:

Specified bar spacing 150mm or less:	±10mm
Specified bar spacing exceeding 150mm:	±15mm

Overlap of steel reinforcement bars shall be such that the cover to the lapped bars remains constant at the specified cover."

B6307: COVER AND SUPPORTS

Add the following at the end of the fifth paragraph:

"Concrete cover 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 colour, shrinkage, thermal movements and strain are minimised. Cover blocks shall be cured by submersion in water for a minimum of 7 days and thereafter kept submerged in water until immediately before fixing onto reinforcing steel. Where 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."

SECTION 6400: CONCRETE FOR STRUCTURES

B6402: MATERIALS

(a) Cement

Add the following:

"Cement used for structural concrete in the Works shall be one the following to SANS 50197-1:

CEM ll A – L/M or CEM II B – S, strength class 32,5N or higher.

No site blending of cement and cement extenders such as fly ash or slag will be permitted. The source of supply for each type of cementitious material shall not be changed during the contract period, unless approved in writing by the Employer's Agent and subject to submission and approval of new mix designs in accordance with clause 6404(b) below.

Where the Contractor desires to use alternative cements or cement blends these shall bear the SANS mark of approval and he shall separately with his tender furnish full details thereof, together with any savings he may wish to offer. The use of alternative cements or cement blends shall however be subject to the prior written approval of the Employer's Agent and satisfactory completion of any tests the Employer's Agent may require to be carried out in connection therewith and at the expense of the Contractor.

The Contractor shall submit certificates from the supplier indicating compliance with the requirements of SANS 1491 for any cement extenders used in blending the cement.

Test certificates from an approved laboratory shall be furnished by the Contractor for all cements and prior to their use in the works, indicating the alkalinity of the cement expressed as the percentage sodium oxide equivalent ($\%Na_2O + 0{,}658(\%Ka_2O)$). Cement with such an alkalinity content in excess of 0,60% shall only be used with the written authority of the Employer's Agent regardless of whether or not the aggregates are considered to be potentially alkali reactive."

(b) Aggregates

Replace subclauses (i)(1) & (2) and the 2nd last paragraph of subclause (i) with the following:

"The aggregates used in all structural concrete for this contract shall be from approved sources known to produce aggregates with low shrinkage and low water demand characteristics. In any event, the shrinkage of both fine and coarse aggregates when tested in accordance with SANS Method 836 shall not exceed 130% of that of the reference aggregate. Test certificates from an approved laboratory shall be furnished by the Contractor for all aggregates and prior to their use in the works indicating the actual shrinkage characteristics of the aggregates."

Add the following to subclause (iv):

"Test certificates from an approved testing authority shall be furnished by the Contractor for all aggregates and prior to their use in the works, indicating the potential alkali-silica reactivity. Where, in the opinion of the Employer's Agent, any aggregate shows potential reactivity, then the use of such an aggregate in the works shall only be permitted if the total alkali content of the concrete as determined from all its constituents does not exceed between 2,1 kg/m^3 to 2,8 kg/m^3 depending on the assessed severity of the potential reactivity of the aggregate, and then only with the written authority of the Employer's Agent."

(f) Curing agents

Add the following:

"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.

Full technical specifications and product data sheets as well as samples of not less than 1 litre of the proposed curing agents shall be submitted to the Employer's Agent for approval, and no curing agent shall be used unless approved by the Employer's Agent."

B6404: CONCRETE QUALITY

(a) General

Add the following:

"All concrete on this contract shall comply with the requirements for strength concrete as specified in sub clause 6404(b)."

(b) Strength concrete

Add the following:

"Concrete mix designs shall be submitted to the Employer's Agent for approval at least two weeks prior to casting the concrete and shall for each mix include the following:

- Target strength and slump
- 7 and 28 day compressive strength results with measured slumps
- Cement source and type
- Brand and dosage of any admixtures
- Proportions of all constituents in the mix
- Cement quality certificates including the Na_2O equivalent
- Certificates of compliance iro any cement extenders used (SANS1491)
- Data sheets for admixtures
- Aggregate source and test results to confirm compliance with SANS 1083, including grading, flakiness and FM
- Shrinkage characteristics and potential alkali reactivity of fine and coarse aggregate

No concrete mix designs will be considered for approval until all the above-mentioned data has been submitted and no concrete may be placed until such time that the concrete mix has been approved by the Employer's Agent."

(d) Consistence and workability

Add the following:

"On-site slump measurements for all structural concrete used in the works and taken at the time of actual placing shall fall within the range 75±25 mm."

B6405 MEASURING THE MATERIALS

Add the following:

"All concrete for structures shall be manufactured by mechanical mass batching."

B6406: MIXING

(f) Ready-mixed concrete

Add the following:

"Delivery tickets for all ready-mixed concrete delivered to site shall be checked to ensure the correct mix has been delivered and the time of arrival recorded and compared to the time of batching to ensure consistency with the expected travel time and that no undue delay has occurred between dispatch and delivery.

The rate of change in concrete properties shall be closely monitored. When, in the opinion of the Employer's Agent, the workability drops to the extent that the concrete cannot be satisfactorily placed and compacted with the available equipment and manpower it shall be deemed unsuitable for use and removed from the site of the works. Under no circumstances shall any water be added to maintain or reinstate workability."

B6409 CURING AND PROTECTION

Add the following to the end of this subclause:

"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.

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.

Surfaces with an unformed finish e.g. top of deck slab, shall be protected immediately 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 Employer's Agent."

B6414: QUALITY OF MATERIALS AND WORKMANSHIP

(a) Criteria for compliance with the requirements

Add the following:

"Routine inspection and quality control will be done by the Employer's Agent as specified in Section 8300. All reference in clause 6414 to Section 8200 and its clauses or sub clauses shall be deleted."

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

B6603 JOINTS IN STRUCTURES

(a) Materials

(i) General

Add the following:

"Joints between abutting precast concrete deck slabs of the small box culverts shall be sealed against ingress of fines by placing a 300 mm wide Grade 2 Geofabric symmetrically over the joint on the tops and sides of the deck slabs. Grade 2 Geofabric is defined in Table 2104/2 in Section 2100. The geofabric shall be impregnated with cement paste to ensure adequate adhesion to the deck slab without reducing its ability to allow the passage of water. The cement paste shall consist of ordinary cement mixed with enough water to create a weak cement slurry. To this end a mix of 1 part by mass of cement with 6 parts of water is envisioned, but this can be altered to provide the desired consistency."

B6608 MEASUREMENT AND PAYMENT

Item **Unit**

B66.08 Sealing joints with:

Add the following subitem:

(c) Cement-impregnated geofabric as described in subclause B6603(a)(i)..... meter (m)

Add the following to the measurement and payment clauses:

The unit of measurement shall be the meter of joint sealed as specified.

The tendered rate shall include full compensation for supplying all materials, cutting the geofabric to the required width, impregnating the geofabric with cement paste as specified, applying the geofabric and all labour, equipment and incidentals required for covering the joint complete, and for all waste materials."

SECTION 8100: TESTING MATERIALS AND WORKMANSHIP

B8103 THE COSTS OF TESTING

(a) Process control

*Rename the heading as "*Materials Quality Control*" and replace the contents with the following:*

"Testing shall be undertaken by a combined laboratory facility for process control (where the process control testing can be utilised as acceptance control), acceptance control and correlation testing subject to the following requirements laid down by the Employer:

(i) The Contractor accepts 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. The Contractor shall apply in writing, quoting this clause, as to which specific tests are in doubt, providing test reference numbers and details as to the reasons why the test result is in doubt.

(ii) The Contractor accepts that the Employer's Agent will be in charge of the combined laboratory.

(iii) The Contractor will be allowed to place a permanent representative in the combined laboratory to observe the laboratory operations. The cost of such representation cannot be claimed as a payment contribution towards payment item B81.04 but will be for the account of the contractor. The contractor shall indicate in writing within 14 days of the commencement date if such representation will be required or declined.

(iv) The Contractor shall appoint the site laboratory service provider within two weeks of the main contract award.

(v) The requirements in terms of the combined laboratory shall be specified in the sub-contract based on the Employer's pro-forma document.

(vi) The combined laboratory shall be procured using the Employer's latest site laboratory pro-forma through an open tender process. The laboratory shall be a SANAS accredited laboratory or operate under the umbrella of a SANAS accredited main laboratory that shall be responsible for ensuring that all sampling and testing is carried out accurately and strictly in accordance with the relevant test methods as well as the SANAS accreditation requirements.

(vii) The appointment of the appropriate laboratory shall be approved by the Employer.

(viii) Provision for the erection of a site laboratory building, together with workbenches, services, furniture etc. will be made separately under the contract.

(ix) The type of laboratory envisaged for this contract is as follows:

- Soils Laboratory
- Concrete Laboratory
- Seal Laboratory

(x) The Contractor's financial contribution for the combined laboratory shall be 30% of the total costs of the combined laboratory. These costs shall cover the Contractor's contribution towards the establishment and operation of the combined laboratory over the contract period including any approved extension of time and shall be deducted monthly from the Contractor's payment

certificates over the contract period. However, excluded from the tendered contribution shall be the costs of all other special tests requested by the Employer's Agent.

On the basis described above the Contractor's estimated contribution is a total of **R 4 050 000.00** (excluding VAT) of the total costs. Should the estimated costs increase or decrease, the Contractor's 30% contribution shall be adjusted accordingly.

The total cost of the combined laboratory for the 36 month contract construction period has been estimated at R 13 500 000.00 (including escalation and excluding VAT).

The estimated cost per month to establish and operate the combined laboratory for the contract period as listed above, allows for the following items:

(i) Establishment of laboratory buildings
(ii) Salaries and labour for all laboratory staff members
(iii) Housing for all laboratory staff members
(iv) Transport requirements (based on distance) for staff and material testing
(v) Provision of laboratory equipment (as required for the contract)

A pay item for the monthly contribution from the Contractor's interim payment certificates has been provided under payment item B81.04.

The Employer will not be prepared to consider claims for delays to the Works resulting from the awaiting of test results or approval of designs submitted. It is in the Contractor's interest to submit samples for design approvals as early as possible in order to expedite any design approvals required. Testing will be effected as promptly as possible but it is in the Contractor's own interest to submit material samples, concrete cubes, other components required for testing or requests for approval of fill or layer in good time in order to assist in avoiding or reducing delays."

B8105 TESTING THE AGGREGATES

Add the following subclause to this clause:

"(g) Determination of Ethylene Glycol Durability Index

The Ethylene Glycol Durability Index shall be determined as follows:

1) Apparatus

Suitable pans or basins
Ethylene Glycol solution
Stirring rod

2) 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, allow to settle and 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 has elapsed.

3) 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 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.

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.

TIME CLASS

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

4) 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."

B8110 TESTS RELATING TO CHEMICAL STABILISATION

Add the following sub-clause:

"**(d) The Wet-Dry Durability Test for cement-treated materials using the hand brush 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 5.3).

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 25ºC, 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 25ºC.

2.3 A balance to weigh up to 10 kg, accurate to 0,5 g.

2.4 A drying oven capable of maintaining temperatures of 71 ±3ºC and 110 ±5ºC.

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 SANS GR30;l replacing TMH 1 method A7 (Modified AASHTO).

3.2 Curing of specimens

Rapid cure the specimens (see 5.5). Alternatively, the specimens may be cured for seven days at a relative humidity of 95% to 100% and a temperature of 22ºC to 25ºC 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 if necessary, 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 71ºC for 42 hours.

Remove the specimens from the oven. Give each specimen two firm strokes on all areas 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 5.2).

3.4 Determination of soil-cement losses

After 12 cycles, dry the specimens to constant mass at 100ºC 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:

$$L = \frac{W - M}{W} * 100$$

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 designing a mix and are reported graphically against relevant cement contents.

5. Notes

5.1 Mass determination of the specimens before and after brushing are usually made at the end of each cycle during research or special investigations.

5.2 If it not possible to run the cycle continuously because of Sundays of holidays or for any other reason, the specimens should be held in the oven during the lay-over period.

5.3 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 stabilisers, for example lime, or mixes of lime and milled blast furnace slag, or cement and milled blast furnace slag.

5.4 The pressure is measured 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 1,36 kg.

5.5 Rapid curing:

Seal each specimen air tight 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:

Stabilising agent	**Temp (ºC)**	**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”.

Add the following new Clauses:

"B8118 PROPRIETARY RESINS, GROUTS AND MORTAR

All proprietary cementitious and epoxy resin, grouts and mortars shall comply with the manufacturer's specifications. The manufacturers or suppliers shall provide recent test reports from an approved laboratory to prove such compliance and shall also provide test certificates of recent tests on the materials.

Cementitious grouts and mortars shall not contain expansive cements or metallic powders such as aluminium or iron filings. The plastic volume change shall fall in the range between zero shrinkage and 4% expansion from the time of placement until final set when tested according to ASTM C 827. Further, the grout shall show no shrinkage and a maximum of 0,2% expansion in the hardened state when tested according to ASTM C 1090.

Epoxy resin grouts and mortars shall show no shrinkage and a maximum 2,0% expansion from the time of placement when tested according to ASTM C 827 (modified). The coefficient of thermal expansion shall not exceed 0,000055/°C when tested according to ASTM C 531.

The manufacturer shall submit to the Employer's Agent samples of the proposed materials together with complete technical details including mixing ratios and times, pot life, setting and curing times, strength, volume change, thermal expansion, creep characteristics etc.

B8119 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 3 mm mild steel plate, conforming to the following or similar dimensions:

Width - 265 mm
Depth - 405 mm
Height - 300 mm

A total of 14 troughs are required for a 4,2 m wide spray bar. Each trough must be clearly numbered on its side.

3.2 Balance

A balance capable of weighing up to 50 kg to an accuracy of 20 g.

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 ± 5 ºC of the required spray temperature.

Circulate the binder through the spray bar for at least 15 minutes.

4.1 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 = (M1, M2, M3 …. Mn).

6.2 Calculate the average mass of the binder collected in all the troughs.

Mave = ∑ (M1 .. Mn) / 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.

% Deviation = (Mave - Mi)/Mave x 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"

B8117 MEASUREMENT AND PAYMENT

Amend item B81.02 to read as follow:

"Item **Unit**

B81.02 Other special tests required by the Employer's Agent

(a) Special tests requested by the Employer's Agent ..... provisional sum (Prov Sum)
(b) Handling cost and profit in respect of subitem B81.02(a) .....percentage (%)"

Add the following paragraph to the payment clause of item B81.02:

"The percentage for sub item B81.02(b) is a percentage of the actual amount spent under sub item B81.02(a), which shall include full compensation for the handling cost of the Contractor, and the profit in connection with the special tests."

*Add the following payment items before the "*Note*:"*

"Item **Unit**

B81.04 Financial contribution for the combined laboratory ..... month

The unit of measurement shall be the month.

The negative rate per month shall cover the Contractor's contribution towards the establishment and operation of the combined laboratory over the contract period including any approved extension of time and shall be deducted from the Contractor's payment certificates.

The Contractor's tendered contribution for the establishment and operation of the combined laboratory shall be deducted monthly from the payment certificates over the contract period, including approved extension of time. However, excluded from the tendered contribution shall be the costs of all other special tests requested by the Employer's Agent."

SECTION 8200: QUALITY CONTROL (SCHEME 1)

B8201 SCOPE

Add the following paragraph to this Clause:

"Quality Control Scheme 1 as specified in section 8200 shall apply to this Contract."

B8204 GENERAL REQUIREMENTS

(d) Outliers

(ii) Method 2, shall apply to this Contract using the critical values for the different value of n from the following added tables for the different product properties.

Table B8204 (d) 3

Critical C-values for the outlier test for granular material ($C_{0,99}$(N) – sigma values)									
N	**Compaction %**	Sieve Size (only for G1 & G2 base), mm							**PI**
		26.5	19.0	13.2	4.75	2.00	0.425	0.075	
4	4.1	6.1	8.5	8.5	7.3	5.6	3.6	3.2	2.4
5	4.4	6.4	9.0	9.0	7.7	5.9	3.9	3.3	2.5
6	4.6	6.7	9.4	9.4	8.0	6.2	4.0	3.5	2.7
7	4.7	6.9	9.7	9.7	8.3	6.3	4.1	3.6	2.8
8	4.8	7.1	9.9	9.9	8.5	6.5	4.2	3.7	2.8
9	4.9	7.2	10.1	10.1	8.6	6.6	4.3	3.7	2.9
≥10	4.9	7.3	10.2	10.2	8.7	6.7	4.4	3.8	2.9

Table B8204 (d) 4

Critical C-values for the outlier test for asphalt layers ($C_{0,99}$(N) – sigma values)										
N	**Density**	**Sieve Size, mm**							**Bitumen Content**	**VIMS**
		26.5	19.0	13.2	4.75	2.36	0.300	0.075		
3	2.9	5.6	6.7	7.6	7.8	7.2	6.2	2.3	0.4	2.1
4	3.2	6.1	7.3	8.6	8.5	7.9	6.8	2.5	0.4	2.3
5	3.3	6.4	7.7	9.0	9.0	8.4	7.2	2.6	0.5	2.4
6	3.5	6.7	8.0	9.4	9.4	8.7	7.5	2.7	0.5	2.5
7	3.6	6.9	8.3	9.7	9.7	9.0	7.7	2.8	0.5	2.6
8	3.7	7.1	8.5	9.9	9.9	9.2	7.9	2.9	0.5	2.7
9	3.7	7.2	8.8	10.1	10.1	9.4	8.1	3.0	0.5	2.7
≥10	3.8	7.3	8.7	10.2	10.2	9.4	8.1	3.0	0.5	2.8

Table B8204 (d) 4

Critical C-values for the outlier test for surfacing aggregate ($C_{0,99}$(N) – sigma values)									
N	Sieve Size, mm								
	26.5	19.0	13.2	9.5	6.7	4.75	2.36	0.425	0.075
3	2.1	2.0	2.0	1.8	2.4	1.8	2.3	1.8	0.9
4	2.3	2.2	2.2	2.0	3.2	2.0	2.5	2.0	1.0
5	2.4	2.3	2.3	2.1	4.0	2.1	2.6	2.1	1.1
6	2.5	2.4	2.4	2.2	4.6	2.2	2.7	2.2	1.1
7	2.6	2.5	2.5	2.2	5.6	2.2	2.8	2.2	1.2
8	2.7	2.6	2.5	2.3	6.4	2.3	2.9	2.3	1.2
9	2.7	2.6	2.5	2.3	7.2	2.3	2.9	2.3	1.2
≥10	2.7	2.6	2.5	2.3	8.0	2.3	3.0	2.3	1.2

Table B8204 (d) 5

Critical C-values for the outlier test for cemented layers ($C_{0,99}$(N) – sigma values					
N	**Compaction %**	**UCS**		**PI**	**CBR**
		Lime	**Cement**		
3	4,4	1,1	1,6	3,3	22
4	4,9	1,2	1,7	3,6	24
5	5,1	1,3	1,8	3,9	26
6	5,4	1,3	1,9	4,0	27
7	5,5	1,4	1,9	4,1	28
8	5,7	1,4	2,0	4,2	28
9	5,8	1,4	2,0	4,3	29
≥10	5,8	1,5	2,0	4,4	29

B8206 JUDGEMENT PLAN B

Replace Table 8206/1 with the following table in controlling the characteristic properties in accordance with this judgement scheme.

Structure	**Characteristics, Properties**
Gravel pavement layers	Relative compaction
Crushed stone base or sub base	Relative compaction
Asphalt base and surfacing	Relative compaction Binder content of mix Voids in mix (VIM) Grading
Chemically stabilised layers	Relative compaction Stabiliser agent content by UCS determinations Unconfined Compressive Strength
Concrete	Compressive Strength

(a) Taking samples and testing the properties.

Add the following to the first paragraph of this clause:

"A valid concrete compressive strength test result, the sample size (n), is the average of 3 test specimens (concrete cubes) from a single batch of concrete tested at the same age."

(d) Determining the judgement limits

Values of constants

Replace Table 8206/3 with the following table (table B8206/3):

Table B8206/3

VALUES OF CONSTANTS n, L_S, L_S AND Ø

Material	Properties	Minimum Sample Size n	L_s (Lower Specification limit)	L_s (Upper Specification limit)	Ø
Selected Sub grade	Relative compaction	6	Top 95% Bottom 93% Sand 100%	-	15
Sub base	Relative compaction	6	97%	-	15
Gravel base	Relative compaction	6	100% and if stabilised 98%	-	15
Crushed Stone Sub base or base	Relative compaction	6	See sub clause 3602 (a)		15
	Grading		See table 3602/4		20 sieves 26,5-4,75 10 sieves 4,75-0,075
Asphalt base or surfacing	Relative compaction Binder content Voids in mix (VIM)	6	See note 1		15
	Gradings		See table 4213/1		20 sieves 26,5-13,2 10 sieves 13,2-0,075
Chemically stabilised layers	Relative compaction	6	Upper/Single layer 96% Lower Layer 95%		15
	Cementitious binder content by UCS determinations		See sub clause 3506 (b)(ii)		-
	Unconfined Compressive Strength		See table 3402/5*		
Strength concrete (structural)	Compressive strength (28 days)	See table 8206/2	See note 3		5
Pavement concrete	Compressive strength (28 days)	6	See sub clause 7103(d)		5

*In table 3402/5 change the material before treatment to read at least G5 qualify for C3 and C4 criteria.

B8208 CONDITIONAL ACCEPTANCE

Amend the first paragraph to read:

"Any lot which does not comply with the requirements for acceptance plan B may be conditionally accepted should the value of the sample mean lie within the rejection limits given in Clause 8211."

Add the following to the first paragraph:

"The rejection limits for this contract shall be determined in accordance with the requirements of clause 8211 : Determination of Rejection Limits in accordance with statistical criteria."

B8209 PROCESS CONTROL BY THE CONTRACTOR

Add the following to the first paragraph:

"As part of his quality control system, the Contractor shall carry out the minimum number of tests as stated in Table 8209/1 and submit the results to the Employer's Agent when completing the Employer's Agent's form: Request for approval of Work. The stated requirements may be replaced by alternative proven and approved requirements in the event of a manufacturing plant being accredited in terms of SABS 0157."

B8210 ROUTINE TESTS AND INSPECTION BY THE ENGINEER

Amend the last sentence of the first paragraph to read: "The testing frequencies and sample and lot sizes for quality control testing shall be in accordance with Table: 8210/1".

Table 8210/1

Pavement Layer	**Properties to be tested**	**Sample per Lot size**
Roadbed and Fill (upper 150mm)	Relative compaction Grading Atterberg Limits MDD/OMC CBR	} >6 depending on lot size see form S-LAY-TPG2-E 4 or 6 first lot (trial section) and thereafter 1 per lot for sequential testing 1
Upper and Lower Selected Layers	Relative Compaction Grading Atterberg Limits MDD/OMC CBR	} >6 depending on lot size see form S-LAY-TPG2-E 4 or 6 first lot (trial section) and thereafter 1 per lot for sequential testing 1
Granular Sub base	Relative Compaction Grading Atterberg Limits MDD/OMC CBR	} >6 depending on lot size see form S-LAY-TPG2-E 4 or 6 first lot (trial section) and thereafter 1 per lot for sequential testing 1

Table 8210/1 (cont)

Pavement Layer	Properties to be tested	Sample per Lot size
Cemented Sub base Before Treatment	Grading Atterberg Limits	>6 depending on lot size see form S-LAY-TPG2-E
After treatment	MDD/OMC CBR Relative Compaction UCS	4 or 6 first lot (trial section) and thereafter 1 per lot for sequential testing 1 >6 depending on lot size see form S-LAY-TPG2-E
Granular Base	Relative Compaction Grading Atterberg Limits BRD/OMC Flakiness Fractured Faces or Elongation	>6 depending on lot size see form S-LAY-TPG2-E 4 or 6 first lot (trial section) and thereafter 1 per lot for sequential testing 1 1 (If alluvial ie round pebbles)
Asphalt Base and Surfacing	Relative Compaction Binder Content Grading VIM MTRD (Rice density) BRD Stability and Flow	>6 depending on the lot size
Surfacing Seals	Grading Dust and Fines Content Flakiness ALD Durability Tests (i) ACV and/or (ii) 10% Fact Wet & Dry	>5 per delivery per stockpile and thereafter random during construction of the seal. 1

Note:

(1) A minimum of 4 tests per lot can be allowed for unforeseen circumstances but shall be at the Employer's Agent's discretion.

(2) Confined areas (lots) due to their size and nature are normally subjected to lesser testing than that which is prescribed, which can be allowed for as long as the quality of the material tested can be established for acceptance control purposes.

Delete the existing 2 paragraphs and replace with:

"The Contractor shall be responsible for acceptance control testing of the work carried out under the Contract as specified which is the normal client required acceptance control testing which will be carried out by a previously defined joint laboratory between Contractor and professional Engineering design and supervision team. For sections of the works where hand compaction methods are used (as opposed to machine compaction) then additional control and acceptance testing will be required. On-site determination of variability using a field pilot study will be required. This additional testing would be for the Contractor's account.

The Employer's Agent's Representative shall have access to all process and acceptance control test results. He may order additional acceptance control testing through the Contractor's site laboratory or an accredited approval external testing laboratory to satisfy himself that the required quality standards are being met.

B8211 DETERMINING REJECTION LIMITS IN ACCORDANCE WITH STATISTICAL CRITERIA

The rejection limits shall be determined in accordance with the requirements of clause 8211."

SECTION 9200: PRECAST CONCRETE PRODUCTS, BRICK AND BLOCK MAKING

CONTENTS

B9201 SCOPE
B9202 MATERIALS
B9203 EQUIPMENT
B9204 MANUFACTURE
B9205 MATERIAL QUANTITIES
B9206 QUALITY CONTROL
B9207 MEASUREMENT & PAYMENT

B9201 SCOPE

This section covers the small-scale manufacture of precast concrete products, bricks and blocks. This is a labour-based form of producing units that can be used in construction and other uses. Production can be carried out in the open, the processes are simple and equipment does not require high capital investment.

This section covers small-scale operation, from completely labour intensive manufacture to the use of some machinery either fuel or electricity driven.

Concrete is made by mixing stone, sand, cement and enough water to make the mixture workable (suitable for compaction). The basic concrete mixture and the ingredients are discussed together with plant and equipment requirements.

The manufacturing of the following precast elements are covered in the section:-

(1) Lintols for culvert
(2) Deck slabs for small box culverts
(3) Edge restraints for sidewalks
(4) Fencing Posts
(5) Blocks for the walls of culverts
(6) Kilometre marker posts

B9202 MATERIALS

(a) Cement

Cement is the standard binder used with aggregates for the manufacture of precast concrete.

The quality of cement, particularly with regard to the rate of strength gain and sensitivity to curing, or lack of curing in many cases, should be considered in choosing a cement. In cold weather the rate of gain of strength is reduced and “ultimate” (say 7 or 28 day required strength) strength may take longer. Concrete may have to be left in the moulds for a longer period before de-moulding or masonry units made on an egg-laying machine may have to be left on the concrete slab for an extra day.

Only cements or cement blends bearing the SABS mark should be used. This means that all aspects of manufacture have been controlled and meet acceptable standards.

All cement should comply with SABS EN 197-1, Cement types CEM II and CEM III will develop strength more slowly than CEM I. This may affect production rates. For precast concrete it is recommended the strength class be at least 32,5N preferably 42,5N or 42,5R.

(b) Aggregates

Aggregates form the bulk of concrete. They significantly affect the cost and quality of the final product and the ease with which the products are manufactured and finished. Aggregates used are mostly derived from solid rock, which is crushed or has been broken down by weathering. Alternative aggregates or waste products such as furnace clinker and furnace bottom ash, fly ash, crushed burnt clay brick and slag are also used extensively in the manufacture of concrete masonry units, where available. All sources of these aggregates should be checked to see they are of adequate quality. This might be done by testing the aggregates in a laboratory or by reference to the successful service performance of the aggregates in concrete, say over a 5-year period.

Aggregates are divided into two types according to size:-sand (or fine aggregate – most material passing through a 4,75 mm square opening) and stone (or coarse aggregate consisting of particles too big to pass through a 4,75 mm sieve).

The physical properties of shape, surface texture and grading of the aggregates are significant factors in the manufacture of concrete.

However, in the manufacturing and quality control process the most important factor is the consistency of the quality of aggregate, thus avoiding frequent adjustments of mix proportions or in concrete masonry unit manufacture adjustments to the operation of the “block” machine.
There is no such thing as an ideal grading as there are conflicting requirements for an aggregate in the manufacturing process.

For instance for the filling of moulds, aggregates of rounded chunky shape and smooth texture (like glass marbles) produce concrete that flows easily. But on de-moulding or on extrusion of the masonry unit from the mould green strength (early strength) is required. This is best achieved by using aggregates of elongated shape and rough surface texture.

Generally, the choice of an aggregate depends on its availability, cost, the ease with which it can be made into the required product (especially hollow masonry units with thin shells) and the properties (strength, durability, appearance) the aggregate imparts to the product.

The choice of aggregates is a compromise or optimisation of the above factors. Blending of up to three aggregates is generally the practical solution to obtaining suitable aggregates. To evaluate the suitability of an aggregate check:

Before use
- general soundness and chemical stability (especially waste products)
- physical characteristics (particle shape, surface texture, grading and water absorption)

In use
- performance in the manufacturing process noting any production problems
- influence on the properties and characteristics of the final product, noting surface textures, arises, uniformity, density and strength

In general, aggregates should consists of clean, hard, strong, dimensionally stable and durable particles free from clay coatings or foreign materials (especially organic matter) that may interfere with the normal strength development of the cement. Aggregates that do not have a reliable service performance record should be tested in a laboratory.

(c) Pigments

Pigments may be used to colour concrete. The production of colour-stable concrete requires care both in choice of colours and in the composition of the concrete mix. Specialist advice should be sought on best

pigments to use to obtain the required colour and their dosage.

The final choice of pigment and appropriate dosage will be made on the visual examination of dry concrete in which the pigment has been used. Usually in the preliminary stages, concrete is made with a range of dosages of cement pigment to determine the optimum dosage to give the required colour. Dosages should not exceed 7% of the mass of cement.

(d) Admixtures

Chemical admixtures are materials (usually in liquid form) that are added in small amounts to the concrete at the mixing stage to modify the properties of concrete in either the fresh and/or the solid state.

Properties of concrete that may be modified by the use of an admixture are one or more of the following:

Fresh concrete
- workability and cohesiveness in the wet concrete viz. concrete flow may be improved and the likelihood of segregation reduced
- reduction of water content without changing workability means a reduction in drying shrinkage and cement content
- setting time, either retarded or accelerated to suit special requirements of pre-casting, finishing and de-moulding

Hardened concrete
- increased rate of gain of strength
- increased durability
- decreased permeability

The type of admixture to be used should, in the first instance, be based on the manufacturer's advice. The final decision should be based on cost comparisons and experiments. Observations of the effect of admixtures on the concrete would cover:

- flow and compaction of concretes in the mould
- ease of de-moulding or extrusion from the moulds (CMUs)
- visual examination noting uniformity and segregation, if any
- strength and drying shrinkage of the hardened unit.

Admixtures should not be regarded as a substitute for good materials, good mix design and good workmanship.

(e) Water

Water in concrete makes the fresh concrete workable and reacts with the cement to give strength to the concrete; its quality is important. Water fit to drink is normally suitable. Evaluation of suspect water such as industrial wastewater, water from underground mining activities and raw effluent may be carried out by observing if the setting and strength gain of the concrete is affected.

Turbid (murky) water should be allowed to settle before use to remove suspended solids which could have unexpected effects. Algae in mixing water can give a greenish tinge to the concrete, while entrained air might reduce strength.

Seawater may be used in concrete where efflorescence and mottling does not matter and in unreinforced concrete. Seawater causes rusting of steel-reinforcement, lifting hooks, ties, etc. and should not be used in reinforced concrete.

B9203 EQUIPMENT

(a) Mixers

Free-fall mixers, e.g. tilting drum and reversing drum have blades that lift the concrete to the top of the drum and allow it to fall and so mix. These mixers are suitable for most normal concretes but cannot handle concretes of low workability, of lean mix proportions and concrete that is over-cohesive (very sticky). Mixing time is between 90 and 150 seconds.

Forced-action mixers e.g. pan mixers have blades that shear the concrete. Pan mixers consist of either a stationary pan with rotating blades or a rotating pan and blades. This type of mixer can handle concrete of any workability especially the semi-dry concrete mixes required for making bricks and blocks. Mixing time is between 60 and 120 seconds.

It should be noted that concrete can be mixed by hand if so required in the planned manufacturing process.

(b) Block making machines

Machines are of two types.

A stationary machine deposits its extruded units on a pallet, which is removed for subsequent maturing and curing of units.

An egg-laying machine deposits its extruded units on a concrete slab, then moves forward to “lay” the next set of units. Units are removed from the slab the next day, or, in cold weather, two days after manufacture unless richer mixes are used.

The essential features of a machine are a hopper to store the concrete for feeding into the mould, apparatus for compacting the concrete in the mould and subsequent pushing out of the units from the mould.

The productive capacity of a machine depends on:

- type of unit being made. With solid units moulds are quickly filled with slight primary vibration and say one pass of the feeder drawer. With hollow units with 25 to 27 mm thick shells, longer vibration times are required with up to seven or eight passes of the feeder drawer over the mould to fill the mould
- the number of units that can be fitted into the available mould area for extrusion onto a pallet or dropped on the concrete slab in the case of egg-laying machines
- the concrete mix and its flow characteristics in the filling of the mould, its sensitivity to primary and secondary vibration, viz. duration required for compaction, and subsequent extrusion.

Depending on the type of machine and the abovementioned factors, machines cycles vary from 1,5 to 4,0 per minute.

With egg-laying machines, allowance has to be made for the time it takes to move to the new dropping position and the time it takes at the end of a run to turn the machine around.

The planeness, trueness and surface texture of the concrete slab surface significantly affects the height of the units and the ease with which they can be removed from the concrete surface. The minimum area of slab should be such that it can accommodate one day’s production.
Details of the casting of the slab are given in Appendix D.

In the market place, there are a range of machines available and machine manufacturers should be consulted

on type of machine and ancillary equipment available, their costs of operation and potential production capacity.

B9204 MANUFACTURE

(a) Operations

The manufacturing process involves a wet side viz. batching, mixing and casting or extruding of the CMUs, with appropriate concrete mixes, and a dry side, viz. curing, handling and assessment of the finished product.

(b) Batching (including storage and handling)

Equipment and structures required for the various operations are discussed. Basic principles are that:

- materials should be protected from deterioration or contamination until used
- methods of storing, handling and batching should ensure minimum segregation of the aggregates i.e. separation of the different sizes in the aggregate
- all materials, cement, aggregates, water, pigments and admixtures must be batched to acceptable degrees of accuracy

Containers used for batching should be robust. Builder's wheelbarrows (which have a capacity of 65 l) and steel buckets and drums are suitable. Batching should be done by pouring material loosely into the container to overfill it, and striking off level with the brim. Partial filling of containers leads to non-uniform batching. Containers should therefore be sized accordingly.

To avoid errors, there should be sufficient containers to measure out a complete batch without having to use any container more than once. The concrete must be thoroughly mixed.

(i) Cement

Cement may be stored in paper bags but protected from any deterioration or in silos. Cement should preferably be batched by mass, either using a full 50 kg bag or weighing each batch of cement either from a silo or opened bags. Volume batching must allow for the bulking of the cement, normally around 20%.

(ii) Aggregates

Aggregates should be stored and handled so as to reduce segregation and contamination. Storage areas should be adequate for frequency of delivery and subsequent demand. There should be no intermingling of different aggregates.

If wet aggregates are delivered they should be allowed to drain; normally on a concrete surface. When some sands drain silt and/or clay are deposited at the base of the stored sand. These materials should be removed and discarded when ground storage areas are emptied. When frequent rain occurs aggregates should be stored under cover.

Batching may be carried out by volume or mass. With volume batching, an allowance for moisture in the sand should be made and for its bulking.

Some clinker or ash aggregates absorb up to 20% of their mass in water. Pre-wetting the aggregate reduces the likelihood of a rapid loss in workability of the concrete during and after mixing.

(iii) Water

Water is batched by volume. An experienced operator can judge the amount of water required in the particular concrete. If stored in tanks, the water should be protected from low temperatures, as this affects the setting

time of the concrete and its rate of gain of strength.

In hot weather, water flowing in black pipes subject to direct sunlight can become excessively hot and cause rapid loss of workability of the concrete. Pipes should either be protected or insulated, or water should be stored when cool for subsequent use.

(iv) Pigments

Pigments are best batched by pre-weighing, and storing in plastic or other suitable containers. The pigments should be introduced gradually into the dry ingredients (cement and aggregate) during the mixing process.

(v) Admixtures

Admixtures are usually liquid and measured by volume. Admixtures should be checked for settlement. Stirring at regular intervals may be required.

Admixtures should preferably be added to the mixing water during the mixing process.

(c) Mixers and mixing

The concrete must be thoroughly mixed. Small quantities may be mixed by hand on a concrete floor or steel sheet. Machine mixing is preferable. For semi-dry mixes the best type of mixer is a pan mixer. Free-fall drum mixes are suitable for the more workable concrete.

The order of charging the mixer and the duration of the mixing are important factors affecting the quality of unit being made and its variability.

Natural aggregates of low water absorption are best charged with all aggregates, then all cementitious materials.

Dry mix combined materials and then add required water. Mix for at least 60 seconds with pan mixers and 120 seconds with drum mixers. If subsequently mixes have to be re-tempered, mix concrete for at least one minute after addition of water.

For clinker (ash) type aggregates of high water absorption charge mixer with aggregates. Add half to two-thirds of total mixing water and mix for 30 seconds. Then add cementitious materials and balance of mixing water and mix for at least 90 seconds.

Mixing duration should ensure thorough and intimate mixing of the mix ingredients. Excessively long mixing times, more than 15 minutes, affect the workability adversely of the concrete. The amount of water added to the mix depends on the workability required. This depends on how the concrete is to be compacted in the moulds.

(d) Transporting

Transport the concrete from the mixer to the mould in such a way that it does not segregate. If segregation (separation of stone and cement paste) is unavoidable, remix the concrete before placing it in the mould. Protect the concrete from contamination and from drying out.

Distribute the concrete evenly in the mould. Do not place the concrete in one position and rely on the vibration to distribute it because this causes segregation.

(e) Compaction and finishing

The concrete is to be compacted into the mould by any method that will ensure dense concrete. Precast

concrete is usually compacted by means of mechanical vibrators attached to the mould or by placing the mould on a vibrating table. Continue to vibrate the concrete until a water sheen appears on the surface and air bubbles no longer break through the surface.

Hand compacting, which should be used only for limited numbers of small items, may be done by: tamping the concrete with the end of a conveniently sized piece of timber or steel; jigging or jolting the mould; or a combination of tamping and jigging.

Use the edge of a screed board (a planed wooden plank used on edge) which rests on the top edges of the mould to strike off the concrete flush with the top of the mould. The concrete may be wood floated if necessary.

Newly cast concrete must be protected from rain which could damage and soften the surface. It is also most important to protect the concrete against loss of moisture from the exposed surface. If moisture is lost the fresh concrete shrinks and this shrinkage can cause serious cracking. Possible ways of preventing moisture loss are:

- Work indoors or at least in shade.
- Place screens around the working area to keep out drying winds
- Once the concrete has been compacted, struck off and floated, maintain a water sheen on the surface by fog spraying with water or cover with plastic sheeting.

Concrete must be protected until it sets and curing can start.

Precast items must be de-moulded carefully so as to avoid damage to the concrete. Once they are de-moulded, they should be stacked or supported in such a way that they do not warp or twist.

Finishes and decorative effects are basically achieved by either casting the concrete against a formed or sculptured mould surface or by the early-age working of the surface.

Working the surface while the concrete is in a green state might involve wood or steel trowelling, brooming, tooling, rubbing and carving, sprinkling special colour aggregates and compacting into the surface, or exposing the coarse aggregate by gently washing out the fines.

The concrete should be easily de-moulded. Either the moulds can be pulled apart and the product left in position or the moulds turned upside down to remove the product from the mould. The ease of de-moulding will depend on the mould oil used and the taper of the mould, usually 1 to 50 to 200 for steel moulds and less for plastic moulds.

Any minor blemishes on the finished products such as small chipped edges and corners and blowholes (small voids of roughly spherical shape) should be repaired as soon as possible if the quality and value of the product warrants repair.

With the repair of blowholes no surface preparation is necessary. Use a mixture of 1 cement to 2 plaster sand, by volume, plus enough water to give a slurry consistency. Do not pre-wet the concrete and work the repair mix over the whole area with a sponge until holes are filled. Remove excess material with a wet sponge, spray surface lightly with a mist sprayer and cover immediately, with plastic sheeting. Keep covered for seven days and then allow to dry slowly.

With other repairs, ensure that feather edges are avoided. Where necessary, the outline of a repair should be cut with a masonry cutting disc or saw to ensure a square edge. (See Figure 1.2).

Figure 1.2: Edges to repairs

Removes loose material and clean. Prime the surface with a slurry of equal volumes of cement and dry plaster sand with sufficient water to achieve a paint consistence. Apply the mix one volume cement to 2 volumes sand, with sufficient water to be able to fully compact with a trowel. Finish surface with wood or steel trowels, sponges or brushes. Moist cure the repair for at least seven days.

(f) Concrete mix proportions

(i) General

The ingredients of concrete should be combined to give the required properties to the product at lowest cost i.e. with the hardened concrete the product should have strength, durability and suitable appearance and in the fresh state workability and cohesiveness so the concrete can be "cast" into moulds easily without segregation of the ingredients, and can easily be compacted.

Precast concrete requires a wet flowable mix, the concrete is compacted finished and left in the moulds for some time, hours or days before de-moulding. Precast products are prone to damage and breakages when they are de-moulded and when they are handled. Concrete should therefore have a relatively high strength, which should develop as rapidly as possible after casting.

Concrete for making masonry units, while having the same ingredients, has different mix proportions and workability because of different equipment being used and manufacturing techniques. As the units are extruded (pushed out) from the moulds after only 5 to 30 seconds in the moulds the concrete has to have sufficient "green" strength so that the bricks or blocks will not after extrusion collapse or lose shape. This is achieved by using semi-dry concrete of low workability and aggregates and mix proportions that mechanically interlock. Strength is required for the units to be removed from the slab or pallet so they are not damaged in handling.

To determine the best mix proportions trial mixes are necessary. In the first instance, nominal mix proportions are used (See Tables 1.1 and 1.3) and then by a process of trial and error the mixes are adjusted to suit the particular product being made, the manufacturing equipment and the competence of the operator using the equipment. In assessing the best concrete mix the quality of the final product is the main criterian, while ease of manufacture at lowest cost must be considered.

Strength may be determined by testing the whole product or by making concrete cubes from the mix used and testing in a laboratory.

Durability suggests long life maintenance free concrete and is based on a service record of satisfactory performance. This is not necessarily known at the time of manufacture and therefore good sound and acceptable practices must be followed, e.g. clayey sands in the concrete should be avoided as drying shrinkage and the possibility of cracks and crazing occurring are likely. Also sands that require an excess of water when used in concrete should be avoided. Products should not crack easily when lifted or handled.

(ii)Trial mixes and manufacture: Precast concrete products

Trial mix proportions of cement, sand and stone are given in Table 1.

Table 1.1 : Trial mix proportions by volume for concrete for precasting

	6.7 mm stone		9.5 mm stone		13.2 mm stone		19 mm stone	
	Large batch	**Small batch**	**Large batch**	**Small batch**	**Large batch**	**Small batch**	**Large batch**	**Small batch**
Cement	1 bag	1	1 bag	1	1 bag	1	1 bag	1
Sand	75 l	2	75 l	2	75 l	2	75 l	2
Stone	40 l	1	50 l	1¼	55l	1½	75 l	2

The largest size stone should be used for highest strength, or lowest cement content. The size of stone should not exceed about one quarter of the thickness of the concrete item being precast – see Table 1.2

Table 1.2: Minimum concrete thickness for various stone size

Stone size, mm	6.7	9.5	13.2	19.0
Minimum concrete thickness, mm	30	40	50	60

The following should be observed when adjusting the mix proportions:

- use sufficient water in the mix to give a plastic mix that can be compacted with the means available.
- for small batches use the same size container for each material. For example if the container volume is 6 l, the mix for 9,5 mm stone is Cement: 6 l Sand: 2 x 6 = 12 l

Stone: 1¼ x 6 = 7,5 l

- measure all materials by pouring loosely into the container and striking off flush with the

brim.

- measure sand in the damp state.
- sand and stone content should be assessed as follows:

Make up a batch of concrete according to the proportions given in Table 1.1 Compact the concrete in the mould using the means available (i.e. mechanical vibration or hand tamping). Examine the top surface of the concrete. If stones protrude, the stone content of the mix is too high. If not, scrape the concrete with the point of a nail. If the stone content of the concrete is right, stone particles should be found about 2 mm below the surface. If the shallowest particles are deeper than this, the stone content is too low. If stone content is too high, reduce it by say 10% and increase the sand content by the same amount (same overall volume). Then reassess. If stone content is too low, increase it by 10% and reduce the sand content by the same amount. Then reassess.

Preparing the mould: Surfaces

In the manufacturing process, attention should be given to:

- Surfaces of the mould that will come into contact with the concrete should be cleaned and then given a very thin coating of mould-release oil. (Rubber moulds do not normally require a release agent).
- Mould-release oils are formulated specifically for concrete casting and are obtainable from oil companies and reputable manufacturers of concrete admixtures. The use of straight lubricating oil is not recommended.

Reinforcement and its fixing:

If precast units are reinforced, the reinforcement should be kept in the correct position in the mould while the concrete is placed and compacted. Spacers of plastic or high-strength mortar may be used to support the steel and ensure that the minimum concrete cover is provided.

Plastic spacers are commercially available from specialist suppliers.

Mortar spacer blocks may be made with a 1:1 ratio of cement and concrete sand and sufficient water to make a workable consistence. Details of a spacer block are shown in Figure 1.3. Cover the blocks to prevent drying out after casting and place them in water the next day. Keep the blocks in water for at least a week before using them.

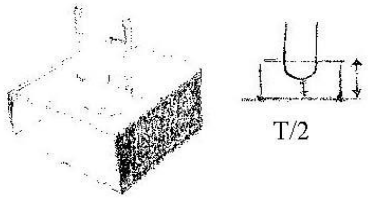

Figure 1.3: Details of mortar spacer block

(iii) Trial mixes and manufacture concrete masonry units

The trial and error process for determining best mix proportions for concrete masonry unit manufacture requires a rigorous and thorough approach otherwise false conclusions will result and mix proportions will be accepted and used that are not the best. Final decisions on aggregate blends and concrete mix proportions are based on observations, analysis of actual manufacture and the results of tests on the units made.

This involves the following steps and is influenced by the type of machine used and how its operated and the units being made, bricks or blocks, hollow or solid:

- determining the best blend of aggregates
- determining the aggregate to cement ratio
- determining the optimum water content
- a cost analysis

The starting point is using a mix of 1:8 of 50 kg cement to 4 wheelbarrows aggregate.

If three materials are available: stone, river sand and pit sand, (NOTE: if crusher sand available and does not have an excess of very fine material (say dust) it may replace the river and pit sand blend) try the following blends

Table 1.3: Trial mix proportions by volume for manufacturing bricks and blocks

Cement (50 kg bag)	Stone	River sand	Pit sand
	Wheelbarrows		
1		4	
1		3	1
1		2	2
1	1	2	1
1	2	1	1
1	1	1	2

If an existing mix has been used vary the aggregate blends; firstly to be coarser and then secondly to be finer than the existing mix by small changes in the various materials.

In all cases use as much water as possible in the mix so that the units don't lose shape on being extruded from the mould, or become too sticky (cohesive) because of clayey material in the sand.

Highest strengths of units occur when maximum water content is used. Often the surface texture of the unit will change from smooth and uniform with little water to a coarser texture with more water. The coarse texture units are normally stronger using the same aggregate blends.
If the surface texture is too coarse, increase the fines and reduce the coarse materials.

Besides noting the surface texture of the units observe how easily the concrete flows into the mould, particularly with hollow units where the shell width is normally between 25 and 35mm.

With hollow units the maximum size stone is 6,7 mm but with solid units the stone size can be up to 19 mm. Generally mixes with large size stone are more economical in cement than mixes with small size stone for the same compressive strength. Also more stone and less sand are required in the mix with large size stone.

To determine the best cement to aggregate ratio for the masonry unit being made is to test the unit to destruction in a compressive strength test. If this is not possible, then observations have to be on all aspects in the manufacture and service performance of the unit on site to decide on cement to aggregate proportions noting any defects that occur such as chipped corners, edges and cracks.

If the best blend of available aggregates is unsatisfactory in making the required masonry unit, consider using admixtures. Further trial mixes are then necessary.

Once the aggregate blends and cement to aggregates ratios have been decided upon, then the optimum (best) moisture content should be determined. The water content depends on the materials, mix proportions, characteristics of the machine and how operated or how well concrete compacted into moulds by hand, the dimensions and configurations of the units being made. The mixer operator or machine operator should be trained to achieve the best water content consistently. A water sheen (glistens) on the external face of the unit immediately after extrusion is an indication that the water content is near optimum.

With "wet" mixes using an egg-laying machine, difficulty is sometimes experienced in removing units the next day from the concrete slab. Usually a rough-textured concrete slab surface, say wood floated as distinct from steel trowelled will have less adhesion bond between unit and slab than a smooth textured surface.

A cost analysis based on the concrete mix proportions to be used in full-scale production, costed out in terms of material and production costs should be made.
In determining the yield of the mix, the mass of all ingredients divided by the average mass of the unit will determine the yield.

Often aggregate is delivered and priced by volume and aggregate is batched by mass. It is necessary to convert the unit cost into an appropriate unit cost, say cost per kg.

(iv) Straining Posts, stays, standards and droppers to fencing

Concrete posts shall be pre-tensioned with stressing wire that complies with B.S.S. 2691 and has a tensile strength of 1700 and 1850 MPa. Final compression shall be between 6.5 MPa and 6.9 MPa. The initial pre-stressing force shall not be higher than 70% of the ultimate tensile strength of the wire. The pre-stressing force shall not be transferred to the concrete until such time as the concrete has attained 75% of its 28 day strength.

Concrete shall be manufactured from 13.2 mm stone and shall have a 28 day strength of 35 MPa. Minimum

cover shall be 20 mm.

Stays shall be fixed to the uprights using “SIKADUR 42” or similar. Intermediate posts to be provided with holes to enable “Razor wire” to be clipped to post as shown on the drawings. “

(g) Curing

Concrete is cured by ensuring that there is sufficient moisture available and that the temperature is suitable for the chemical reaction (called hydration) between cement and water to occur. Concrete does not gain strength by drying out. If allowed to dry out soon after manufacture it will not gain its full strength. At low temperatures the chemical reaction takes place more slowly and products have to be left in their moulds for longer periods.

At higher temperatures, the chemical reaction is more rapid but the quality of the mature product may be inferior.

Concrete products may be cured by immersing in water, or spraying continuously with water, or wetting the concrete and wrapping or covering with a plastic sheet. Curing should be continued for at least 7 days in normal weather (20 °C to 25 °C) and longer at lower temperatures.

B9205 MATERIAL QUANTITIES

The quantities given in Tables 1.4 and 1.5 are approximate; they form a basis for a first estimate of quantities to be used in manufacture. As production progresses, checks should be made on quantities of materials used. The mix proportions in the tables are based on materials (sand and stone) being batched in a loose state i.e. poured loosely into the batching container without being compacted.

The volume of a 50 kg bag of cement when poured loosely into a container is approximately 38 to 40l. No allowance has been made for wastage.

Table 1.4: Material quantities for precast concrete (± 25MPa at 28 days)

Material	**6,7 mm stone**		**9.5 mm stone**		**13.2 mm stone**		**19.0 mm stone**	
	Large batch	**Small batch**	**Large batch**	**Small batch**	**Large batch**	**Small batch**	**Large batch**	**Small batch**
	Quantities for 1 bag of cement in volume of damp bulked aggregates							
Cement	1 bag	1	1 Bag	1	1 Bg	1	1 Bag	1
Sand	75l	2	75l	2	75l	2	75l	2
Stone	40l	1	50l	1.25	55l	1.2	75l	2
	Quantities for 1 cubic meter of concrete in volumes of damp bulked aggregates							
Cement, bag	10.0		9.5		9.2		8.4	
Sand, litre	750		710		695		625	
Stone, litre	400		475		510		625	
	Quantities for 1 cubic meter of concrete in mass (kg) of damp material							
Cement, kg	500		475		460		420	
Sand, kg	870		825		805		725	
Stone, kg	600		715		765		940	

Table 1.5: Material quantities for concrete masonry units

Mix proportions cement to aggregate approximate	Whole bag mixes (50kg)							
	Cement sand mixes			Concrete mixes (10 mm stone) per cubic meter of concrete				
	Per batch	Per cubic meter of mortar		Per batch		Per cubic meter of mortar		
	Sand, l/bag	Cement, bags	Sand m³	Sand l/bag	Stone, l/bag	Cement, bags	Sand. m³	Stone, m³
1.4	150	8.8	1.35	120	50	8.1	1.0	0.4
1.5.25	200	7.3	1.35	150	60	6.5	1.0	0.4
1.6.50	250	5.8	1.35	200	80	5.0	1.0	0.4
1.8	300	4.8	1.35	240	90	4.2	1.0	0.4
1.10.50	400	3.5	1.35	310	130	3.2	1.0	0.4
1.11.75	450	3.1	1.35	360	140	2.8	1.0	0.4

Table 1.6 provides materials quantities and mass of single masonry units based on:

- Loose bulk densities, kg/m³: Sand 1400, Stone 1500
- Relative densities: Sand 2,65, Stone 2,65
- Bulking of sand, 20%

Table 1.6: Volume and masses for concrete masonry units

Work size unit 1xbxh	Solid units		Hollow units			
	Volume l	Mass kg	No. of cores	Minimum shell thickness mm	Volume l	Mass kg
Modular dimensions						
190x90x90	1.6	3.4	-	-	-	-
290x90x90	2.4	5.2	2	25	1.7	3.5
290x140x90	2.4	8.1	2	25	1.9	4.2
290x140x140	3.7	12.6	2	25	2.9	6.5
390x90x90	5.7	7.0	2	25	2.1	4.6
390x190x90	3.2	14.8	2	32	3.5	7.7
390x90x190	6.7	14.8	2	25	4.5	9.9
390x140x190	10.4	22.9	2	25	5.4	11.9
390x190x190	14.1	31.0	2	32	7.6	16.7
Imperial dimensions						
222x106x73	1.7	3.8	-	-	-	-
440x110x220	10.7	23.5	2	25	7.5	16.5
440x140x190	11.8	25.8	2	25	6.0	13.2
440x220x220	21.3	46.9	2	37	10.9	24.0

NOTE: Hollow unit (block) quantities are based on maximum core size and minimum shell thickness. Cores taper 3 mm in 190 mm and 1,5 mm in 90 mm. Webs taper in both directions. Solid units have no cores. The mass is based on using natural aggregates with a concrete density of 2 200 kg/m³

B9206 QUALITY CONTROL CHECKS ON MANUFACTURING PROCESS SCHEDULE OF CHECKS

Table 1.7 provides guidance on quality control checks which should be conducted in the manufacturing process. Figure 1.4 outlines some practical checks which can be conducted in the manufacture of concrete masonry units in the absence of laboratory equipment.

Item	Property to be checked	Test	Frequency	Notes
1. MATERIALS				
Cement	General Quality	See Notes	See Notes	Check cement of right type and cement has an SABS mark on bag
	Contamination by moisture	Visual examination for lumps in cement	When contamination is suspected	Cement contamination occurs during transportation or storage. If lumps not broken by hand, sieve out lumps and use a richer mix.
	Age of cement at time of use	Compare delivery dates and date of proposed use	Test when cement is older than 3 months and cement is stored in bags	Ask cement manufacture to test and advise. Loss of strength occurs with time.
Aggregates	Quality as ordered and delivered	Appropriate tests (Maybe visual such as right size stone, clay or organic matter in sand, etc.)	When quality suspect	Initial acceptance criteria for aggregates vary and are unique for each manufacturer. More important is consistency of quality of aggregates in manufacture.
Pigments	General quality	Manufacturer / Supplier to provide test certificate	At beginning of production and when changes noted	
Admixtures	General quality (check storage and shelf life not exceeded)	Obtain test certificates or quality statement on admixture by manufacturer/supplier	At beginning of production and when changes notes	BS 5075 Parts 1 and 3 details specification requirements
Water	Purity as it affects setting and strength of cement	Refer SABS 0100-2	When quality of water suspect	Municipal water needs to be checked.
Reinforcement steel	General quality Contamination (free from loose mill scale and other coatings that will adversely affect bond)	Obtain manufacturers test certificate Visual check	At commencement of contract Daily or at frequent intervals when rebars being used	Refer SABS 190, 920 and 1024
2. PRODUCTION				
Cement	Type of cement	Visual check of type, bags or delivery note. Bags not broken	When delivered	

Item	Property to be checked	Test	Frequency	Notes
Aggregates	Appearance	Visual check on type, cleanliness, contamination and segregation	When delivered	
	Sampling and preparation of test sample	SABS SM 827 SAMS SM 828	When any testing done	Testing representative samples important for meaningful test results.
	Grading (Sieve analysis)	SAMS SM 829	When changes noted that affect quality of product	Compare grading with previously established grading limits.
	Relative density	SAMS SM 844	At beginning of contractor if geological type of aggregate changed	Information used in the design of mixes or calculations of yield of mixes based on voids in aggregates.
	Bulk density and voids content	SAMS SM 845	When changes noted or every 50 to 150m^3	Information used design of mixes or calculations of yield of mixes. Voids content used as a control check on quality of blended aggregates.
	Bulking of sand	SAMS SM 856	When moisture content of sand changes significantly	Required for adjusting volumes of sand in batching.
Pigments	Type	Visual check on containers and/or delivery note	When delivered	
Batching				
General	That correct materials and correct mix proportions used	Visual check materials. Check mix proportions	Daily and when new mix proportions specified	
Cement	By mass	With 50kg bags no test required. Check load scale accuracy	Daily	A split bag of 25 kg parts can be measured by equal volumes.
	By volume	Check container volume that allowance made for bulking	When container first used or when type of cement changed	Note: Different types of cement bulk differently. Volume batching of cement is poor practice.

Item	Property to be checked	Test	Frequency	Notes
Aggregates	By mass	Check moisture content of sand and adjust mass	Daily	
	By volume	Check container size. Check allowance for bulking	When first used. When significant moisture changes occur.	Establish by experiment a sand bulking versus moisture content curve for each sand.
Admixture	By volume	Check dispensing apparatus set correctly	When first used. Daily	
Pigments	By mass	Check correct mass	Daily	Normally pigments pre-weighed and placed in container for subsequent introduction into the mix.
	By volume	Check container size	When first used	
Low density aggregates such as clinker	Soundness (pop-outs)	Refer to SABS 794 and SABS 1215	When pop-outs noted and then twice per month	Test required when clinker, ash and similar waste products used.
	Sulphur trioxide	Refer to SABS 794	Once per month or when problems noted	
	Loss on ignition	Refer to SABS 794	Once per month or when problems noted	
Water addition	Water content	Visual assessment by operator of concrete workability and amount of water required	Each mix made	Various aids can be used by operator in visually judging water required, i.e. hand and bar tests.
Reinforcement	Type, size and not contaminated	Measurement and visual examination	When used	Check dimensions if reinforcement bent, i.e. as in stirrups.
Mixing				
	Materials to be used	Visual check that all ingredients of correct type and mixer not overloaded	Daily	
	Uniformity of mix	Visual	Frequency	Particularly important with hand mixing.
	Cleanliness of mixer	Visual	Daily or when break in mixing	With hand mixing ensure surface on which ingredients mixed is clean.
	Adjustment of scrapers etc. in mixer (if present) for	By measurement	Daily	Important in pan mixers to prevent

Item	Property to be checked	Test	Frequency	Notes
	wear and correct adjustment			segregation of ingredients.
	Order of introduction of mix ingredients	Visual	Daily	Order of batching to be determined by experience. Pre-mixing absorbent aggregates such as clinker with water to be considered.
	Mix consistence	Visual	Each mix	If consistence, viz. workability, plasticity, etc. not correct immediately investigate reason.
	Duration of mixing	Check time of mixing from time all water and cement are in contact, to discharge	Frequently	Minimum and maximum mixing times to be given to mixer operator.
	Re-tempering	Visual	When mixing time extended, loss of workability, and extra water added	Operator to be advised on maximum amount of water that can be added
	Discharge	Visual to ensure complete discharge	After each mix	Ensure no build-up of mortar or concrete in the mixer.
Precast concrete products (refer also to general comments)				
Mould	Correct type, dimensions, accuracy and undamaged	Visual and by measurement	At beginning of casting and afterwards at frequent intervals	Check moulds for wear and damage.
	Preparation for casting	Visual	Frequently	Check use of mould release oil. Rubber moulds do not require a release agent.
Reinforcement	Correct type, diameter and bending dimensions	Measurement	Frequently	Check against drawings.
	Position in mould with correct cover	Measurement and check spacer blocks	Frequently	Refer drawings and specification.
Concrete	Mix ingredients and proportions	Visual	At beginning of casting and frequently	Refer to section on materials and batching.

Item	Property to be checked	Test	Frequency	Notes
	Batching, mixing, placing, compaction and finishing	Measurement and visual	At beginning of casting and frequently	Ensure concrete does not segregate in transporting and placing. Check best compaction techniques by hand, vibration immersion or mould, or jolting. Check finishing-trowelling hessian drag, sand or stone topping, etc.
Concrete masonry units (refer also to general comments)				
Mould	Correct type, dimensions, accuracy and undamaged	Visual and by measurement	Regular checks on growth of unit sizes	Dimensional tolerances to SABS 1215.
	Relationship between plan dimensions of moulds and tamper head	Visual and by measurement	When excessive amount of concrete extruded between tamper head and mould	Also applies to small machines hand operated.
Machine Operation	Functioning of machine	By observation of how equipment operates	When problems noted	With single block moulds ensure proper compaction of concrete in mould.
	Distribution of concrete into mould box	Measure heights and mass of fresh units over total mould area	On introduction of new moulds, and/or concrete mix, at frequent intervals	Non-uniform distribution of concrete in moulds requires special attention.
	Primary and secondary vibration	Check duration of vibration times	Frequent intervals	The degree of compaction of units by vibration significantly affects strength of units and productivity. With hand compaction ensure unit well tamped to required height.

Item	Property to be checked	Test	Frequency	Notes
	Surface appearance on extrusion from mould that units not damaged or distorted	Visual	Frequently	Check presence of water sheen on face of unit, concrete sticking to tamper head on extrusion, uniformity of texture, colour and compaction.
	Height of unit	By measurement	Frequently	For consistent surface texture compressive strength of units should be in an agreed range.
General comments: precast concrete and concrete masonry units				
Moulds, pallets and working area	Condition of moulds, pallets and concrete surface on which operations take place	Visual	Frequently	Maintain moulds and pallets. Keep working surfaces free from debris, etc.
Handling	Damage, if any, in demoulding, or depalletising, transporting and stacking	Visual	Frequently	Products should be stored and stacked on hard, plane and unyielding surfaces which drain.
Curing	Protection of fresh products/units and curing (duration and temperature)	Visual	Ongoing	Extend and types of curing to suit local requirements and products / units being made.
Storage	Marking of stacks for subsequent identification, testing and clearance for delivery	Acceptance and control testing	Ongoing	Allow for products / units not complying with required standards to be stacked separately for subsequent management decision on their disposal.

3. TESTING

Ideally all products made should be tested regularly for compliance with requirements such as strength, etc. and the production process monitored to ensure that products are not over or under strength, i.e. that the manufacturing process is not wasteful viz. too much cement being used mainly or products condemned for say inadequate strength. There should be a continuous process of assessing the quality of products made and modifying the process to give best and most economical production.

If testing is impractical or unaffordable, products should be continually assessed for dimensional accuracy, surface finishes and whether corners and edges damaged on de-moulding or when transported, stacked and delivered to site. Reports back from site on satisfactory or unsatisfactory performance of products in service

Item	Property to be checked	Test	Frequency	Notes
can assist in assessing the quality of products.				

B9207 MEASUREMENT AND PAYMENT

Item **Unit**

B92.01 Manufacture of precast concrete products

(a) Lintols for culverts ..... number (No)

(b) Edge restraints for waterbound Macadam layer ..... number (No)

(c) Edge restraints for sidewalks ..... number (No)

(d) Pre-tensioned straining post with preformed holes for fencing ..... number (No)

(e) Pre-tensioned intermediate posts with pre-formed holes ..... number (No)

(f) Pre-tensioned stays ..... number (No)

(g) Blocks for culvert wall ..... number (No)

(h) Kilometre posts as per drwg 402584-CT-02 ..... number (No)

The unit of measurement shall be the number of lintols; edge restraints; pre-tensioned straining and intermediate posts and stays; and blocks manufactured by means of a small scale operation on site in accordance with the details on the drawings and the Employer's Agent's instructions.

The tendered rate shall include full compensation for procuring and furnishing all materials, providing moulds, mixing, transportations, placing and curing the concrete, and all labour and equipment required for manufacturing the lintels, edge restraints, pre-tensioned straining and intermediate posts and stays; and blocks, complete as specified.

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-25/26-0016

UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)

PART C3 : SCOPE OF WORK

SECTION C : OCCUPATIONAL HEALTH AND SAFETY SPECIFICATIONS

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C1 INTRODUCTION

C1.1 List of Abbreviations

CHSA : Construction Health and Safety Agent
CHSO : Construction Health and Safety Officer
DoT : Department of Transport of the Eastern Cape Provincial Government
DME : Department of Mineral and Energy
DMR : Department of Mineral Resources
DoL : Department of Labour
DSTI's : Daily Safe Task Instructions
EA : Employers Agent
EAR : Employers Agents Representative
EEA : Employers Environmental Agent
FEMA : Federated Employers Mutual Association
H&S : Health and Safety
HIRA : Hazard Identification Risk Assessment
MH&SA : Mine Health and Safety Act No. 29 of 1996 (as amended)
OHS : Occupational Health and Safety
OHSA : Occupational Health and Safety Act No. 85 of 1993 (as amended)
PSHSS : Project Specific Health and Safety Specification
PC : Principal Contractor
PPC : Personal Protective Clothing
PPE : Personal Protective Equipment
SANS : South African National Standards (Authority)
SMME : Small, Micro, Medium Enterprise
SoP's : Safe Operating Procedures
SWP : Safe Work Procedure
TMS : Technical Method Statement
WCC : Workman's Compensation Commissioner

C1.2 Definitions

The definitions used will be those set out in the Regulation Gazette No 37305 of 7th February 2014 with the following additions or amendments;

Client: Hereafter referred to as the Employer in terms of the Contract.

Employers Agent: Means a competent person appointed by the Client to design, supervise and monitor construction on their behalf.

Hazard Identification and Risk Assessment (HIRA) and Risk Control: Means a documented plan, which identifies hazards, assesses the risks and details the control measures and safe working procedures which are to be used to mitigate and control the occurrence of hazards and risks during construction or operational phases.

Induction Training: Means once off introductory training on general health and safety issues given to all employees and visitors to the site before commencement of work on site.

Mine: Any excavation from which material (soil, gravel, stone etc.) is taken for use on the construction site.

Site: Means the area in the possession of the Principal Contractor for the construction of the works. Where there is no demarcated boundary it will include all adjacent areas and haul roads which are reasonably required for the activities for the Principal Contractor, and approved for such use by the Employer's Agent.

The Act:	Means, unless the context indicates otherwise, the Occupational Health and Safety Act, No. 85 of 1993 and Regulations promulgated thereunder, as amended.
Health and Safety Plan:	The Pre-Construction Health and Safety Plan is the foundation upon which the health and safety management of the construction phase of a project needs to be based.

C1.3 Key Role-Players

Client	ECDoT represented by the Head of Department and/or such other person or persons, authorised thereto in writing.
Designer / Employer's Agent	As appointed in terms of the Contract. The Designer/Employer's Agent as referred to in CR6 is hereafter referred to as the Employers Agent.
CHS Agent	As appointed by the Employer in terms of CR5.2(5) of the OHS Act
Principal Contractor	As appointed in terms of CR5.1(k) of the OHS Act.
Contractor	A Contractor appointed by the Principal Contractor in terms of CR7.1(c)(v)of the OHS Act.

C1.4 Key References

Occupational Health and Safety Act No. 85 of 1993 and Regulations (as amended)
Mine Health and Safety Act and Regulations No. 29 of 1996 (as amended)
Compensation for Injury and Occupational Diseases Act No. 100 of 1993 (as amended)
Committee of Land Transport Officials (COLTO) South African Roads Specifications for Road and Bridge Construction
South African National Standards
General Conditions of Contract 2015 (GCC) Edition 3
Traffic Safety Manual (SARTSM) Chapter 13, Volume 2 of 1999
Road Traffic Act No. 93 of 1996 (as amended)
Covid 19 Occupational Health and Safety Measures in Workplaces (Covid-19 C19 OHS), 2020

C2 PURPOSE OF THIS PROJECT SPECIFIC HEALTH AND SAFETY SPECIFICATION (PSHSS)

This PSHSS highlights the aspects to be implemented over and above the minimum requirements of current legislation. Requirements may be changed should new risks or issues be identified that could not have been foreseen during the design phase of the project. The Principal Contractor will be required to include Covid 19 health and safety measures in the construction health and safety plan.

C2.1 Preamble

The Department of Transport (ECDoT) is tasked to provide infrastructure within the Eastern Cape including the construction of roads and civil structures.

Each year fatalities and serious injuries mar the reputation of the Construction Industry. The ECDoT has a responsibility to limit such injuries by ensuring a zero tolerance approach to Contractors and those affiliated to a particular project. Thus a high premium is placed on the Health and Safety ECDoT stakeholders, which include its employees, professional service providers, public and its physical assets. The responsibilities that the ECDoT and relevant stakeholders have toward its employees are captured in this document. The responsibilities stem from both moral, civil and a variety of legal obligations.

The Principal Contractor is to take due cognisance of the above statement.

This PSHSS is a performance specification to ensure that the ECDoT and any bodies that enter into formal agreements with the ECDoT, i.e. Employer's Agents, Principal Contractors (PC) and Contractors, achieve an acceptable level of OHS compliance.

No advice, approval of any document required by this PSHSS (i.e. hazard identification and risk assessment, action plans) or any other form of communication from the Client shall be construed as an acceptance by the Client. Nor shall such communication relieve or absolve the PC from any obligation or from achieving compliance with legal requirements. The PC remains responsible for achieving the required performance levels.

C3 IMPLEMENTATION OF THE PROJECT SPECIFIC HEALTH AND SAFETY SPECIFICATION (PSHSS)

This PSHSS forms an integral part of the Contract, and the Principal Contractor is required to make it an integral part of their Contracts with Contractors and Suppliers. A PSHSS is to be available for each level of Contract and Contractor, and must be complied with.

This PSHSS must be read in conjunction with the OHSA, it's Regulations (as amended) and any other standards relating to work being done, and ensure compliance thereto. The information relative to the scope of the project, the works etc. is detailed in the tender document, and is to be taken into account when developing the H&S Plan and associated documentation.

The Employers baseline design risk assessment is included, as is a summary of risks identified. Refer to Annexure J in these specifications

C3.1 Summary of Risks Identified During Design

(a) General Requirements and Provisions (Series 1000)
(b) Drainage (Series 2000)
(c) Earthworks (Series 3000)
(d) Asphalt Pavements and Seals (Series 4000)
(e) Ancillary Roadwork's (Series 5000)
(f) Structures (Series 6000)
(g) Sundry Structures (Series 7000)
(h) Sundries (Series 8000)
(i) Specified Hazardous Chemical Substances

Should there be design changes, or change in the scope of works, an amended PSHSS may be issued. Where amended PSHSSs are issued, the PC will be required to ensure a resubmission of an amended H&S Plan and OHS BoQ for approval. Further to this, the PC must ensure that a similar system must be implemented between all their Contractors and Suppliers.

C4 REQUIREMENTS AT TENDER STAGE

C4.1 Documentation required from the Tenderer;

(a) Declaration – Fulfilment of the Construction Regulations 7th February 2014 and any subsequent additions
(b) OHS BoQ - Adequate pricing for Occupational Health and Safety is required, and the appropriate section in the BoQ is to be completed.
(c) OHS BoQ – Pricing should include also include Covid 19 compliance (Awareness, Screening, Sanitisers, PPE, etc.) as gazetted on the Covid 19 Occupational Health and Safety Measures in Work Places Covid-19 (C19 OHS) No.43257 of 29 April 2020

These documents can be found in the Tender Document and are to be completed by the tenderer where applicable. These documents shall be deemed to form part of the returnable Contract Documents.

C5 REQUIREMENTS PRE-COMMENCEMENT OF WORKS

C5.1 Documentation required from the Principal Contractor;

(a) The successful tenderer must provide a Project Specific Health and Safety Plan which includes Covid 19 health and safety specifications within 14 days of the award of the tender. Refer to "Annexure A" in these specifications.
(b) Mandatory Agreement "SECTION 37.2"

C5.2 Documentation required from the Employers Agent;

(a) Construction Specification and Scope of Works

(b) Contract Construction Drawings

(c) Geotechnical Reports

C5.3 Documentation required by the Employer or his/her appointed CHSA;

(a) Letter of Approval of the PC's OHS Plan.

(b) Application for a Permit to do "CONSTRUCTION WORK ANNEXURE 1"

The application will not be submitted until the PC's OHS Plan has been approved by the Client/CHSA and the Annexure 1 – Application for a Permit to do Construction Work being correctly completed by the Client/CHSA and the PC.

The Client or his/her appointed CHSA shall submit all the relevant documentation to the Provincial Director of the Department of Labour (DoL) once the OHS Plan has been approved, with the form as in Annexure 1 of the Construction Regulations-2014.

The following needs to be submitted with the Annexure 1 (but not limited to):

(a) Baseline risk assessment

(a) H&S Specification

(b) Approved H&S Plan

(c) Appointment letter for the Contracts manager and Construction health and safety officer together with certified copies of the identity document and training certificates.

(d) Registration certificate of the CHSO from the SACPCMP

(e) Letter of award from the Client

(f) Approved drawings

(g) Appointment letter as per CR 5(1) (k)

The site-specific Construction Work Permit Number must be displayed conspicuously at the main entrance to the site on its own. The size of the permit board should be clearly visible from a distance of 20 meters the site-specific number is not transferable.

The Principal Contractor must keep a copy of the construction work permit in the health and safety file. Should any changes be made to the Contracts manager and Construction health and safety officer as per the submitted construction work permit, the Principal Contractor must provide the replacement persons documentation for approval to the CHSA.

C6 REQUIREMENTS FOR COMMENCEMENT OF THE WORKS

No work may commence until the following has been complied with;

(a) Work Permit issued by the Department of Labour to the Employer/CHSA

(b) An acknowledgement letter must be signed by the Principal Contractor on receipt of Construction Work Permit from the Employer/ CHSA

(c) Covid 19 awareness and action plan [Government Notice No 43257 – 29 April 2020]

C7 REQUIREMENTS DURING THE CONSTRUCTION STAGE

C7.1 Requirements from the Principal Contractor

(a) Compilation and continuous updating of the H&S Plan. Refer to "Annexure B" in these specifications

(b) Action plans as well as close out reports for all non-conformances issued by the Employer, his/her Agent, CHSA or any other parties who have the necessary powers to conduct legal inspections on the construction site

(c) Construction Appointments. Refer to "Annexure C" in these specifications.

C7.2 Requirements from the Employer/CHSA

(a) Conduct at least a monthly or more frequently if deemed necessary OHS Compliance Audit of the PC's H&S File as well as the Works

(b) All activities on the site and all appropriate documentation will be monitored and reported on to the Client, Employer's Agent and PC.

(c) Discuss all findings of an audit with the PC and/or his/her representative

(d) Submit an audit report with findings within seven (7) days of the actual audit taking place

(e) Issue the PC with a non-conformance report within seven (7) days for action by the PC

(f) Non-conformance close out to be completed within 3 days of issue of audit report.

(g) Penalties or work stoppage instructions will be issued where appropriate.

(h) Communication between the CHSA and the PC will be through the Employers Agent.

C8 APPOINTMENTS

C8.1 Appointment of Competent Site Personnel

The CEO (OHSA S16.1) of the PC will take overall responsibility for the appointment of competent site personnel for the duration of the contract. Should the CEO not be personally involved in the project, the H&S responsibilities are to be delegated to the Contracts Manager (OHSA 16.2. and CR8.1)

In terms of the OHSA the PC is required to make the following minimum appointments for the duration of the Contract (or part thereof).

C8.1.1 Contracts Manager (CR8.1)

(a) Appointment of the Contracts Manager (CR8.1) is subject to approval by the Employer in terms of the Contract Data

(b) In the absence of the CR8(1) an alternate manager suitably qualified shall be appointed to manage the site.

C8.1.2 Construction Managers (CR8.2)

Appointment of the Construction Manager(s) (CR8.2) is subject to the size and complexity of the Contract as determined by the PC.

C8.1.3 Construction Work Supervisors (CR8.7)

Appointment of construction work supervisors shall be concluded by the contracts manager for construction activities.

C8.1.4 Construction Health and Safety Officer (CR8.5)

PC's H&S obligations
For this Contract it is a requirement that the PC appoint at least one (1) approved full-time CHSO to manage the on site OHS for the duration of the Contract.
The above CHSO's will report directly to the Contracts Manager and The PC's Construction Health and Safety Manager.(if applicable)

SMME Contractor(s) H&S obligations
Furthermore to the above the PC is required to appoint an additional at least one (1) approved full-time CHSO to manage the appointed SMME work packages on site for the duration of the works.

Please note that the full time CHSO appointed to manage the H&S obligations of the SMME Contractor(s) shall be assisted by Health and Safety Representatives (as referred to in "Clause C8.2.2" of this specification) as appointed by the SMME Contractor(s).
The SMME CHSO will report directly to the PC CHSO.

CHSO's CV's , qualifications and SACPCMP registration certificates are to be submitted to the Employer's Agent and CHSA for approval.

Candidate Construction Health and Safety Officers will not be accepted.
Approval of the CHSO's is subject to the following minimum requirements:

(a) Professionally registered with the South African Council for the Project and Construction Management Professions (SACPCMP) at a minimum as a Professional Construction Health and Safety Officer (Pr CHSO).
(b) Accredited Qualifications regarding the Occupational Health and Safety Act Procedures and Regulations.
(c) Valid South African driver's license
(d) Minimum two (2) years' experience related to Health and Safety on road construction projects.

The PC is required to provide each of the approved CHSO's with the following minimum resources:

(a) Suitable dedicated construction vehicle
(b) Mobile phone and airtime
(c) Computer with internet access and printer
(d) Camera with; Time, Date and GPS stamp facilities
(e) Vehicle dash camera for daily site video recording. (Allow for digital storage capacity)
(f) Two way radios for communication
(g) Any other equipment or facilities to enable him/her to carry out their duties effectively

Restrictions applicable to the approved CHSO's:

(a) May not be appointed or be responsible for any other work activity on site.
(b) May not be appointed as the Traffic Safety Officer in terms Clause B1502 (i), Section B, Part 3 of 4 of the Contract.

In the case of a contract where Contractors are employed, the CHSO must have the competence to evaluate the Contractors Health and Safety Plans.

The Contracts Manager assisted by the CHSO's will be held responsible for all H&S on the project. Senior Site Staff, Supervisors and Contractors are to follow systems, instructions etc. given by the CHSO at all times. No new workers or Contractors may commence work without the required site inductions and approval of the H&S Plan as submitted by Contractors.

The CHSO will be responsible for ensuring that daily Traffic Management is adequately managed for the entire construction site.

A monthly report compiled by the CHSO of all H&S activities and incidents is required by the end of the first week of each month, or at a date agreed to by the CHSA and the CHSO. Refer to "Annexure G" in these specifications.

The CHSO will be responsible for collating the H&S documentation (electronically) at the close out of the project. A list of the typical aspects are in included in these specifications. Refer to "Annexure D" in these specifications.

C8.2 Health and Safety Representatives and Committee (OHS Act 17 & 19)

C8.2.1 H&S Representatives are to be appointed following the start-up of the project, to be made up from both Principal Contractor, Contractors and Local Labour. Representatives from local labour can be appointed to represent such labour for the duration of the contract. Local labour should not be responsible for H&S duties unless appropriate training has been provided and the CHSO deems such labour competent to do so. Development in H&S of such labour would be an advantage to the community and the PC. H&S Representatives are to be actively involved with H&S and serve on the H&S Committee.

The CHSO shall ensure that there is a H&S Committee made up of active site staff and H&S Representatives, representing each work area, including all Contractors. Meetings will be held at least monthly, and more frequently if so instructed. Key site staff is to be appointed. Issues arising from the CHSA audits are to be discussed, as well as all H&S related issues.

Minutes are to be distributed and discussed among all workers and Contractors and records kept thereof. H&S Committee Meetings are to be held in the first week of each month

C8.2.2 The Health and safety Representatives as appointed by the SMME Contractors will also be required to train Safety Representatives for their respective works packages in the following fields to assist the CHSO appointed to manage the H&S for the SMME's

(a) Safety Representative
(b) HIRA
(c) Incident Investigation
(d) Level One First Aid
(e) Basic Fire Fighting

C8.3 Appointment of Competent Contractors (CR7.3)

C8.3.1 The Principal Contractor is to ensure compliance with the Clients minimum standards and all legislative requirements. The same H&S standards required of the PC are to be applied to all Contractors. A register of all Contractors and Suppliers is to be on file and kept updated at all times. The PC is to ensure there is sufficient funding for H&S compliance by each Contractor.

The following minimum aspects are applicable to any Contractor appointed:

(a) The CHSO is to ensure a Contractors appointment and approval of H&S
(b) documentation at least seven (7) working days prior to commencing work.
(c) No Contractor may work under the PCs Compensation Registration Number. If required the PC may assist SMMEs with their registration with the Compensation Commissioner. However, such Contractors will not be able to commence work until proof of registration or Letter of Good Standing has been received.
(d) No work may commence without the following documentation in place:
(e) The Contractor is to have an appointment letter
(f) Mandatory (37.2) agreements between parties in place.
(g) Valid letters of Good Standing or proof of application (not older than 3 months)
(h) OHS Plan Approval Letter issued by the PC

C8.3.2 The following aspects are applicable to Suppliers or short-term works (surveying, repairs, servicing, deliveries etc.). Cognisance is to be taken of the level of risk involved and the CHSO is to ensure the level of H&S documentation is appropriate:

(a) Mandatory Agreements in place
(b) Letter of Good Standing
(c) TMS and Risk Assessments
(d) Competencies for drivers and operators of delivery vehicles

C9 GENERAL RISK MANAGEMENT

C9.1 Health Risks and Medical Surveillance

A Contractor must ensure that all his or her employees have a valid medical certificate of fitness specific to the construction work to be performed as per Annexure I and issued by an Occupational Health Practitioner CR7.8.

Medical surveillance will commence at pre-employment. All workers (including Professional Team, Principal Contractor and Contractors) are required to be in possession of a medical certificate of fitness prior to commencing work. Annual medical surveillance is required (unless identified as being required more frequently), as well as an exit medical.

Given the potential health risks the following aspects are to be included in each medical surveillance intervention:

(a) Full medical, surgical and occupational history;
(b) Full physical examination of all systems, and
(c) Referral if required for the management of identified health issues that may affect the worker.

Specific testing for existing conditions and limitations relative to exposure could include, but are not limited to:

(a) Audiometry (hearing tests);
(b) Spirometry (lung function testing);
(c) Chest X-rays;
(d) Liver function testing (volatiles), and
(e) Any other tests identified as relevant

C9.1.1 Noise Risks

All plant and equipment is to be measured for noise levels as soon as the majority of plant is on site (including Contractors construction plant and equipment).

The CHSO shall provide a list of all plant on site with their individual noise levels as assessed. Findings are to be discussed at the H&S Committee and H&S Representatives and Supervisors are to ensure that noise zones are identified and wearing of the appropriate PPE is enforced.

C9.1.2 General Environmental Conditions

Any spillages of substances which could be toxic to persons must be dealt with adequately. The PC must include his spillage procedure in the OHS Plan in the OHS File.

C9.2 Emergency Procedures

Attention to emergency planning and procedures is very important. The full emergency plan must form part of the supporting documentation with the H&S Plan. The CHSA approval of all emergency plans and procedures is required prior to commencement on site. It is advised that the system should be simple and easy for any worker to follow. The plan must be updated should new information or risks be identified.

First aiders shall be available in each working team, and be able to work as a team when responding to any emergency on the project.

The procedure shall detail the response plan in relation to the works, and include at least (but are not limited to) the following key elements:

(a) Appointment of a competent emergency response co-ordinator and wardens;
(b) Lists of first aiders, and
(c) Requirement in terms of identified risks:
(d) Fire;
(e) Explosions;
(f) Falls from heights, and
(g) Motor vehicle accidents.

The emergency plan is to ensure the inclusion of relevant local service providers. Such arrangements should be made with these persons prior to the commencement of the project. Local emergency telephone numbers must be displayed and made part of the emergency procedure.

C9.2.1 First Aiders and First Aid Equipment

Competent, trained First Aiders are to be formally appointed for the project. If the project is in a remote area, at least 3 workers are to be trained to Level 3. In urban areas and close to medical assistance 2 Level 3 first aiders are required. First aiders are to be available at all times and be able to cover each working

team. Further first aiders from the community or SMMEs, if not already accredited, are to be sent for SAQA accredited first aid training. Contractors are expected to ensure compliance and manage their own first aiders and equipment.

The PC shall provide an on-site First Aid Station with first aid facilities, including first aid boxes containing, at least the requirements to manage the type of emergencies identified. All Supervisors are to carry a Regulation 3 first aid kit in their vehicles at all times.

C9.2.2 Fires and Emergency Management

The PC shall ensure that any fire risks will be managed appropriately. Trained fire fighters shall be appointed at offices or areas where fire risks are deemed high. The emergency plan shall include the risk of fire at site camps, on site and related to any specific activities.

Fire extinguishers are to be appropriate for the risk and in sufficient numbers to deal with the type of fires that could occur. Every item of heavy plant, e.g. Graders, TLBs, Rollers etc., must be fitted with at least a 4.5Kg DCP fire extinguisher.

C9.2.3 Incident Management and Compensation Claims

The PC will ensure there is a management system to investigate all incidents. All serious incidents involving any form of disabling injury or fatality are to be reported to the Employer's Agent and CHSA telephonically immediately. This shall be confirmed in writing as soon as possible after the incident. Full details are to be included in the H&S meetings, and each site meeting. The details are also to be included in the CHSO monthly report.

C9.3 Personal Protective Equipment (PPE) and Clothing (PPC)

The wearing of the identified SANS approved PPE and PPC at all times is non-negotiable. The PC shall ensure that all workers (Including Contractors and other PCs) are issued with and shall wear PPE/PPC as per the OHS BoQ.

Adequate quantities of PPE shall be kept on site at all times. This shall include necessary PPE for visitors.

C9.4 Occupational Health and Safety Signage

On-site H&S signage is required. Signage shall be posted up at the appropriate fixed or temporary working areas, on scaffolding, and other potential risk areas/operations including vehicles. These signs shall be in accordance with the requirements of the General Safety Regulations or SANS requirements as amended. Signage is to be noted on the site drawings indicating where fixed signage is required.

Signage is to include (but not be limited to) the following:

(a) 'no unauthorised entry';
(b) 'report to site office';
(c) 'site office';
(d) 'beware of overhead work';
(e) 'hard hat area' or other PPE / PPC requirements noted;
(f) First aid box positions (including vehicles), and
(g) Fire extinguishers

Signs shall be posted permanently or temporarily at areas of work onsite indicating that a construction site is being entered and that persons should take note of safety requirements.

The Contractor shall establish a system for controlling and recording entrance to the Site Office and camp area, which shall include a visitors site induction

C9.5 Induction of Employees and Visitors, General H&S Training

A formal induction programme is to be submitted as an addendum for approval with the H&S plan. Inductions must be carried out for all workers and visitors to the site. Pre-task training is required to ensure workers are familiar with the risks and H&S measures of the work or tasks to be done. Such training is to be done at least daily. Records of inductions and pre-task training are to be kept in the H&S file.

Any person found on site without proof of induction will be removed from site until the proof of their induction is supplied.

C9.6 Testing Laboratory and the use of Radioactive Equipment

A joint laboratory may be required, or a service provider will be appointed for the project. The service provider will be seen as a Contractor, or where appointed as a joint laboratory, as a PC. All the H&S rules and requirements are to be met. Where appointed as a PC, the CHSA will be responsible for approving the initial H&S plan and ensuring on-going compliance. All other requirements of the construction PC are to be met. Each PC is to be familiar with the H&S rules of each party. Mandatory Agreements, Inductions and Emergency requirements among other are to be addressed and managed to ensure limitation of H&S risks.

The use of radioactive equipment for the measuring of compaction parameters shall conform to the requirements of the "Code of Practice for the safe use of soil moisture and density gauges containing radioactive sources" as published by the Department of Health: Directorate: Radiation Control Soil revised September 2001. TMS, risk assessments and the appropriate training will be required.

C9.7 Use of Support Work, Scaffolding and other Temporary Works

Where temporary works are envisaged on the project, these must be properly designed and signed off by a competent person. In these instances a competent person is defined as a Professional Employer's Agent (registered with ECSA) who has sufficient experience in the design of the type of temporary work in question to be able to assess the design. The appropriate competent persons are to be appointed to manage and monitor such works to the satisfaction of the Employer's Agent. Where the scaffolding, and /or support work is to be supplied and designed by a specialist company, care must be taken to comply with all the requirements of the supplier. Records and registers are to be properly completed and kept in the H&S file.

All formwork must be designed and approved by a competent person.

C9.8 Quarries, Borrow Pits, Crushers, Blasting and Batch Plants

It must be noted that the use of quarries and borrow pits falls under the Mine Health and Safety Act 29 of1966 and its Regulations. Work in these areas must comply with these requirements and separate appointments and CoP's will be required.

Where single or multistage crushers are established on site, for quarries or borrow pits, the requirements of the MH&SA as well as the OH&SA and Regulations shall apply.

The Department of Mineral Resources (DMR), as well as the CHSA will carry out audits on this aspect of the project. Non-conformances raised by either party will require closeout within specified time periods negotiated at the time.

All blasting must comply with the Explosives Act No. 15 of 2003 and the OHSA and MH&SA or other legislation as applicable.

Blasting activities will only be allowed to take place from Tuesday's to Thursdays between the hours of 09:00 and 15:00. These times are to include the actual blast as well as clean-up of material.

If any blasting activities are to take place within 500m of any Eskom installation, including sub-stations and power lines. The Principal Contractor will be required to notify the local Eskom Depot Manager in writing seven (7) days before the blasting is to take place. This is due to Eskom having their own regulations regarding blasting in the vicinity of their installations

TMS and Risk Assessments will be required before blasting will be permitted. The Employer's Agent and CHSA will be required to approve the arrangements. Should a blasting Contractor be used, the requirements relating to the management of Contractors shall apply. A Blasting Application is attached, refer to "Annexure F" in these specifications.

C9.9 Management of Plant and Equipment

A substantial amount of large plant and equipment will be used. Close control of the PCs plant and equipment is required, including that of Contractors.

Daily monitoring of all plant and equipment is required prior to commencing work. Full lists of hired and own plant are to be available during the CHSA's audit. Copies of all daily inspection records are to be retained in the H&S file. Registers are not to be more than 1 week behind. Plant Hire or Haulage Contractors are to comply with the requirements, and comply with all H&S standards for the project.
All supervisory vehicles and construction plant are to be fitted with beacon/s capable of emitting an intermittently-flashing amber light in any direction.

All operators on site are to be competent and medically fit.

The following documentation is to be supplied for each operator on site:

(a) Valid medical certificate issued by an OH Practitioner and Annexure 3
(b) Valid driver's licence
(c) Applicable PrDP for vehicle or plant
(d) Appointment letter
(e) Competency certificate for the specific vehicle or plant to be operated

Movement of plant in closures and in confined working areas is to be closely monitored and managed by the CHSO and CTSO and Supervisors. The blind spots of plant are to be taken into account and workers and Contractors protected accordingly.

C9.10 Excavations

Steep slopes require careful management. A Geotechnical report is available and is to be utilised to assess ground conditions. Shoring may be required, where indicated in the Geotechnical report or by the Employer's Agent. The PC is to ensure that the Community Liaison Officer (CLO) and the local community, schools and general public are aware of the dangers of open excavations.

All excavations are to be securely barricaded at all times. Only barrier netting will be allowed.
Initial barricading will be the responsibility of the Excavation Inspector. Once the excavations have been barricaded this information will be submitted to the CHSO for continuous monitoring.
Continuous monitoring of all barricading around excavations will be the responsibility of the Excavations Inspector CM, CHSO and CTSO.

C9.11 Inclement Weather

High levels of humidity and temperatures during the summer months may be experienced. Workers are at greater risk of heat exhaustion where the discomfort index rises above 100. A weather station has been allowed for to monitor temperature and humidity specifically. Should the discomfort index rise above 105, work may be partially or totally stopped.

During winter in areas known for cold weather, notice must be taken of the wind-chill factor. Workers must be supplied with adequate protective clothing and shelters provided as necessary.

Flooding may occur during the rainy season. High winds may be experienced and to limit dust or danger when working at heights, a wind speed should be set at which work may be stopped or the workers in an affected area moved.

The emergency plan is to include how these and other weather extremes identified are to be managed. The general aspects as detailed in the Environmental Regulations will be applied.

All decisions regarding work stoppage will be decided between the PC, the CHSO and the Employer's Agent.

C9.12 Internal Auditing

The PC will ensure that all their Contractors are internally audited by the CHSO at least monthly prior to the CHSA monthly audit by the CHSO and these audit reports are to be available for perusal by the CHSA during the audit.

The PC audits may be done more frequently where short term contracts are in place, or deemed high risk. Audit results will be acted upon and non-conformances and penalties issued. The Client, Employer's Agent or CHSA may act or require further outcomes if non-compliances are noted or unsafe acts are noted on

site. Internal audits are to include site conditions as well as ensuring H&S files are appropriate, and compliant.

C9.13 Communication on Site

All communication on site will be done through the Employer's Agent to the PC and be in writing, including the issue and responses to non-conformances and H&S audit results.

C9.14 Care of Workers on Site (Welfare)

Toilets for each sex where applicable, will be within reasonable distance of workers, or placed with each working team in safety, with reasonable privacy. Only bacterial or enzyme based products may be used in portable toilets; the use of products containing Formaldehyde is not allowed. The ratio of portable toilets on site will be a minimum of 1:30. Daily cleaning and increased removal of waste may be required if deemed necessary. Proof of safe disposal of waste will be required. Waste Removal Contractors or the PC are to ensure the appropriate H&S systems are available to limit exposure to sewage.

Hand washing facilities will be provided. The Environmental and Facilities Regulations will be adhered to at all times.

C9.15 Discipline, Alcohol and Substance Abuse

All employees (management included) are to follow instructions given in the interest of H&S. Disciplinary action is to be imposed on those who do not follow such instructions or company rules or policies.

No person is allowed to work or access site if under the influence of alcohol or other substances that could impact on their own or others safety. The PC is to have a drug and alcohol policy available to manage such instances.

C9.16 Electrical Equipment

In addition to the requirements of the Electrical Machinery Regulations and the General Machinery Regulations any electrical distribution board used for construction work shall be fitted with suitable earth leakage protection. Leads must be properly and firmly connected, they should be so placed as to avoid damage especially if they cross portions of the site. Plugs and sockets shell are to be in good and safe condition.

All electrical apparatus, other than electrical hand tools, shall have a physical "lock out" system which will prevent any operation other than that authorized by a supervisor. A "lock out" sign shall be displayed when the apparatus is not in use.

TMS and Safe Work Procedures will be required for all work involving electrical apparatus.

The relevant certificate of compliance (COC) must be issued for the site camp and any other establishment with regards to the project.

C9.17 Traffic Accommodation

Traffic accommodation is covered under section 1500 of the COLTO specifications which form part of this contract and as amended by the requirements listed in the Amendments to the Standard Specification.

Traffic accommodation drawings will be according to SARTSM Chapter 13 Volume 2, and any changes suggested or required are to be discussed with the Employer's Agent.

Speed controls must be clearly stipulated and managed.

Speed limits must be strictly adhered to by all construction traffic. Unreasonable limits may be revised by the Employer's Agent and/or CHSA. Additional care must be taken where workers and construction traffic interface. This should be in the form of trained competent flag persons to direct vehicular traffic and adequate signage as directed by the Employer's Agent.

C9.18 Transportation of Workers to and on Site

Transportation of workers shall comply with the relevant legislative requirements. Vehicles used to transport workers to, from, or on site, shall have secure seats with seat belts and be covered. No equipment or materials shall be transported in the same vehicle at the same time as workers.

The CTO's and their teams are to have vehicles which are designed to safely transport employees as well as equipment at the same time. Preferably crew cab type vehicles.

Tenderers must indicate in their OHS Plans what type of transport is envisaged for the general employees and how this will be managed.

C10 HEALTH AND SAFETY FILE CLOSEOUT AT THE END OF THE PROJECT

The H&S File shall be closed out following the hand-over of the project.

For closeout requirements refer to "Annexure D" in these specifications.

C11 NON-CONFORMANCES

Should, at any time, the works, or part of the works, be stopped due to unsafe acts or non-compliance with the Clients or PCs H&S Plan; neither the PC nor any other Contractor shall have a claim for extension of time or any other compensation.

The following constitute examples of the types of non-conformances that will attract penalties:

Minor **Penalty: R500.00 / count**	**Medium** **Penalty: R1000.00 / count and a non-conformance**	**Severe** **Penalty: R5000.00 / count, a non-conformance and / or activity stoppage**
Non-use of PPE supplied	Toilets not supplied or regularly serviced Lack of drinking water	Contractors working without Health and Safety Plan approval
Non completion of registers for plant and equipment on site	Contractors not audited	Workers transported in contravention of the OHS plan or legal requirements
Lack of H&S signage at work areas	Working without training or the appropriate H&S TMS	Invalid Letters of Good Standing
Tools and equipment identified in poor condition during inspections	Legal non-conformances identified during the previous audit and not addressed within the agreed time frame	Non-compliance with traffic accommodation requirements: layout or physical conditions
	No monthly OHS report at site meeting to report on	Fall protection harness not tied off / not worn
	No certificates of fitness for workers as required	Any breach of legal requirements
	Working without approved TMS	

C11.1 Failure to Comply with Provisions

Failure or refusal on the part of the contractor to take the necessary steps to ensure the safety of workers and the general public in accordance with these specifications or as required by statutory authorities or ordered by the Employer's Agent or the Client's H&S Agent, shall be sufficient cause for the Employer's Agent to apply penalties as follows:

(a) A penalty as shown in the Table above shall be deducted for each and every occurrence of non-compliance with any of the requirements of the PSHSS.

(b) In addition a time-related penalty of R500.00 per hour over and above the fixed penalty shall be deducted for non-compliance to rectify any non-conformance within the allowable time after a site instruction to this effect has been given by the Employer's Agent Representative or Employer's Agent. The site instruction shall state the agreed 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.

FAILURE TO COMPLY WITH ANY OF THE ABOVE AS WELL AS ANY OTHER LEGAL REQUIREMENT WILL BE CONSIDERED A SERIOUS OFFENCE.

C12 MEASUREMENT AND PAYMENT

Payment items to cover the Principal Contractor's cost related to Occupational Health and Safety Compliance are included in the bill of quantities. These items are described under SCHEDULE C – OCCUPATIONAL HEALTH AND SAFETY in SECTION C : OCCUPATIONAL HEALTH AND SAFETY.

Item **Unit**

C10.01 Preparation of Principal Contractor's site specific Health and Safety Plan ..... lump sum

The lump sum tendered shall include full compensation for the Principal Contractor to prepare and submit, for approval by the Employer's Health and Safety Agent, a site specific health and safety plan as detailed in these specifications.

Payment of the once-off tendered lump sum shall be made only once the Employer's Agent has issued the instruction to commence the works.

Item **Unit**

C10.02 Principal Contractor's initial obligations in respect of the Occupational Health and Safety Act and Construction Regulations ..... lump sum

The lump sum tendered shall include full compensation for the Principal Contractor's initial obligations in respect of the Occupational Health and Safety Act and Construction Regulations as detailed in these specifications.

Payment of the once-off tendered lump sum shall be made only once the Employer's Health and Safety Agent has verified that the Principal Contractor has fulfilled the required initial obligations.

Item **Unit**

C10.03 Principal Contractor's time related obligations in respect of the Occupational Health and Safety Act and Construction Regulations .....month

The tendered rate per month represents full compensation for that part of the Principal Contractor's obligations in respect of the Occupational Health and Safety Act and Construction Regulations which are mainly a function of construction time.

The tendered rate will be paid monthly, pro-rata for parts of a month, from the date on which the Employer's Agent issue the instruction to commence the works to the date on which the Employer's Agent issue the Certificate of Completion in terms of the contract.

Payment shall be made when the Employer's Health and Safety Agent has verified the Principal Contractor's compliance as part of his monthly audit report.

Item **Unit**

C10.04 Provision of personal protective equipment (PPE):

(a to ....) As per Bill of Quantities ..... number (No)

The unit of measurement shall be the number of each type of PPE, specified in the bill of quantities, issued to local labours employed by the Principal Contractor in terms of the contract.

The tendered rate shall include full compensation for the procurement, delivery, storage, issuing and maintenance (replacement PPE) of all PPE required by local labours of the Principal Contractor. Payment shall be based on first time issuing of PPE, specified in the bill of quantities, to local labours employed by the Principal Contractor in terms of the contract. The issue register for PPE as kept by the Construction Health and Safety Officer shall be used to verify quantities of PPE claimed under this item.

General:

Only first PPE items, specified in the bill of quantities, issued to local labours employed by the Principal Contractor shall be paid for under this pay item. Replacement PPE issued to local labours shall not be paid for under this pay item and the cost thereof shall be deemed to be included in the rate of each type of PPE as specified in the bill of quantities. Any other PPE, not specified in the bill of quantities, issued to local labours such as standard overalls and standard workshop safety equipment shall be at the Principal Contractor's own cost.

The cost of required PPE for the Principal Contractor's site staff, operators and skilled labours shall be at the Principal Contractor own cost.

Item **Unit**

C10.05 Provision of full time Construction Health and Safety Officer:

(a) To manage the Principal Contractor's H&S obligations on site (No. required) .....month
(b) To manage the appointed SMME's H&S obligations on site (No. required) .....month

The tendered rate per month represents full compensation for providing full time Construction Health and Safety Officer(s) in terms of these specifications; to manage the Principal Contractor's H&S obligations on site for subitem C10.05(a) and to manage the appointed SMME's H&S obligations on site for subitem C10.05(b).

The tendered rate shall include full compensation for employment of full time Construction Health and Safety Officer(s) in terms of these specifications, overheads, provision of transport and all other equipment and resources necessary to carry out their duties effectively.

The tendered rate will be paid monthly, pro-rata for parts of a month for:

(i) Subitem C10.05(a), from the date on which the Employer's Agent issue the instruction to commence the works to the date on which the Employer's Agent issue the Certificate of Completion in terms of the contract

(ii) Subitem C10.05(b), from the date on which the first SMME is appointed by the Principal Contractor to the completion of the last SMME works.

Item **Unit**

C10.06 Costs of medical certificates and medical surveillance:

(a) Initial (baseline) medical, including audiometric and lung function testing.....Number (No)
(b) Annual or Periodic examinations.....Number (No)
(c) Exist examinations.....Number (No)

The unit of measurement shall be the number of medical testing and surveillance of local labours employed by the Principal Contractor in terms of the contract.

The tendered rates shall include full compensation for the obtaining of baseline, periodic (at least annually) and exit medical certification and conducting medical surveillance for all workers and especially operators of construction vehicles and mobile plant as contemplated in CR 23; Workers at Heights CR16 and workers exposed to hazardous chemicals including bituminous fumes under Regulation 7 of the HCSR; for temporary workers and workers exposed to noises at or above the limits given in the Noise-Induced Hearing Loss Regulations, as stipulated above.

Chest X-rays will be required in the case of local labours who may be exposed to high concentrations of dust (silica) working in the quarry and/or borrow pits

Medicals and medical surveillance of the Principal Contractor's site staff, operators and skilled labours shall be at the Principal Contractor's own cost.

Item **Unit**

C10.07 Environmental monitoring:

(a) Air quality monitoring.....Number (No)
(b) Compliance with Amendment of the Occupational Exposure Control Limit for Silica in Table 1 of the Hazardous Chemical Substances Regulations (February 2010).....Number (No)
(c) Air sampling in situ.....Number (No)
(d) Analysing sample.....Number (No)
(e) Tests on workers.....Number (No)

The unit of measurement shall be the number environmental monitoring, sampling and testing required in terms of the contract.

The tendered rate shall include full compensation for testing and monitoring the environment in respect of general health hazards including the presence of hazardous chemicals, as required by the Construction Regulations and the Mine Health and Safety Act. Furthermore the costs shall include for all air monitoring, air sample testing and tests on workers for silica exposure as required by the above amendment. It should be noted that these items must be under the control of an authorised inspection authority which would normally be a registered H&S Hygienist or Occupational Health Practitioner familiar with the Hazardous Chemical Regulations and include for all necessary costs in this regard including travelling to and from site and all required reporting.

Item **Unit**

C10.08 Establishment of noise zones .....Number (No)

The unit of measurement shall be the number of noise zones established on site in terms of Regulation 9, of the Noise-Induced Hearing Loss Regulations.

The tendered rate shall include full compensation for establishment of noise zones on site, including any workshops, in terms of Regulation 9, of the Noise-Induced Hearing Loss Regulations.

All equipment established on site by the Principal Contractor are required to have noise zones established before coming onto site and therefor any noise level testing for establishment of noise zones are at the Principal Contractor's own cost.

Where a zone has previously been established for a particular item of equipment within the last two years, the test need not be repeated but must be kept valid for the duration of the contract.

Item **Unit**

C10.09 Payment for Health and Safety Representatives at meetings .....hour (hr)

The unit of measurement shall be the number of hours appointed Health and Safety Representatives attend monthly meetings.

The tendered rate shall include full compensation for the loss of productive time while attending monthly meetings as specified in these specifications.

Payment shall be based on attendance registers of monthly meetings submitted to the Employer's Health and Safety Agent for verification.

Item **Unit**

C10.10 Provision of First Aid Boxes .....Number (No)

The unit of measurement shall be the number of first aid boxes provided by the Principal Contractor on site.

The tendered rate shall include full compensation for the provision and maintenance of first aid boxes in terms of these specifications.

Item **Unit**

C10.11 Transportation of workers .....month

The tendered rate per month represents full compensation for the safe transportation of workers in terms of these specifications.

The tendered rate will be paid monthly, pro-rata for parts of a month, from the date on which the Employer's Agent issue the instruction to commence the works to the date on which the Employer's Agent issue the Certificate of Completion in terms of the contract.

Item	Unit

C10.12 Submission of the Occupational Health and Safety File ..... lump sum

The lump sum tendered shall include full compensation for the Principal Contractor's to fulfil all his close-out obligations in respect of the Occupational Health and Safety Act and the Construction Regulations and has submitted his Health and Safety File complete as envisaged in these specifications to the Employer's satisfaction.

The Principal Contractor's Health and Safety File must be submitted to the Employer's Health and Safety Agent prior to the Employer's Agent issuing the Certificate of Completion in terms of the contract.

Item	Unit

C10.13 Construction Work Permit Board..... lump sum

The lump sum tendered amount shall include compensation for the Principal Contractors obligation to prominently display the permit number at the site entrance, in respect of the Construction Regulations.

ANNEXURE A CONTENTS AND NUMBERING FOR THE H&S PLAN

1. Index of the H&S Plan
2. Letter of Good Standing from Workman's Compensation Commissioner or with a licensed compensation insurer as contemplated in COIDA
3. Appointment letter from the Employer
4. Signed Section 37(2) Agreement between the Employer and the Principal Contractor
5. Occupational Health & Safety Policy
6. Quality Policy
7. Environmental Policy
8. Waste Management Policy
9. HIV AIDS Policy
10. Alcohol / Drug Policy
11. PPE / PPC Policy
12. Health & Safety BoQ
13. Employers Site Specific Safety Specification
14. Project Specific Baseline Hazard Identification and Risk Assessment
15. Site Specific Risk Assessment
16. Technical Method Statements, Safe Operating Procedures and Safe Work Procedures for the first three (3) months planned project works
17. Site Specific Organogram
18. Signed Appointment Letters and CV's for the following Site Personnel

18.1.	Responsible Person	16.2
18.2.	Construction Manager	CR8.1
18.3.	Assistant Construction Manager	CR8.2
18.4.	Construction Health and Safety Officer	CR8.5
18.5.	Construction Supervisor	CR8.7
18.6.	Risk Assessor	CR9
18.7.	Construction Traffic Safety Officer	S 8(2)(d)
18.8.	Incident Investigator	GAR9
18.9.	First Aider	GSR3.4

19. A Site Plan indicating the following;
    - 19.1. Positions of emergency assembly points and equipment at the site camp, or each fixed working area
    - 19.2. Traffic routes for plant and pedestrians as well as parking areas
    - 19.3. Storage areas (flammable stores, materials etc.)
    - 19.4. Location of facilities
    - 19.5. Electrical installations
20. First Aid, Accident, Incident and Emergency management procedure
21. Safety and Access Signage management procedure
22. Traffic Safety management procedure
23. Waste management procedure
24. Hazardous chemical substances management procedure
25. Construction plant and machinery management procedure
26. Public Health and Safety management procedure
27. Employee facilities management procedure
28. PPE management procedure
29. Occupational medical examinations procedure
30. Safety inspections and Inspection register management
31. Internal Audit management procedure
32. Contractor management procedure

ANNEXURE B CONTENTS AND NUMBERING SYSTEM FOR THE H&S FILE

Approved H&S Plan (as submitted at Pre-Construction Stage for approval by the Employer)

All Construction/TMS and SWP are to be generated by senior site personnel, and the appropriate Risk Assessments developed therefrom in conjunction with the CHSO.

The TMS and SWP are to be signed by the CM, CHSO and EAR on site

The construction team is to ensure that the CHSO is kept up to date with all planned activities, to ensure all H&S requirements are met.

1. Index of the H&S File
2. Updated COIDA Letter of Good Standing
3. Updated organizational organogram and signed Letters of Appointment
4. Registrations, qualifications and other proof of competency
5. Training and Competency Matrix
6. Medical Certificates of Fitness
7. Risk monitoring and review records
8. Procedures
    - 8.1. Training and OHS competency
    - 8.2. General record keeping
    - 8.3. Issue based risk, risk review and risk monitoring management procedure
    - 8.4. Night work
    - 8.5. Excavation management (include hard rock)
    - 8.6. Temporary work management
    - 8.7. Fall protection plan
    - 8.8. Demolition management
    - 8.9. Electrical management
    - 8.10. Delivery, offloading, stacking, storage and housekeeping
    - 8.11. Concrete and batching management
    - 8.12. Hired plant and machinery management
    - 8.13. Lifting and rigging management
    - 8.14. Water environments
9. Registers
    - 9.1. Issue based Risk Assessments
    - 9.2. Inspection Registers
    - 9.3. DSTI records
    - 9.4. MS & SWP training records
    - 9.5. Induction training programme & records
    - 9.6. Visitor Induction records
    - 9.7. Inspection & Maintenance records
    - 9.8. PPE Issue and Condition check
    - 9.9. Incident registers & Investigation reports
10. COIDA accident and incident management
11. Waste manifests
12. Safety Data Sheets
13. Internal audits
14. Letters of Approval Contractors H&S plan
15. Letters of Appointment of Contractors
16. Audits by Employers Agent
17. Corrective/Preventive action plans for clients audits
18. Contractors audits
19. Certified documents and Permits (CoC – PV Test – Lifting Equipment Certificates – Haz.Substance Permits)
20. Archived Documents

ANNEXURE C CONSTRUCTION APPOINTMENTS

No	Designation	Legal Reference
1	Principal Contractor	CR 5.1(k)
2	Contractor	CR 7.1(c)(v)
3	Construction Manager	CR 8.1
4	Assistant Construction Manager	CR 8.2
5	Construction Health and Safety Officer	CR 8.5
6	Construction Supervisor	CR 8.7
7	Assistant Construction Supervisor	CR 8.8
8	Risk Assessor	CR 9.1
9	Fall Protection Plan Developer	CR 10.1(a)
10	Fall Protection Plan Supervisor	CR 10
11	Temporary Works Designer	CR 12.1
12	Temporary Works Supervisor	CR 12.2
13	Excavation Supervisor	CR 13
14	Blaster	CR 13.2(k)
15	Demolition Supervisor	CR 14
16	Explosive Method Plan Designer	CR 14.11
17	Scaffold Supervisor	CR 16.1
18	Suspended Platform Supervisor	CR 17.1
19	Rope Access Work Supervisor	CR 18.1(a)
20	Material Hoist Inspector	CR 19.6
21	Material Hoist Inspector	CR 19.7(a)
22	Bulk Mixing Plant Supervisor	CR 20.1
23	Bulk Mixing Plant Operator	CR 20.2
24	Explosive Actuated Fastening Device Controller	CR 21.2(g)(i)
25	Construction Vehicle and Mobile Plant Inspector/Operator	CR 23.1(d)(k)
26	Electrical Installation Controller	CR 24(c)
27	Electrical Installation Inspector	CR 24(d)
28	Housekeeping Supervisor	CR 27
29	Stacking and Storage Supervisor	CR 28
30	Fire Extinguisher Inspector	CR 29(h) & PER 19
31	Assigned Responsibilities	OHSA S 16.2
32	Scaffold Inspector	SANS 10085-1:2003 Item 16.1(c)
33	Scaffold Erector	SANS 10085-1:2003 Item 16.1(a)
34	Traffic Control Planner	OHSA S 8.2(d)
35	Traffic Control Supervisor	OHSA S 8.2(i)
36	Emergency / Fire Co-ordinator	OHSA S 8
37	Incident Investigator	GAR 9
38	First Aider	GSR 3
39	Ladder Inspector	GSR 13A
40	Lifting Machine Operator	DMR 18
41	Portable Electrical Equipment Inspector	EMR 9
42	Radiation Protection Officer	National Nuclear Regulatory Act 1999
Additional appointment could be added as and when required		

ANNEXURE D CLOSE OUT REQUIREMENTS

CONSOLIDATED HEALTH & SAFETY FILE			
Construction Regulations - February 2014 7(1b,e & f)			
	DEFINITION: CONSOLIDATED HEALTH AND SAFETY FILE		
	A file or other means containing record in permanent form, of the information required as contemplated in the **Construction Regulations of February 2014: Regulation 7(1b, e & f)**		
1	**The H&S files for the Principal Contractors and all Contractors require closure and handover to the Client at the completion of the project.** **The following list is an example of what should be included, but is not exhaustive.** **The OHS Agent or the Client may require further information at the time of completion and the Principal Contractor is to ensure that all instructions are met. Documentation would include all records from the start of the project.** **Daily or monthly plant inspection records are not required unless they are related to an accident**. **All records to be in electronic format and submitted to the OHS agent for approval in adequately formatted lists and folders.** **Layout should be logical and in the same order as in the site files.**		
REQUIRED DOCUMENTATION			
2	**The Principle Contractor submits a formal letter to the project appointed Agent, consolidating and Confirming the H & S history of the project.**	**INCLUDED**	
	The following summary of information is required in the letter, but not limited to:	**YES**	**NO**
a	Client H&S Specification		
b	Principal Contractor's OHS Plan(s)		
c	Organograms		
d	Legal Appointments		
e	Notification to Department of Labour of commencement of work		
f	Letters of Good Standing for the Project		
g	Full files for all Contractors as well as their close out reports		
i	List of Contractors		
ii	Letters of Approval of Contractors		
iii	Mandatary Agreements		
iv	Letters of Good Standing		
v	Appointments		
h	Incident Records		
	Non- Conformance records		
	Agent's Audits		
	TMS		
	Risk Assessments		
	Safe Work Procedures		
	Medical surveillance certificates of fitness. Medical records are to be kept according to the OH&S Act as amended.		
	All drawings for temporary structures (suspended beams/scaffolds etc)		
	Copies of test results, policies and procedures for environmental monitoring (silica, noise, dusts etc.)		
Please Note:			
3	The Client's appointed OHS Agent will verify the submission of the Principal Contractor in writing before handing the above documentation to the Client		
4	The Client / Agent need to evaluate the SHE performance of the Principal Contractor i.e. Compliance, Performance, Quality and refer same in their cover letter which will be added to the Principal Contractor's portfolio of evidence.		
	Defect and Liability Period		
5	The H&S files are to be kept 'live' for the defect and liability period by the Principal Contractor, including those of their Contractors. Any work required during the defect and liability period will require an assessment of the H&S file by the OH&S Agent prior to any work commencing. A copy of the as-built Drawings is to be placed on file by the Designers once complete.		

ANNEXURE E SPECIFIED HAZARDOUS CHEMICAL SUBSTANCES

PRODUCT	POTENTIAL HEALTH OR OTHER RISKS
CEM II grade 32,5N / Cement	Hand mixing may occur, will be used for structures, stabilizing. 50kg bags delivered on pallets, ergonomic risk from handling, dust exposure, chromates. Eye, skin and respiratory irritant
Shutter Oil	Usually hand application prior to placing formwork in position. Volatiles present. Skin and respiratory irritant.
Penetration grade bitumen 70/100	Vapours, overexposure to fumes- loss of consciousness, respiratory problems.
Polymer modified bitumen-Class S-E1 (Hot applied)	Avoid skin contact with hot emulsions, Burns
Polymer modified emulsion (cold Applied)	Principal Contractor to ensure use of SDSs and appropriate protection measures
Petroleum based pre-coating fluid	Danger of cutaneous absorption, irritation to the skin
Polymer modified binder conforming to class A-E2	Principal Contractor to ensure use of SDSs and appropriate protection measures
Asphalt	Inhalation will cause headaches, nausea, respiratory, eye and skin irritation. Carcinogen. Burns from hot mix. Hydrogen Sulphide and carbon monoxide emitted as by-product. Breaking or cutting will release silica (crystalline)
Retro-reflective Road paint	High levels of volatiles, Products have narcotic effect. Carcinogen
Lime	Dust, eye and respiratory irritation
Petrol/Diesel/Lubricants	Storage tanks/ bowsers on site. Fire, spillage, fumes
Superphosphate Fertilizers	Eye, respiratory and skin irritant
Limestone Ammonium Nitrate Fertilizer (LAN)	Prolonged skin or eye contact could cause irritation. Explosive and will release toxic fumes if heated
Formula 2:3:2 Fertilizer	Prolonged skin or eye contact could cause irritation. Explosive and will release toxic fumes if heated.
Creosote (pre-treated poles)	Eye and skin irritation and minor burns, carcinogen
Herbicides and Ant Poison	Type not specified, but will be used. Principal Contractor to ensure use of SDSs and appropriate protection measures
Epoxies and Epoxy Resins	Type not specified, but will be used. Principal Contractor to ensure use of SDSs and appropriate protection measures
Coatings	Type not specified, but will be used. Principal Contractor to ensure use of SDSs and appropriate protection measures
Grouts	Will be determined by the Principal Contractor; various grouts will be required, cementitious or other, may contain silica (crystalline - quartz), hexavalent chromium, respiratory, skin and eye irritant

ANNEXURE F REQUEST TO CONDUCT BLASTING ACTIVITIES

PART 1 REQUEST TO CONDUCT BLASTING ACTIVITIES						
Request Date:						
Blast Date:						
Blast Time:						
Blasting Company:						
Project:						
Project Number:						
Blast Number:						
Request Submitted By:						
Blast Details						
Blaster Name:						
Location GPS:						
Chainage No:						
Average Hole Depth:						
Number of Holes:						
Type of Explosives:						
Estimated Quantities of Explosives to be Used:						
Estimated Rock Volume:						
Blasting Company's Documentation						
Blasting Certificate of Registration:						
Letter of Good Standing:						
Explosives Permit:	No:		Expiry Date:			
Explosives Transport Permit:	No:		Expiry Date:			
Risk Assessment:						
Legal Appointments:						
Competency Certificates:						
Hazards						
Distance to Nearest Structures and Services in meters:						
Vibration Recorder to be Placed at:						
Photographic Evidence of Nearby Structures:						
Copies Attached:						
Other Comments:						
Notices Distributed to:	Contractor	Client	Employer's Agent	Safety Agent	Community	Media

Accepted by Principal Contractor:	Date	Name	Signature
Construction Manager:			
Construction Safety Officer:			
Accepted by Client Representatives:	Date	Name	Signature
Employer's Agent:			
Construction Safety Agent:	Date	Name	Signature
Refused by Client Representatives:			
Employer's Agent:			
Construction Safety Agent:			
Reason for Refusal:			

PART 2 POST BLAST REPORT	
Blast Date:	
Blast Time:	
Blasting Company:	
Project:	
Project Number:	
Blast Number:	
Report Submitted By:	
Blast Details	
Blaster Name:	
Location GPS:	
Chainage No:	
Post Blast Report	
Average Vibration:	
Damage to Structures, Vehicles and / or Services:	
Photographic Evidence of Damages:	
Injuries to People / Animals	
Other Comments:	

	Date	Name	Signature
Received by Principal Contractor:			
Construction Manager			
Construction Safety Officer			
Received by Client Representatives:			
Employer's Agent:			
Construction Safety Agent			

ANNEXURE G CONSTRUCTION HEALTH AND SAFETY OFFICER MONTHLY REPORT

MONTH ENDING: **YEAR:**

Manpower Returns	Current Month	Project to Date
Total Number Principal Contractors employees		
Total Number Contractor employees		
Total Number of Contractors		
No. Shifts/Days Worked (incl. Weekend & Public Holidays)		
Man Hours Worked		
Total for Principal Contractor		
Total for Contractor/s		

Total All Man-Hours For Current Month	Total All Man-Hours Worked	LTI Free Hours (From Last Incident)	Target LTI Free Hours

List of Contractors	No. of Employees	No. of Vehicles

Incident Report	Current Month	Project to Date	Investigation Status
No. of First Aid Cases			
No. of Medical Cases			
No. of Lost Time Injury (LTI) excluding Fatalities			
No. of Occupational Disease Cases			
No. of Fatalities			
No. of Reportable Incidents			
No. of Environmental Incidents			
No. of Property Damage			
No. of Near Misses			
No. of Vehicle related Accidents			

Disabling Injury Frequency Rate	Current Month	Project to Date
(LT Injuries x 200 000) / man hours		

Incident Details

Incident No.	Brief Details (incl. Nature of Injury, e.g. Laceration on Right Hand)	Status of Injured Employee/s	Incident Type (e.g. Fall to Below, Struck By)

Incident Analysis and Trends and Action Plans
(Including new or revised risk assessments)

Corrective Actions Implemented	Actioned By	Date Completed

OHS Training	Current Month	Year to Date
Induction		
Safety Representative		
First Aid		
Fire Fighting		
Scaffold Erection and Inspection		
Vehicle (stipulate)		
Safety Harness		
Other		
Other		

Site Audits & Inspections		
Management		
Client		
External		
Additional Comments / Remarks (e.g. site issues or concerns)		
Awards or Achievements:		

Submitted By			
Name	**Designation**	**Signature**	**Date**

ANNEXURE H NON-CONFORMANCE CLOSEOUT REPORT

NON-CONFORMANCE CLOSE-OUT REPORT			
Project			
Client			
Principal Agent			
Principal Contractor			
CHSA			
OHS Audit No		Date of Audit	
Non-Conformance No		Non-Conformances to Date	

COMMENTS ON WHAT WAS DONE (ATTACH PROOF IF AVAILABLE)	DATE COMPLETED	VERIFIED BY CLIENT / AGENT

PHOTOGRAPHIC EVIDENCE	
1	2
3	4
5	6

Engineer's Representative (RE)	Principal Contractors - CM (8.1)
Date	Date
Principal Contractors CHSO (8.5)	**Client / CHSA**
Date	Date

ANNEXURE I EXAMPLE OF MEDICAL CERTIFICATE OF FITNESS

ANNEXURE 3

OCCUPATIONAL HEALTH AND SAFETY ACT, 85 OF 1993 CONSTRUCTION REGULATIONS, 2014

Medical Certificate of Fitness

Name of Employee:	ID Number:	Co. Number:		
	*Possible Exposures e.g. Noise, Heat, Fall Risk, Confined Space, etc.	*Job Specific Requirements e.g. Operating Mobile Crane, Digging Trenches, Erecting Formwork & Support Work, etc.	*Protective Equipment e.g. Dust Respirator, (Light Duty), Welding Gloves, etc.
*Occupation e.g. General Worker, Welder, Bricklayer, Steel Fixer, Mobile Crane Operator, etc.			

*** The Employer to complete the information in the spaces marked with an * before sending the Employee for a medical examination**

Declaration by the Medical Examiner:

I certify that I have, by examination and testing, using the above criteria specified by the employer, satisfied myself that the above mentioned employee is fit to perform the duties as described by the employer in the matric above.

Occupational Medicine Practitioner / Occupational Health Nursing Practitioner: (Please Print Name: _____

Practice Number: _____ Date : _____

Signature: _____

Address: _____

ANNEXURE J DESIGN HAZARD IDENTIFICATION AND RISK ASSESSMENT

DESIGN HAZARD IDENTIFICATION AND RISK ASSESSMENT	Low	Med	High
Risk Rating Multiplier: Low = 1; Medium = 2; High = 3	1	4	12
Baseline Raw Design Risk - Typical behaviour given the design / factors present	2	6	18
Residual Risk - The extra factors noted that must be in place to reduce the risk	3	8	27

Low Risk - Does not mean that the activity is safe, or that potential injuries and / or fatalities are eliminated
Key Risks will be assessed and reported on in the Site Specific H&S Specification
New tasks require re-assessment as the project progresses

GAR	General Administration Regulations	**GMR**	General Machinery Regulation
GSR	General Safety Regulations	**OHS Act**	Occupational Health and Safety Act and Regulations 85 of 1993
SANS	South African National Standards	**SWP**	Safe Work Procedures
SABS	South African Bureau of Standards	**MS**	Technical Method Statements
NIHL	Noise Induced Hearing Loss	**HCS**	Hazardous Chemical Substances
		PrDP	Professional Driving Permit

COLTO / LEGISLATION REF	Design aspect present	Yes / No	Describe the conditions and activities associated with the task	Baseline Raw Design Risk				Extra control measures necessary to reduce risk / Redesign	Residual Risk			
				Likely Consequences of an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category		Likely Consequences f an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category
SERIES 1000 - GENERAL REQUIREMENTS AND PROVISIONS												
1202	Services- Eskom, Telkom lines, underground water, and sewage. Telkom and Eskom will remove own services where required.	Yes	PC will expose and protect services.	2	2	2	8	Competent supervision and adequate pre-task training will be required	2	2	1	4
1202		Yes	May be illegal connections	2	2	2	8	Removal of asbestos pipe to be according to the Asbestos Regulations	2	2	1	4

COLTO / LEGISLATION REF	Design aspect present	Yes / No	Describe the conditions and activities associated with the task	Baseline Raw Design Risk				Extra control measures necessary to reduce risk / Redesign	Residual Risk			
				Likely Consequences of an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category		Likely Consequences f an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category
1202		Yes	Asbestos pipes	2	2	2	8	All excavations open longer than 1 shift are to be demarcated with netting or similar, at least 1m from the edge of the excavation. MS and SWP are required for the exposure of services, and are to be approved by the ER prior to commencing the activity	2	2	1	4
1219	Water	Yes	All water will be treated as contaminated and maybe unfit for human consumption	3	2	2	12	Treatment of contaminated water will be required, water testing will take place regularly. Tankers of water may be required to be brought in from other sources	3	2	1	6
1219		Yes	Potable water is available in the towns and rural water schemes are available for use. Alternate water sources/supplies will have to be approved by DWA	3	2	2	12		3	2	1	6

COLTO / LEGISLATION REF	Design aspect present	Yes / No	Describe the conditions and activities associated with the task	Baseline Raw Design Risk				Extra control measures necessary to reduce risk / Redesign	Residual Risk			
				Likely Consequences of an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category		Likely Consequences f an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category
1302	Construction plant workshops and camps to be established and maintained by the contractor for the duration of the contract	Yes	A number of camps may be established and maintained for various activities to construct what is required to undertake the works	2	3	3	18	The PC will be required to submit with his pre-tender H&S plan the TMS, risk assessments and supporting documentation to ensure overall activities are managed.	2	3	2	12
1402	Offices and Laboratories	Yes	Offices required for staff and a Laboratory for onsite testing	2	3	3	18	All buildings to be to SANS requirements and according to specifications in the tender document	2	3	2	12
1403	Housing	Yes	Housing for the Employer's Agents employees who operate the laboratory	2	3	3	18	All buildings to be to SANS requirements and according to specifications in the tender document	2	3	1	6

COLTO / LEGISLATION REF	Design aspect present	Yes / No	Describe the conditions and activities associated with the task	Baseline Raw Design Risk				Extra control measures necessary to reduce risk / Redesign	Residual Risk			
				Likely Consequences of an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category		Likely Consequences f an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category
1404	Electricity, Telkom, Water, Sewerage, Gas and Sanitation	Yes	Depends on the site chosen by the PC. May be septic tanks and or French drainage system. Temporary chemical toilets for use by workers Local or imported water supply, ESKOM, Telkom and gas supply River water is to be treated as contaminated, and workers may well be exposed when working around bridges and culverts	2	3	2	12	The ECO to provide the requirements relative to sanitary requirements on site. The PC will be required to submit with his pre-tender H&S plan the TMS, risk assessments and other supporting documentation to ensure start up activities are adequately managed. Please ensure adequate servicing of portable toilets in the very hot months, as the chemicals deteriorate more rapidly. Formaldehyde is used in the portable toilets	2	3	1	6

COLTO / LEGISLATION REF	Design aspect present	Yes / No	Describe the conditions and activities associated with the task	Baseline Raw Design Risk				Extra control measures necessary to reduce risk / Redesign	Residual Risk			
				Likely Consequences of an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category		Likely Consequences f an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category
1502(a)	Traffic Safety	Yes	The whole site will require traffic accommodation All deviations and Stop/Go controls to be conspicuously sign posted There will be public and construction traffic on the road during construction	3	3	3	27	Construction drawings to be provided, all accommodation in line with SARTSM Ch. 13 Vol. 2. TMS and risk assessments to reflect management of same. Dedicated Traffic Safety Officer is to be employed to control these requirements	3	3	2	18
1502(b)(f)	Temporary deviations	Yes	All deviations and Stop/Go controls to be conspicuously sign posted There will be public and construction traffic on the road during construction	3	3	3	27	Construction drawings to be provided, all accommodation in line with SARTSM Ch. 13 Vol. 2. TMS and risk assessments to reflect management of same. Dedicated Traffic Safety Officer is to be employed to control these requirements	3	2	1	6

COLTO / LEGISLATION REF	Design aspect present	Yes / No	Describe the conditions and activities associated with the task	Baseline Raw Design Risk				Extra control measures necessary to reduce risk / Redesign	Residual Risk			
				Likely Consequences of an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category		Likely Consequences f an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category
1502(e)(h)	Are there specific concerns regarding public access?	Yes	All deviations and Stop/Go controls to be conspicuously sign posted There will be public and construction traffic on the road during construction	3	3	3	27	Construction drawings to be provided, all accommodation in line with SARTSM Ch. 13 Vol. 2. TMS and risk assessments to reflect management of same. Dedicated Traffic Safety Officer is to be employed to control these requirements	3	3	2	18
1502(i)	Traffic Safety Officer (TSO) will be appointed?	Yes	All deviations and Stop/Go controls to be conspicuously sign posted There will be public and construction traffic on the road during construction	3	3	3	27	Adequate competent TSO's to be appointed. TSO shall not be H&S Officer	3	3	2	18
1503(a)	Construction will be under traffic?	Yes	Construction in half widths and single lane closures will be used for the project (24 hr) Stop/Go required	3	3	3	27	Traffic safety teams to maintain 24 hour closures, construction drawings to be provided, all accommodation in line with SARTSM Ch 13 Vol 2. Stop/Go controllers are not to exceed specified shift hours	3	3	2	18

COLTO / LEGISLATION REF	Design aspect present	Yes / No	Describe the conditions and activities associated with the task	Baseline Raw Design Risk				Extra control measures necessary to reduce risk / Redesign	Residual Risk			
				Likely Consequences of an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category		Likely Consequences f an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category
1503(b)	Erection of signage	Yes	Digging of holes and mounting of signs on poles, planting of poles, use of lifting equipment	3	3	3	27	PPE, Method Statement, Training, Lifting equipment to be certified as per DMR and other requirements of the OHS Act	3	3	2	18
1511	Dust from vehicles on the road	Yes	Dust suppression to be carried out in built areas and where employees are working and to improve driving visibility	3	3	3	27	Water tankers to spray roads as and when required	3	3	2	18
1700	Clearing and Grubbing	Yes	All Material to be stock piled for further use. Conservation of top soil	3	3	3	27	Permission from the Employer's Agent for the disposal of materials TMS and Environmental approval	3	3	2	18
SERIES 2000 – DRAINAGE												
2100	Drains	Yes	Open earth drains, Banks and dykes and sub-soil drains	2	2	2	8	Trenches kept to a minimum depth/ Excavations checked on a daily basis by competent person TMS, Risk Assessments, PPE	2	2	1	4

COLTO / LEGISLATION REF	Design aspect present	Yes / No	Describe the conditions and activities associated with the task	Baseline Raw Design Risk				Extra control measures necessary to reduce risk / Redesign	Residual Risk			
				Likely Consequences of an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category		Likely Consequences f an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category
2200	Prefabricated culverts Concrete kerbing, concrete	Yes	Where insitu casting is not preferred	2	2	2	8	Prefabricated culverts are to be to design specification. PPE, moving of castings with lifting equipment, Method Statement and Risk Assessment	2	2	1	4
2300	channelling, chutes and down pipes and concrete linings for open drains	Yes	Pre-cast kerbs, insitue concrete pavement construction in rural areas	2	2	2	8	Trenches kept to a minimum depth/ Excavations checked on a daily basis by competent person TMS, Risk Assessments, PPE	2	2	1	4
SERIES 3000 - EARTHWORKS AND PAVEMENT LAYERS OF GRAVEL OR CRUSHED STONE												
3100	Borrow Pits	Yes	Borrow pits will be spread to cover most of the site.	3	3	2	18	All borrow pits are to be fenced and only authorised personnel granted access. TMS All operators to be competent in their specific operations Rehabilitation of borrow pits	3	2	1	6

COLTO / LEGISLATION REF	Design aspect present	Yes / No	Describe the conditions and activities associated with the task	Baseline Raw Design Risk				Extra control measures necessary to reduce risk / Redesign	Residual Risk			
				Likely Consequences of an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category		Likely Consequences f an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category
3200	Stock piling	Yes	Stock piling will take place at the different sites along the route	3	3	2	18	Permission from the Employer's Agent for the disposal of materials TMS and Environmental approval are to be fenced and are to comply with the relevant safety regulations	3	2	1	6
3300	Haulage of material in tipper trucks	Yes	Material will be hauled on the entire project from a commercial source and borrow pits	3	3	2	18	Dust management, suppression, daily registers and competent operators TMS and SWP required	3	2	1	6
3400	Pavements	Yes	Excavation, compaction and placement of pavement	3	2	2	12	Alternative safe pedestrian passage is required where pavements are under construction TMS and SWP required	3	2	1	6
3500	Stabilization	Yes	Use of chemicals to be in line with safety regulations and MSDS's	2	3	3	18	PPE, MSDS, Method statements and SWP required	2	3	2	12
3600	Crushed stone base	Yes	Transportation and storage on site Hauled from commercial source and stock piles	3	2	2	12	TMS and SWP required	3	2	1	6
SERIES 4000 - ASPHALT PAVEMENTS AND SEALS												

COLTO / LEGISLATION REF	Design aspect present	Yes / No	Describe the conditions and activities associated with the task	Baseline Raw Design Risk				Extra control measures necessary to reduce risk / Redesign	Residual Risk			
				Likely Consequences of an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category		Likely Consequences f an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category
4102 4300 4600	Single and double layer seals will be used with slurry will be used. Mixes may change during the project. Applications may be “hot” or “cold” mixes	Yes	SDS’s, fire fighting and first aid equipment, bunded storage areas and correct disposal from site	3	3	3	27	First aiders, PPE, training, induction, medical surveillance, SWP and supervision	3	3	2	18
4103a,b,c,d 4303	Use of binders, water carts, rotary brooms, hand tools, spreaders, cutters, rollers and hand spraying	Yes	Operation may be conducted by Principal Contractor or Contractor	3	3	3	27	Noise Levels, PPE, supervision, training, induction	3	3	2	18
4302	Chips will be coated on site	Yes	Inhalation of fumes, exposure to dust	3	3	3	27	Limit exposure, Training, Induction, medical surveillance and PPE. Correct storage, washing facilities	2	3	1	6
4400	Cationic spray emulsion bitumen will be used. Material will be used at different temperatures 0C to 220C	Yes	SDS’s, Inhalation of fumes, burns	3	3	3	27	First aiders, PPE, training, induction, medical surveillance, SWP and supervision	3	3	2	18
SERIES 5000 - ANCILLARY WORKS												
5100	Stonework	Yes	Transportation of material to site. Manual labour. Vehicle traffic	3	3	3	27	TMS and SWP required PPE, DD Green gloves	3	3	2	18

COLTO / LEGISLATION REF	Design aspect present	Yes / No	Describe the conditions and activities associated with the task	Baseline Raw Design Risk				Extra control measures necessary to reduce risk / Redesign	Residual Risk			
				Likely Consequences of an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category		Likely Consequences f an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category
5200	Gabions	Yes	Transportation of material to site. Manual labour. Vehicle traffic	3	3	3	27	TMS and SWP required PPE, DD Green gloves	3	3	2	18
5400	Guardrails	Yes	Working on roadway while open to the traffic. PPE required and traffic control Steep drop offs	3	3	3	27	TMS and SWP required Workers are to be issued with DD Green gloves, PPE,	3	3	2	18
5600/5700	Road signs & markings	Yes	Manual labour on roadway while open to traffic Use of crane truck - Use of ladders	3	3	3	27	Competent contractor should be employed for this task Inspections of equipment and inspector of equipment to be appointed Load test of equipment required Approved traffic control and daily plans	3	3	2	18
5800	Landscaping	Yes	Use of chemicals and manual labour Poisons, Phosphates and Herbicides	3	3	3	27	TMS and SWP required SDS's, PPE and training	3	3	2	18
SERIES 6000 – STRUCTURES												
6100	Foundations	Yes	Transportation of material to site Excavations, Structures and culverts	3	3	3	27	TMS, SWP Operators to be competent	3	3	2	18
6113	Foundation Piling	Yes	Use of certified contractor for the piling works	3	3	3	27	TMS, SWP Operators to be competent	3	3	2	18

COLTO / LEGISLATION REF	Design aspect present	Yes / No	Describe the conditions and activities associated with the task	Baseline Raw Design Risk				Extra control measures necessary to reduce risk / Redesign	Residual Risk			
				Likely Consequences of an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category		Likely Consequences f an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category
6200	Formwork	Yes	Manual construction of formwork Shutter oil Manual labour	2	3	2	12	All formwork to be inspected and certified TMS, SWP, Training and SDS's	2	3	2	12
6300	Steel reinforcement	Yes	Steel fixing	3	3	3	27	Training, TMS, medical surveillance and working at height	3	3	2	18
6400	Concrete	Yes	Precast lintels, beams and culverts Batch plant and pouring	3	3	3	27	Mixing and Transportation is to be conducted with compliance to all safety and road regulations All operators to be competent in their specific operations	3	3	2	18
	Demolitions	Yes	Demolish existing concrete culverts and bridges	3	3	3	27	SWP and TMS are to be submitted before demolition is started Competent personnel, PPE, Correct disposal of rubble	3	2	1	6
6500	Pre-stressing	Yes	Pre-stressed beams and bridge beams	3	3	3	27	TMS, SWP, PPE, Specialised personnel	3	3	2	18
6600	Bearings and Joints	Yes	Bridges will have bearings and joints	3	3	3	27	TMS, SWP, PPE, Specialised personnel	3	3	2	18
SERIES 7000 - SUNDRY STRUCTURES												
7100	Concrete Pavements	Yes	Excavations, compacting and pouring of concrete	3	3	3	27	TMS, SWP, PPE, Specialised personnel	3	2	1	6

COLTO / LEGISLATION REF	Design aspect present	Yes / No	Describe the conditions and activities associated with the task	Baseline Raw Design Risk				Extra control measures necessary to reduce risk / Redesign	Residual Risk			
				Likely Consequences of an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category		Likely Consequences f an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category
7200	Reinforced earth	Yes	Retainer walls and Gabions	3	3	3	27	To be to Employer's Agents design. Checked on a regular basis	3	3	2	18
7400	Earth retaining systems	Yes	Retainer walls and Gabions	3	3	3	27	To be to Employer's Agents design. Checked on a regular basis	3	3	2	18
F1200	Concrete extensions	Yes	Some bridges and culverts will be lengthened and widened	3	3	3	27	To be to Employer's Agents design. Checked on a regular basis	3	3	2	18
OHS SPECIFICATIONS												
OHS Specification	Drilling	Yes	Holes for blasting will take place as follows; Borrow Pits and Road, TMS	3	3	3	27	Use of competent blasting and drilling company, TMS, PPE, Risk Assessments, SANS Codes	3	3	2	18
OHS Specification	Weather	Yes	High as well as low temperatures as well as humidity will be encountered	3	3	3	27	Weather station to monitor weather conditions	2	3	2	12
	Labour	Yes	Local labour as well as SMME's will be used	3	3	3	27	Local labour to have a medical. SMME's to produce H&S Plans before commencement of work on site	2	3	2	12

COLTO / LEGISLATION REF	Design aspect present	Yes / No	Describe the conditions and activities associated with the task	Baseline Raw Design Risk				Extra control measures necessary to reduce risk / Redesign	Residual Risk			
				Likely Consequences of an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category		Likely Consequences f an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category
	Preparation of blast areas	Yes	Preparation as per TMS	3	3	3	27	Use of competent blasting and drilling company, TMS, PPE, Risk Assessments, SANS Codes	3	3	2	18
	Blasting	Yes	Blasting on the road	3	3	3	27	Use of competent blasting and drilling company, TMS, PPE, Risk Assessments, Sans Codes, OHS Act and SWP. Approval of blasting plan from the ER and CHSA at least 48 hours before the planned blast	2	3	2	12
	All materials will be considered containing Silica	Yes	Risk Assessments, medical surveillance and chest x-rays for all workers and operators	3	3	3	27	PC is to ensure compliance and medical surveillance is adequately managed	3	3	2	18
	Crane Work	Yes	Cranes could be used to position bridge beams and / or culverts	3	3	3	27	Certified contractor, TMS, certified operators	3	2	1	6

COLTO / LEGISLATION REF	Design aspect present	Yes / No	Describe the conditions and activities associated with the task	Baseline Raw Design Risk				Extra control measures necessary to reduce risk / Redesign	Residual Risk			
				Likely Consequences of an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category		Likely Consequences f an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category
OHSSpecification	Transportation	Yes	Vehicles will be used on entire project	3	3	3	27	All operators to have a valid licence, PrDP (P.G.D.) Certificate of competence and a valid medical certificate issued by an Occupational Health Practitioner Vehicles to have amber flashing lights, reverse warning hooters and daily check checks	3	3	2	18
	Hazardous Chemicals	Yes	HCS's will be used during the project Construction Vehicles	3	3	3	27	Medicals are required for persons using HCS Medical certificate issued by an Occupational Health Practitioner TMS and SWP are to be in place	3	3	2	18
	Transportation	Yes	All vehicles to be identified as	3	3	3	27	Amber flashing lights, licensed competent operators	3	3	2	18
	Lifting Equipment	Yes	Lifting equipment will be used on the project	3	3	3	27	All lifting equipment is to be on a register All equipment to be tested according to DMR 18	2	3	1	6
	Fire Fighting Equipment	Yes	Fire fighting equipment will be used on site	2	3	2	12	All fire fighting equipment to be recorded and tested according to SANS 1475	3	2	1	6

COLTO / LEGISLATION REF	Design aspect present	Yes / No	Describe the conditions and activities associated with the task	Baseline Raw Design Risk				Extra control measures necessary to reduce risk / Redesign	Residual Risk			
				Likely Consequences of an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category		Likely Consequences f an Accident	Frequency of Exposure	Probability of Harm	Risk Rating Risk Category
OHSSpecification	First Aid Equipment	Yes	First Aid equipment will be used on site	3	3	3	27	All first aid equipment to be recorded and checked according to OHS Act GSR 3 Rural area and availability to emergency services is to be taken into account. Injuries resulting from the type of operations are to be taken into consideration for the provision of first aid equipment	3	2	1	6
	River work will be required in the dry season	Yes	There may be a need to construct coffer dams or pump water from excavations	3	3	3	27	Work in dry season, emergency plan, risk assessment, method statements and safe work procedures	3	2	2	12
	Hazardous Chemicals	Yes	SEE ANNEXURE	3	3	3	27	PPE, Method Statement, Training, Medicals and Induction	3	2	2	12

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-25/26-0016

UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)

PART C3 : SCOPE OF WORK

SECTION D: HIV/AIDS AWARENESS EDUCATION SPECIFICATION

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

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PART C3: SCOPE OF WORK

SECTION D : HIV/AIDS AWARENESS EDUCATION SPECIFICATION

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D1 SCOPE

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:

(a) Raising awareness about HIV/AIDS through education and information on the nature of the disease, how it is transmitted, safe sexual behaviour, 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 counselling, the diagnosis and treatment of Sexually Transmitted Infections and the closest health Service Providers.
(b) Informing Workers of their rights with regard to HIV/AIDS in the workplace.
(c) Providing Workers with access to condoms and other awareness material that will enable them to make informed decisions about sexual practices.

D2 DEFINITIONS AND ABBREVIATIONS

D2.1 Definitions

Service Provider: The natural or juristic person recognised and approved by the National Department of Transport 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: Person in the employ of the Contractor or under the direction or supervision of the Contractor or any of his Sub-contractors, who is on site for a minimum period of 30 days in all.

Representative / Agent: The Employer's Agent as defined in the Contract Data.

D2.2 Abbreviations

HIV : Human Immunodeficiency Virus
AIDS : Acquired Immune Deficiency Syndrome
STI : Sexually Transmitted Infection

D3 BASIC METHOD REQUIREMENT

The Contractor shall, through a Service Provider, conduct onsite workshops with the Workers.

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 regard to HIV/AIDS awareness.
The Service Provider Workshop Plan shall be based on the following information provided by the Contractor:

(a) Number of Workers and Sub-contractors on site.
(b) When new Workers or Sub-contractors will join the construction project.
(c) Duration of Workers and Sub-contractors on site.

(d) How the maximum number of Workers can be targeted with workshops.
(e) How the Contractor prefers workshops to be scheduled, *e.g.* three hourly sessions per Worker, or one 2.5 hour workshop per Worker.
(f) Profile of Workers, including educational level, age and gender (if available)
(g) Preferred time of day or month to conduct workshops.
(h) A Gantt chart reflecting the construction programme, for scheduling of workshops.
(i) Suitable venues for workshops.

The Contractor shall submit the Service Provider Workshop Plan for approval within 21 days after the commencement date. After approval by the Representative/Agent, the Contractor shall make available a suitable venue that will be conducive to education and training

The Service Provider Workshop Plan shall address, but will not be limited to the following:

(j) The nature of the disease;
(k) How it is transmitted;
(l) Safe sexual behaviour;
(m) Post exposure services such as voluntary counselling and testing (VCT) and nutritional plans for people living with HIV/AIDS;
(n) Attitudes towards other people with HIV/AIDS;
(o) Rights of the Worker in the workplace;
(p) 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 and confidentially;
(q) How the Service Provider will support the Awareness Champion;
(r) Location and contact numbers of the closest clinics, VCT facilities, counselling services and referral systems;
(s) How the workshops will be presented, including frequency and duration;
(t) How the workshops will fit in with the construction programme;
(u) How the Service Provider will assess the knowledge and attitude levels of attendees to structure workshops accordingly;
(v) How the video will be used;
(w) How the Service Provider will elicit maximum participation from the Workers;
(x) A questions and answers slot (interactive session)

The Service Provider Workshop Plan shall encompass the Specific Learning Outcomes (SLO) as stipulated.

D4 HIV/ AIDS AWARENESS EDUCATION AND TRAINING

D4.1 Workshops

The Contractor shall ensure that all Workers attend the workshops.

The workshops shall adequately deal with all the aspects contained in the Service Provider Workshop Plan.

A video of HIV/AIDS in the construction industry, which can be obtained from all Regional Offices of the National Department of Transport, is to be screened to Workers at workshops. In order to enhance the learning experience, groups of not exceeding 25 people shall attend the interactive sessions of the workshops.

D4.2 Recommended practice

D4.2.1 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 following session.

D4.2.2 Service Providers

A database of recommended Service Providers is available from all Regional Offices of the National Department of Transport.

D4.2.3 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 1: 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:

(i) Define and describe HIV and AIDS.
(ii) 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:

(i) Record in what bodily fluids the HI virus can be found.
(ii) Describe how HIV/AIDS can be transmitted.
(i) Demonstrate the 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 from entering the bloodstream

Assessment Criteria:
(i) Report on how to minimise the risk of HIV/AIDS infection.
(ii) Report on precautions that can be taken to prevent HIV/AIDS infection.
(iii) Explain or demonstrate how to use a male and female condom.
(iv) List the factors that could jeopardize the safety of condoms provided against HIV/AIDS transmission.

(d) UNIT 4: Voluntary HIV/AIDS counselling 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 counselling

Assessment Criteria:
(i) Describe methods of testing for HIV/AIDS infection.
(ii) Report on why voluntary testing is important.
(iii) Report on why pre- and post-test counselling 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:
(i) List and describe ways to manage HIV/AIDS.
(ii) Describe nutritional needs of people living with HIV/AIDS.
(iii) Describe ways to embrace a healthy lifestyle as a person living with HIV/AIDS.
(iv) Explain the need for counselling 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:
(i) Discuss anti-retroviral therapy.
(ii) List methods of treatment to prevent HIV/AIDS transmission from mother-to-child.
(iii) Describe the need for treatment of opportunistic diseases for people living with HIV/AIDS.
(iv) Describe post exposure prophylactics.

(g) UNIT 7: The rights and responsibilities of Workers in the workplace with regard 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:
(i) Discuss the rights of a person living with HIV/AIDS in the workplace.
(ii) Discuss the responsibilities of a person living with HIV/AIDS in the workplace.
(iii) Report on why acceptance and non-discrimination of colleagues living with HIV/AIDS is important.

D4.3 Displaying of plastic laminated posters and distribution of information booklets

The Contractor shall obtain a set of four laminated posters conveying different key messages and information booklets, which are available from all Regional Offices of the Department of Transport

The above-mentioned posters and information booklets have been prepared to raise awareness and to share information about HIV/AIDS and STIs

Posters or display stands shall be displayed on site as soon as possible, but not later than 14 days after the date of site handover

Posters shall be displayed in areas highly trafficked by Workers, including toilets, rest areas, the site office and compounds

The posters on display must always be intact, clear and readable

Information booklets must be distributed to all Workers as soon as possible, but not later than 14 days after site handover, or as soon as the Worker joins the site

D5 PROVIDING WORKERS WITH ACCESS TO CONDOMS

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.

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 made available 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 handover

Condoms shall be made available in areas highly trafficked by Workers, including toilets, the site office and compounds

D6 ENSURING ACCESS TO HIV/AIDS TESTING AND COUNSELLING FACILITIES AND TREATMENT OF SEXUALLY TRANSMITTED INFECTIONS (STI)

The Contractor shall provide Workers with the names of the closest Service Providers that provide HIV/AIDS testing and counselling and Clinics providing Sexually Transmitted Infection (STI) diagnosis and treatment. Information on these Service Providers and Clinics must be displayed on a poster of a size not smaller than A1 in an area highly trafficked by Workers.

D7 APPOINTMENT OF AN HIV/AIDS AWARENESS CHAMPION

Within 14 days of site handover the Contractor shall appoint an Awareness Champion from amongst the Workers, who speaks, reads and writes English, who speaks and understands all the local languages spoken by the Workers and who 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 and confidential manner.

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

D8 MONITORING

The Contractor shall grant to the Representative/Agent reasonable access to the construction site, in order to establish that the Contractor complies with his obligations regarding HIV/AIDS awareness under this contract.

The Contractor must report problems experienced in implementing the HIV/AIDS requirements to the Representative/Agent.

D9 REPORTING

D9.1 The contractor shall prepare and attach to his claims for payment a compliance report which outlines how the actions taken by the contractor in the period for which payment is claimed comply with the requirements, and a schedule which lists the names, identity numbers, trade/occupation and the name of the employer of all the construction workers exposed to the programme (refer Annexure A for a pro-forma for the report).

D9.2 The employer shall certify the report and schedule described in D9.1 whenever a claim for payment is issued to the employer.

NOTE: In the event that the contractor fails to comply with the requirements of D9, the employer may apply any of the sanctions provided for in the contract. Sanctions may include the application of a financial penalty.

D10 MEASUREMENT AND PAYMENT

Schedule C [Item EB1.01 to EB1.12] in the BoQ will be followed for Health and Safety of this specific tender. The pricing must include awareness, induction, training on all communicable diseases and health and safety in the workplace etc.

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-25/26-0016

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PART C3: SCOPE OF WORK

SECTION E: LABOUR SPECIFICATIONS

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-25/26-0016

UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)

PART C3: SCOPE OF WORK

SECTION E : LABOUR SPECIFICATIONS

This part of the project Specifications contains comprehensive additional specifications for matters not covered by and work which is not carried out in terms of the Standard Specifications. The number of each clause and each payment item in this part of the Project Specification is prefixed with an E to differentiate these clauses and items as additional works.

The following additional specifications are covered under this part of the Scope of Work:

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E1 EMPLOYMENT OF LOCAL LABOUR AND TRAINING REQUIREMENTS

E1.1 SCOPE

The specification sets out the requirements relating to the employment of local labour by involving the community through the established structures as well as the training requirements for these labourers.

E1.2 DEFINITIONS

The definitions given in the conditions of contract, the Contract Data and the Works specifications, together with the following additional definitions shall, unless the context dictates otherwise, apply:

'Key Personnel' means all contract managers, site agents, materials and survey technicians, trainers, supervisors, foremen, skilled plant operators 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.

'**Labourer'** means a worker statutorily defined as employees in the Basic Conditions of Employment Act, 1997, who is temporarily or permanently employed by the Contractor and subcontractors (SMME's) to perform prescribed work on this Contract. 'Labour' means labourers or workers.

'Labour Register' means the list of available Local Labourers compiled by the Community Liaison Officer (CLO) in co-operation with the Project Steering Committee (PSC) in accordance with the results of their negotiations with the Contractor and the Local Community subsequent to the awarding of the Contract.

'Local Labourer' means a worker who is normally permanently residing in the target area(s) as defined by the Employer in the Works Specifications and who is available to be temporarily employed by the Contractor and subcontractors to perform prescribed tasks that form part of the Works.

'Targeted Labour' means the Local Labourers, who are defined as the target group for the Contract as normally permanently residing in the target area(s) as defined by the Employer in the Works Specifications. It is incumbent on individuals defined as Target Labour to demonstrate their claims to such residency on the basis of identification and association with and recognition by members of the community residing within the target area. It is incumbent on individuals to provide evidence of qualifying for the target groups.

'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 and paid on an hourly paid basis to participate in the execution of any part of the contract works and shall include unskilled labour, semi-skilled and skilled labour, artisans, clerical workers and the like.
'Workforce' means the aggregate body comprising of all workers and shall, unless the context dictates otherwise, include the workforces of the Contractor and all subcontractors.

E1.3 ENGAGEMENT OF LOCAL LABOUR

The temporary workforce shall, as far as practically possible, and with the exception of key personnel, be recruited/selected from the local communities living in close proximity to the project.

Prior to the award of the Contract, the Employer shall, at his own cost, take all necessary actions to advertise within the local communities of the fact that the Contract will provide temporary employment opportunities and preference will be given to the use of the Local Labour on this Contract. Labourers and workers of the local community required by the Contractor shall be recruited/chosen from a Labour Register and appointed for work to enable the Contractor to comply with the specific minimum target value set for the Local Labour Goal (LLG) for the Contract. Labourers and workers of the Local community who are engaged by other employers, other sub-Contractors in paid positions of employment shall not be eligible for inclusion on the Labour Register.

E1.3.1 Employment of Local Labourers

Upon the award of the Contract the Contractor shall without delay consult with the Project Steering Committee (PSC), the Employer's Agent and the Employer, and appoint a Community Liaison Officer (CLO) from a shortlist provided by the PSC, if so instructed, who is mutually acceptable to all parties. The Community Liaison Officer shall negotiate with the Contractor and the PSC and compile the required list of available Local Labourers called the Labour Register (Labour Desk).

The Contractor shall select and appoint temporary contract workers required for work included in the Contract from the available Local Labourers listed in the Labour Register with due observance of the skills required for the work in question.

E1.3.2 Selection of Local Labourers

The Contractor shall advise the CLO and the PSC in writing of the various categories of Local Labourers required for construction and the number of Local Labourers required in each category, together with the personal attributes which he considers desirable that each category of Local Labourers shall possess, taking due cognisance of the provisions of the Contract relating to Training.

The Contractor shall make his selection of Local Labourers from the applicants in the Labour Register, taking due cognisance of his requirements for the workforce and the provisions of the Contract in regard of 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 labourers who already possess suitable skills; or
  (ii) The completion period allowed in the Contract, or the remaining portion of the Contract period (as the case may be) is sufficient to facilitate the creation of the necessary skills;

(c) Preference shall be given to the long-term and single heads of households;

(d) The Contractor shall, in so far as is reasonably practicable, accommodate the applicant's expressed preferences regarding the types of work for which they are selected;

(e) The selection process shall make provision for, but shall not be limited to, the inclusion in the Labour Register of disabled Local Labourers who are deemed capable to perform selected tasks, youths who are older than sixteen but not older than thirty five years and women.

After making his selection, the Contractor shall advise the CLO and the Employer's Agent thereof in writing, and the Employer's Agent, with the assistance of the CLO has the right to call a meeting with PSC and the Local Community for the purpose of ratifying the Contractor's selection. The Contractor shall attend such meeting and where reasonably required, shall motivate his selection. Should the Employer's Agent or the Local Community make reasonable objection to the selection of any particular applicant by the Contractor, the Contractor shall not employ such applicant and shall select another suitable applicant acceptable to the Employer's Agent and the Local Community as a replacement of the rejected applicant, in order to finalize the composition of the workforce.

The provisions this clause shall also apply in respect of the selection of additional or replacement members of the workforce as may be necessary from time to time for the execution and completion of the Works.

E1.4 CONTRACTUAL REQUIREMENTS

E1.4.1 Legislation

The onus shall be on the Contractor to ensure that all statutory requirements applicable to the employment of Labour are observed.

E1.4.2 Labour content

The Labour Content (LC) of the Contract shall be determined as follows:

LC = total value of wages, allowances and costs paid to local labourers, including those employed by subcontractors and selected subcontractors.

The total Rand value of the Labour Content, expressed as a percentage of the total Award Value (Contract Price exclusive of VAT, and allowances for contingencies and escalation), shall be defined as the Labour Content Percentage or the local labour goal as stated in Part C4. .

E1.4.3 Targeted labour

The targeted labour shall be as specified above. The definitions, provisions and specifications of the South African National Standard Specification SANS1914-52002, Targeted Construction Procurement : Part 5 : Participation of Targeted Labour will apply to this contract. Should there however be conflict between SANS1914-5:2002 and the Works Specification, the latter shall take precedence and prevail.

The Contractor shall engage targeted labour directly in the execution of the Works to the extent that the monetary value (Labour Content) of such engagement, expressed as a percentage of the Award Value (Contract Price exclusive of VAT, Provisional Sums, Prime Cost Sums and allowances for contingencies and escalation), is not less than that specified in Part C 4.of this tender document.

E1.4.4 Records and reporting

The Contractor shall maintain accurate and comprehensive records of all local labourers engaged on the contract. Forms 1 to 3 (of which pro-formas are included in Part C1: Agreements and Contract Data) shall be completed and submitted to the Employer's Agent at the end of each month, from the Commencement date up to the completion of the Contract. Form 3 may be substituted by the use of electronic banking records provided that the system can be audited.

The completed forms shall accompany the Contractor's monthly claim presented to the Employer's Agent for payment of certified completed word. The Employer reserves the right to delay payments due to the Contractor should the Contractor fail to provide any item of required documentation to the approval of the Employer's Agent.

The Contractors Labour Content performance will be measured at the end of each month in order to monitor the extent to which he is striving to reach the Local Labour Goal specified in Part A of the Works Specification.

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 independently audited documentary evidence of the total actually paid to the workforce and the number of workers days generated during the contract.

E1.4.5 SANCTIONS

In the event that the Contractor fails to substantiate that any failure to achieve the Local Labour Goal was due to quantitative under runs, the elimination of items, or any other reason beyond the Contractor's control which may be acceptable to the Employer, the Contractor shall be liable to pay to the Employer a financial penalty (P) calculated in accordance with the following formula:

$P = 1{,}05 \times (L_M - L_A) \times V_A$.

Where:

P	=	Rand value of penalty payable.
V_A	=	Award value (Contract Price exclusive of VAT, and allowances for contingencies and escalation)
L_M	=	Local Labour Goal % stated in the Project Document
L_A	=	The local labour component % which the Employer's Representative certifies as being achieved upon completion of the contract.

E1.5 PROJECT STEERING COMMITTEE

When required a Project Steering Committee (PSC) shall be established to manage the project, consisting of members elected from each of the wards along the project road. The Contractor will have one senior member of his staff as representative on the PSC without any voting powers.

The Contractor will report all progress, deviations from the Contract, deviations from the programme, labour related matters, and financial progress to the PSC.

The PSC will act as liaison channel between the Contractor and the community. The PSC will assist the Contractor in identifying and recruiting local labour for the project.

The Contractor shall hold meetings with the PSC on a regular basis (at least once per month but not more than twice per month) to ensure that the PSC is informed and aware of progress and problems that may arise.

Allowance is made for the payment of subsistence/travel allowances to the members of the PSC attending meetings with the Contractor, by the Contractor in the Schedule of Quantities.

E1.6 COMMUNITY LIAISON OFFICER

E1.6.1 Appointment

The Contractor shall appoint a Community Liaison Officer (CLO) after consultation with the Project Steering Committee (PSC), the Employer's Agent and the Employer, as a link between the PSC and the Contractor. The Community Liaison Officer shall be nominated by the PSC and shall be appointed as a member of the Contractor's management personnel and the Contractor's normal employment conditions shall be applicable to the appointment. The Contractor shall disclose his normal employment conditions to the Employer's Agent when called upon to do so.

E1.6.2 Duties of the Community Liaison Officer

The Community Liaison Officer shall:

(a) be available on Site daily between the hours agreed on by the Contractor, the Employer and the Employer's Agent from time to time;
(b) assist the Contractor in the identification of suitable trainees and shall attend one of each of the training sessions;
(c) communicate with the Contractor and the Employer's Agent to determine the labour requirements with regard to the numbers and skills;
(d) assist in maintaining good labour relations, and when applicable partake in Labourers' grievances and dispute procedures;
(e) assist in and facilitate the recruitment of suitable temporary labour and the establishment of the Labour Register (Labour Desk);
(f) attend all meetings in which the Local Community and/or Labourers are present or are required to be represented;
(g) assist in the identification, and screening of Labourers from the Local Community in accordance with the Contractor's requirements;
(h) inform temporary Labourers of their conditions of temporary employment, and inform temporary Labourers as early as possible when their period of employment will be terminated;
(i) attend disciplinary proceedings to ensure that hearings are fair and reasonable;
(j) keep a daily written record of his interviews and community liaison activities;
(k) carry out specific tasks ordered by the Employer's Agent;
(l) perform such other duties as required and agreed upon between all parties concerned.

E1.6.3 Remuneration

The remuneration of the Community Liaison Officer shall be determined jointly by the Contractor, Employer's Agent and the Employer. A Provisional Sum is provided in the Schedule of Quantities to cover the remuneration of the Community Liaison Officer.

The Community liaison Officer shall only be employed and paid for the period in which the duties of a Community Liaison Officer are required as agreed on by the Employer's Agent and the Contractor.

E1.6.4 Transport of the Community Liaison Officer

The Contractor shall provide transport for the Community Liaison Officer as agreed upon between the Employer, the Employer's Agent and the Contractor.

A Provisional Sum is provided in the Bill of Quantities to cover the provision of transport for the Community Liaison Officer.

E1.7 TRAINING REQUIREMENTS

Where training is specified in the Contract, the Contractor shall implement a formal training programme in which the various skills required for the execution and completion of the works are imparted to the workers, and where applicable, subcontractors engaged therein, 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.

All Training shall take place during normal working hours and the Contractor shall make adequate allowance in his programme of work to accommodate the Training to be provided in terms of the Contract and shall ensure that the workers are available at the appropriate times to undergo such Training.

The Contractor shall submit with his tender full details of the formal training which he intends to implement on the Contract. Details of the proposed Training shall be provided on Schedule of Proposed Training in the: Returnable Schedules and shall include the following:

(i) The name of the training institution and course programme.
(ii) Each type of training and course content synopsis.
(iii) The manner in which the training is to be delivered.

The cost of the Training in accordance with the Contractor's Schedule of Proposed Training programme shall not exceed the sums provided for Training in the relevant pay items in the Bill / Schedule of Quantities.

The Contractor's Training schedule shall be subject to the approval of the Employer's Agent, and the Contractor shall, if so instructed by the Employer's Agent, alter or amend the Training schedule and its contents to suit changing conditions on the Site and changes in the Contractor's programme of work.

E1.7.1 Training of Local Labourers

Depending on the requirements of the Contract the Training shall make provision for on-site hands-on Training, courses presented in-house by the Contractor, and selected courses presented by institutions accredited by the Construction, Education and Training Authority (CETA) or other institution recognized by the Department of Labour and the Employer.

Each Labourer shall receive basic instructions and on-site hands-on training for the category of work required to be executed by him/her.

An approved number of Local Labourers chosen by the Contractor in conjunction with the Employer's Agent shall attend in-house courses conducted by trainers in the employ of the Contractor in accordance with the approved Training programme to satisfy the need for trained Labourers on the Site.

Where formal accredited training is specified in the Contract, Local Labourers with the required aptitude shall be nominated by the Contractor, and subject to the approval of the Employer's Agent, shall attend

approved formal training courses presented by accredited institutions and considered essential for the execution of the Works.

For this purpose the Contractor shall submit a selection of courses from known training institutions accredited by the Construction, Education and Training Authority (CETA) or other institution recognized by the Department of Labour and the Employer from which the Employer's Agent will choose the courses to be attended by the nominated and approval Local Labourers.

E1.7.2 Training for Emerging Contractors (SMME's)

The Contractor shall closely monitor the performance of the principals of Emerging Contractors (SMME's), the execution of their subcontracts and shall identify those who, in his opinion, display the potential to benefit from formal Training provided for in the Contract, and when required by the Employer's Agent, the Contractor shall make recommendations in this regard. The final list of candidates will be decided on between the Contractor and the Employer's Agent.

Where required, Emerging Contractors engaged by the Contractor shall receive training and guidance according to an approved formal training programme which comprises both management skills and business development skills.

The Contractor shall, when requested provide full details of any additional accredited and in-house training, viewed to be necessary by the Contractor, which he intends to implement at his own cost.

If so indicated, the Contractor shall alter or amend the formal training programme and its contents to suit changing conditions on Site and changes in the Contractor's programme of work.

E1.7.3 Labourers remunerated during training

All Local Labourers employed by the Contractor shall be remunerated in respect of the time spent undergoing formal training. Payment for Labourers in respect of training periods during which no productive work is executed, shall be reimbursed to the Contractor as provided for in the Bill / Schedule of Quantities.

E1.7.4 Non-compliance

If at any stage the Employer's Agent notifies the Employee in writing that the Contractor is not complying with the requirements of the Contract in respect of the training to be provided to Local and other Labourers and to the Emerging Contractors, then the Employer is entitled to appoint competent firms or persons to conduct the specified training at the Contractor's expense and the amounts paid to such firms or persons will be deducted from the Contractor's payment.

The Contractor shall be obliged to make Local Labourers and other employees available for Training when so required by the Employer's Agent.

E1.8 FORMAL TRAINING

E1.8.1 General

The formal skills training programme to be implemented by the Contractor shall comply with the following minimum standards:

(a) Be accredited by the Construction, Education and Training Authority (CETA) or other institution recognized by the Department of Labour, as being appropriate for this project.

(b) Be delivered by suitably qualified and experienced trainers accredited to do so.

(c) Be delivered in the modules as described by an authorized Training Centre. The modules listed are those considered applicable to most civil Employer's Agenting projects and shall serve as a guide only for planning purposes. The actual training needs, training agency and programme shall be agreed with the Employer's Agent prior to implementation.

The Contractor shall be responsible for the provision of everything necessary for the delivery of the skills training programme, including the following:

(i) Sufficient skilled, competent and accredited trainers to deliver the training programme to all workers in accordance with the training programme;

(ii) A suitably furnished venue (if required)

(iii) Transport to and from the works (as necessary)

(iv) Tools, equipment and teaching aids;

(v) Stationery and all other necessary materials

All members of the workforce will initially receive training in the module. Road safety for construction workers followed by training in the various work activity modules depending on the activities for which they will be employed. Each worker employed must be given the opportunity of completing at least one of the work activity modules during the initial training period, with further training being given on merit.

The Contractor shall keep comprehensive records of the training given to each worker as well as the nature and number of work tasks executed by the worker and whenever required shall provide copies of such records to the Employer's Agent.

The Contractor shall in so far as it is reasonable and practical taking due and cognisance of the nature of the works to be executed at any given time, use training workers on those aspects of the works for which they have been trained.

E1.8.2 Accredited training and attendance

Only qualified trainers employed by training agencies that are accredited by the Construction, Education and Training Authority (CETA), or other institution recognized by the Department of Labour shall deliver all training. Accredited training referred to both the trainers as well as to the training material. Certificates affirming the successful participation in the various courses shall be presented to each attendant.

The Contractor shall facilitate in the delivery of training by instructing and motivating the hired local Labour, supervisors and subcontractors regarding attendance and participation.

All training shall take place within normal working hours or as greed with the trainees.

E1.8.3 Supervisors

Attention shall be given to the formal and informal training of supervisors.

Candidates having the potential to become supervisors shall be selected from amongst the workforce and be given additional formal and informal training as outlined above. This selection will take place only once the initial skills training have been completed and workers have been given sufficient opportunity to prove their worth.

E1.8.4 Training records and certificates

The Contractor shall keep comprehensive records of the formal training given to each Labourer and principal of the Emerging Contractor and whenever required shall provide copies of such records to the Employer's Agent. At the successful completion of each course each participant shall be issued with certificate indicating the course contents as proof of attendance and completion.

E1.8.5 Labour / Training Agent

If specified in the Contract, the Contractor shall appoint a Labour / Training Agent, subject to the written approval of the Employer's Agent. The Labour / Training Agent shall be on the Site at all times when Local and other Labourers are executing work allocated to them.

The labour / Training Agent shall report in writing to the Employer's Agent on a daily basis on the work executed by the Local and other Labourers in the employ of the Contractor, the quality of the work the progress and all other information that the Employer's Agent may require. The Labour / Training Agent shall also be responsible for those aspects of training which are assigned to him the Contract.

E1.8.6 Training centre

If so specified in the Contract a suitable onsite Training centre shall be provided by the Contractor to the satisfaction of the Employer's Agent. The Training centre shall comply with the specifications for sire offices as specified in the Specifications Measurement and payment of the Training centre and the required equipment shall be as specified in the Project Specification.

E2 SPECIFICATION FOR LABOUR-INTENSIVE CONSTRUCTION

E2.1 SCOPE

In order to reduce unemployment the Government has initiated the promotion of labour-intensive construction through the Department of Transport projects.

This is a short-term, non-permanent, labour-intensive programme initiated by Government and funded whether fully or partially, from public resources to provide a public asset.

This specification sets out the provisions and requirements relating to labour-intensive construction works.

E2.2 DEFINITIONS

For the purpose of this Contract, the definitions given in the Contract Data, the Standard Specifications, and the Works Specifications, together with the following additional definitions shall, unless the context dictates otherwise, apply:

'Labour-intensive' means the economically efficient employment of as many unskilled or semi-skilled Local Labourers as is technically feasible for an identifies portion or section of the Works.

'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.

'Workforce' means the aggregate body comprising of all workers and shall, unless the context dictates otherwise, include the workforces of the Contractor and all subcontractors.

Standard specifications (those normally used by the public bodies) are to be utilised. It is necessary, however, to include certain requirements in the scope of work to implement labour-intensive works in accordance with the provisions of these Guidelines.

E2.3 LABOUR-INTENSIVE COMPETENCIES OF CONTRACTOR'S STAFF

E2.3.1 Eligibility requirements

A contract will only be entered into with a tenderer who has in his employ management and supervisory staff satisfying the requirements of the scope of work for labour-intensive competencies for supervisory and management staff.

The tenderer shall, when requested by the Employer to do so, submit with his tender the names of all management and supervisory staff that will be employed to supervise the labour-intensive portion of the works together with satisfactory evidence that such staff members satisfy the eligibility requirements.

E2.3.2 Labour-intensive competencies of supervisory and management staff

Established Contractors shall only engage supervisory and management staff in labour intensive works who have either completed, or for the period 1 April 2004 to 30 June 2005, are registered for training towards, the skills programme outlined in Table 1.

Emerging Contractors shall have personally completed, or be registered on a skills programme for the NQF level 2 unit standard. All other site supervisory staff in the employ of emerging Contractors must have completed, or be registered on a skills programme for, the NQF level 2 unit standards or NQF level 4 unit standards.

Table 1: Skills programme for supervisory and management staff

Personnel	**NQF level**	**Unit standard titles**	**Skills programme description**
Team leader / supervisor	2	Apply Labour Intensive Construction Systems and Techniques to Work Activities	This unit standard must be completed, **and**
		Use Labour Intensive Construction Methods to Construct and Maintain Roads and Stormwater Drainage	} any one of these 3 unit standards
		Use Labour Intensive Construction Methods to Construct and Maintain Water and Sanitation Services	
		Use Labour Intensive Construction Methods to Construct, Repair and Maintain Structures	
Foreman/ supervisor	4	Implement labour Intensive Construction Systems and Techniques	This unit standard must be completed, **and**
		Use Labour Intensive Construction Methods to Construct and Maintain Roads and Stormwater Drainage	} any one of these 3 unit standards
		Use Labour Intensive Construction Methods to Construct and Maintain Water and Sanitation Services	
		Use Labour Intensive Construction Methods to Construct, Repair and Maintain Structures	
Site Agent / Manager (i.e. the Contractor's most senior representative that is resident on site)	5	Manage Labour Intensive Construction Processes	Skills Programme against this single unit standard
Details of these skills programmes may be obtained from the CETA ETQA manager (e-mail: gerard@ceta.co.za , tel: 011-265 5900)			

E2.4 STANDARD CONDITIONS OF EMPLOYMENT FOR DEPARTMENT OFTRANSPORT PROJECTS

E2.4.1 Introduction

(a) This document contains the standard terms and conditions for workers employed in elementary occupations. These terms and conditions do NOT apply to persons employed in the supervision and management of ECDoT Projects.

(b) Additional Definitions:
The following additional definitions shall, unless the context dictates otherwise, apply:
(i) **"department"** means any department of the State, implementing agent or Contractor;
(ii) **"employer"** means any department, implementing agency or Contractor that hires workers to work in elementary occupations on a ECDoT project;
(iii) **"worker"** means any person working in an elementary occupation on the Project;
(iv) **"elementary occupation"** means any occupation involving unskilled or semi-skilled work;
(v) **"management"** means any person employed by a department or implementing agency to administer or execute a ECDoT project.
(vi) **"task"** means a fixed quantity of work;
(vii) **"task-based work"** means work in which a worker is paid a fixed rate for performing a task;
(viii) **"task-rated worker"** means a worker paid on the basis of the number of tasks completed;
(ix) **"time-rated worker"** means a worker paid on the basis of the length of time worked.

E2.4.2 Terms of Work

(a) Workers are employed on a temporary basis.

(b) A worker may NOT be employed for longer than 36 months in any five-year cycle.
(c) Employment does not qualify as employment as a contributor for the purposes of the Unemployment Insurance Act 30 of 1966.

E2.4.3 Normal Hours of Work

(a) An employer may not set tasks or hours of work that require a worker to work–
(i) More than forty hours in any week;
(ii) On more than five days in any week; and
(iii) For more than eight hours on any day.

(b) An employer and worker may agree that a worker will work four days per week. The worker may then work up to ten hours per day.

(c) A task-rated worker may not work more than a total of 55 hours in any week to complete the tasks allocated (based on a 40-hour week) to that worker.

E2.4.4 Meal Breaks

(a) A worker may not work for more than five hours without taking a meal break of at least thirty minutes duration.

(b) An employer and worker may agree on longer meal breaks.

(c) A worker may not work during a meal break. However, an employer may require a worker to perform duties during a meal break if those duties cannot be left unattended and cannot be performed by another worker. An employer must take reasonable steps to ensure that a worker is relieved of his or her duties during the meal break.

(d) A worker is not entitled to payment for the period of a meal break. However, a worker who is paid on the basis of time worked must be paid if the worker is required to work or to be available for work during the meal break.

E2.4.5 Special Conditions for Security Guards

(a) A security guard may work up to 55 hours per week and up to eleven hours per day.

(b) A security guard who works more than ten hours per day must have a meal break of at least one hour or two breaks of at least 30 minutes each.

E2.4.6 Daily Rest Period

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

E2.4.7 Weekly Rest Period

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

E2.4.8 Work on Sundays and Public Holidays

(a) A worker may only work on a Sunday or public holiday to perform emergency or security work.

(b) Work on Sundays is paid at the ordinary rate of pay.

(c) A task-rated worker who works on a public holiday must be paid:
  (i) The worker’s daily task rate, if the worker works for less than four hours;
  (ii) Double the worker’s daily task rate, if the worker works for more than four hours.

(d) A time-rated worker who works on a public holiday must be paid:
  (i) The worker’s daily rate of pay, if the worker works for less than four hours on the public holiday;
  (ii) Double the worker’s daily rate of pay, if the worker works for more than four hours on the public holiday.

E2.4.9 Sick Leave

(a) Only workers who work four or more days per week have the right to claim sick-pay in terms of this clause.

(b) A worker who is unable to work on account of illness or injury is entitled to claim one day's paid sick leave for every full month that the worker has worked in terms of a contract.

(c) A worker may accumulate a maximum of twelve days' sick leave in a year.

(d) Accumulated sick-leave may not be transferred from one contract to another contract.

(e) An employer must pay a task-rated worker the worker's daily task rate for a day's sick leave.

(f) An employer must pay a time-rated worker the worker's daily rate of pay for a day's sick leave.

(g) An employer must pay a worker sick pay on the worker's usual payday.

(h) Before paying sick-pay, an employer may require a worker to produce a certificate stating that the worker was unable to work on account of sickness or injury if the worker is:
  (i) Absent from work for more than two consecutive days; or
  (ii) Absent from work on more than two occasions in any eight-week period.

(i) A medical certificate must be issued and signed by a medical practitioner, a qualified nurse or a clinic staff member authorized to issue medical certificates indicating the duration and reason for incapacity.

(j) A worker is not entitled to paid sick-leave for a work-related injury or occupational disease for which the worker can claim compensation under the Compensation for Occupational Injuries and Diseases Act.

E2.4.10 Maternity Leave

(a) A worker may take up to four consecutive months' unpaid maternity leave.

(b) A worker is not entitled to any payment or employment-related benefits during maternity leave.

(c) A worker must give her employer reasonable notice of when she will start maternity leave and when she will return to work.

(d) A worker is not required to take the full period of maternity leave. However, a worker may not work for four weeks before the expected date of birth of her child or for six weeks after the birth of her child, unless a medical practitioner, midwife or qualified nurse certifies that she is fit to do so.

(e) A worker may begin maternity leave:
  (i) Four weeks before the expected date of birth; or
  (ii) On an earlier date:
    - If a medical practitioner, midwife or certified nurse certifies that it is necessary for the health of the worker or that of her unborn child; or
    - If agreed to between employer and worker; or
  (iii) On a later date, if a medical practitioner, midwife or certified nurse has certified that the worker is able to continue to work without endangering her health.

(f) A worker who has a miscarriage during the third trimester of pregnancy or bears a stillborn child may take maternity leave for up to six weeks after the miscarriage or stillbirth.

(g) A worker who returns to work after maternity leave, has the right to start a new cycle of twenty-four months employment, unless the project on which she was employed has ended.

E2.4.11 Family responsibility leave

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

(a) When the employee's child is born;

(b) When the employee's child is sick;

(c) In the event of a death of:
  (i) The employee's spouse or life partner;
  (ii) The employee's parent, adoptive parent, grandparent, child, adopted child, grandchild or sibling.

E2.4.12 Statement of Conditions

(a) An employer must give a worker a statement containing the following details at the start of employment:
  (i) The employer's name and address and the name of the ECDoT;
  (ii) The tasks or job that the worker is to perform; and
  (iii) The period for which the worker is hired or, if this is not certain, the expected duration of the contract;
  (iv) The worker's rate of pay and how this is to be calculated;
  (v) The training that the worker will receive during the ECDoT project.

(b) An employer must ensure that these terms are explained in a suitable language to any employee who is unable to read the statement.

(c) An employer must supply each worker with a copy of these conditions of employment.

E2.4.13 Keeping Records

(a) Every employer must keep a written record of at least the following:
  (i) The worker's name and position;
  (ii) In the case of a task-rated worker, the number of tasks completed by the worker;
  (iii) In the case of a time-rated worker, the time worked by the worker;
  (iv) Payments made to each worker.

(b) The employer must keep this record for a period of at least three years after the completion of the project.

E2.4.14 Payment

(a) An employer must pay all wages at least monthly in cash or by cheque or into a bank account.

(b) A task-rated worker will only be paid for tasks that have been completed.

(c) An employer must pay a task-rated worker within five weeks of the work being completed and the work having been approved by the manager or the Contractor having submitted an invoice to the employer.

(d) A time-rated worker will be paid at the end of each month.

(e) Payment must be made in cash, by cheque or by direct deposit into a bank account designated by the worker.

(f) Payment in cash or by cheque must take place:

(i) at the workplace or at a place agreed to by the worker;
(ii) during the worker's working hours or within fifteen minutes of the start or finish of work;
(iii) in a sealed envelope which becomes the property of the worker.

(g) An employer must give a worker the following information in writing:
(i) the period for which payment is made;
(ii) the numbers of tasks completed or hours worked;
(iii) the worker's earnings;
(iv) any money deducted from the payment;
(v) the actual amount paid to the worker.

(h) If the worker is paid in cash or by cheque, this information must be recorded on the envelope and the worker must acknowledge receipt of payment by signing for it

(i) If a worker's employment is terminated, the employer must pay all monies owing to that worker within one month of the termination of employment.

E2.4.15 Deductions

(a) An employer may not deduct money from a worker's payment unless the deduction is required in terms of a law.

(b) An employer must deduct and pay to the SA Revenue Services any income tax that the worker is required to pay.

(c) An employer who deducts money from a worker's pay for payment to another person must pay the money to that person within the time period and other requirements specified in the agreement law, court order or arbitration award concerned.

(d) An employer may not require or allow a worker to:
(i) repay any payment except an overpayment previously made by the employer by mistake;
(ii) state that the worker received a greater amount of money than the employer actually paid to the worker; or
(iii) pay the employer or any other person for having been employed.

E2.4.16 Health and Safety

(a) Employers must take all reasonable steps to ensure that the working environment is healthy and safe.

(b) A worker must:

(i) work in a way that does not endanger his/her health and safety or that of any other person;
(ii) obey any health and safety instruction;
(iii) obey all health and safety rules of the SPWP;
(iv) use any personal protective equipment or clothing issued by the employer;
(v) report any accident, near-miss incident or dangerous behaviour by another person to their employer or manager.

E2.4.17 Compensation for Injuries and Diseases

(a) It is the responsibility of the employers (other than a Contractor) to arrange for all persons employed on a SPWP to be covered in terms of the Compensation for Occupational Injuries and Diseases Act, 130 of 1993.

(b) A worker must report any work-related injury or occupational disease to their employer or manager.

(c) The employer must report the accident or disease to the Compensation Commissioner.

(d) An employer must pay a worker who is unable to work because of an injury caused by an accident at work 75% of their earnings for up to three months. The employer will be refunded this amount by the Compensation Commissioner. This does NOT apply to injuries caused by accidents outside the workplace such as road accidents or accidents at home.

E2.4.18 Termination

(a) The employer may terminate the employment of a worker for good cause after following a fair procedure.

(b) A worker will not receive severance pay on termination.

(c) A worker is not required to give notice to terminate employment. However, a worker who wishes to resign should advise the employer in advance to allow the employer to find a replacement.

(d) A worker who is absent for more than three consecutive days without informing the employer of an intention to return to work will have terminated the contract. However, the worker may be re-engaged if a position becomes available for the balance of the 24-month period.

(e) A worker who does not attend required training events, without good reason, will have terminated the contract. However, the worker may be re-engaged if a position becomes available for the balance of the 24-month period.

E2.4.19 Certificate of Service

(a) On termination of employment, a worker is entitled to a certificate stating:
  (i) The worker's full name;
  (ii) The name and address of the employer;
  (iii) The Project on which the worker worked;
  (iv) The work performed by the worker;
  (v) Any training received by the worker;
  (vi) The period for which the worker worked on the project; and
  (vii) Any other information agreed on by the employer and worker.

E2.5 VARIATIONS TO STANDARD CONDITIONS OF EMPLOYMENT

Notwithstanding the provisions of the above-mentioned conditions, the Contractor shall comply with the following relevant statutory legislation:

(a) Basic Conditions of Employment Act 75 of 1997
(b) Labour Relations Act 66 of 1995
(c) Employment Equity Act 55 of 1998 (Chapters 1 and 2)
(d) Occupational Health and Safety Act 85 of 1993
(e) Compensation for Occupational Injuries and Diseases Act 130 of 1993

(f) Skills Development Act of 1998

The statutory Department of Labour's Government Notice No. R204 of 2 March 2001: Basic Conditions of Employment Act (No. 75 of 1997): Sectoral Determination 2: Civil Employer's Agenting Sector, South Africa as amended shall apply in respect of any employer or employee associated with the contract.

For the purposes of this contract, the following variations to the above-mentioned Ministerial Determination, Expanded Transport Programmes, issued in terms of the Basic Conditions of Employment Act of 1997 by the Minister of Labour in Government Notice No. R63 of 25 January 2002 shall apply. The Sub clause numbers refer to the relevant Sub clause number under Sub clause E2.4 above.

Delete Sub clause E2.4.3 and replace with the following:

"Clauses 8, 9 and 10 of the Department of Labour Government Notice No. R204 of 2 March 2001: Basic Conditions of Employment Act (No. 75 of 1997): Sectoral Determination 2: Civil Employer's Agenting Sector, South Africa shall apply. Clause 8 makes provision for 45 hours/week."

Delete Sub Sub clauses E2.4.6 and E2.4.7 and replace with the following:

"Clause 12 of the Department of Labour Government Notice No. R204 of 2 March 2001: Basic Conditions of Employment Act (no. 75 of 1997): Sectoral Determination 2: Civil Employer's Agenting Sector, South Africa shall apply. Clause 12 makes provision for a daily rest period of 12 consecutive hours and a weekly rest period of 36 consecutive hours."

Delete Subsubclause E2.4.14 and replace with the following:

"Subclause 5(1) (a) of the Department of Labour Government Notice No. R204 of 2 March 2001: Basic Conditions of Employment Act (No. 75 of 1997): Sectoral Determination 2: Civil Employer's Agenting Sector, South Africa shall apply. Subclause 5(1) (a) makes provision for employees to be paid weekly, fortnightly or monthly."

E2.6 EMPLOYMENT OF UNSKILLED AND SEMI-SKILLED WORKERS IN LABOUR INTENSIVE WORKS

E2.6.1 Requirements for the sourcing and engagement of labour.

(a) Unskilled and semi-skilled labour required for the execution of all labour intensive works shall be engaged strictly in accordance with prevailing legislation, SANS 1914-5, Participation of Targeted Labour and the Works Specification.

(b) The rate of pay shall be the latest minimum hourly rate set by the Sectoral Determination : Civil Engineering Sector : South Africa

(c) If required tasks established by the Contractor must be such that:
(i) The average worker completes 5 tasks per week in 40 hours or less; and
(ii) The weakest worker completes 5 tasks per week in 55 hours or less.

(d) The Contractor must revise the time taken to complete a task whenever it is established that the time taken to complete a weekly task is not within the requirements of sub-clause E2.6.1 (c) above.

(e) The Contractor shall, through all available community structures, inform the local community of the labour intensive works and the employment opportunities presented thereby. Preference must be given to people with previous practical experience in construction and / or who come from households:
   (i) Where the head of the household has less than a primary school education;
   (ii) That have less than one full time person earning an income;
   (iii) Where subsistence agriculture is the source of income; and
   (iv) Those that are not in receipt of any social security pension income

(f) The Contractor shall endeavour to ensure that the expenditure on the employment of temporary workers is in the following proportions:
   (i) 40% women;
   (ii) 20% youth who are between the ages of 18 and 35; and
   (iii) 2% persons with disabilities.

E2.6.2 Specific provisions pertaining to SANS 1914-5

(a) Definitions

Targeted labour: Unemployed persons who are employed as local labour on the project is stated in Part C4. .

(b) Contract participation goals

(i) The specified contract participation goal for the contract is the percentage of the award value as stated in Part C4: Site Information. The contract participation goal shall be measured in the performance of the contract to enable the employment provided to targeted labour to be quantified.

(ii) The wages and allowances used to calculate the contract participation goal shall, with respect to both time-rated and task rated workers, comprise all wages paid and any training allowance paid in respect of agreed training programmes.

(c) Terms and conditions for the engagement of targeted labour

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

(d) Variations to SANS 1914-5

(i) The definition for net amount shall be amended as follows:
Financial value of the contract upon completion, exclusive of any value added tax or sales tax which the law requires the employer to pay the Contractor.

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

E2.6.3 Training of targeted labour

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

(b) The cost of the formal training of targeted labour, will be funded by the local office of the Department of Labour. This training will take place as close to the project site as practically possible. The Contractor must access this training by informing the relevant regional office of the Department of Labour in writing, within 14 days of being awarded the contract, of the likely number of persons that will undergo training and when such training is required.

(c) The Contractor shall do nothing to dissuade targeted labour from participating in training programmes and shall take all reasonable steps to ensure that each beneficiary is provided with two days of formal training for every 22 days worked.

(d) An allowance equal to 100% of the task rate or daily rate shall be paid by the Contractor to workers who attend formal training, in terms of sub clause E2.6.3(c) above.

(e) Proof of compliance with the requirements of sub clause E2.6.3 (b) to (d).must be provided by the Contractor to the Employer prior to submission of the final payment certificate.

E2.7 GENERIC LABOUR-INTENSIVE SPECIFICATION

E2.7.1 Applicable Standardized Specification

The Construction and Management Requirements for Works Contracts:

Specification SANS 1921-5 : 2004, Part 5 : Earthworks Activities which are to be Performed by Hand shall apply as additional Works Specifications to this contract. The South African National Standard SANS 1921-5 : 2005 Specification is not bound in this document and it may be obtained from South African Standards (website www.stansa.co.za) or viewed by appointment at the offices of the Employer's Representative during normal working hours.

E2.7.2 Variations to SANS 1921-5: 2004, Part 5: Earthworks activities which are to be performed by hand

Clause 4.2: Trench excavation

Add the following to sub-clause 4.2.1:

"The trenches which are to be excavated by hand are up to 1,5m deep."

Clause 4.4: Excavations other than in trenches

Replace sub-clause 4.4.1 with the following:

"All material excavatable by hand related to the items listed in Table 4.13/1 shall be excavated by hand."

Clause 4.7: Loading

Delete and replace with the following:

"Loading of material in areas difficult for the specialised equipment (restricted areas) shall be done by hand."

Clause 4.8: Haul

Add the following:

"This clause shall not apply to this contract."

Clause 4.10: Spreading

Add the following:

"This clause shall apply to this contract only provided the material can be economically spread by hand."

Add the following new clauses:

"4.13 : Labour-intensive Work

The items/activities that shall be done by hand are listed/provided in Part C4: Site Information. These listed items and others indicated by the prefix LI in the Bill of Quantities are compulsory and may not be executed in any other way.

The Contractor may identify further activities to increase the labour component of the contract.

4.14 : Manufactured Elements

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

The Contractor may also propose to the Employer's Agent additional labour based activities, or alternative activities in place of any of the above mentioned activities that cannot be executed using labour based methods due to unforeseen and abnormal circumstances.

The Contractor shall take cognisance of his General Obligations and the contribution of Targeted Labour to the Contractor Participation Goal (CPG) specified for the contract.

Before commencing with any labour-intensive operations the Contractor shall discuss his intentions with the Employer's Agent, and shall submit to the Employer's Agent on a weekly basis, daily labour returns indicating the numbers of temporary personnel employed on the works and the activities on which they were engaged."

E2.8 MEASUREMENT AND PAYMENT

Prescribed Labour-intensive work

Those parts of the Works included in the contract, including those parts requiring the use of selected subcontractors, which are to be constructed using labour-intensive methods have been marked in the Schedule / Bill of Quantities.

The numbers of the pay items or sub-items of the works, or parts of the works which are to be constructed using labour-intensive methods only are prefixed by the letters LI .

The use of plant to provide such works, other than plant specifically provided for in the Scope of Work, is a variation to the contract.

The items marked with the prefixed LI are not necessarily an exhaustive list of all the activities which may be done by hand, and this clause does not over-ride any of the requirements in the generic labour intensive specification in this Works Specifications.

Payment for items which are designated to be constructed labour-intensively (either in the Schedule / Bill of Quantities or in the Scope of Work) will not be made unless they are constructed using labour-intensive methods.

Any unauthorized use of plant to carry out work, which is to be done labour-intensively will not be condoned and any works so constructed will not be certified for payment.

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-25/26-0016

UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)

PART C3: SCOPE OF WORK

SECTION F : SPECIFICATION FOR SMME SUBCONTRACTOR EMPLOYMENT

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ACRONYMS

CETA	-	CONSTRUCTION EDUCATION AND TRAINING AUTHORITY
CIDB	-	CONSTRUCTION INDUSTRY DEVELOPMENT BOARD
CM	-	CONTRACTS MANAGER (MENTOR)
DoL	-	DEPARTMENT OF LABOUR
EC DoT	-	EASTERN CAPE DEPARTMENT OF TRANSPORT
GCC	-	GENERAL CONDITIONS OF CONTRACT FOR CONSTRUCTION WORKS
IA	-	IMPLEMENTING AGENT
MC	-	MAIN CONTRACTOR (MENTOR)
PM	-	PROJECT MANAGER (MENTOR)
PMT	-	PROJECT MANAGEMENT TEAM
PS	-	PROJECT SPONSOR
SARS	-	SOUTH AFRICAN RECEIVER OF REVENUE
SMME	-	SMALL MEDIUM & MICRO ENTERPRISE
SANS	-	SOUTH AFRICAN NATIONAL STANDARDS

1 DEFINITIONS AND INTERPRETATIONS

For the purposes of this section of the Project Specification, the definitions given in the General Conditions of Contract for Construction Works 2015, the Standard Specifications and the Project Specifications, together with the following definitions shall apply:

(a) Main Contract: Any contract for the execution of civil engineering or building or similar construction works, in which the liabilities and responsibilities of the two parties thereto are assigned essentially in a manner which is consistent with that set out in the General Conditions of Contract for Construction Works 2015.

(b) Project Management Team (PMT): A team that is set up after award of the contract, consisting of a delegate from each of the Main Contractor, the Employer's Agent and the Employer. The function of the PMT will be to consult regarding the management of the subcontracts involving SMMEs. The PMT will also evaluate the Main Contractor's performance regarding the goals set for SMME involvement. The Employer's Project Manager will decide which party is to chair and lead the team. Minutes of these meetings will be taken by the Employer's Agent.

(c) SMME Construction Manager: Person provided by Main Contractor to guide, assist and mentor all eligible potential SMMEs tendering and awarded a contract as SMME Subcontractors as per section 2.2 of this section of the Specification.

(d) Small, Medium and Micro Enterprises: An Affirmable Business Enterprise which adheres to statutory labour practices, is a legal entity, registered with SARS and the Compensation Commissioner or FEMA and continues to operate as an independent enterprise for profit.

(e) SMME Subcontractor: An Emerging Contractor referred to as an SMME, who has been identified through an Expression of Interest and chosen by the Main Contractor to tender for and, if successful, to provide works as part of the total service required by the Employer for the Contract.

(f) Subcontractor: A Contractor who contracts with the Main Contractor to provide works as part of the total services required by the Employer for that Contract.

(g) SMME Package: Specified work package identified for execution by SMMEs. The identifiers are Employer, Employer's Agent and Main Contractor.

(h) Joint Venture: An association of firms, companies or businesses for which purpose they combine their expertise, efforts, skills and knowledge to execute the Contract.

2. SMME TENDER PHASE

2.1 Identification of SMME Contractors

Immediately upon the award of the Contract the Main Contractor in conjunction with the Client and the Employer's Agent shall place an advertisement for Expressions of Interest for CIDB level 1 to 6 class CE SMME Contractors to undertake part of the works. It is intended that 4(four) SMME sub-contracts shall be issued covering certain items of the work which will be identified as set out below. The SMME Contractors will be required to carry out such items of work that will provide continuous employment for approximately 1 year.

2.2 Identification of Works Opportunities

Work opportunities will be selected from the list below.

The Main Contractor will note that all work measured in the Bills of Quantities is the Main Contractor's sole responsibility. This also applies where SMMEs have been identified for a particular portion of works in its entirety.

The SMMEs will be responsible for procuring all required materials, labour, equipment and any other incidentals to undertake the works subcontracted to them unless otherwise specified by Employer before tender or approved by the Project Management Team during construction.

The Main Contractor will supervise and manage the SMME work at all times to ensure compliance with the specifications and drawings.

The list of work packages summarised below has been identified as possible work packages for the sub-contractors. These packages are not all inclusive and contractors are encouraged to exceed the minimum requirements.

ITEM NO	DESCRIPTION	ACTIVITY
SCHEDULE A: ROADWORKS		
1500	Accommodation of Traffic	(i) Erection and relocation / moving of traffic control facilities. (ii) Operating of Stop/Go facilities. (iii) Operation of traffic signals. (iv) Excavation, laying and backfilling of temporary culverts.
1700	Clearing and grubbing	(i) Felling of trees.
2100	Drains	(i) All open drain and subsoil drain items.
2200	Prefabricated culverts	(i) All items.
2300	Concrete kerbing, concrete channelling, chutes and downpipes and concrete linings for open drains.	(i) All kerbing items. (ii) All concrete lined drain items.
5100	Pitching, stonework and protection against erosion.	(i) All pitching items. (ii) All concrete sidewalk items.
5200	Gabions	(i) All gabion items.
5400	Guardrails	(i) All guardrail items.
5500	Fencing	(i) All fencing items including concrete post manufacture.
5600	Road Signs	(i) Erection of supports and road signs.
5700	Road Markings	(i) All road marking items.
5800	Landscaping and Grassing	(i) Planting and trimming.

2.3 Tender process for SMMEs

A minimum of 8 (eight) potential SMME Subcontractors chosen from the replies to the Expression of Interest shall be invited to tender.

2.4 Compilation and issue of tender documents

The Employer's Agent shall compile the tender documents in such a manner that it will facilitate the achievement of all objectives and principles pertaining to procurement and development of SMMEs as stated in or as may reasonably be inferred from the conditions of this contract.

All tender documentation shall be reviewed, approved and issued by the Main Contractor with all copies of tender documents compiled deemed to be included in the tendered rates or mark-up provision allowed for the various SMME work packages. The tender or quotation document will be issued to invited SMMEs at NO COST and the Main Contractor is to make due allowance for such cost in his tendered rates.

2.5 Site Briefing Session

The Main Contractor shall facilitate a Site Briefing Session for the invited SMMEs. The Main Contractor will also make sure that all relevant parties including the PMT are present and given an opportunity to present specific aspects of the requirements pertaining to their tender requirements.

2.6 Pre-Tender Assistance to the SMMEs

At the briefing session, the Main Contractor assisted by the PMT will be responsible for ensuring that prospective SMME Tenderers fully comprehend the:

- implications of the liabilities and responsibilities inherent in the subcontract applicable;
- scope and extent of the portion of the works included in the subcontract;
- the requirements for quality control of works;
- the requirements for occupational health and safety;
- proper procedures for the submission of the tenders;
- procedures and basis on which tenders will be adjudicated and the subcontracts awarded.

2.7 Adjudication

(a) The Main Contractor shall receive all tenders at a location identified by him. All sealed tender submissions will be placed in a proper tender box provided by the Main Contractor for this purpose. A submission register will be maintained by the Main Contractor for all tenders received.

(b) All tenders received shall be evaluated by the Main Contractor for final approval. The draft tender evaluation report shall be distributed to the PMT members 5 working days prior to the PMT meeting for comments and perusal in order to finalize the evaluation before the meeting. The format of the tender evaluation report must be agreed upon at the first PMT meeting.

The evaluation of the Occupational Health and Safety plans will be done by the Main Contractor SHE Officer.

(c) The PMT shall have the right to interview any tenderer for the purpose of:

- clarifying any aspect of the tender;
- querying abnormally high or low rates and prices, and
- clarifying rates and prices which are not in balance with other tendered rates and prices.

(d) The Main Contractor shall provide all reasonable opportunity to such tenderers who have been interviewed, to correct obvious and patent errors, provided always that this can be achieved without altering the total tendered sum.

2.8 Award of Tender

The Main Contractor will award the work to the successful SMME Tenderers and a subcontract agreement will be signed between the Main Contractor and the successful SMME Tenderers.

2.9 Sub-Contract Agreement

A Sub-Contract Agreement in accordance with the SAFCEC Subcontractor Agreement (2011) will be compiled by the Main Contractor with the assistance of the Employer's Agent. They shall be responsible for ensuring that the terms and conditions are consistent with all requirements as specified in or reasonably may be inferred from the provisions of this Contract. All costs associated with the tender process including the conclusion of the agreement are for the Main Contractor's account.

The final terms and conditions of each subcontract agreement shall be subject to the approval of the PMT, prior to entering into the subcontract agreement. The Main Contractor may not enter into any subcontract agreement that contains terms more onerous or disproportionate to the risks inherent in the main contract for either the SMME or the Main Contractor.

The terms and conditions of the subcontract agreement shall specifically ensure that the provisions of the main contract pertaining to:

(a) The allowable sources from which workers may be drawn in terms of the contract;
(b) The terms and conditions relating to the recruitment, employment and remuneration of workers engaged on the contract works; and
(c) Any training to be provided to the temporary workforce;
(d) Occupational health and safety.
(e) The use of labour intensive methods.

Shall apply in respect of all SMME Contracts.

3. CONSTRUCTION PHASE

3.1 Mentorship

The Main Contractor shall closely manage, supervise and assist all SMMEs in all aspects of management, execution and completion of subcontracts. This shall typically include assistance with planning the works, sourcing and ordering of materials, labour relations, monthly measurements and invoicing procedures, etc. The extent and level of such management, guidance and assistance to be provided by the Main Contractor shall be directed at enabling the SMMEs to achieve the successful execution and completion of the subcontract. Payment for such on-going assistance is deemed included in the rate tendered for the administrative cost of SMMEs.

3.2 Guide, Assist and Mentor SMMEs

(a) SMME Construction Manager for the SMME Subcontractors

The Main Contractor shall employ on a full-time basis a SMME Construction Manager. The CV of the proposed individual must be submitted to the Employer's Agent for approval based on the requirements shown below.

The SMME Construction Manager will manage the SMMEs and report monthly on progress of each SMME to the Project Management Team (PMT)

Such Construction Manager must be adequately experienced with SMME work(s) concern and the development thereof and will be subject to the approval of the Employer. The SMME Construction Manager will render fulltime assistance to and mentor the SMMEs and shall:

(i) Possess a minimum of five years site-based experience in the civil engineering construction industry and have a sound knowledge of the minimum requirements to carry out construction work effectively and efficiently.
(ii) Possess 3 years Civil Engineering administrative experience.
(iii) Be registered with ECSA as at least a professional technician
(iv) Would preferably hold a mentoring certificate.
(v) Maintain the program of the subcontract; ensure continuous supervision and assistance to the SMME Subcontractors.

The SMME Construction Manager will report on performance of the SMME on a monthly basis. On completion, the Main Contractor will issue a Final Certificate as given in the SAFCEC Subcontractor Agreement within seven days after the final completion.

3.3 Dispute Resolution Procedures

The Main Contractor shall at all times:

(a) apply the terms and conditions of the subcontract fairly and justly, taking due cognisance of the level of sophistication and experience of the particular SMME concerned, as well as the level of subcontract applicable;
(b) closely manage and supervise all SMMEs and wherever feasible, shall give reasonable warning to SMMEs when any contravention of the terms of the subcontract has occurred or appears likely to occur. The Main Contractor shall, whenever feasible, give the SMMEs reasonable opportunity to rectify any such contravention or to avoid such contravention and shall render all reasonable assistance to the SMME in this regard.
(c) If no agreement can be reached between the Main Contractor and the sub-Main Contractor, the matter shall be referred to a mutually acceptable mediator as required in Section 15 of the SAFCEC Subcontractor Agreement.

When taking any actions or imposing any penalties as are provided for in the subcontract, the Main Contractor shall explain fully to the SMMEs that such actions are provided for in the subcontract.

3.4 Quality of Work and Performance of the Sub-Main Contractor

If the Subcontractor, in the opinion of the Main Contractor, fails to comply with the criteria as listed below, the Main Contractor shall issue a written warning to the Subcontractor, stating all the areas of non-compliance. A copy of the letter of warning shall be forwarded to the Employer's Agent. These criteria include:

(a) Acceptable standard of works as set out in the specifications in the subcontract tender document.
(b) Progress in accordance with the time constraints in the Subcontractor's tender document.
(c) Punctual and full payment of the workforce and suppliers.
(d) Occupational health and safety compliance.
(e) Compliance with environmental requirements.

The Subcontractor shall have 14 days from the date of receipt of the warning letter from the Main Contractor to satisfactorily rectify the issues raised by the Main Contractor, with the exception of point (d) and (e), for which the response time shall be 24 hours. If a satisfactory solution cannot be reached after the mediation process this will be sufficient grounds for the Main Contractor to terminate the contract provided the Project Management Team is satisfied that the Main Contractor has made every effort to correct the performance by the Subcontractor.

3.5 Payment of SMMEs

3.5.1 SMME Subcontractors are to be invited to submit their payment certification or claim monthly and are to be paid by the Main Contractor within 14 (fourteen) days of receipt of invoice.
3.5.2 Payment to SMMEs may not be delayed pending payment of the Main Contractor by the Employer.

3.5.3 Payment to SMMEs may not be subjected to set off costs unless provided for in law, and may not exceed 5% of the payment, unless approved by the Employer.
3.5.4 Payment to SMMEs may not be discounted for early payment.
3.5.5 No interim payment of the SMME invoice may be unfairly withheld or delayed for whatever reason.
3.5.6 The Main Contractor must acknowledge and honour cessions in favour of recognised financiers or suppliers of the SMME if presented to the PMT and approved.

3.6 Main Contractor's Liability

No provision or requirement set out in this specification shall be deemed to relieve the Main Contractor of any liability or obligation under the contract, and in accordance with the provisions of Clause 4.4 of the General Conditions of Contract for Construction Works 2015, the Main Contractor shall be fully liable for the acts, defaults and negligence of any SMMEs, his agents or employees, as fully as if they were the acts, defaults and negligence of the Main Contractor, his agents or employees save as specified in the SAFCEC Subcontractor Agreement.

Any failure or neglect by the Main Contractor to comply with the provision of the specifications, or any omission or neglect by the Main Contractor in adhering to or applying the principles as are described and inherent in the specifications, shall be deemed to constitute a warrant for the Employer's Agent to act in terms of Clause 9.2 of the General Conditions of Contract for Construction Works 2015.

3.7 Performance Guarantee:

The following Performance Guarantees will be applied on the SMME Sub Contracts;

3.7.1	up to R1 000 000	shall be zero percent	(0%);
3.7.2	R1, 000, 001 to R4, 000, 000	shall be five percent	(5%);
3.7.3	Exceeding R4, 000, 000	shall be ten percent	(10%)

All the above will be of the accepted SMME Sub-Contract Value and will be required from SMMEs as stated in the SAFCEC Subcontractor Agreement.

Where such guarantees are provided by SMME, the return of same will be related to the time when the work carried out by the SMME is complete to the satisfaction of the Main Contractor and the Employer's Agent.

3.8 Retention

Five percent (5%) of the Sub Contract Value (excluding VAT) will be deducted as retention on SMME, with half to be released on issue of the Completion Certificate for the specific SMME Sub-Contract with the remaining retention released on issuing of the Final Approval Certificate after the 12 months Defects Liability Period. This deduction will be made from each payment certificate till it reaches the maximum of 5% of the Sub Contract Value.

3.9 Measurements & Payments

An item has been measured in Bill of Quantities allowing the Main Contractor to price for the cost of the Main Contractor to manage and supervise the SMMEs during the execution of their works. The price tendered will be deemed to include all incidentals by the Main Contractor to comply with the conditions of this specification. No other claims will be entertained should SMMEs affect the contract works in any way, and the Main Contractor shall deem to include such effects in the handling cost percentage for the different SMME work packages above.

3.10 Sub-Contracting by SMME

The Main Contractor shall not permit SMME Subcontractors to further subcontract on any other conditions than those applying in the project specification to Subcontractors or SMME Subcontractors.

3.11 Joint Venturing & Consortium

The Main Contractor shall not permit the SMME Subcontractor to enter into a Joint Venture or form a consortium with an external SMME(s) unless PMT approves so before the tender award. The SMME may only

be allowed to enter into Joint Venture or form a consortium with the other invited SMME(s) on the package concerned.

4 PORTFOLIO OF EVIDENCE & UP-GRADE SUPPORT

4.1 Keeping of Records

The Main Contractor shall assume responsibility for the compilation and maintenance of comprehensive records detailing each SMME's progress during the construction period, starting from the award of a subcontract to an SMME until the successful completion of the subcontract work or termination of the subcontract. To this end the Main Contractor shall arrange for the completion, on behalf of the SMME Subcontractor, of the Employer's pro-formas C 1.3.3 Form 1; C1.3.4 Form 2 and C 1.3.5 Form 3 in the Main Contract. The Main Contractor must also keep a register of the details of each SMME engaged.

The Main Contractor shall keep comprehensive records of the training given to each trainee and SMME, at the successful completion of each course; each trainee shall be issued with a certificate indicating the course contents as proof of attendance and completion. The Main Contractor shall keep a register of certificates issued. Whenever required, the Main Contractor shall provide copies of such records to the Employer's Agent.

4.2 Monthly Returns

The Main Contractor's participation performance will be measured monthly in order to monitor the extent to which he is striving to reach the targets in this contract. The Main Contractor shall complete and return on a monthly basis the following pro-forma forms of the Employer.

- Report on employment. Forms C 1.3.3 Form 1; C1.3.4 Form 2 and C 1.3.5 Form 3
- Report on the SMME's Plant and Equipment.
- Report on progress against programme.
- Report on financial status.
- Report on Employer's Agent training.
- Report on development training.
- Report on safety training.

The completed forms shall be presented to the Employer's Agent at each site meeting. Failure to adhere to this requirement shall result in the delay of any payment due until the Employer's Agent confirms that the forms have been received.

4.3 Main Contractor's duties upon completion of each subcontract

The Main Contractor shall, on completion of each and every subcontract completed in accordance with the provisions of this specification, issue free of charge to the SMME within 7 days of the completion of the subcontract, a Certificate of Experience on a single A4 page containing the following:

(a) Contract data.

(i) Contract title;
(ii) Main Contractor's full name and address;
(iii) Employer's Agent's name and address;
(iv) Employer's name.

(b) Subcontract data.

(i) SMME name and address;
(ii) Scope or extent of the subcontract works;
(iii) Value of the subcontract works;
(iv) Applicable level of the subcontract;
(v) Duration of the subcontract;
(vi) Date of completion of the subcontract;
(vii) Description of the training undergone by the SMME.

In addition the SMME Construction Manager must provide comments of the performance of the SMME Subcontractor in respect of contract execution, Labour management and OHS principles.

(c) Certifying the SMME's successful completion of the subcontract.

5. MEASUREMENT AND PAYMENT

Item **Unit**

F10.01 Provision of an SMME Construction Manager .....Month

The tendered rate per month represents full compensation for providing full time SMME Construction Manager; to manage the appointed SMME's as stipulated in Section F.

The tendered rate shall include full compensation for employment of full time SMME Construction Manager in terms of the specifications, overheads, provision of transport and all other equipment and resources necessary to carry out their duties effectively.

The tendered rate will be paid monthly or pro-rata for parts of a month from the date on which the first SMME procurement start or is appointed by the Principal Contractor to the completion of the last SMME works.

F10.02 Expression of Interest for SMME's.....Number (No)

Payment under this item shall be the number of SMME subcontract, expression of interest processes which the Contractor carries out. The tendered rate shall include full compensation for the compilation and issue of expression of interest documents, evaluation of interested bidders and shortlisting prior to tender as stipulated in Section F.

F10.03 Tenders for SMME's.....Number (No)

Payment under this item shall be the number of SMME sub contract, tender processes which the Contractor carries out. The tendered rate shall include full compensation for the compilation and issue of tender documents, tender invitation, training and provision of assistance to tenderers, evaluation of tenders and award of sub contracts.

F10.04 Administration costs of mentoring SMME Subcontractors.....Month

The monthly tendered rate must include for all costs arising from the full time mentoring, guidance and supervision of the SMME Subcontractors, including salary, accommodation, transport and all other expenses incurred.

F10.05 Preliminary and General costs associated with SMME's and fluctuation between the Contractor's tendered rates and the rates of SMME subcontractors ..... Provisional Sum (Prov Sum)

The provisional sum makes provision for funds for the fluctuation between the target rates and rates of the emerging contractors. It shall not include any costs of the main contractor, of which handling costs and profit, will be paid under **F10.06**.

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-25/26-0016

UPGRADING OF ROAD, DR08303, DR08329, DR08308 AND DR08309 FROM R61 AT ST BARNABAS HOSPITAL TO HLULEKA NATURE RESERVE PHASE 2 (32km)

THE CONTRACT

PART 4 (OF 4) : SITE INFORMATION

PROVINCE OF THE EASTERN CAPE

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SECTION C4: SITE INFORMATION

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C4.1 MISCELLANEOUS

The works specifications form an integral part of the contract documents and shall be deemed to supplement the Standard Specifications.

In the event of any discrepancy or conflict with any part or parts of the Standard Specifications, the Bill of Quantities or the Drawings, the Project Specifications shall take precedence.

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

C4.2 EMPLOYER'S OBJECTIVES

The Employer's objectives are to upgrade a 32 kilometre section of the road between the R61 at St Barnabas Hospital and the Hluleka Nature Reserve from gravel to surfaced standard.

Temporary employment opportunities coupled to training for the communities in close proximity of the road is part of this project. Labour-intensive construction methods will be used on those items of the work that are suitable to be executed in this manner.

The description of the project contained in the Scope of Work is merely an outline of the Contract Works and shall not limit the work to be carried out by the Contractor under this Contract. Details of some of the major items are given in this section and detailed quantities for each type of work to be carried out in accordance with the Contract Documents are included in the Bill of Quantities.

C.4.3 OVERVIEW

This Contract (Phase 2) is for construction of approximately 32 kilometres for the upgrading of the existing gravel road to surfaced standard.

The horizontal alignment of the upgraded road is generally located on the existing gravel road. The vertical alignment of the upgraded road follows that of the existing road with the new road level generally 600mm above the existing road level.

In order to ensure the movement of traffic during construction, the following methods will be used:

- Traffic will be accommodated as one-way traffic with stop/go control during daytime and temporary traffic lights during night-time.
- Temporary widening of the existing road between km 28.000 and km 29.600 will be required, to allow sufficient roadway width for half width construction.

The work to be executed under this contract includes the following:

(a) General

(i) Establishment of the Contractor on Site.
(ii) Provision of offices for the Employer's Agent as well as buildings for a shared laboratory that will be under the control of the Employer's Agent.
(iii) Accommodation of traffic and the construction of temporary widenings, where required.
(iv) The opening up and rehabilitation of borrow pits to source road construction materials.

(v) The maintenance of the existing road and/or deviations until the contract has been handed over to the Employer.
(vi) Removal of site establishment.

(b) Drainage

(i) The construction of small pre-cast pipe and box culverts with and insitu concrete base slabs and inlet and outlet structures.
(ii) The installation of subsoil drains in cuttings.
(iii) The construction of concrete lined side drains and grid inlets in cuttings.
(iv) The construction of asphalt berms and down chutes at all guardrail sections, in addition to those indicated on the drawings, unless otherwise agreed.
(v) The construction of berms and down chutes at cuts.
(vi) The construction of erosion protection measures where required.

(c) Roadworks

(i) Clearing and grubbing.
(ii) Removal of topsoil for widening of the road.
(iii) Roadbed preparation for widening of the road.
(iv) The construction of cuts and fills.
(v) The construction of selected layers.
(vi) The construction of a stabilized subbase layer.
(vii) The construction of a crushed-stone base.
(viii) The placing of a Cape Seal surfacing.

(d) Material Crushing Operations

(i) The contract includes the establishment and re-erection of a two-stage crushing and screening plant to crush intermediate or hard material located in borrow pits, for selected layers and subbase.

(ii) Crushed-stone base and all other aggregates required are to be sourced from commercial sources. Some subbase might also be sourced from commercial sources.

(e) Ancillary Roadworks

(i) Construction of bus/taxi stops and shelters.
(ii) Construction of surfaced intersections and sections of side roads.
(iii) Fencing of the road reserve.
(iv) The provision of road markings.
(v) The installation of new road signs.
(vi) The erection of guardrails.
(vii) Top soiling and grassing of cut and fill slopes.
(viii) Finishing off the road reserve, spoil areas and borrow pits.
(ix) Construction of cut and fill gabion retaining walls.

(f) Labour-intensive Construction

It will be required that as much of the construction work as practically possible and feasible be undertaken by means of labour-intensive construction methods. This work shall be done in accordance with Part E: Labour Specifications of the Works Specification.

(g) SMME Contractor Development Programme

The Employer has ring-fenced approximately 30 % of the budget in this project, for construction by SMME subcontractors. This forms part of the Employer's SMME Development Programme, whereby the following will be expected of the Contractor:

(a) Identification of works opportunities for SMME's.
(b) Entering into subcontract agreements.
(c) Manage, supervise, train and mentor SMME's.

The above is merely an overview of the Contract Works and shall in no way limit the work to be carried out by the Contractor.

C4.4 EXTENT OF THE WORKS

C4.4.1 Roadworks

C4.4.1.1 Existing Road

The existing is a gravel road with a nominal 6m width. The road was re-gravelled in 2015 when a 150mm subbase layer and a 100mm wearing course layer was placed on the road.

C4.4.1.2 Proposed Road Cross Section

The road cross section shall be as shown on the drawings. The surfaced width of the upgraded road will be 8.6 m wide for the section from km 16.0 to km 28.0, and 7.6 m wide for the section from km 28.0 to km 46.0.

C4.4.1.3 Batter Policy

(a) Fill Slopes

All fills shall be constructed to a constant batter of 1 vertical to 2 horizontal, unless otherwise ordered by the Employer's Agent.

(b) Cut Slopes

Cut slopes will generally be constructed at the following batters:

- 1 vertical to 1.2 horizontal in soft material and mudstone.
- 1 vertical to 1.5 horizontal in soft rock; and
- 1 vertical to 1.1 horizontal in competent rock.

C4.4.1.4 Road Geometry

The design speed of the upgraded road is 80km/h for the section from km 16.0 to km 28.0, and 60km/h for the section from km 28.0 to km 46.0.

C4.4.1.5 Passing Lanes / Opportunities

No passing lanes will be constructed.

C4.4.1.6 Widening of Fills

The widening of all the existing fills as well as new fills that are constructed where the natural cross fall of the roadbed exceeds 1:10, shall be bonded to the existing fills or roadbed by means of benches excavated into the existing fills or roadbed as specified and/or as indicated on the drawings.

C4.4.1.7 Construction of High Fills

There are no high fills on the contract.

C4.4.1.8 Major Intersections

There are no major intersections on the contract.

C4.4.1.9 Minor Intersections

There are a number of intersections with minor access and other Divisional Roads as well as accesses to properties along the road. The intersection bell mouths shall usually be surfaced up to the end of the bell mouths, but in some cases the drawings indicate surfacing beyond the bell mouths. At the limit of the surfacing concrete edge beams shall be constructed to prevent surfacing damage. Some bellmouths will be constructed using gravel wearing course and in such cases a concrete edge beam will be constructed along the bitumen surfacing edge across the width of the bellmouth.

Some of the minor accesses will include culverts crossings.

C4.4.2 Road Pavement

C4.4.2.1 Pavement Design

Surfacing: 20mm Cape Seal including two slurries.

Base (km 28 to 46): 150mm thick G2 crushed-stone base compacted to 88% of bulk relative density (BRD).

In shaded areas as directed by the Employer's Agent:

150mm thick G2 bituminous stabilised crushed-stone base compacted to 88% of bulk relative density (BRD).

Subbase: 150mm thick C4 chemically stabilized gravel or crushed-stone subbase layer compacted to 96% of MDD (0.75< UCS< 1.50Mpa at 100 % of MDD).

Selected: 150mm thick G7 gravel selected layer compacted to 95% of MDD.

Upper Fill Layer: 150mm thick G9 gravel layer compacted to 93% of MDD.

Roadbed: 150mm thick G9 quality in situ material compacted to 90% of MDD.

Fill: Minimum G9 quality gravel material from cut or borrow areas, compacted to 90% or 93% of MDD as ordered by the Employer's Agent.

In wet areas and as directed by the Employer's Agent, a pioneer or rock fill layer may be required at the bottom of the formation, beneath the fill. In some cuttings, the selected layer may be replaced with a drainage layer as ordered in writing by the Employer's Agent.

C4.4.2.2 Materials

Refer to Volume 6 the contract Materials Investigation and Utilization Report.

(a) Use of commercial sources

All required commercial material is to be inspected, sampled and tested at the source. Only approved material may be transported to site.

(b) Spoil

Spoil and excess materials to be disposed of at borrow pits.

(c) Use of material from excavations

Material generated from excavations, excluding unsuitable material, shall be stockpiled, modified and re-used or transported, spread and re-used falling within the boundaries of the site in accordance with the Scope and at the locations indicated on the layout and longitudinal plans or as indicated by the Employer's Agent. Material generated from the excavation of cuttings shall be used for fill material, unless blended with another suitable material whereafter (if the required quality is achieved) it can be utilised in other layers or as directed by the Employer's Agent. Unsuitable and excess material generated from these operations shall be treated as spoil.

Material generated from the excavation of cuttings shall be used for fill material, unless blended with another suitable material whereafter (if the required quality is achieved) it can be utilised in other layers or as directed by the Employer's Agent.

C4.4.3 Drainage Works

As shown on the drawings, drainage works will consist of the following:

(i) Subsoil drains.
(ii) Unlined open drains.
(iii) Concrete-lined side drains and grid inlets.
(iv) Asphalt berms and down-chutes at all guardrail sections, in addition to those indicated on the drawings, unless otherwise agreed.
(v) Interceptor berms and chutes in cuts.
(vi) Erosion protection measures.
(vii) Mitre drains.

C4.4.4 Structures

C4.4.4.1 Bridges

There are no bridges on this section.

C.4.4.4.2 Major Box Culverts

There are no major box culverts on this section.

C4.4.5 Ancillary Roadworks

(i) Bus / Taxi Embayments

The locations of the embayments are to be agreed with the communities, taxi associations and local authorities.

(ii) Fencing

The road reserve will be fenced in the position as indicated on the drawings.

Borrow pits and quarries shall also be fenced during the construction period. Such fences and gates shall remain in place at the completion of the contract. Any damage caused to these fences and gates during construction shall be repaired and restored to their original condition at completion of the contract to the satisfaction of the Employer's Agent.

(iii) Erection of new road signs.

New road signs are to be installed in accordance with the drawings.

(iv) Finishing, Landscaping and Grassing

All cut and fill slopes and all borrow pits and quarries shall be topsoiled and grassed using an approved seed mix after they have been properly shaped / finished to the satisfaction of the Employer's Agent.

C4.4.6 Temporary Works

The Contractor is responsible for the design of all temporary works including accommodation of traffic, support, and formwork. He shall supply full working plans supported by a professional Employer's Agent's design certificate.

C4.5 ACCOMMODATION OF TRAFFIC

For this contract, traffic will be accommodated by means of half-width construction with stop / go controls used as may be required.

Where half-width construction is to be used the temporary widening of the existing road may be required in order to provide sufficient width (a minimum of 3.2 m) to accommodate single lane traffic while the first half-width of the new carriageway is constructed.

Road closure sections with stop / go controls will be limited to three (3) sections of a maximum length of 4,5km each, or at the discretion of the Employer's Agent. An additional closure is allowed at the proposed geotechnical works at km 29.000. The location of traffic control devices shall be such that adequate stopping sight distances are attained. Steep grades and sharp curves are to be avoided for their approach and location.

Heavy duty, reboundable delineators shall be used to demarcate the centreline. Collapsible delineators shall be used to demarcate the centreline on any side roads and in locations where the traffic will not encroach within 1.5 m of the delineator.

All traffic accommodation layouts and methodologies shall with the SADC Road Traffic Signs Manual Chapter 13 “Roadworks Signage”.

The construction strategy for this contract is as follows:

Phase 1 Establishment on site, preliminary testing and approval of mix designs and commercial material sources, identification and approval of stockpile and spoil areas, approval of traffic accommodation measures and relocation of services. Establishment of material processing operations at borrow pits.

Phase 2 In-situ temporary widening and strengthening of existing shoulder and lane including the installation of drainage structures.

Phase 3 Half-width construction of permanent works, including a section requiring the processing of pioneer layers and the installation of drainage structures.

Phase 4 Half-width construction of permanent works at the forest section (km 28+060 to km 29+800), including the installation and maintenance of drainage structures. Relocate and/or protect the spring water ensuring that the community has access at all times.

Phase 5 Half-width construction of the remainder of the permanent works including the installation of drainage structures from km 16+000 to km 46+000.

Phase 6 Complete outstanding ancillary works, finishing and snags.

C4.6 MAINTENANCE OF EXISTING ROAD

The requirements of Clauses 1511 and 1512 shall apply to all existing gravel roads, temporary gravel roads, existing surfaced roads and newly surfaced roads used as temporary deviations on this contract.

The Contractor shall be responsible for all routine maintenance operations along the entire length of road reserve, from the date of handing over of the site until the date of issue of the certificate of completion of the works. The maintenance of the existing gravel road is to be carried out using labour intensive methods for as many required activities as practical and as agreed by the Employer’s Agent.

Once the certificate of completion of the works has been issued the responsibility for normal maintenance of the road (e.g. collection of litter, clearing of drains, repair of road signs damaged by the public, etc.) shall revert back to the Employer.

C4.7 SERVICES

The affected services are indicated on the drawings provided in Volume 4.

Eskom and Telkom will be responsible for the relocation of their services as may be required while the Contractor shall be responsible for the relocation and / or protection of all other services.

C4.8 DRAWINGS

The reduced drawings that form part of the tender document shall be used for tender purposes only.

The Contractor will be supplied with three (3) paper copies of each of the drawings. These paper copies are issued free of charge and the Contractor shall only be provided additional copies on request and for his account.

Any information in the possession of the contractor, which the Employer's Agent Representative requires for completing his record drawings, shall be supplied to the Employer's Agent Representative 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 all figured dimensions omitted from the drawings.

The levels given on drainage/structural drawings are subject to confirmation on site, and the Contractor shall submit all levels to the Employer's Agent for confirmation before he commences any structural construction work. The Contractor shall also check all clearances given on the drawings and shall inform the Employer's Agent of any discrepancies.

C4.9 POWER SUPPLY AND OTHER SERVICES

The Contractor shall make his own arrangements concerning 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.

The Contractor must liaise with the regional offices of Telkom, Eskom and Amathole DM (water) to confirm the position of all above and underground services, before commencing with the works.

Note should be taken of any Eskom restrictions on the supply of electricity as no claims in respect of power outages will apply.

C4.10 CONSTRUCTION IN RESTRICTED AREAS

It may be necessary for the Contractor to work within restricted areas. Except where provided for in the Specifications, no additional payment will be made for work done in restricted areas. In certain places the width of the fill 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.

C4.11 CONTRACTOR'S CAMP SITE

The Contractor will make his own arrangements regarding the location of his campsite, housing for site staff and facilities for the Employer's Agent. The Contractor will have to liaise with the local council and/or the local community to find a suitable site. The chosen site shall also be subject to the approval of the Employer's Agent and the Environmental Control Officer (ECO).

Prior to the establishment of the construction site, the Contractor shall produce a plan showing the positions of all buildings, yards, vehicle wash areas, fuel storage areas and other infrastructure. This plan shall be subject to the approval of the Employer's Agent and the ECO.

At the end of the contract, the site shall be restored as closely as possible to its natural state. The camp area shall be top soiled and grassed.

C4.12 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 will be considered by the Employer. The Contractor will also be responsible for the security of the areas around the Employer's Agent's offices and the laboratories.

C4.13 PROCESS AND ACCEPTANCE CONTROL

A combined laboratory will be established on site and will perform all the process control and acceptance control testing on this Contract.

The Employer shall not pay claims for delays to the works resulting from the awaiting of test results. Testing in the combined laboratory will be affected as promptly as is reasonable but it is in the Contractor's own interest to submit material samples, concrete cubes or other components for testing in good time to assist in avoiding or reducing delays.

The procedure for requests for testing, frequency of tests, testing and reporting of results will be finalised by the Employer's Agent on site in collaboration with the Contractor. The combined laboratory will be under the control of the Employer's Agent.

The Contractor shall be responsible for certain costs with regard to the establishment and running of the combined laboratory (refer to Clause B1205 of these Project Specifications).

C4.14 ENVIRONMENTAL MANAGEMENT

The Contractor will be responsible for managing the Environmental Management Plan (EMP) as included in Volume 7. Apart from the aforementioned, the Contractor shall also adhere to an Environmental Management Plan applicable to the use of material from borrow pits, which is included in Volume 7. The EMP's are legally binding and shall be adhered to at all times.

The Contractor shall take the utmost care to minimize the impact of his establishment and other construction activities on the environment and shall adhere to the requirements as set out in the EMP's. The Contractor will be required to submit a Method Statements to the Environmental Control Officer (ECO) 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 cost and to the satisfaction of the Employer's Agent.

In addition to aspects of the design which are intended to avoid or reduce environmental impact, and in addition to normal good construction practice expected of the Contractor, the following requirements shall also be observed:

(a) The Contractor shall comply with the requirements of the Environmental Management Specification contained in Section C.

(b) Clearing shall be limited to the road prism and, where applicable, to detours, which shall be sited in consultation with the Employer's Agent and the local communities.

(c) No littering by construction workers shall be allowed. A refuse control system shall be established for the collection and removal of refuse to the satisfaction of the Employer's Agent.

(d) Adequate provision shall be made for temporary toilet requirements in construction areas. Use of the veld for this purpose shall not be allowed under any circumstances.

(e) Streams, rivers and dams shall be protected from direct or indirect spillage of pollutants, such as refuse, garbage, cement, concrete, sewage, chemicals, fuels, oils, aggregate tailings, wash water, organic materials and bituminous products. In the event of spillage, prompt action shall be taken to clear the affected area. Emergency measures in the event of spillage shall be set out and the responsible person shall be made aware of the required action. The construction of temporary and / or permanent dams shall be done with the necessary approvals from the Department of Water Affairs and Forestry and the Department of Environmental Affairs and Tourism.

(f) Bituminous and / or other hazardous products shall not be spoiled on site and shall only be disposed of at licensed authorised disposal facilities.

(g) Provision shall be made to prevent excessive erosion and siltation throughout the Contract and in particular on adjacent land. Should excessive erosion and / or siltation take place outside the road reserve as a direct result of the Contractor's construction activities, the Contractor shall be responsible for making good the erosion / siltation to the satisfaction of the landowner and the Employer's Agent.

(h) Invader species of plants shall be controlled.

(i) Dust and noise pollution shall be restricted to acceptable levels

No separate payment shall be made for observing these requirements as such payment shall be deemed to be included in the amount tendered for item B13.01(c) (The contractor's general obligations: Time-related obligations). Any avoidable non-compliance with these requirements shall be considered sufficient grounds for withholding payment of part or all of the amounts to be paid for the above item in order to pay for the repairs to any damages.

C4.15 PROJECT LIAISON COMMITTEE (PLC)

A Project Liaison Committee (PLC) will be established to manage this project in accordance with the provisions of Part E: Labour Specifications. The Contractor shall have one senior member of his staff as representative on the PLC without any voting powers.

C4.16 COMMUNITY LIAISON OFFICER (CLO)

It will be required from the Contractor to employ a Community Liaison Officer (CLO) during the execution of the Works as specified in Part E: Labour Specification of this Works Specification.

C4.17 PROMOTING SMALL, MEDIUM AND MICRO ENTERPRISES

It is required that as much of the construction work as possible be undertaken by Small, Medium and Micro Enterprises (SMME's) qualifying as Affirmable Business Enterprises (ABE's). For this purpose SMME's shall be employed wherever possible and accountable for a minimum of 30 % of the award value excluding Contingencies, Provisional Sums, CPA and VAT.

C4.18 LABOUR INTENSIVE CONSTRUCTION METHODS

C4.18.1 General

It is a requirement of this contract that certain activities shall be constructed by means of labour-intensive construction methods.

It is therefore required that as much of the construction works as practically possible and feasible be undertaken by labour-intensive construction methods in accordance with the provisions of Part E: Labour Specification of the Works Specification.

C4.18.2 Targeted Labour

The targeted labour for the purpose of this project will be South African citizens who permanently reside within a direct distance of approximately 5 km from the road centre line. In the recruitment of local labour preference shall be given to persons residing closest to the road.

The Contractor shall therefore employ labourers, artisans and subcontractors for the execution and completion of the Works from the local communities within the above target area in accordance with the provisions of Part E: Labour Specifications.

C4.18.3 Local Labour Goal

The minimum local labour goal for this contract, as defined in Part E shall be 10% of the award value excluding Contingencies, Provisional Sums, CPA and VAT.

Failure to comply to this minimum local labour goal will result in the payment of a penalty in accordance with subclause E1.4.5 in Part E of this Works Specification.

If required, after consultation with the community, rotation of labour may be necessary. This will take place on a 4 to 6 month basis and will be limited to general labourers. Additional costs incurred to provide protective clothing for newly rotated workers will be paid in the Schedule of Quantities. All other costs incurred due to labour rotation will be deemed to be allowed for in the tendered rates and no additional payments will be made.

The Contractor and his subcontractors shall ensure that they enter into a Contract of Employment with each employee engaged on this contract. A copy of the Contract of Employment completed for each employee engaged shall be given to the Employer's Agent prior to their commencing work on this Contract.

Skilled workers and competent subcontractors may only be recruited elsewhere if not available locally. SMME's will also be required to carry out work by labour-intensive construction.

The portions of the Works listed in clause C4.18.4 below and those marked by LI in the Bill of Quantities shall, unless otherwise instructed by the Employer's Agent, be constructed under this Contract using labour-intensive construction methods only.

In respect of those portions of the Works which are not listed in clause C4.18.4 and marked as LI in the Bill of Quantities, the construction methods adopted and plant used shall be at the discretion of the Contractor, provided that the construction methods adopted and plant used by the Contractor are appropriate in respect of the nature of the Works to be executed and the standards to be achieved in terms of the Contract.

C4.18.4 Activities to be executed by means of Labour-intensive Construction methods

At least the activities in the table below shall be executed by hand (labour-intensive construction methods).

ITEM NO	DESCRIPTION	ACTIVITY
ROADWORKS		
1500	Accommodation of traffic	(i) Erection and relocation / moving of traffic control facilities. (ii) Operating of Stop/Go facilities. (iii) Operation of traffic signals. (iv) Excavation, laying and backfilling of temporary culverts.
1700	Clearing and grubbing	(i) Felling of trees.
2100	Drains	(i) Excavation for open drains up to 1.5m deep. (ii) Excavation for subsoil drainage systems up to 1.5m deep. (iii) Installation of subsoil drainage systems complete including backfilling. (iv) Outlet structures for subsoil drainage.
2200	Culverts	(i) Excavation for small culverts and service ducts. (ii) Formwork for small culverts. (iii) Steel reinforcement for small culverts. (iv) Backfilling and compaction (with small equipment) of small culverts and service ducts. (v) Catch pits and manholes. (vi) Benching in manholes and catch pits. (vii) Excavation and placing of duct markers. (viii) Excavation to determine position of existing services. (ix) Filling of joints.
2300	Concrete kerbing, concrete channelling, chutes and downpipes and concrete linings for open drains.	(i) Laying of concrete kerbs / kerbs and channel combination including excavation and backfilling complete. (ii) Excavation and backfilling for chutes / downpipes. (iii) Concrete chutes including inlet and outlet structures (formwork and placing of concrete). (iv) Installation of chutes / downpipes including inlet and outlet structures. (v) Trimming of excavations for concrete-lined open drains. (vi) Concrete lining for open drains including placing of concrete, formwork etc.
2400	Asphalt and concrete berms	(i) Construction / placing of asphalt berms.
3300	Mass earthworks	(i) Finishing of cut and fill slopes.
3500	Stabilization	(i) Spreading stabilizer by hand.
4600	Bituminous single seal with slurry	(i) Application of slurry.
5100	Pitching, stonework and protection against erosion.	(i) Excavation, trimming and packing of stones for all types of stone pitching.
5200	Gabions	(i) Foundation trench excavation and backfilling in soft material. (ii) Surface preparation for bedding the gabions in soft material. (iii) Packing stones in gabion boxes and mattresses. (iv) Placing of filter fabric for gabions.
5400	Guardrails	(i) Excavation, erection and backfilling of guardrail posts. (ii) Installation of guardrails.
5500	Fencing	(i) Manufacturing of pre-stressed concrete straining posts stays and intermediate posts for fencing. (ii) Excavation, erection and backfilling for all posts. (iii) Completion of fence wiring and fixing of droppers. (iv) Installation of gates. (v) Dismantling of existing fences.

ITEM NO	DESCRIPTION	ACTIVITY
		(vi) Moving of existing fences and gates. (vii) Excavation and backfilling for motor grid gates.
5600	Road signs	(i) Excavation and backfilling for road sign supports. (ii) Erection of supports and road signs. (iii) Excavation, erection and backfilling of danger plates at culvert structures.
5800	Landscaping and grassing	(i) Trimming. (ii) Scarifying for loosening topsoil. (iii) Removal of undesirable vegetation. (iv) Hand sowing.

The activities listed in the above table are compulsory activities and shall be done by hand. The Contractor may identify further activities to increase the labour component of the contract.

C4.19 RESTRICTIONS ON THE USE OF PERSONNEL IN THE PERMANENT EMPLOYMENT OF THE CONTRACTOR

(a) The Contractor shall limit the use of his permanently employed personnel to that of key personnel only (as defined in Section E of PART C3 of the Works Specifications) and shall, subject to the further provisions of Section E of the Works Specification execute and complete the works using a temporary workforce working directly for the Contractor and/or for subcontractors.

(b) The Employer's Agent may at his discretion, upon receipt of a written and fully motivated application from the Contractor and where he deems the circumstances to warrant authorize in writing that the Contractor may use workers not being his key personnel but who are in his permanent employ in the execution of the Works. Without limiting the generality of application of this sub clause, circumstances which may be considered by the Employer's Agent to warrant the authorization of the use of the Contractor's permanent employees not being key personnel, include:

(i) The unavailability of sufficient numbers of temporary workers and/or subcontractors to execute the Works, provided always that the Contractor has proved that he has exercised his best endeavours and taken all reasonable actions to recruit sufficient numbers of temporary workers and subcontractors and has exhausted all reasonable recruitment options;

(ii) The unavailability within the temporary worker pool and/or subcontractor sources available to the Contractor in terms of the Contract, or sufficient of the required knowledge and skills necessary for the execution of the Works or specific portions thereof, in cases where the time of completion allowed in the Contract is insufficient to facilitate the creation of the necessary skills through the provision of training as contemplated in this Contract; and

(iii) Any other circumstances which the Employer's Agent may deem as constituting a warrant.

C4.20 TRAINING

Training of labourers employed locally shall be done strictly in accordance with the provisions of Part E of the Works Specifications.

C4.21 SAFETY

Refer to Section B clause B1230 in the Work Specifications as well as the OHS specification in respect of the safety requirements for this contract.

C4.22 AREAS AVAILABLE FOR TEMPORARY STOCKPILES

The areas within the road reserve but outside the road prism are available as temporary stockpile sites. The Contractor may under his own initiative, identify additional sites, but no additional sites will be permitted unless approved under the Environmental Management Plan and by the Employer`s Agent.

C4.23 DUMP OR SPOIL SITES

The Contractor shall arrange his own dump or spoil sites and shall ensure that he conforms to all relevant legislation and regulations which terms of compliance should be for the Contractor's cost. The site must be approved under the Environmental Management Plan and by the Employer's Agent. All dumping costs will be borne by the Contractor.
The Environmental Management Plan may designate areas of erosion and old quarries in the proximity of the works as dump or spoil sites.

C4.24 BITUMINOUS PRODUCTS

The Employer's Agent and the Environmental Control Officer must approve all storage sites for bituminous products in the road reserve, or on private property prior to use. The containers used for storage must be free of leaks and placed on a firm surface. No spoiling of any bituminous products will be allowed in any area. Unused or rejected products will be removed from site and returned to the supplier. Solvents used for flushing spray tankers, will be treated likewise. No additional payment will be made for the preparation of storage sites and the disposal of materials.

The Contractor shall comply with all the requirements of the Environmental Management Plan in this regard.

C4.25 FAUNA AND FLORA

Indigenous fauna is limited to invertebrates (insects) and avifauna (birds). Domestic livestock that dominate the current fauna of the region includes pigs, donkeys, goats, cattle, sheep, dogs, ducks, geese and chickens.

The Contractor shall cause no damage to fauna and flora. If, in the opinion of the Employer's Agent, this happens, the Employer's Agent is entitled to initiate prosecution by the relevant authorities.